SOME SUGGESTIONS CONCERNING EASILY OBTAINED PHYSIOGRAPHIC MATERIAL.

BY BERNICE L. HAUG,
Detroit Central High School.

What ingredients shall the teacher use in the recipe for Physiography instruction, in order to evolve stupid Johnny into an alert and logical man? According to age and grade, the ingredients should vary, but in general they should consist of about equal parts of observation, problems, reading, and application of the principles to his own life and then to life in general.

To illustrate, why send him to a book to learn about weathering and erosion? The world is full of both. First, let him work out a definition of weather and then observe if he can find an object unaffected by this abused topic of conversation. The result is obvious. Let him now write out ten cases of weathered objects seen, stating the exact location of each, the effect of weather and telling whether the process is chemical or physical, i. e. whether it is like that which takes place when iron rusts, or when the sidewalk cracks. With these data in hand, the student can easily be led to see the origin of soil. In nine cases out of ten, some pupil will ask why the soil is so often in layers. Let him partially answer his question by the following simple experiment: Vigorously shake, in a bottle half full of water, a few teaspoonfuls of earth, taken from any locality where the soil is mixed sand and clay, and let the bottle stand till the water is clear. After the pupil has explained the temporary suspension of the material in the water and the deposition in layers, he should break the bottle and describe the sand and clay in detail.

Inquiries into the sticky nature of clay, its fitness for plant growth, the porosity of sand, the conservation of soil and his own dependence on soil, are apropos.

Following these independent observations, conducted field trips to quarries, deep excavations, sand pits, etc., are valuable. These localities furnish material for the study of the formation of the bed rock, varying depths and character of the soil, ground water, erosion, deposition, etc. If an unsodded area can be found and visited soon after a rain, the history of lakes, rivers, deltas, and sometimes terraces can be worked out.

For each field trip, a definite set of questions requiring a definite set of answers, should be given each student.

Now that the pupil has learned that weathering and erosion, in

some form, are every where (wherever there is weather), excursions to distant lands, by means of lantern slides, stereographs or common prints, are in order. Each scene should be discussed with reference to the special topographic form illustrated, the agent, and the process of formation.

Being now versed in the processes of land sculpture, the student is ready for a transcontinental journey by means of pictures and topographic maps. The preparation for the latter consists in the drawing of an outline map of the U. S., which shall include the states and the leading physical features, and the ability to interpret a contour map.

An easy method of acquiring the latter, is by the use of a model of a hill rising from a plain, made in horizontal layers (layers are the contour intervals). Let the student draw the layers on the board or on paper just as they exist in the model. He will then see the relation of contour lines to height and horizontal distance.

In this continental tour, the student familiarizes himself with great physical areas, each one of which, as soon as studied, should be outlined on the map (U. S.). Some of the most important side trips are to the Niagara Gorge, Mississippi flood plain and levees, lake plains and glacial formations.

A fitting conclusion to this sight seeing and studying, is to trace the influence of topographic forms on history. From a map of the earliest routes of travel, from Semple's *Influence of Topography on American History*, quite evident is the part played by rivers, water gaps and valleys. Topography made our victory in the Revolution possible, beckoned the center of population westward, and established Mason's and Dixon's line.

In connection with the natural resources, let the student study the relation between railroads, manufactures, agriculture and natural products. To be specific, let him study his own environment, to learn the reasons for the various occupations, imports, exports, the causes of the present progress or deterioration.

If time permits, inquire into the conditions of other nations, to determine the causes of their various ranks, the reasons for immigration and colonization and probable lines of future development. After even a little thought and investigation, the student agrees with Semple, when she says: "Man has been so noisy about the way he has 'conquered Nature,' and Nature has been so silent in her persistent influence over man, that the geographic factor in the equation of human development has been overlooked.

Man can no more be scientifically studied apart from the ground which he tills, or the lands over which he travels, or the seas over which he trades, than polar bear or desert cactus can be understood apart from its habitat."

SCHOOL FARMING IN ALASKA.

The school-farm movement has penetrated Alaska. From the school at Klukwan, in Southern Alaska, comes a basket of potatoes, turnips, carrots, and other vegetables consigned to the United States Bureau of Education. Several of the products are of a size and weight that would be remarkable in a far more propitious climate than that of Alaska.

The school of Klukwan is one of 81 public schools for natives maintained by the Bureau of Education in Alaska. In a number of these gardening is carried on with distinct profit to the school and the community. The teacher from Shungnak, within the Arctic circle, reports that he supervised the making of 17 native gardens and four large school gardens. He instructed the school children and adults in soaking seed, planting, cutting potato eyes, spading, hoeing, raking, thinning, weeding, transplanting, watering—in fact, in all the operations necessary for successful gardening. One-third of an acre he set apart as a model garden; on this he experimented with different products and eventually obtained a good supply of vegetables for use in cooking classes. Radishes, turnips, peas, rutabagas, carrots, beets, cabbages, potatoes, lettuce, kohlrabi, parsnips, and a few other vegetables did well in this arctic garden; onions, beans, and cucumbers were unsuccessful.

At Eagle, Fort Yukon, Unalaska, and Klawock similar results in gardening are reported. In Unalaska the school farm at first contained only a few plats of rye and wheat, and some kitchen vegetables, but this year a more ambitious experiment was made. The children not only worked a school garden in which each had a patch of his own, but also cultivated a larger farm at some distance from the school.

Although the season is short in these Alaska settlements, the vegetables often attain good growth. In Klukwan the temperature ranges from 81 in summer to 27 below zero in winter. At Klawock the children were able to begin preparing their ground by the first of April, and elsewhere many of the vegetables were in by May.

The work in school gardening illustrates the general principle on which the government is working in the schools of Alaska—that education shall be something more than mere schooling; that it shall be preparation for the life the natives have to lead. Sewing, cooking, and carpentry are prominent subjects in the schools. "The education of the natives of Alaska," says a recent report of the Bureau of Education, "is conceived as meaning their advancement in civilization. Superintendents, teachers, physicians, and nurses must regard themselves as social workers striving to elevate the native races intellectually, morally, and physically."