hair. This is a peculiarity of many of the crosses between Indian and African. I need but mention the Cafusos, who, according to Tyler, "are remarkable for their hair, which rises in a curly mass, forming a natural periwig, which obliges the wearers to stoop low in passing through their hut doors."

The word *playa* is not mentioned in the Century Dictionary, although, according to the *Popular Science Monthly*, vol xxii., p. 381, it "has been adopted by geologists as a generic term, under which the various desiccated lake-basins of the West may be grouped."

Although the *œse*, or *platinum-needle* or *loop*, is the most important tool of the bacteriologist, both of these words have been omitted. The word *œse* is, of course, German, but is now much used in English books.

The common names, and often the scientific names, of well-known plants have been omitted. The *Amorphophallus titanum*, a vegetable wonder of the Arum family, discovered in Sumatra in 1878 by Beccari, is not mentioned under its generic or common East Indian name of *Krubut*, although both of these appear under *Rafflesia*, the generic name of a remarkable plant which grows with it.

The word noctilucent is defined in the Century Dictionary, but the word noctilucence, a term sometimes applied to the light emitted by the *Noctiluca*, is omitted, although phosphorescence is the more common, but perhaps less accurate, term.

Many of the definitions are inaccurate and unsatisfactory. From the following definition of Carib, one would conclude that they are all of a "native race" and that none are living in the Caribbean Islands at the present time: "One of a *native race* inhabiting certain portions of Central America and the north of South America, and *formerly* also the Caribbean Islands." According to the latest Handbook, in British Honduras, there are 2,200 Caribs who, "although to all appearance of true African origin, being a black and woolly-headed people, are a mixed race of the aboriginal Caribs, with a large percentage of African blood." A few true Red Caribs and some Black Caribs still live in the Windward Islands. The true Caribs are not natives of Central America. They inhabited the northern part of South America and the Caribbean Islands, and, according to Dr. Brinton, their original home was south of the Amazon. JOHN GIFFORD.

Swarthmore College, Pa.

A Peculiar Occurrence of Beeswax.

In *Science* for June 16, 1893, Mr. George C. Merrill, of the U. S. National Museum, has a request for information under the above heading concerning some beeswax forwarded to him from Portland, Oregon. He describes it as having all the elements and characteristics of beeswax, but says, "such it would have unhesitatingly been pronounced but for certain stated conditions relating to its mode of occurrence."

He says it occurs in the sand along the beach, at quite a depth in places, and in a fragment of sandstone, etc., and further says: "Tradition has it that many hundred years ago a foreign vessel (some say a Chinese junk) laden with wax was wrecked off this coast. This at first thought seems plausible, but aside from the difficulty of accounting for the presence in these waters and at that date of a vessel loaded with wax, it seems scarcely credible that the material could have been brought in a single cargo in such quantities nor buried so deeply over so large an area."

The first difficulty Mr. Merrill seems to encounter is the presence of a vessel of that supposed nation on our coast at so early a date. This should give him no difficulty whatever, for Hon. Horace Davis, of California, in an article before the American Antiquarian Society, April, 1892; Charles Walcott Brooks before the California Academy of Sciences, March 1, 1875, and Professor George Davidson, of the U. S. Coast Survey, for thirty years or more last past, have all been calling attention to the hundreds of known wrecks of Japanese (not Chinese) junks cast on the American shores, from Behring Sea to Peru, by the "Kuro Shiwo," or black stream of Japan

In both the articles mentioned above you will find an account of the "beeswax junk" and so much information concerning it that Mr. Merrill's doubts will be dissipated; if not, Professor Davidson, in the "Coast Pilot of California, Oregon and Washington Territory," 1869, describes this very junk and the very beeswax in question.

Mr. Merrill's informant, however, seems to have fallen into an error as to the quantity and locality of this wax; for no such quantities were ever found as those mentioned in *Science;* in fact, the story is this: At some recent—but prehistoric—time a Japanese junk loaded with beeswax was thrown ashore at or near Clatsop beach, Oregon, and the cargo was scattered along the sands and buried therein, where it is found even to-day in small quantities and that is all.

Mr. Merrill's letter to *Science* is published, he says, "in the hope of gaining more information on the subject," and I will be fully repaid if through the instrumentality of this note he shall have obtained that information.

Many Japanese wrecks have been thrown ashore on our coast, of which we have authentic information, all the proof of which has largely been collected by the eminent gentlemen quoted above.

JAMES WICKERSHAM.

Tacoma, Washington, June 26.

Color Perception: A Correction.

I HASTEN to send this note of correction to my paper on "Distance and Color Perception by Infants" in *Science*, April 28 — an error brought to my attention by a friend. In Tables I. and II. of that article (p. 231) I have taken the proportion of "acceptances" to the entire number of cases $\left(\text{the ratio } \frac{A}{N}\right)$ after adding up the simple numbers for each color at all the distances. It is evident that the resulting percentages are wrong as representing comparative results for the different colors, since there are not an equal number of cases for each same color at different distances, nor for the different colors at each same distance. The proper method is, of course, to compound the percentages representing the relative attractiveness of each color at each distance. This gives the values $\left(\text{for } \frac{A}{N}\right)$ in Table I.: Blue, .78; red, .75; white, .78; green, .68; brown, .43; and in Table II.: Newspaper, .76; color, .71. This brings white up to the level of blue and red. The same correction should be made for the values $\frac{R}{n}$, but in the result it is immaterial.

I wish to add, also, that I do not consider the results relative to the individual colors of much value, since the cases are so few. The experiments had to be broken off unexpectedly. I published the tables mainly to illustrate the working of the method of experimenting. For this reason I did not enter in my article into side considerations, such as color-brightness, fatigue, etc., which were duly provided for in the experiments themselves. I hope to discuss such points in the fuller treatment of the monograph on the infant's active life which I am preparing.

J. MARK BALDWIN.

Princeton, N.J., June 30.

Birds that Sing in the Night.

I have read with a great deal of interest the notes under this head as they have appeared in *Science* from time to time. While some species have been mentioned that I have not heard, there are also some not mentioned which are night singers in central Iowa, where I have spent many years studying the birds in their various moods and conditions.

The first in point of beauty of execution is the wood-thrush (*Turdus mustelinus*). Not only does he sing in the night, but his song is given at shorter intervals and more earnestly then than during the day. It is rarely that he sings at high noon, unless the day be dark and wet. Nor does he sing all night long; from midnight until after two, there is only an occasional burst of song or none at all.

Second in point of regularity and persistence is dickcissel (*Spiza americana*). Not only does he sing at short intervals all

day long, but he prolongs his day far into the night. By day his song is not very musical, but at night it seems softened and subdued almost to sweetness. The country boys call him the "sheep-sheep shear-shear-shear" bird, as an imitation of his song. The first two notes are uttered sharply with a considerable pause between them then, the last very rapidly — nearly run together.

Two other birds are not uncommon night singers — the grasshopper and henslow's sparrows (*Ammodramus s. passerinus* and *A. henslowi*), especially the latter. His modest little song is so drowned out during the day by the larger birds that he must sing at night it he be heard at all. I have often heard his note well into the night.

There is one winter night singer, the chestnut-colored longspin (*Calcarius ornatus*). As one wanders over the snow-clad hills on some frosty night, he may near the clear *chee-ho* of this bird starting from the snow where he lies hidden.

LYNDS JONES.

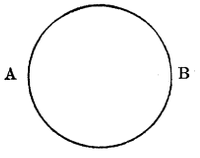
Oberlin, Ohio.

The Earth as a Conductor.

In reference to the communication on the use of the ground in an electric circuit, June 16, you may allow me to say: The earth is not a conductor of electricity in any sense, only as a convention. All Du Moncel's measurements, and they were many, gave the resistance of the earth as about 100 ohms. This resistance is negligible in long circuits, telegraphic or telephonic, but not in short circuits.

On the principle of contact electricity (see Ayrton and Perry, Jenkins or Gorden) it was wrong to place a copper plate at one end and a tin plate at the other, as their contact or connection by wire would produce a current along the wire. Nor was it proper to put charcoal or carbon or iron around either plate on the same principle. Both plates, preferably, should be of copper surrounded by sulphate of copper. There is considerable resistance offered in the passage of a current from one kind of material to another (see Jenkin passim).

The earth may, for convenience, be called a reservoir of electricity, but its quantity is always constant and no electricity can be taken from it at one point without putting an equal quantity into it at another point. The action or roll of the earth in the circuit is like this. Consider a lake of large dimensions with a



lift and force pump at A connected with a pipe which crosses the lake to B; the water lifted at A and forced over to B falls into the lake, but not a drop of it ever gets back to A.

If you will consider a ground wire in a large telegraph or telephone office with a number of circuits of variable resistances and different polarities attached to it you will see that it is absurd to say that a positive current from one battery goes down that ground wire and off to a distant point while at the same instant a positive current from a distant battery comes up the same wire. That is the common sense view of it, and it is supported by Kirchoff's law, $\Sigma C = 0$, or the sum of all the E M F's or currents meeting in a point equals nothing. In fact, the ground wire in a large office may be cut (as I have often seen it done for experimental proof) without stopping communication. When three or more wires are joined to the same ground either one of the wires acts as a return wire for the others when the ground wire is cut. But when all are open at once, then the ground comes into play to form the circuit for the first one that closes. It is also useful as a regulator of current, but the manner of doing this is not properly introduceable here.

If nothing had been said of the use of tin at one end and copper at the other the resistance of 102 ohms as found would indicate a good ground. But as some current probably arose from their use, doubt is cast upon the measurements. Still, on the whole, the ground was as good as is usually made.

One hundred ohms' resistance in the earth circuit under all circumstances should be reckoned on and may be regarded as a constant.

D. FLANERY.

Memphis, Tenn., June 30.

On the Evolution of the Habit of Incubation.

IT may be stated as a general rule that harmless snakes produce their young by means of eggs, while poisonous serpents are viviparous, to which fact they probably owe their generic appelation of "vipers." The oviparous snakes, like most other reptiles, deposit their eggs in a sunny spot, and never trouble themselves about the incubation, but leave the eggs to hatch out as best they may under the influence of the sun's heat. There is, however, a very curious though authentic instance on record of a caged python, in the *Jardin des Plantes*, at Paris, which hatched out her own eggs. She laid fifteen in all, and then coiled herself around them, and so incubated them in much the same manner as a setting hen, her temperature being observed to increase perceptibly during the period.

This strange fact, whether an anomaly or whether a natural habit of the pythons, seems to throw considerable light on the evolution of the habit of incubation, so universal among birds, for it must be remembered that the bird is closely allied to the reptile, and is in fact but a higher form of the type. This relationship is clearly shown by the study of the morphology of the bird's organs, for every part of a bird's body is but a modification of the corresponding part of the reptile; it is also shown by the fact that birds are found in geological strata immediately after the reptiles, and hence must have appeared upon the face of the earth at a later period. Were any further proof necessary, it is furnished in an irrefutable manner by the science of embryology, for the bird passes in the egg through all the reptilian stages of development before it is finally hatched out in its perfect form.

This being the case, we may rest assured that the habit of incubation has been evolved at some time during the evolution of reptiles into birds, and hence this case of the python hatching its own eggs acquires exceptional interest.

We may premise that the habit could never have been evolved unless it were of some value to the species, but we must at the same time admit that the incubated egg would in all cases hatch out far in advance of that heated only by the sun, hence those individuals which thus appeared earlier than their brothers ran a better chance of surviving in the struggle for existence. So far, so good, but how did the habit originate ? What first led snakes or other reptiles to think of hatching out their eggs? That it was not intelligence we can safely assert, for all who have had any experience in keeping snakes, agree in stating that their intelligence is of the lowest order. I am therefore inclined to believe that what first led animals to incubate their eggs was the heat developed in the egg during the process of hatching. Snakes are exceedingly fond of heat, in fact I have known them to injure each other in cages in the attempt to retain the warmest places. Hence we can infer that if, when basking in the sun, a snake chances to lie near its eggs, especially if these have already begun to hatch, it will soon feel their heat and so be led to coil more closely about them, and while thus warming itself it will at the same time hasten the process of incubation.

The next question that arises is, how this habit of incubating her eggs, even when thus acquired, will be transmitted to the offspring, for if not transmitted, the habit could never become general.

So little is known of the principles of inheritance that we cannot hope to solve this problem at present. Even Darwin, who made a life-long study of the subject, and to whom we are indebted for the ingenious theory of *pangenesis*, was forced to admit our abject ignorance of the laws of transmission of characters from parents to children. We can, however, infer that those serpents most susceptible to the cold would be most likely to remain by their eggs, and this susceptibility to cold would tend to be inherited by the young