some general department of scientific some general department of scientific observation and study be provided and taught and that from it much material be drawn for lessons in reading, in number, in language, in drawing, in color.

Were sufficient time at my disposal, I would like to show how from the day that the peas and beans and wheat and corn are planted by the children in their miniature gardens, through all the successive steps of germination and growth until the new seeds are found in their appointed places in the plant, richest materials are always at hand into natural correlation with which would fall most of the instruction that it is the duty of the schools to give. Already I have shown how naturally and easily this plan of work harmonizes itself with intelligent methods of teaching reading and language.

At almost at every step also in the At almost at every step also in the study of any natural science numerical relations appear. Though I would not wish to be understood as urging that any one department of knowledge be drawn upon exclusively for material to use in instruction, yet if the teacher were desirous of employing no other, she could find in the study of common plants alone data sufficient for the con-struction of all the concrete problems struction of all the concrete problems that her class could use. What more delightful occupation, as a practical exercise in primary arithmetic, than the study of the numerical relations of simple and compound leaves; their number arrangement on the stem; the plan and of the flower in threes, fours and fives; the fractional division of fruits in their dehiscence.

There can be no charge made then that the time spent in school in the study of plant life has been dishonestly appropriated to the injury of those studies to which custom has given the leading place. Language has no value except as the vehicle of thought; form study and drawing must find their ap-propriate exercise in their application to things; number in the abstract cannot be grasped by the child mind, but must be embodied in concrete reality; therefore whatever gives birth to thought and furnishes stimulus for its expression whether in composition, in drawing or in numerical operation, is directly pro-motive of the interests of those subjects.

So with geography. We desire our children to know something about the earth on which they live. We are not ambitious that they shall learn the name of every squatter's camp in the Dakotas or every stream of water in the Indias; but we would nave them ac-quainted with those conditions which render this region or that region fit for the dwelling place of man. So the study which properly introduces the teaching of geography is science study. The child must know something of the inorganic constituents of the earth. He must make observations on gravity, light, heat, moisture, evaporation. He must learn certain facts about the growth and development of plant life; its relations to sun and soil and water. He must have some knowledge, too, of animal life and how it is determined by the life of plants. When from his sci-ence studies the pupil has obtained a conscious grasp of these things, then, and not till then, he is in a position to study intelligently the earth as affected by them. Disregard of the principles

here involved, I cannot forbear to say, has made much of the teaching of the schools a dull and unprofitable cramming of the memory with facts, some-times useful, but quite as often useless or even harmful; and has directly tended to impair those powers of the mind which are concerned in its higher work of comparison, generalization and reasoning.

But you may ask, has science been so well taught in our schools as to justify its introduction everywhere? Have all the conditions necessary to its success-tul presentation been met? Is it certain that its history in the schools of lower grade will be a repetition of that which followed its introduction into our higher institutions of learning? to all these questions I answer frankly no. In "many cases," as another has said, In "many cases," as another has said, "the so called science teaching has been a dismal failure." But the causes are not far to seek. In the first place the number of teachers who are prepared to deal with this subject is not at all large. Never having themselves been taught the real methods and aims of science, it is not at all strange that they cannot teach others. The first impediment, then, to the success of this work is unqualified teachers. A second and possibly a greater hindrance to its prosperous advance is the almost universal misconception which prevails, of its true aim or end. Even among those who advocate the teaching of science, its underlying purpose is wrongly felt to be the conveyance of knowledge for its so-called practical value. Knowledge, to be sure, is one of the ends to be sought, but it is subordinate to the higher aim of discipline. Says the writer on nature study in the Report of the Committee of Ten: It must be remembered that the primary object of nature study is not that the children may get a knowledge of plants and ani-mals. The first purpose is to interest them in nature. This must be done before other desirable results can be obtained. The second purpose is to train and develop the children, i. e., to train them to observe, compare and express (see, reason and tell); to cause them to form the habit of investigating carefully and of making clear, truthful statements, and to develop in them a taste for original investigation. The third pur-This, however, the paragraph con-cludes, must be "gained by actual experience," and it must be "knowledge classified." or science.

A third obstacle which has stood in the way of genuine teaching of science in elementary schools, is the use of books, to which I have already alluded. How often has the sole equipment for this work been a book? A book writ-ten possibly for college classes, or at best, under conditions not at all applicable to the circumstances of the case at hand? It cannot be too often repeated that for this work books are a positive hindrance. The child must make his own discoveries. There must be noth-ing to interfere with his freedom to question nature for himself. The effort

I have noted some of the causes which have prevented and do still pre-vent the realization in common schools of the rightful aims of the study of science. These causes must be re-moved before a better future will be reached. The outlook is hopeful, however. There is at the present time in America a development of interest in America a development of interest in elementary science teaching which is most significant. Educational assem-blies are urging its importance; con-gresses of experts are outlining for it courses of study adapted to all grades from the kindergarten to the college; our higher institutions of learning are offering special instruction to those who are preparing to teach it. The time has are preparing to teach it. The time has already arrived when the claims of arithmetic and technical grammar to the leading places as disciplinary studies in our schools are in question. The force of the revolution which has just overrun our colleges is not yet spent. The rapid growth of the kindergarten, the introduction of drawing and manual training into public schools, the extension of laboratory methods down from the university and college to the high school, and from the high school to the elementary school, are all prophecies of the approaching day when empty words will have no place in a school room, and when our children's eyes will no longer be sealed to the beauty and richness that lie all aro und, above and beneath them.

The world is beginning to realize the need of choosing lines of school work which have more than a knowledge More and more the reader of value. value. More and more the reader of educational literature sees the words discipline, power, character. That which will most surely and expeditiously secure these ends of education must give us most concern. From no one department of study can fullest culture be deauty. The most figures fullest be drawn. The most rigorous, fullest rounded, systematical character is the product of many disciplines; but of none in the larger measure than that which is built upon the imperishable truths of nature revealed in blade and flower and tree, than that into whose fibre and tissue are interwoven the principles of harmony and obedience to the laws of God.

THE PIONEERS OF 1847.

FROM MONDAY'S DAILY, AUGUT 20.

This is the day of the assembling of Utah's aged and honored Pioneers and early settlers at Saltair-a day that will be pleasantly remembered by them during the closing scenes of long and eventtul lives.

This forenoon two trains of twelve coaches each went out to the lake bestring passengers who came principally from outside points. The 2:15 trai this afternoon was a very large one and had on board the First Presi-dency of the Church and many prominent citizens from all parts of Carriery. The interesting relies of Territory. The interesting relics of early days bistory given in the following list were taken out this morning, and placed on the pavillon, where they were looked upon with extreme in-terest and with a feeling almost akin to reverence:

A huge buffalo head, "the oldest inhabitant."

Spinning wheel, one of the first used in Utab.