

They form the *physical basis* for life; the environment of life. The function of this environment is to influence life influence the germination, growth and development of living organisms.

How can the tiniest, humblest plant be observed without learning its relations to climate, air, water, heat? Take it up by the roots, and geology, geography and mineralogy present themselves. Anatomy is the study of forms of life, while physics and chemistry become physiology when applied to life. What the soil is, what the climate is, what the surface is, so will be the development of the plant, and all changes in meteorological relations mean corresponding changes in plant life. Thus:—Great heat and regular rains mean luxuriant forests; less heat with regular rains give us forests also; scanty rains make grasslands; no rains, deserts.

Just here let us notice how very dependent living organisms of all kinds are upon their environment, and the higher the scale of life the more dependent on the environment. We, for instance are much more dependent upon our environment, than were our ancestors a hundred years ago, are we not? Think of the physical force required for the steam engine, the telegraph, telephone, steamboats, etc. We could not do without them, yet our ancestors did and were happy. Human progress demands more from nature and is therefore more dependent on it.

But to resume:—No fact is more evident than the dependence of animal life upon its environment, climatic and structural, and also upon vegetation. Can you think of the lion, elephant, or bird of paradise existing beyond the Arctic circle; or perchance you might have the polar bear live among the forests of the Amazon, or monkeys might inhabit the Sahara. How would they get along think you? and yet — but, no, there cannot be a doubt left in your minds, but that the most economical way of studying zoology is by studying it in its relations to all the subjects comprised in the environment of life and also the study of botany.

The primary study of zoology should consist in investigating the habits and habitat of our little friends in feathers and fur. As for instance, what animals eat; how they procure food; what and where are their homes.

The study of zoology is at every step a preparation for the study of man. Man, it is true, controls and overcomes his environment, and the history of evolution must be studied through his environment. Where did he live? How did he live? What was his food? How was he clothed? What obstacles did he overcome? All these interesting questions in anthropology

lead directly back to what we may be pleased to call the "central subjects."

But individual life cannot be studied alone. Man is too social a being for that. Every individual is influenced by the many, and this mutual relation of individuals and their influence upon each other, in families, tribes, nations, constitute ethnology. Ethnology in its broadest sense is history,—the language, literature, tools, buildings, inventions; while history, pure and simple, adds the written records of man.

I have endeavored to show in this brief sketch, how all these subjects are in truth *one vast subject*. The child begins them all spontaneously, and these tendencies, these spontaneous activities are the sure indications of what should follow in education. These subjects are *one* in many ways. They are one through form. The universe is filled with matter, and what is form but a limitation of matter. Geography is pure form; geology is more or less form; mineralogy is form; anatomy is form. There is, too, another relation binding them all together, and that is number. We must know length, breadth, weight, force, value, time. We must use them continually in the study of these subjects. Number is no separate subject to be studied by and for itself. It is a chain connecting all these subjects. There is still a greater, closer relation between these subjects and that is in their "unity of function." Leave out any one of them and the rest could not exist.

And now, ladies and gentlemen, I ask you, as Colonel Parker asked me one morning just as he opened the class-room door: "*Is there enough?*" Is there enough living, glorious truth in this universe that the children can get; that we can help them to get by presenting the proper conditions and not hampering their starving souls with *mere words*? There's enough for you, and enough for me; enough for the whole wide world to use; and still there's plenty to spare.

Let me now discuss with you for a few brief moments the subject of reading, not oral reading, for that is a mode of expression, but reading. "Reading is thinking." It is a mental process, and consists of a sequence of mental activities, caused or induced by written or printed words, arranged in sentences. Reading of itself has no educative value. Its value depends on the subject presented. It may not be educative. It may lead to immorality and pollution of the soul. And on the other hand, under the right conditions it may lead to highest good. In a word therefore,—it depends on what we read, and how we read it. With this in view we see how reading is—next to observation the greatest factor in education. It opens up history. By it poetry and literature may become essential to