VALUE OF SCIENCE TEACHING.

DOMESTIC ANIMALS AS AIDS IN ZOOLOGY.

Dr. Whiting's Talk Before the Summer School on Instruction Based on Familiar Subjects.

The following address was delivered before the Summer School by Dr. C. A. Whiting of the University. Mr. Whiting said in part:

All of our best teachers are recognizing more and more the importance of science work even in our district schools, and much good work is being done in botany, geology and mineralogy. Zoology, as yet, has received but little attention. This is in part due to the fact that teachers feel the necessity of laboratory methods; that is, they feel that if the child is to receive real good from nature study he must study nature, and wild animals are not always accessible.

To many teachers the thought has not occurred that our domestic animals offer fine opportunities for the study of zoology. The cat and dog are both typical representatives of the natural order carnivora, the cat being closely related to the tiger, lynx, leopard and puma, while the dog is a near relative of the wolf, fox, jackal and hyena. The retractile claws of the cat differ widely from the non-retractile claws of the dog. The lithe, slim body of the cat, formed for agility, contrasts strongly with the stout, rather awkward body of the dog, formed for endurance and strength.

Why are animals so closely related thus unlike? The answer to this question must be sought in a careful study of the habits and environment of the two animals. The cat, solitary and securing its prey by cunning rather than by strength or courage, has developed those physical characteristics which give it success in the great struggle for life, while the dog, hunting in packs, and at last securing its prey by a life or death struggle, has developed the strong body necessary to an animal having such habits. Like all of the other carnivorous animals, the cat and dog have simple digestive organs. This is in striking contrast to the cow, sheep and goat. The eyes of the cat and dog are interesting objects for study. Fortunately, they may best be studied while in the heads of the living animals, and without hurting the owners in the least.

The cow, sheep and goat form a well-marked group of animals representative of the deer, moose, musk-ox and buffalo. All of these animals are herbivorous, but are distinguished from the other herbivorous by their four toes and compound stomachs. Two of their toes are no longer functional, and do not reach the ground. These toes may be used to illustrate organs which are disappearing because of disuse. In the formation of species nature usually proceeds very slowly, but occasionally she passes at one bound from one species to another, or even from one genus to anther. Such an instance occurred in Massachusetts in 179[illegible], when, from an ordinary sheep, was born the lamb which gave rise to the ancon sheep. These were so different from the common sheep that had their origin been unknown they would have been classed as a separate species, and probably as a separate genus of animals. The teeth of the cow and sheep may profitably be compared with the teeth of the cat and dog. The habits of both the sheep and the goat, especially of the young animals, indicate that they originated in the mountains.

The horse represents another division of the herbivorous animals. Closely related to it are the zebra, the wild ass and quagga; more distantly related are the rhinoceros, the tapir and the pig. The horse is especially interesting to us, because we know more of its past history than that of any other domestic animal. The researches of Professor Marsh show that the horse has descended from a small animal about as large as a fox. This animal is known as the orohippus. It had three toes behind and four serviceable toes in front, and one which even then was rudimentary. From the orohippus to the horse the change has been gradual but constant. Even now the horse retains a trace of his former condition in the form of splint bones. Compare the teeth of the horse and cow, and both of those with the dog.

The pig has suffered more at the hands of man than any other domestic animal. The original pig was a long-legged, slim, active animal, equally quick of motion and of wit. By artificial selection, based upon the ability to change corn into lard, man has changed the pig from his original condition into the stupid, unwieldy animal which now graces the sty. From the few hints I have given, I trust enough may be gleaned to show the possibility of drawing many a useful lesson from the animals with which we are most familiar.

The third week of the session has passed, with not only an increase in numbers, but also in interest.

Mrs. Dr. Talmage, wife of President Talmage, is registered in the department of natural history, and is taking great interest in the work.

Professor Cummings has three interesting classes in Latin, the most advanced class pursuing the study of Cicero.

The following talks will be given the present week: Monday, July 15th, "Geography," with blackboard illustrations, Miss A. E. Brotherhood; Tuesday, July 16th, "Mysteries of the Mind," Professor W. M. Stewart; Friday, July 19th, "Froebel's System of Education," Miss Alice Chapin.

On Thursday, July 18th, at 2 p. m., Dr. Millspaugh will give his third lecture, entitled, "School Aids and Appliances."

The botany class, accompanied by their instructor, Professor Whiting, went on a botanizing trip yesterday.

Miss Brotherhood's classes in drawing and child study are well attended, the number of members being next to the enrollment in pedagogy.

Professor Marshall's classes in United States history and general history are doing finely.

The classes in algebra and geometry, under Professor D. R. Allen, are doing finely.

Dr. Kingsbury's classes in the physical sciences are making rapid progress. One of the most interesting features is the laboratory work, the superior apparatus furnishing ample means of experimenting and investigation.

Professor Stewart has large classes in pedagogy and psychology; also a class in normal arithmetic.

Miss Alice Chapin has a good attendance in the kindergarten department. Miss Parsons is assisting her in her work.

On Wednesday evening, July 17th, Dr. Karl G. Maeser will lecture upon the subject, "Ultimate Aims of Education," the lecture to be given in the main building of the University.