REFERENCE TO PAMPHLETS MADE EASY.

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The publications of the United States Department of Agriculture are very valuable to those interested in agriculture, either as students or agriculturists, and the people at large are rapidly realizing and appreciating their usefulness. On account of the diversity of the subjects which are investigated in the various divisions of the Department of Agriculture, and which are treated in its many publications, the latter also supply much interesting material for several of the high school sciences. Since general science from its nature embraces all of the sciences in an introductory manner, it can obtain most of its supplementary material from these publications. The Department of Agriculture is very generous, especially to educational institutions, and thus it is possible for any school to build up a very satisfactory reference library at comparatively little cost.

While the publications are readily available for educational purposes, there are practical difficulties which handicap their use, and which may cause them to be worthless, both physically and educationally. Nearly all of the publications are without covers and thus they rapidly become worn out under the rough usage which they receive at the hands of the students. Being thin, the bulletins are stacked, and even if they are arranged in good order, the order becomes chaotic perhaps in an hour's use. No reference library is valuable where the information must be sought with exasperation and loss of patience. A small library, well indexed, is better than a larger one in which there is little or no order.

One system of classification is to have a large number of narrow receptacles, each capable of holding several publications of kindred subject matter, the receptacles being indexed according to a modified Dewey system. A leaflet describing this system may be obtained from the Office of Experiment Stations, Department of Agriculture, Washington, D. C. Using this system all of the publications in a given receptacle must be turned out and examined, in order to find the desired information, thereby causing a rapid physical depreciation of the pamphlets and a lessening appreciation of the information. However, if a very large number of publications are to be made handy for reference, or if a comparatively few mature students are to work with such a collection, this method has its advantages.

In my work in General Science, however, where the class is composed chiefly of ninth grade pupils, it has been found best to make reference work as easy as possible, in order to stimulate a desire for independent reading. While the method, to be described, might prove unsatisfactory for handling several hundred pamphlets, it is eminently satisfactory where there are but a few more than one hundred, which is the case in my General Science text.

The materials, necessary for all of the pamphlets which are referred to, are as follows:

Twelve sheets stencil board (hard pressed Manila, light weight) 28" x 42"; 108 elastic bands of square cross section No. 18; 108 Dennison's labels No. 259.

Cut the stencil board into pieces $9\frac{1}{8}" \times 12\frac{3}{4}"$. Fold each piece across its shorter diameter, six inches from one end. This allows the other side to project three-fourths of an inch. With the folded edge next to you, having the shorter side on top, paste a label on the left side of the extension. This is to be the top. Trim the two corners of the extension

similar to the corners of the label, and also trim the two ends of the fold in the same manner. This makes notches at the fold. Place the bulletin in this cover with the right side of the top next to the label. Open the cover and also open the bulletin at its middle. Then place an elastic band around the cover, and the middle of the bulletin, and push it into the notches. The bulletin is bound.

Number the labels according to the number of the bulletin. Thus: Farmers' Bulletin 28 would be F. B. 28, Office of Experiment Stations Bulletin 101 would be O. E. S. B. 101, Bureau of Soils Bulletin 73 would be B. S. B. 73, reprints from Yearbook would be R. Y., followed by the number, and Forest Service Circular 130 would be F. S. C. 130.

These bound pamphlets are to be treated as cards in a card index. A box is necessary for this purpose, and, for the hundred odd publications which are used with this book, the following dimensions should be used: Length, 20", width, 9½", depth, 5", all inside measurements. The stock should be one-half inch thick, planed on both sides, and the bottom should be set in and not nailed on the outside.

The pamphlets should be arranged according to increasing numbers in each class, that is: F. B., O. E. S. B., etc., and the classes should be separated by single sheets of cardboard, bearing a label in the middle of the top, stating the class. This cardboard should be different from the stencil board and also should be thicker. Its dimensions should be 9½"x7". By this method any pamphlet is immediately accessible, and, since all the references are given by number of pamphlet, and also by page number, there is no need of classification by subject matter. This is an added advantage, for the pupils will learn to classify facts for themselves, which is a long step towards education.

WHAT OUR RIVERS CARRY.

Enormous Loads of Sediments and Dissolved Chemicals—Importance of Water Investigations by United States Geological Survey.

Colorado River discharges during an average year into the Gulf of California 338,000,000 tons of mud and silt as suspended matter. In addition to this the dissolved substances in the water include 4,550,000 tons of sodium chloride, or common salt; 3,740,000 tons of Glauber's salts; 4,000,000 tons of lime; 2,400,000 tons of gypsum; and 4,800,000 tons of Epsom salts. In spite of all this dissolved material the Colorado at its mouth is not considered to be a stream of unusually high mineralization for that region of the country. The reason is that the river also carries so enormous an amount of water that the dissolved salts constitute a comparatively small proportion of the total discharge. Other streams in the country contain dissolved salts in greater concentration—for example, the Elm Fork of Red River, in Oklahoma, discharges nearly 1,300,000 tons of common salt annually. Although this amount is not so great as that discharged by the Colorado, it is much greater in proportion to the size of the area drained. The discharge of salt from the Colorado is equal to twenty tons annually to each square mile drained by the river, but the salt in Elm Fork of Red River is equal to 1,680 tons per square mile of area drained. The same river discharges annually 177,000 tons of magnesium chloride, 168,000 tons of Epsom salts, 690,000 tons of gypsum, and 54,000 tons of lime. These quantities, too, are considerably greater than those carried in the Colorado in proportion to the size of the drainage area.