

on the Chicago River. Taking an Archer Avenue car from down town we soon found the limestone quarries for which we were seeking. At this place the Niagara Limestone crops out, and having been found to produce a very good quality of lime, has been extensively mined and large lime kilns erected.

Having obtained a permit from the office of the Lime Company, we descended into the pit, which, on looking up from the bottom, appeared like a large amphitheatre of rock.

They had just finished blasting before we arrived, hence we found the place most favorable for collecting fossils. For several hours we climbed over the rough masses of rock, hammer in hand and stowed away in a large bag the choice specimens found. The most abundant fossil was an undetermined species of *Macrostylocrinus*, of which we collected several dozen fine specimens. Next in abundance was the large crinoid *Siphonocrinus nobilis*, Hall, of which we collected eighteen choice specimens, also specimens of the following crinoids: *Eucalyptocrinus chicagensis*, *E. rotundus*, *Holocystites alternatus*, and *Caryocrinus ornatus*, Say. The most abundant coral was *Japhrentis Turbinatum*, Hall. We also found *Platyceras Campanulatum*, *Amphicœlia neglecta*, McChesney, Trilobites, Brachiopods, and a very fine Ammonite.

In this way one interested in geology, while visiting Chicago, may fill in an odd day by collecting some interesting specimens.

PAUL VAN RIPER.

Niles, Mich.

COON CATS.

SPEAKING of cats, I saw, in a private house in Chicago recently, two cats which the owners called "coon cats." They had been obtained in the edge of the forest around Moosehead Lake, and it was claimed that they were hybrids, or descendants of hybrids of the domestic cat and the raccoon. They were larger than the ordinary house cat, had very coon-like countenances and bushy coon-like tails that were always expanded. One had the habit of ascending something high and resting stretched out, and their motions when in a little hurry were a coon-like gallop.

The claws were retractile, the foot digitigrade. I did not examine the dentition, but could find nothing but appearance that indicated a coon kinship. They interbred with the common cat. Can some one tell me more about them?

J. N. BASKETT.

Mexico, Mo., Aug. 28.

DAMAGE TO COTTON BY LIGHTNING.

THE communication of Mr. Frank E. Emery on "Damage to Cotton by Lightning" in your issue of Sept. 8, prompts me to communicate the following facts, bearing directly on Mr. Emery's subject.

For thirty years prior to 1890 some cotton fields at Goldsboro, N. C., owned by the State for the use of the Colored Insane Asylum, have been "struck" by lightning. Occasionally the fields were spared, and then again they suffered two or three times a year. Each stroke would destroy from one-quarter to one-half an acre. The lightning would strike very near the same place every year. In the year 1890 electric light wires were run from the city lighting plant to the Asylum. During the summers of 1890 and 1891 the poles near where the lightning was accustomed to strike, were badly split up. In the summer of 1892 lightning arresters were placed near these points, and since that time there has been no trouble from lightning. Since the wires have been strung on this pole line, lightning has not struck the fields, the wires protecting them perfectly.

These facts are vouched for by a gentleman residing in Goldsboro, who lived on the farm above mentioned before it came into the possession of the State and for the last few years has been manager of the electric plant, thus being acquainted with all lightning troubles that his plant has had to contend with.

A. F. McKISSICK.

Auburn, Ala., Sept. 23.

RHYTINA GIGAS LINN. AT PRINCETON.

IN numbers 522 and 523 of *Science* may be found descriptions of the skeleton of Steller's Sea-Cow (*Rhytina gigas* Linn.) as preserved in the various museums. The Museum at Princeton, New Jersey, has lately come into the possession of a most beautiful set of casts of *Rhytina*, which were obtained from Mr. Robert F. Damon, of Weymouth, England, and are an exact reproduction of the originals found at Behring's Island, and secured by the late Robert Damon, F. G. S., through Dr. Dybowski and presented to the British Museum of Natural History at South Kensington. (vide description by Dr. H. Woodward, F. R. S., Quart. Jour. Geol. Soc., 1885, XLI, pp. 457-72). The casts in the Princeton Museum are the following: cranium and jaw (length 68cm) brain cavity, dorsal, lumbar and caudal vertebrae, five cervical vertebrae, atlas and axis, three auditory ossicles, scapula, humerus, radius and ulna.

JOHN EYERMAN.

Oakhurst, Easton, Pa., Sept. 22.

SUGAR FROM CORN STALKS.

MR. STEWART's articles on this subject were intensely interesting and his investigations will doubtless lead to important economic results. As an item of news in this connection I may say that I have a neighbor who made sugar from corn stalks nearly forty years ago. She extracted the sucrose partly by diffusion (boiling the stalks in water) and then by pressure and obtained a sugar nearly white in color and excellent in flavor and sweetening power.

A. STEVENSON.

Arthur, Ontario.

"CURIOUS EARS OF INDIAN CORN."

MR. HERSHEY, a recent correspondent in *Science*, speaks of a maize plant producing a cob at the summit of the stalk where we usually find only the tassel of staminate flowers. Such cases, I think, cannot be uncommon, I observed three last year within a small plot of a few square yards. This year a neighbor showed me an even more curious variation of the same kind. The stalk terminated in a spike of about 8 inches long, the upper half of which had contained staminate flowers, while the lower half, which was considerably stouter, contained immature grains. It was in fact a small cob without husks, and the grains were greenish in consequence. Branching off from the stalk at the base of the cobs were two slender pedicels of the remains of staminate flowers. The cob on this specimen contained no staminate flowers, but they were quite numerous on the stunted cobs which I saw last year.

A. STEVENSON.

Arthur, Ontario.

EVOLUTION OF SCIENCE TEACHING IN PRIMARY SCHOOLS.

IN *Science*, No. 554, Dr. George G. Groff well shows how insufficient are the means provided in certain professional schools, for properly instructing and training teachers for science teaching in secondary and primary schools. The numerical results of his tabulations certainly place the normal schools of Pennsylvania on the side of tradition as against progress. The ratio of grammar teachers to science teachers is five to four, and the number of teachers of mathematics is approximately that of the teachers of science.

To show that such a state of affairs is not without exception, I will mention the state normal school of Michigan. The faculty of that institution comprises about twenty-five persons (exclusive of the practice school), of whom *four* are assigned to the department of English language and literature, *four* to the department of mathematics, and *six* to the two departments of science. It is not a dozen years since only one teacher was engaged exclusively in science teaching, but the rapid development of science courses, along with specialization of departments, has brought the present gratifying conditions. But what appears to me of much greater significance is the introduction of science teaching into the practice school. The catalogue of that department outlines a course in science studies for the grades one to eight inclusive, making it equally prominent with the other subjects. This course is of necessity rather crude, and the teaching, I venture, is more so, yet the hundred and more young teachers graduated from the institution each year must carry away with them many practical ideas of the new work, gained during their senior year of observation and practice teaching.

Having at hand the catalogues of the several normal schools of Wisconsin and Minnesota, I am pleased to find in them the same evidences of progress. As four or five schools are sustained by each of those states they are necessarily much smaller than the Michigan institution, consequently department lines can not be so strictly drawn around related subjects, and numerical comparisons are not easily made. It is noticeable, however, that the sciences are generally taught by persons who devote their energies entirely to that work. But it is the prescribed courses of the graded practice schools that show best the right tendencies of these institutions.

That science teaching in primary schools falls far short of our "dream" is true. That many successful efforts have been inaugurated is also true. The writer enjoys the personal acquaintance of several energetic young principals and superintendents who have organized science courses in their schools, and can recall numerous instances of teachers who are doing creditable work. A very few cities (Muskegon is the only one known to me in this state) have tried the plan of a special teacher or supervisor of science. Under the present conditions this is doubtless the best plan for cities of sufficient size to justify the expense, provided the person employed is a teacher and not a machine worker. The time and energies of the special teacher should be about equally divided between the pupils and the regular teachers. While doing considerable direct teaching in the school rooms, the best work of this functionary should be the instructing, training and inspiring of the teachers, so that, though they may not become at once ideal exponents of the methods of science, they will at least be more willing and efficient helpers.

The present need in science teaching is not so much in the matter as in the manner. Formal dogmatic teaching of the mere facts of science can only add another burden to the crowded curriculum. Rightly used, no other line of work gives to school life so many points of contact with real life. Observation, investigation, experiment, stimulated and directed by the teacher, should be the directions of greatest activity, and discovery should be one of the chief aims and rewards of the pupil. Instead, the average teacher usually forestalls the best activities of the child by beginning with the announcement of what should be the conclusion.

Where the new work has been introduced it is too often regarded by both teachers and pupils as a strange appendage that has in some way become attached to the body of educational matter. It should and will become a

properly related part of the organic body. To change the figure, I know from observation that the announcement "Get ready for the science lesson" means to the pupils "Get ready for the weekly dose of this new educational medicine." Experience shows that it is sweet and pleasant to many; to some it is almost nauseating.

The desired all-round improvement in the preparation of teachers must be a gradual evolution from the present movement. No college or training school course is sufficient in itself. The preparation of the future teacher who shall successfully teach the elements of science in their proper relations to other subjects must begin in the kindergarten and continue throughout, constituting an educational experience in which the teachings of nature contribute their equal share.

The "thinking people" who need no argument that the elements of science should be taught in the primary schools are a small minority. In most instances where teachers or school officers have undertaken the work in a systematic manner they have been permitted by the indifference rather than the active consent of the majority. The advocates of science teaching may well be thankful for this toleration of indifference and should make the most of their opportunity.

C. D. McLOUTH.

Muskegon, Mich.

BIRDS THAT SING IN THE NIGHT.

THE notes which from time to time have appeared in *Science* with reference to the nocturnal singing of birds demonstrate that a considerable number of species are known to exhibit this eccentricity. From my own observations I can corroborate some statements heretofore published, and, I believe, add one or two to the list of daylight songsters guilty of keeping very late hours.

I remember hearing a song sparrow (*Melospiza fasciata*) execute his full song at ten o'clock one dark and cloudy May night in western New York. I listened some time for a repetition of the serenade, but none was given. I have known the catbird (*Galeoscoptes carolinensis*) to sing in the moonlight. During a term of moonlight nights in August I heard the notes of a black-billed cuckoo (*Coccyzus erythrophthalmus*) nightly at frequent intervals for about an hour shortly after midnight. But with the cuckoo this is a well-known occurrence. I have more than once heard at night the twitter of chimney swifts (*Chaetura pelagica*) from a chimney.

While on a summer camping expedition in the Cascade Mountains recently I heard cries of the raven (*Corvus corax principalis*) in the darkness, and was awakened on several nights by strange bird notes from the tree tops above our camp. The song—for it might be called such—was presumably executed by some small bird and consisted of a clear plaintive whistle having a tremolo ending. I was at a loss to account for its authorship, for the only bird to be found about the camp in the morning, aside from some woodpeckers, was the Oregon jay (*Perisoreus obscurus*) which I was reluctant to credit with possessing such a voice. However, being as yet unacquainted with the notes of the pygmy owl (*Glaucidium gnoma*) of this region, it occurs to me that the mysterious vocalist may possibly have been this curious little robber.

On two evenings recently at ten o'clock or later I have heard call-notes of some small birds from vacant lots in my neighborhood. They probably came from flocks of migrating finches of some species, whose cries I am as yet unable to identify. They were heard at intervals for more than an hour one evening.

Writing of birds, I am reminded of an incident of another sort which I witnessed a few weeks since. Passing along the margin of a wood my attention was attracted by angry bird notes, which were found to issue from