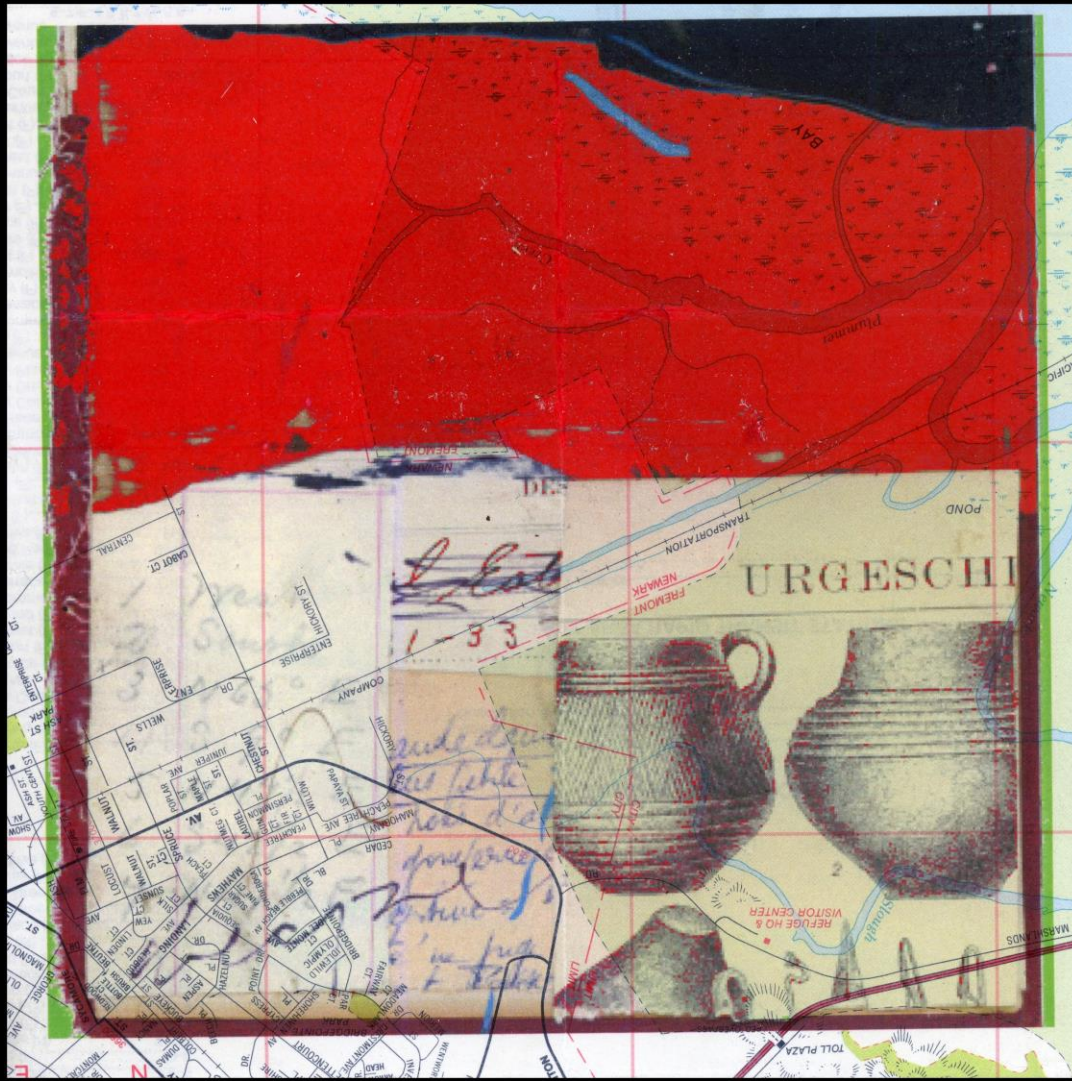


Mixed Media on Paper

Edition ____ of 100

Mémétique (landscapes)

P.F.FOLEY



has given rise to a multitude of terms. When such structures have made no beginning in branching, the margins have an *entire* outline. When branching has barely begun, the margin may be *sinuate* or *serrate*; when the branches have grown further, the margin may be *dentate*; or still further, *incised*; or have still, *lobes*, then *parted*, and *divided*.

In leaves where the branching has gone so far that the leaf-branches are distinct and separable, we use the term *compound*. Where the leaf-branches arise very near together, the leaf is said to be *palmately compound*; where they arise at considerable intervals, it is *pinnately compound*.

Surfaces.—In plants consisting of cell-masses the external cells are always more or less modified by contact with the surrounding medium. They usually contain less protoplasm, and quite commonly have thicker walls; this is especially true of terrestrial plants, although it may be seen in aquatic to a less degree. This outer layer is known as the *epidermis*. It is frequently *smooth* externally, the outer walls of the contiguous cells forming an even surface. In other cases the cells may project more or less, or they may develop short points which project above the surface and make it *rough*. These projections may be so extended as to form a *hairy* surface.

It frequently happens that a mass of cells in or beneath the epidermis grows out into a sharp, broad-based point, a *prickle*, as in the roses and raspberries, whose stems are

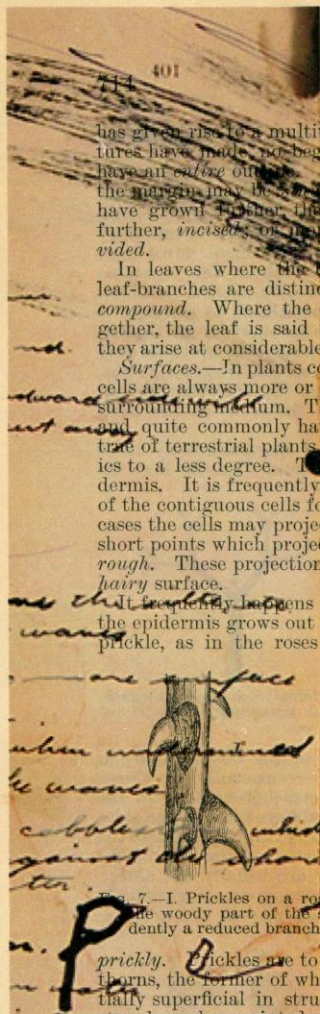


FIG. 7.—I. Prickles on a rose stem, superficial, not connected with the woody part of the stem. II. A thorn on a plum stem, evidently a reduced branch.

prickly. Prickles are to be distinguished from spines and thorns, the former of which are allied to branches, being essentially superficial in structure, while the latter are stunted stem-branches, pointed and usually leafless.

Shoots.—The stem with its leaves is the shoot. It is clearly defined from the root in its simplest form, and is the part of the plant which grows upward.

vena, which name the bundles usually taken up here. See LEAF and VENATION.

Roots.—True roots exist only in the ferns and the fernworts. In the mosses, the lower produces hairs which have the function, of roots. Some of the algae have hair-like roots in structure, and possibly are the foreshadowings of them.

A root is an axial structure closely allied to the stem, which it is often the downward extension of, and is simpler in structure than the stem, and its

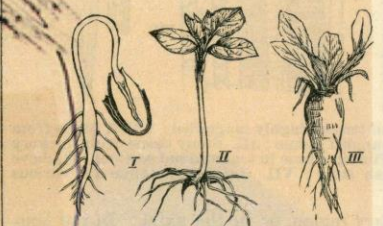
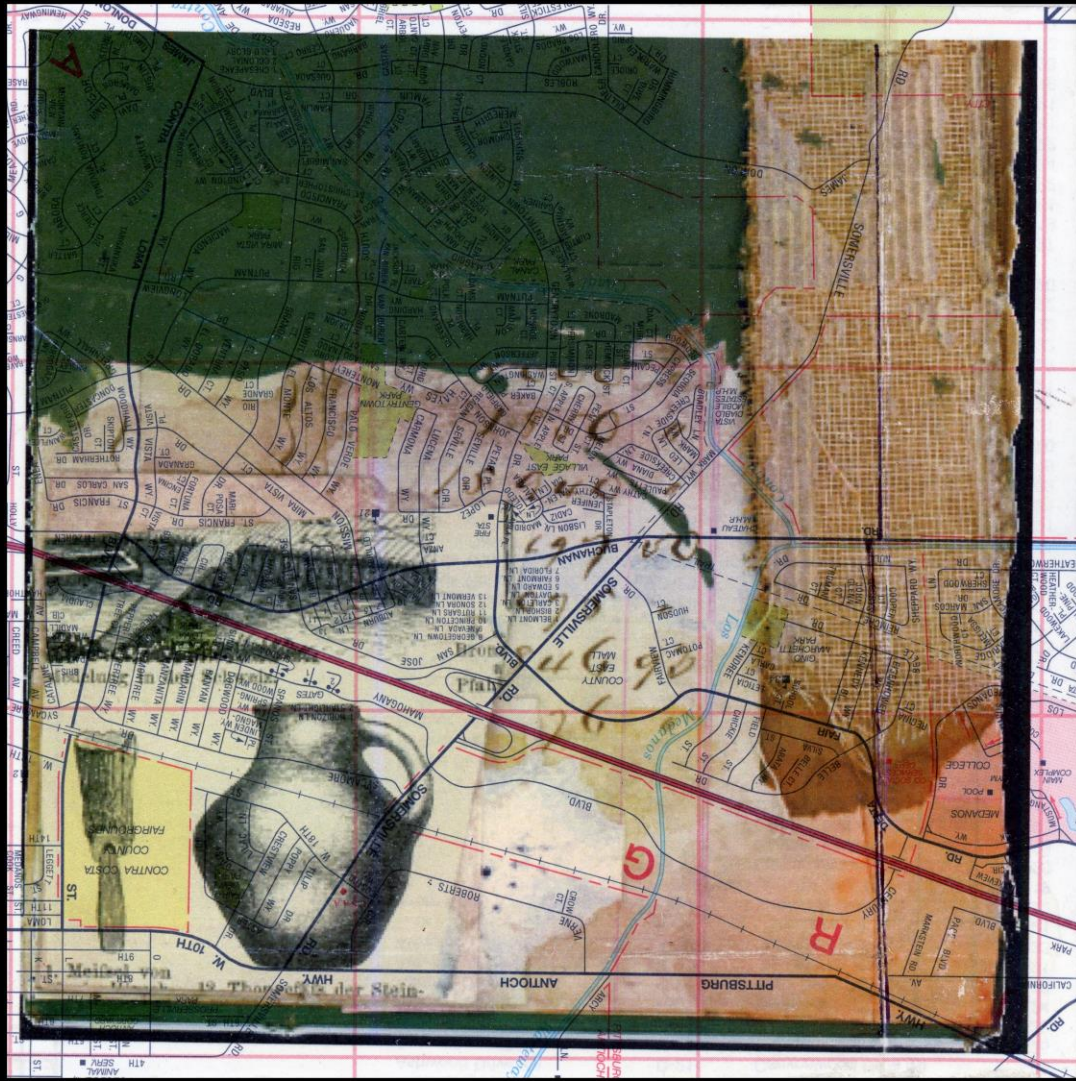
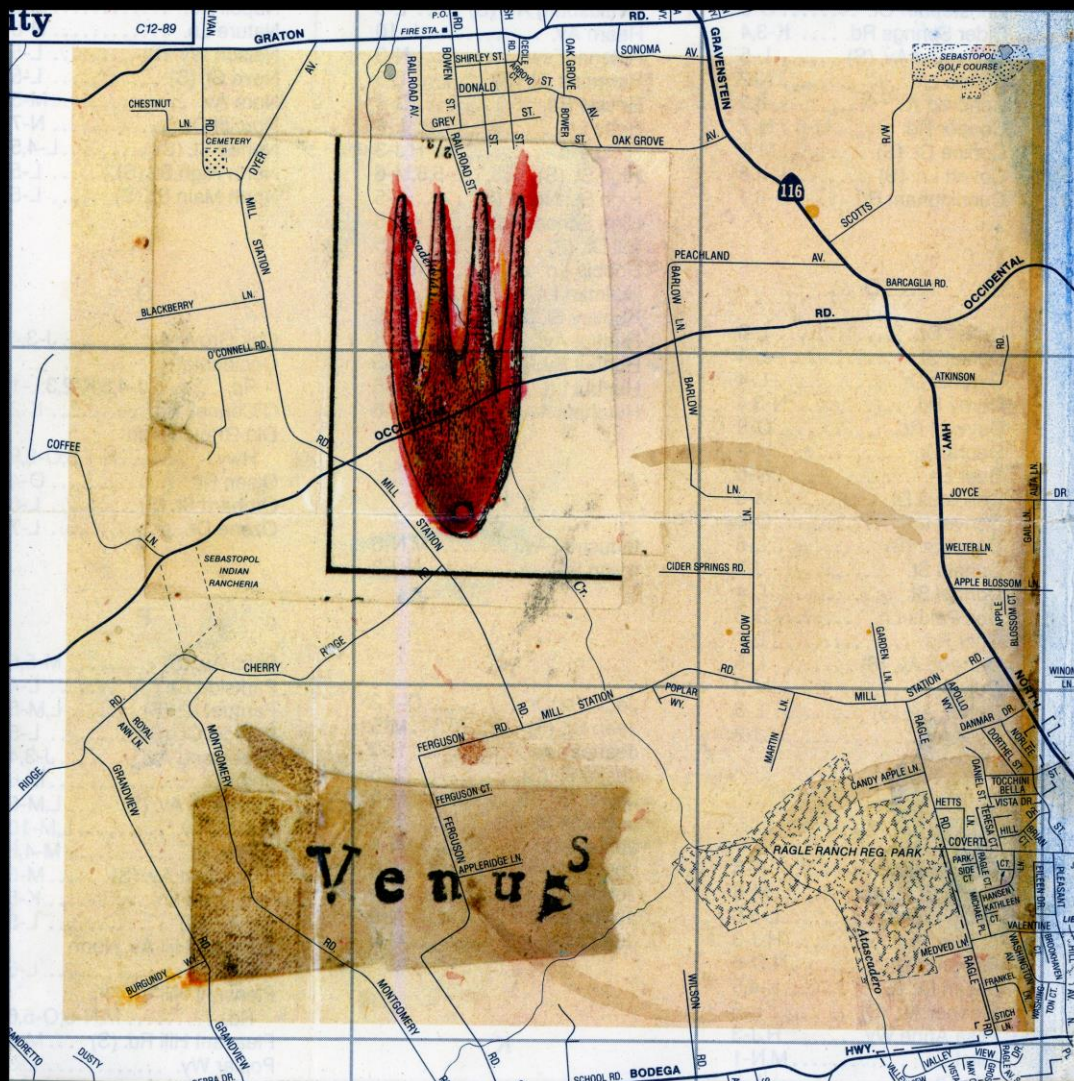


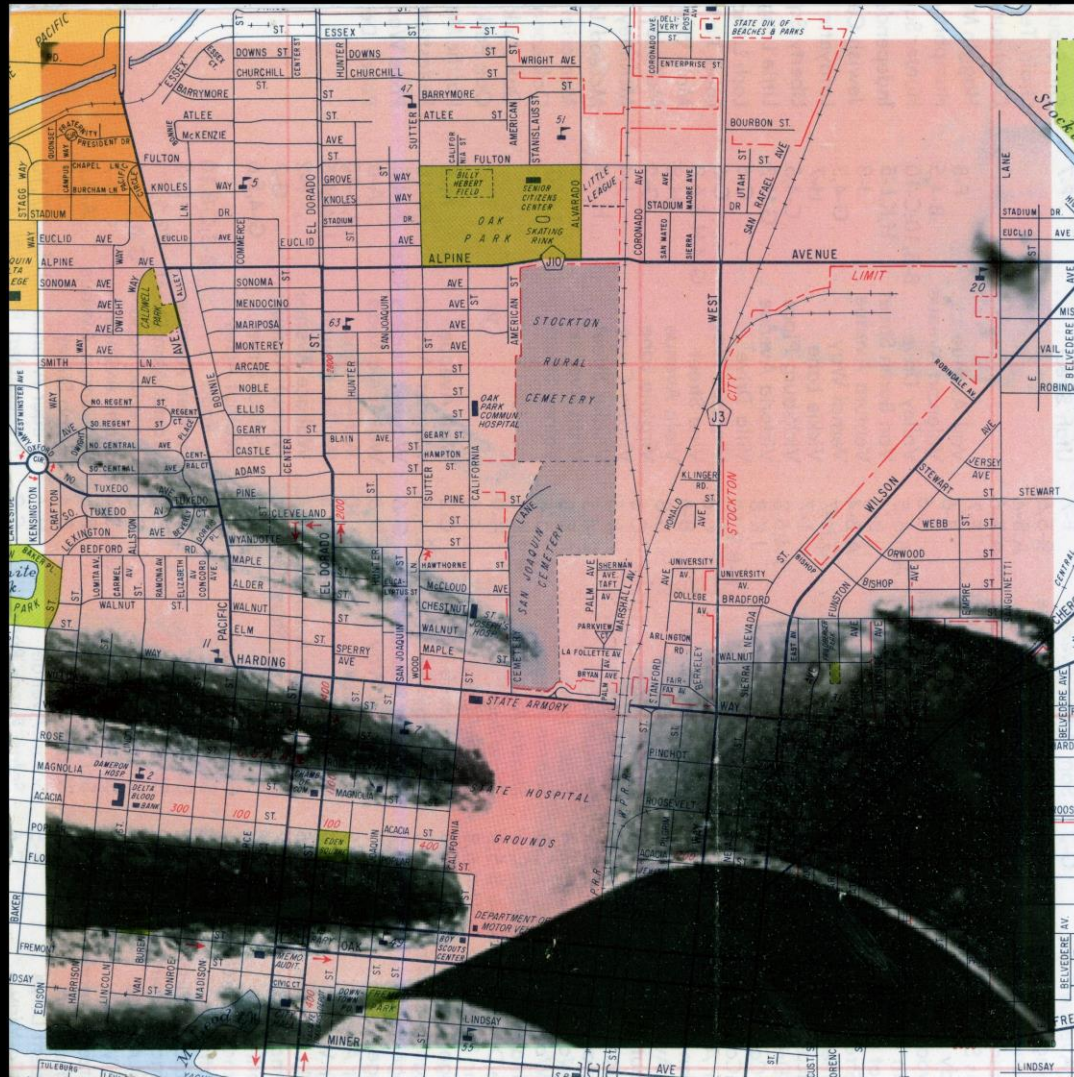
FIG. 8.—Illustrations of roots: I. Root and root cap of a plant; II. Roots of a melon; III. Root of a plant showing a transverse section of the tip of the root, showing the root-caps in several layers.

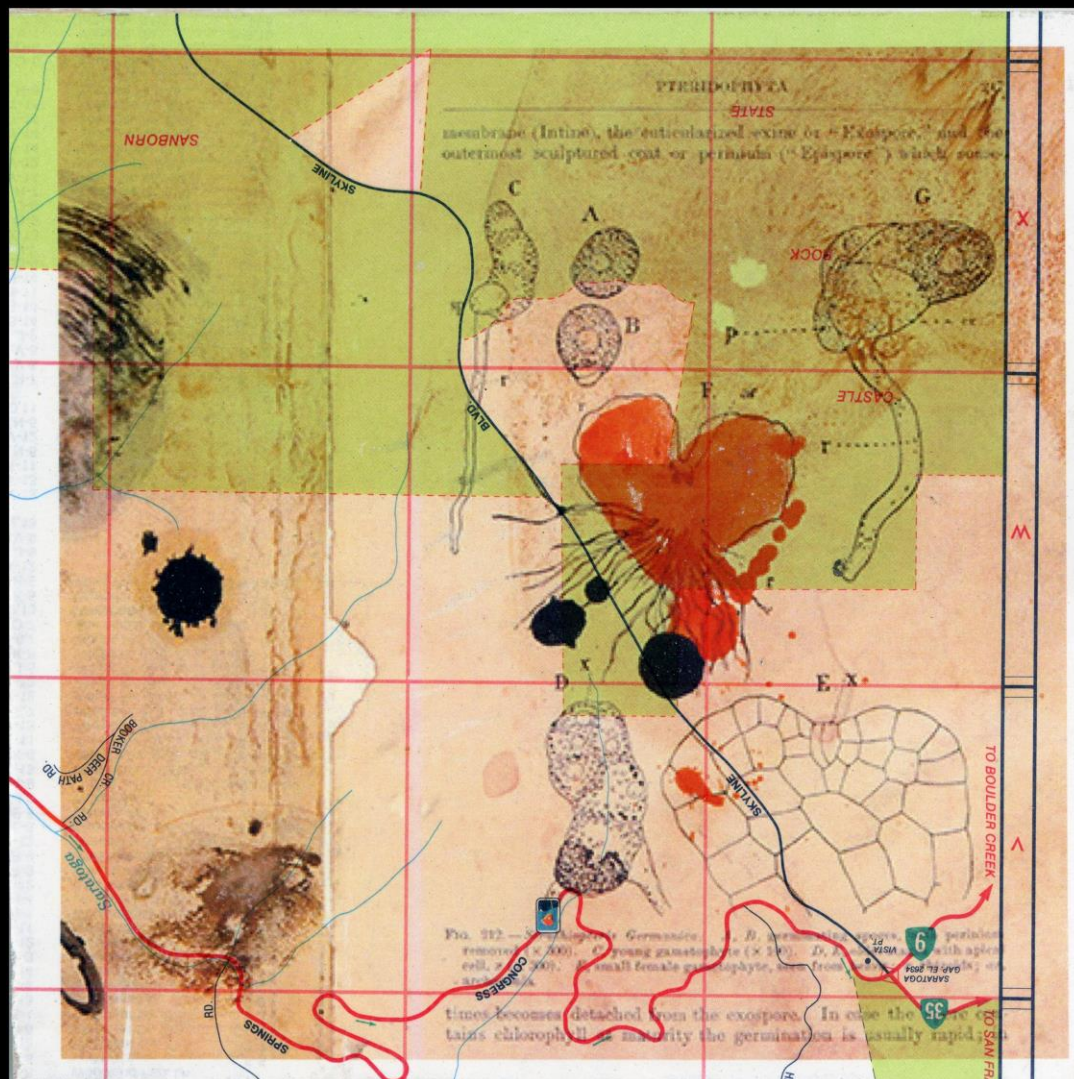
less well marked. The boundary layer is not as well marked as is usually the case in the absence of leaves and the rarity of shoot-worthiness. The development of a mass of cells in advance of the growing tip, is perhaps a characteristic structure of the root.

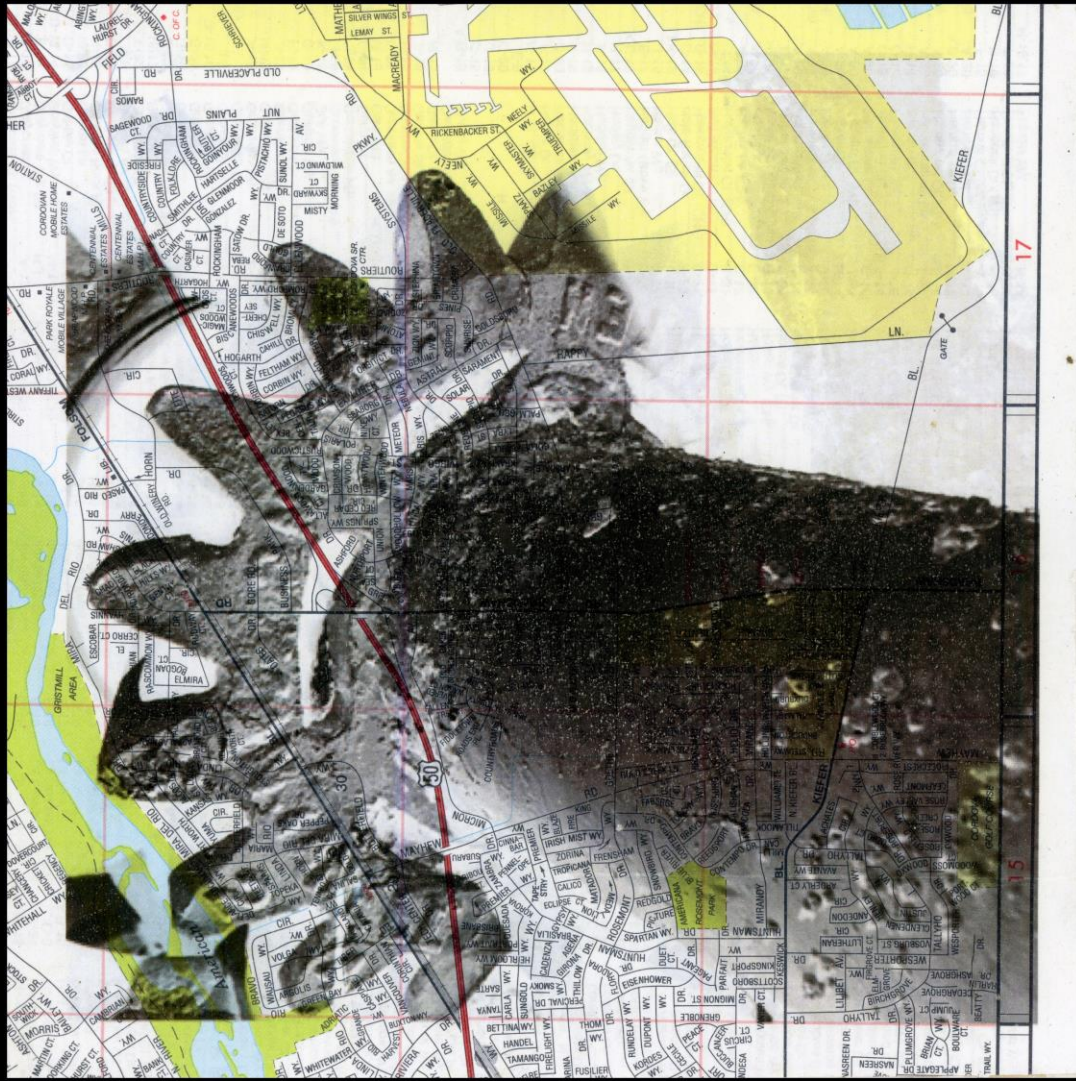
Physiology of Larger Plants.—Enough is known of the mode of life of single-celled or few-celled plants, where there are masses of cells, that logical processes are somewhat more complex than in the single-celled plants. Food-matter is absorbed by the cells in contact with the soil (or nearly all) external cells absorb water and dissolved food-matter from the soil. Cells in contact with the soil absorb food-matter from the soil. In all cases the active agent is the living protoplasm. Some food-matter is absorbed in the cell which absorbs it from the soil, more is absorbed by neighboring cells. The cells absorb food matter from the surrounding soil, and the cells in contact with the soil absorb food matter from the surrounding soil.

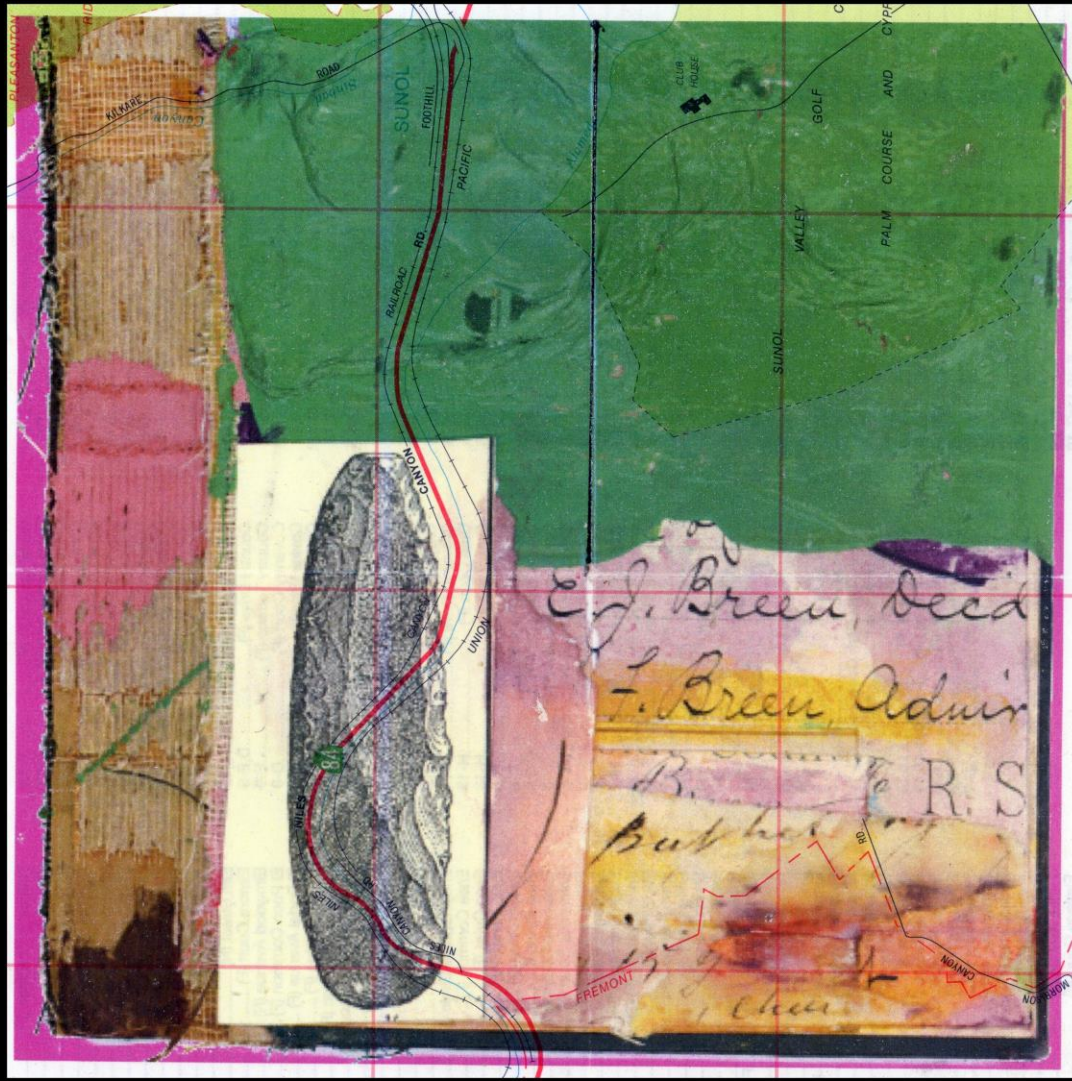


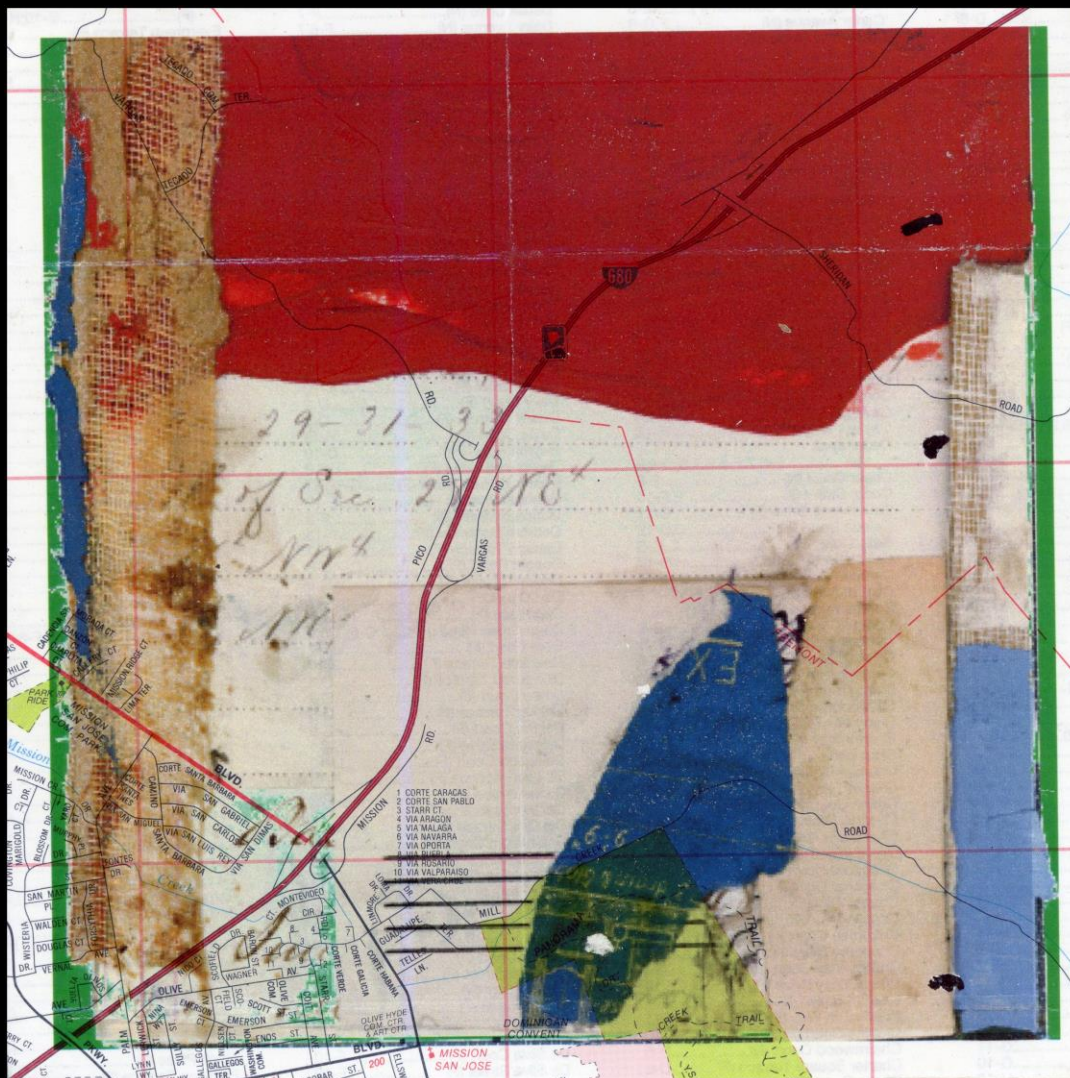














INDEX

SCALE OF MILES
0 1/2 1 2 3 4 5 6 7 8 9 10

Railroads
Street Car Lines



Public Buildings, Etc.

Churches.

Hotels.

Public Buildings, Etc.

Churches.

Hotels.

Public Buildings, Etc.

Churches.

Hotels.

Public Buildings, Etc.

Churches.

Hotels.

Public Buildings, Etc.

Churches.

Hotels.

Public Buildings, Etc.

Churches.

Hotels.

Public Buildings, Etc.

Churches.

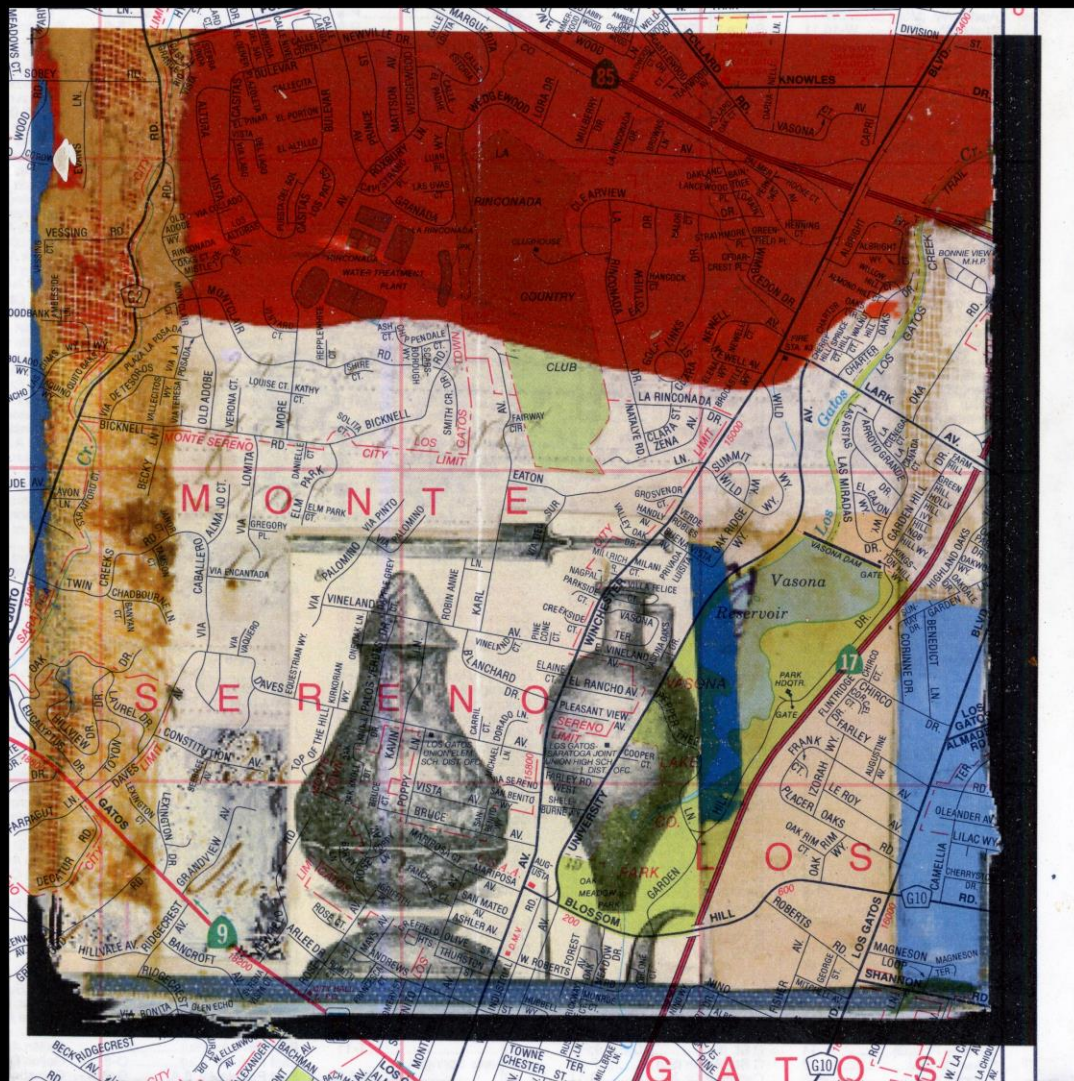
Hotels.

Public Buildings, Etc.

Churches.

Hotels.





tered the monastery of Dalon. D. *circa* 1215. See *B. de Born, sein Leben und seine Werke, herausgegeben v. A. Stimming* (1879); *B. de Born, poésies complètes* (publ. by A. Thomas, 1888); Diez, *Leben und Werke der Troubadours* (2d ed. 1882); Clédat, *Du rôle historique de Bertrand de Born* (1878).

A. R. MARSH.

Bör'ne, LUDWIG: satirical writer; b. of Jewish parents at Frankfurt-on-the-Main, May 18, 1786; studied at Berlin and Heidelberg; adopted the Protestant faith in 1817; edited the liberal *Wage* and *Zeitschriften*; published in 1826 his celebrated *Denkrede auf Jean Paul*. After 1830 he lived in Paris, was correspondent of the *Allgemeine Zeitung*, and edited *La Balance*; his *Briefe aus Paris* and other writings on political and æsthetical subjects are eloquent and witty, and display a singularly delicate critical sense, but are marked by a bitterness of political feeling. *Sämmtliche Werke* (Leipzig, 1832-33). D. in Paris, Feb. 13, 1837. See biographies by Bernmann (1841), and Gutzow (1840), and *Revue über Börne*.

Borneil, bōr'nāl, GUIRAUD, de: Provençal poet; reckoned by Dante (*de Vulg. Elog.* ii. 2) one of the three great troubadours, Arnaut Daniel and Bertran de Born being the other two. Dante also calls him the poet of "nobility," "rectitudo." The precise dates of his career are not known, but it certainly fell between 1175 and *circa* 1220. He was chiefly remarkable as a poet because of his profound belief in the art of poetry and in the chivalric ideals of his time. See F. Diez, *Leben und Werke der Troubadours* (Zwickau, 1829; 2d ed. Leipzig, 1882); also the Provençal life of the poet from the Cheltenham MS. 1910, printed in *Revue des langues romanes* (3^e série, v. 275).

such that A. R. MARSH.

Borneo (called by the natives *Pulo-Kutalantan*): an island in the Malay Archipelago; extends from lat. 7° 1' N. to 4° 10' S., and from lon. 108° 50' to 118° 2' E. (see map of East Indies, vol. 6-E). Its length is 807 miles, and it is about 300 miles wide. The area of the island proper is 283,400 sq. miles; with the small islands adjacent, 284,500 sq. miles. Next to New Guinea (308,000 sq. miles), it is the largest island on the globe. The interior is traversed by chains of mountains not yet fully explored by Europeans. Near the northern extremity of the island is a peak called Kribalu, which rises 13,680 feet above the sea. The maritime parts of the island are mostly marshes or low plains covered with dense forests. It is probable that a large portion of the interior consists of fertile valleys and plains.

majority have fixed abodes, and have made the useful arts. . . . With respect to neither priests nor temples, nor do they p

Borneo was in 1892 divided into the elements: (1) *British North Borneo*, the northern island from the Padas river on the west to the river on the east coast. Area, 81,106 sq. miles. Line of over 900 miles. Pop. 200,000, consisting of original tribes inland and Mohammedan on the coast. The interior is mountainous, and the surface is covered by jungles. The territory is under the jurisdiction of the North Borneo Company, based on the Indian code and the Mohar Government issues its own copper and paper money in American dollars. Tobacco is planted and there is a flourishing timber-trade. (2) *Brunei*, a sultanate in the extreme north, under British protection, on the west coast from the Padas river to the Barram river. Area, 8,105 sq. miles. It is similar to the territory of the sultan of Brunei on Borneo. (3) *Sarawak*, a sultanate along the west coast from Brunei to Cape I. It is similar to the territory of the sultan of Brunei. Area, 41,000 sq. miles. Possesses North Borneo. Coal exists in large quantities, as well as gold, silver, and other metals. A. James Brooke obtained control of Sarawak in 1841. He was succeeded by his nephew, James Brooke, in 1868. (4) *Dutch West Borneo*, the southwestern part of the island S. of Sarawak, lon. 117° E., with all of the basin of the Padas river. Area, 59,700 sq. miles. Pop. 414,000. (5) *East Borneo*, including the parts of the island N. of Brunei, Sarawak, and the Padas river. Area, 143,500 sq. miles, or more than all the other islands together. Pop. 750,000. The chief towns are Pontianak (west coast, on the Kapuas river), Jesselton (South Borneo, on the Barito river).

History.—Borneo was discovered in 1663 by the Dutch, who formed a settlement at Bandjermasin. The Dutch, who first visited the island in 1663, made a treaty of commerce with the Sultan of Brunei. They erected a fort and a factory at Tatatan in 1778. The first British settlement was at Pontianak in 1778. The first British settlement at the northeast angle in 1756. Sir James Brooke discovered the island in 1838. The island has been a geographical unit.