

along the other. Thus a straight mark abreast a bird's name, and under a particular date, indicates that the bird was observed on that day. Other marks may be used which will make the record more interesting and valuable, e. g., F when a flock is seen, S if the bird observed is in song, N if the bird is nesting. It takes about five minutes to rule a form that will do for a month, and about two minutes to take the observations each day.

The value of these records must be obvious. After the fall migration is over, it is a simple matter to look over the lists and find which birds disappeared, and the last date on which each was seen, thus getting a list of the summer residents, with their approximate time for going south. The remaining ones form the list of permanent residents. Later in the winter the visitors from the north, such as the pine grosbeak, snowflake, horned lark, etc., will appear, and a list can be formed of these, probably a small one. In fact the value of these records can hardly be calculated. Among the facts that can be deducted from them are the statistics asked for concerning birds in the nature observations in Nova Scotia.

Incidentally, in these morning talks, questions will come up concerning the habits of the birds, questions that will doubtless sometimes puzzle the teacher to answer. In such cases, do not be afraid to say that you don't know. However, endeavor to find out, and you will have the sharp eyes of the boys and girls to help you.

Last year, says the *Pathfinder*, we published the problem which has become a household saying throughout the land—"How old is Ann?" It seems that this problem is causing trouble in one Kansas school district. The teacher figured Ann's age as 18. One of the pupils took the example home and put it to his father, who was a school trustee, and the latter made Ann out to be only 12.

The question of a woman's age has many times in history caused trouble. In this case the trustees say that anyone who reports a young lady to be six years older than she really is, is no fit person to teach school. The teacher has appealed to the county superintendent. And there the issue stands.

For those who would like to come to their own conclusion as to the days of the years of Ann, we repeat the momentous question here:

Mary is 24 years old. Mary is twice as old as Ann was when Mary was as old as Ann is now. How old is Ann?

### Home Made Aquaria for Common Schools.

By J. M. SWAYNE, PRINCIPAL ANTIGONISH N. S. SCHOOL.

Living animals should form a very important part of the school collection. One result of our nature teaching should be that the children know and love the wild things in the world out-doors. That they know the number of joints in a grass-hopper's leg, or the names of the veins in a butterfly's wing is not important; but it is important that they know the habits and the life-histories of the common animal forms about them. If our aim in this part of our nature work is to "help the children to know and love the animals," this part of our nature-work will be a success. It is only necessary that we introduce them; the acquaintance will soon ripen into a life-long friendship.

As we may take the children to the field but a few times in the year, we need to bring as much of nature as we can to the school. In caring for animals in captivity, problems arise which are sometimes difficult to solve, and as we have had a number of aquaria in our school for the past year, it may help some beginners if I give the results of our experiments.

We have one aquarium made from a tub. It is not at all beautiful, but has been very successful as an aquarium. In preparing another of this kind, I should proceed as follows: Procure a strong, clean tub, about fifteen inches deep. If higher, the walls cut off too much light. Soak it well to be sure it is water-tight, and thoroughly clean; and have the boys bring enough clean sand from the bed of a brook, or elsewhere, to cover the bottom with a layer about two inches in thickness. The sand should first be washed till the water from it runs off clean. The water for filling may, preferably, be brought from a clear pond, or ordinary tap-water may be used. The tub should be nearly full. Any of the common water-plants may be used to preserve the balance. Those most in use for this purpose are,—*Nitella* and *Chara*, *Sagittaria* (Arrow-head), *Utricularia* (Bladderwort), *Lemna* (Duckweed, *Ceratophyllum*, *Myriophyllum*, and various algae (pond-scum). For the large aquarium I should use *Sagittaria* and Duckweed. The former should be planted in the sand; the latter, of course, floats free.

In this aquarium I should keep the larger forms, as: A frog, eggs and tad-poles of frogs and the toad, a few small fish, a fresh-water clam, and a number of water-snails and water-insects. For these the water must be a foot deep, and there must be