attention to a remarkable reef of huge concretions in the Lakota of "Driftwood Cañon" several miles northerly through the "rim" from the Burlington dam. The forms simulated huge more or less globular cycads three or four feet through, and displayed much coarse radial structure, with more or less granular siliceous or even sandy, to partly limy texture. As an illustration of these forms, Plate 21 in "Lakes of North America," by I. C. Russell, showing an old lake Lahontan shore, would all but serve. Though knowing the Lakota of the Black Hills so widely, and never having noted anything similar before, I looked on the Driftwood reef as belonging to the domain of the purely inorganic.

Now, however, this phenomenon has come up in a much more tangible form. Early this year Mr. Jesse Simmons, a geologist of the Midwest Refining Company wrote me that he had observed innumerable cycad-like masses in the Lakota [Cloverly] of the Como anticline, about sixteen miles easterly from Medicine Bow, Wyoming. On reaching this point last August I found very striking conditions indeed. There is, fairly speaking, a reef of the calcareous concretionary forms, or tufaceous heads of finely radiate structure. This lies near the top of a sandy to conglomeratic rim 80 or more feet thick resting on the broadly exposed [Como of Marsh] Morrison. The reef stratum itself marks a change in sedimentation, being sandy, to shaly or slightly limy, with the concretions very definitely in the lower portion and varying from quite globular types one to two feet in diameter up to much larger more irregular shaped masses. While immediately within the reef occur numerous smoothed quartz pebbles from small up to several pounds weight. Of these many are simply smoothed or with a ground-glass surface, but many others are polished, and of the type known as "Dreikanter" with the desert "patina." Such are like, though in no way to be confused with the *gastroliths* of the Como or other Dinosaurians.

As showing in a most curious manner the course of events on this reef one of the concretions, a subspherical example one and one half feet through which I packed and sent back to Yale, contains imbedded well toward its center one of the highly smoothed pebbles a half pound in weight. All round this pebble the radiate concretionary structure runs as uninterruptedly, the same as if no pebble were present. Evidently when these siliceous pebbles containing traces of fossils of some earlier geologic period were being smoothed by wind or wave or both, and when the masses of calcareous tufa were being deposited from more or less saturated waters, a wave cast that pebble on top of the first formed basal or squamous rosette. Then the tufaceous mass, with little increase of diameter, continued its growth and regularity of structure upward as before.

Of such tufa reefs as these, and such pebbly shore lines of the western Cretaceous, little is as yet known, and to my knowledge nothing has been reported hitherto. But inasmuch as the general facts seem to indicate conditions not unlike those found about such recedent lakes as Bonneville and Lahontan, it is hoped this preliminary note may call forth much further observation afield. If those who have perchance seen the tufa reefs, and especially the smoothed pebble beaches, would kindly report their observations I would esteem it a favor. It is not improbable that some considerable and synchronous lacustrine shore lines can be definitely located, a result which would be of the first geologic interest.

To what extent algal life has played a part in the growth of these tufas of more remote geologic time is not fully understood. In the case of all the finely radiate tufas there is less likelihood of substitution of any kind than in the coarser Thinolitic type of Lake Lahontan studied by E. S. Dana. It seems unlikely that the masses often of such striking regularity of form could result from purely inorganic processes.

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Is Honey a Luxury?

In the October 15, 1920, number of Science appeared an article by Mr. J. J. Willaman,

headed "Levulose Sirup," which contained one statement that I believe should be corrected. He states that of the four sugar products, glucose, sorghum, honey and maltose, "sorghum and honey are the only ones that compete with sugar in sweetness," and farther on in the article adds "of the two sweeter products, honey will probably of necessity always remain a luxury." It is this last statement to which I take exception.

Honey should not be considered a luxury. It is the form of sweet that was used long before cane sugar was ever thought of, and is in many places now a staple article of food. During the sugar shortage caused by the late war honey was used to a much greater extent than ever before in this country and thousands of families used honey almost exclusively in place of sugar. In addition, millions of pounds were exported. One reason that honey is often considered a luxury is because it is too frequently bought in such small quantities that the purchaser is paying far more for the container and the labor of putting the honey up in such form than he is for the honey itself. The writer knows a number of families who buy extracted honey regularly in 60 pound lots and consider it a staple article of food rather than a luxury.

Enormous quantities of honey are used in baking in this country, both for home baking and by commercial baking firms, since honey possesses a number of advantages over sugar in baking. It is stated that the National Biscuit Company at one time bought seventy carloads of honey in one lot. Honey is also extensively used in the making of fine candies, high-grade ice cream and soft drinks.

It is a commendable thing to point out as Mr. Willaman has done, how a new industry may be developed, especially when the product of such industry is to be a food, yet it is unjust in pointing out such a possibility to make a statement which tends to foster a mistaken idea, entirely too prevalent already, about another food product, an idea that the beekeeping industry and all its sponsors are trying to eradicate. The beekeeping industry in this country is annually conserving millions upon millions of pounds of one of the finest food products existent that would otherwise be absolutely lost. Yet many times the amount saved is actually lost because this industry is not developed to such an extent as to take care of more than a small percentage of the possibilities. The complete development of this industry can come only when the people as a whole recognize honey as a staple article of food rather than as a luxury.

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THE FLIGHT OF FIREFLIES AND THE FLASHING IMPULSE

FIREFLIES are wonderfully interesting creatures. There is something marvellous in the physiology of a lowly living mechanism that can transform chemical energy into luminous energy with such a nearly perfect radiant efficiency and with so little effort as do the fireflies. Theirs is a light without appreciable heating effects, because in some manner the energy of special chemical reactions taking place within their tissues, is transformed almost entirely into luminous energy.

If one observes fireflies[1] closely it will be noted that their flight movements and flashing under certain conditions bear some relation to each other. During the day these insects seek concealment in the low herbage and grass. With the approach of evening they become active and just after sundown may be seen to arise in great numbers from the damp herbage, flashing leisurely from time to time. If the air is still and warm, it will be noted that as the creatures arise very slowly, each flash is attended by a sudden upward flight impulse which may even carry them almost straight upward several feet. Usually, however, they are propelled upward in a more or less curved path.

At this time the flight of the fireflies appears to be very weak, for they drift along aimlessly, and appear almost unable to keep clear of the herbage, often actually descending

[1] These observations apply to the behavior of the species *Photinus pyralis* Linn.