uates who availed themselves of the privilege of securing buds, nests, fruits, etc., were not members of the Alumnæ Association. We took pains to contradict this scarcely-to-be-credited rumor, but in case it should have a tiny foundation in fact, why not join the Association and be a participant in all its privileges? (Membership, $1 a year.)

About Seeds.

Before taking up seeds, however, there is one more suggestion I would like to make about your twigs. When the leaves have ceased growing and there is nothing more to look for, have the children cut cross sections of the stems and notice the structure. Most of them will show the pith, wood and bark in varying proportions; the Sumach, for instance, having the pith very largely developed. The children will be interested too in the rootlets that twigs often develop in the water. The willows will be sure to do this, the rapidity with which they send out roots making them of value for planting on embankments to hold the shifting sand.

One of the advantages of studying seeds is that each child may have a specimen for himself, and in taking up this work have some large ones that can be easily dissected with the help of a pin, as the acorn, peanut, almond, bean, pea, or even apple and orange. When the seeds are very dry, they had better be soaked for awhile first, then the seed coats may be easily removed. There are usually two of these, and within is found the kernel, or baby plant (the embryo). In the seeds I have mentioned the kernel can be easily separated into two halves, and the children brought to notice the little stem at one end, and between the two halves a tiny little bud or point. The stem at the end is the radicle from which the root develops later, the two halves are the seed leaves or cotyledons, the little bud between them is the plumule (literally a little feather), from which the stem above ground develops. Lead the children to see that the baby plant (the embryo) is thus provided with all the parts that it needs, but like other babies, in order to grow it needs food. Being much too tiny to get food for itself as yet, the mother plant has provided enough nourishment to last until it can. This food (albumen) is what makes the seed leaves so thick, and the children can see for themselves that as the baby plant grows, the store of nourishment decreases and the seed leaves become thinner and thinner, grow up into the light, become green, and look much more like ordinary leaves than they did at first. In the pea,

the cotyledons, however, are so gorged with nourishment that they stay under ground and never resemble leaves.

The albumen is not always stored up in the embryo itself, however, for if you take Morning Glory seeds and dissect them with care, you can take out the baby plant which is all coiled up inside, and has the seed leaves very thin and delicate. Mother Morning Glory did not put the nourishment in the embryo, but around it—this is the case also in corn, and the potato seed.

The food that is good for baby plants and helps them to grow is often good for little boys and girls too, and when they eat peas, beans, born, rice, peanuts, almonds, cocoanuts, etc., they are really eating up the nourishment the mother plant packed away so carefully for the embryo. Get them to make a list of seeds used as food, etc.

Most of the above can be learned from the seeds themselves, but after all the most interesting part is watching the tiny embryo grow and expand into a full-sized mature plant. Take any of the seeds I have mentioned or any others that are convenient, as "bird seed," vegetable or flower seeds, and start them in various ways. The first requirements are only heat and moisture; later when the leaves develop light is needed. Seeds grow as well in sawdust, sponge or raw cotton, as in the soil, if kept damp. They will also thrive on damp blotting paper when covered with an inverted glass, or they can be put on netting stretched over a jar or glass of water. The netting will need to touch the water until the roots develop, when they will suffice to take up moisture for the plant. The best plan is to try two or three kinds of seeds and start them in different ways—so that there will be room for comparison.

The first sign of awakening will be the splitting of the seed coats, then the radicle will elongate, pushing up the seed leaves at one end, and growing downward with the other, soon developing a root at the lower end. One of the most interesting experiments to be made with seeds is putting them in various positions, or interposing some obstacle and then watching how the root end (descending axis) will infallibly grow downward, turn away from the light, while the plumule will as unerringly grow upward and seek the light, even when they have to curve quite round the seed to accomplish it. As the root develops you will find growing on it root-hairs, these absorb the moisture and may be likened to so many little mouths, that drink in the water, thus nourishing the parts above. While the root is busily pushing its way downward into the darkness and the soil, the cotyledons are up in the light, and the plumule develops between them, soon developing and expanding into the first pair of real leaves.

Now having roots in the soil, and green leaves in the sunlight, the plant is old enough to make its own food, and it keeps on growing and growing, sending out more leaves and more stems and more roots, and by and by it will be big enough and old enough to have flowers, and then after the flowers will come fruit and seed—food will be stored away for the baby plants, and the circle of growth will be complete.

Though you may not be able to keep the plants until they blossom, there will be much to do in watching the changes from day to day, and in making accurate notes of them, drawings, too, if that be possible, in a class note-book or in individual books. If the stem be marked with ink the growth can be measured by inches. The knowledge of Nature obtained by watching buds and seeds is most important, but the intellectual training in making accurate observations and drawing comparisons must never be lost sight of.

A. R. NORTHROP.

The Natural Science Committee cordially invites all teachers who are interested in teaching elementary science in the schools to be present at the "At Home" on Friday, April 9th. There will be aquarium jars—to be had at cost price—aquarium material, plants for the class-rooms, and, for seventh grade teachers, small collections of insects. Will all who desire aquarium material bring with them wide-mouthed jars, or small cans in which to take it home?

ALICE M. ISAACS,
Chairman.

Child Study.

The SECOND ANNUAL CONFERENCE of the Mothers, Teachers, Sunday School Workers, and others interested in work for children was held recently in Albany, under the direction of the Kindergarten Training School of Albany. Among others, the Hon. Chas. R. Skinner, State Superintendent of Public Instruction, and Dr. Jenny B. Merrill, Supervisor of Public Kindergartens, New York City, took part in the conference.

THE CONGRESS OF MOTHERS held recently at Washington, marked an era in the development of the Child Study question, and attracted attention over the whole United States. Mrs. Theodore Birney, of Washington, fittingly expressed the purpose of the meeting in her words of address. "It has seemed to us good