length. It was clear from an inspection of those most recently killed, that they had been killed by some animal for food. The flesh of all had at least been partly devoured, but it was observed that not a carapace nor a plastron was broken. The reptiles had been killed, apparently, by some sharp-beaked bird, by thrusting its beak between the joints of the reptile's armor, so to speak. The loon is clearly competent to do this, but loons are seldom seen in this locality. Moreover these birds would hardly drag their prey so far inland to devour it, as was observed to be the case with many of the turtles. The blue heron is more abundant here than the loon, but still not abundant enough to be credited with so much destructive work on animals so large. I have never suspected him, either, of being a turtle-eater. The only other birds competent to do the work and sufficiently numerous and intelligent to be suspected, are crows. Several flocks of these were hovering about the locality, and though we were not able to approach the wary birds close enough to observe them feeding, our suspicions fell upon them. Has any reader of *Science* observed crows killing turtles? If so, is this a well established habit of the bird or is it one which has been recently acquired?

EDSON S. BASTIN.

Chicago, Ill., 2421 Dearborn Street, June 14.

The Aurora.

DR. VEEDER'S reply of June 2nd, is so objectionable on account of the positive way in which he closes his part of the argument (believing, as I do, that his facts are in fault) leaving it to be believed that at "no point throughout the research has there appeared to be even the slightest 'chance' for an alternative hypothesis," that I am once more tempted to reply. Let me, before passing on, emphasize the fact that we are not discussing the question of "magnetic storms" and sun-spots. I believe there is only one astronomer and physicist of any eminence who disbelieves in this association, so that as far as discussion of the question is concerned, we may consider it as practically closed; but, even if I held the contrary opinion with the majority, so long as an opponent of such eminence held out, I should consider it inadvisable to be as positive as Dr. Veeder in his last letter, on the subject of the aurora, where, I believe, I am not alone in supposing there is reason to doubt a connection between this display and areas of disturbance on the eastern limb of the sun. I have raised some well-known objections to this theory, and, as a rule, have been met by Dr. Veeder with generalities (*Science*, April 7, 28, May 19 and June 2); it is unnecessary to mention them again here, so that I shall content myself with discussing this last contribution, which leaves me in such an uncomfortable position, apparently.

The whole base and superstructure of this theory is erected upon a solar period of rotation of "27¼ days," and to quote from a letter which I have received from Dr. Veeder, dated March 16, 1892, the addition of "a few hours difference in the length of the period introduces a drift into the tables that becomes everywhere apparent." Surely this is a suspicious degree of perfection in the theory, as no one knows what the solar period of rotation is: such periods as have been determined from sun-spots (the only possible method so far) give values between 25 and 27½ days, depending on the solar latitude of the spot; yet, the addition of a "few hours" can introduce a "drift which becomes everywhere apparent," when 2½ days is left out of the tabulating without apparent effect, for, it is evident, that in considering the effects of the return to the eastern limb of a sun-spot or area of disturbance, that it is not a fixed rotational period that should be used, but the one belonging to the latitude of the spot under discussion.

This year auroras were visible here on the following days of the year: the 5th, 6th, 8th, 21st, 35th, 36th, 44th, 45th, 46th, 47th, 104th, 109th, 127th, 128th, 130th, 144th, 145th, 160th, 164th, 165th and 166th. If auroras are caused by a disturbed solar area at the eastern limb, we should find, by adding the interval adopted by Dr. Veeder of 27¼ days to any of the above days, the probable date of the returning display. What do we find in fact? That, of the 52 periods obtained by adding this interval in succession to the above days, up to the present date, there were only 10 of the days so determined on which displays took place; that is, 20 per cent of successes as against 80 per cent of failures. In illustration of the above, the aurora of the 5th day should have reappeared on the 32¼, 59½, 86¾, 114 and 141¼; from the days of auroras given above, it will be seen it appeared on none of the required dates; nor did that of the 6th; that of the 8th reappeared twice out of five solar periods; the 21st, once out of five; the 35th, once out of four, and so on.

One more objection, previously overlooked, before passing on. I am of opinion (no one can be certain, failing the necessary observations), that there is practically no instance in which aurora displays are not taking place in one hemisphere or other of the earth; a large proportion should be observed co-incident with any other class of recurrent phenomena, and think it possible that "chance," which Dr. Veeder avoids the discussion of, is really an important element in our discussion, as I shall now endeavor to prove this by his own admissions.

In a letter to me, dated May 4, 1892, he says: "The year 1879, selected for printing as an illustration of the results seen throughout the entire table, is one of profound minimum at which times solar disturbances are well separated from each other and the relation *comes out distinctly* although for the construction of such a table one year is just as good as another." (*italics* are mine.) This is a perfectly sound conclusion, and by it alone might this theory stand or fall if "chance" is not, or is, as important as I maintain. On May 13th, Dr. Veeder writes: (This table of comparison between the phenomena being now printed) "It [1879] being a year of minimum the relation *does not come out so strongly as when disturbances were more numerous.* In the next year (1880) *the numbers would be much larger and the relation in every way more distinct.*

So far, then, Dr. Veeder has been about equally positive on *both* sides of this question, both of which opinions are apparently obtained from the observations he is in possession of, leaving the possibility open (it is his suggestion) that we are very far from "a realizing sense, that it is *facts* and not a personality against which" we "are contending."

Might I again suggest the advisability of setting a limit on the term "eastern limb," adhering *rigidly* to it throughout the investigation, not admitting too much of the suppositional when sun-spots fail at the required period by the substitution of "faculae," and seeing how far the element of "chance" enters into this question by showing a continuous series of comparisons through a semi-period, at least, of solar activity.

W. A. ASHE.

Quebec, May 17.

Scientific Words in the Century Dictionary.

ALTHOUGH one of the most useful books published, the Century Dictionary is, of course, not faultless. The mention of a mistake in a recent issue of *The Critic* reminded me also of the following:—

According to the latest edition of Foster's "Physiology," saliva "in a healthy subject is *alkaline*, especially when the secretion is abundant. When the saliva is scanty, or when the subject suffers from dyspepsia, the reaction of the mouth may be *acid.*" According to the Century Dictionary, the saliva "is a colorless ropy liquid which normally has an acid reaction."

The word "griffe," which is commonly used in Louisiana, is defined by the Century Dictionary as a "a mulatto—especially a mulatto woman." I have copied in a note-book from a lecture delivered in New Orleans by Hon. Charles Gayarré, the historian of Louisiana and authority on such matters, the following: —

"In Creole America there is a very mixed population. Even in very early times there were these distinctions: European, or fresh white immigrant; Creole, or pure white American of European parentage; the aboriginal Indian; the *griffe, or cross between Indian and negro;* the mestizo, or mixed white and Indian; the mulatto, etc., etc." These may not be the exact words of the speaker, since I may have misunderstood or copied it wrongly, but I think the same statement may be found in one of his works. Griffe, no doubt, is from the Spanish *grifos*, meaning frizzled