Hypothetical Inorganic Composition of the Solution

	Grams per Liter	Per Cent. of Total
Na_2SiO_3	0.1460	1.84
$Ca(HCO_3)_2$	0.2913	3.68
$CaSO_4$	0.8780	11.08
$MgSO_4$	0.8855	11.18
$MgCl_2$	0.3023	3.81
KCl	0.5875	7.42
NaCl[9]	4.8330	60.99
Total	7.9236	100.00

The Terrace crater, and indeed all of the craters of the Ice Spring Craters group, is unquestionably post-Bonneville in origin. There is no trace of wave work on the outer slopes of the craters such as are so conspicuous on Pavant Butte to the north, and neither lacustrine sediments nor evidences of subaqueous erosion appear on the surface of the evidently recent lava fields as they do on the Fumarole Butte lava field to the northwest.

The depth of the vent of the Terrace crater is 260 feet below its general rim and 220 feet below the sill of the last outflow. The problem of the original introduction of *Gammerus* into the small pool of water occupying the bottom of this crater is that of the transportation of small crustacean species or their eggs in general. The point of physiological interest is the occurrence of this species, hitherto reported from non-saline waters, in water of this concentration.

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[9] An average value based on NaCl contents of 4.8790 gr. calculated from residual Na and 4.7870 calculated from residual Cl. The difference of 0.092 gram per liter is within experimental error when one remembers that the above calculations are purely empirical and also when one considers that in some instances the actual analytical values, and consequently accompanying experimental errors, were multiplied by 50 to bring the calculation to a liter basis.

AN EYELESS DAPHNID, WITH REMARKS ON THE POSSIBLE ORIGIN OF EYELESS CAVE ANIMALS

During the past nine years vast numbers of Cladocera of several species have been reared in the writer's laboratory. For one purpose or another many thousands of these have been examined with the microscope. About a year ago was found the only marked aberration of the eye structure which has been noted. This was a *Simocephalus* without any trace of an eye.

Unfortunately this individual was discovered among the small number just killed for use in making some permanent slide mounts. The killing of this individual was unfortunate in that a Cladoceran when killed becomes somewhat opaque while the live animal is so transparent that internal structures can be clearly distinguished. Nor was the differentiation so good in the completed mount as in a live animal. It was clear however both in the freshly killed specimen and in the mount that not only the eye pigment but the entire eye structure was lacking. The ocellus was present and normally pigmented. While it is not quite demonstrated in the mounted specimen it is probable that the optic ganglion is normally developed in the eyeless individual.

It is a source of keen regret to the writer that this eyeless individual was not discovered alive so that offspring could have been obtained from it and light thrown on the nature of the peculiarity, whether of genetic consequence or merely an accident in development. No eyeless individuals were found among sibs and many offspring of sibs of this eyeless individual. This fact however does not convince one that eyelessness in this case may not have been inheritable, since in these prevailing parthenogenetic forms there is no chromatic reduction in the maturation of the egg and hence no segregation of characters is expected. If the eyeless condition of this individual were due to a mutation its descendants should have been eyeless, but un-

less the mutation occurred in a cell generation earlier than that in which the egg itself was differentiated no other germ cells of the parent or collaterals of the eyeless individual should bear the factor for eyelessness.

Observation of the occurrence of an eyeless mutant and the transmission of this characteristic would be of great interest as bearing upon the probable origin of eyeless cave animals. As is well known, many cave animals, particularly crustaceans, are without eyes or have extremely degenerate eyes.

It has been suggested that such cave forms may have arisen by "orthogenesis" (many small mutations) or, by implication, possibly by a single large mutation.[1]

Eyelessness in these forms is associated with lack of body pigment. Pigmentless animals, such as cave amphipods for example, may suffer deleterious effects if they come under the influence of the actinic rays of sunlight. Such animals are conspicuous and an easy prey to their natural enemies. In so far as a general vision may aid such organisms in reaching a suitable locality for securing food eyeless individuals are at a disadvantage in the open in competition with eyed individuals. On the other hand in caves and similar situations they are shielded from light, are not rendered conspicuous by their whiteness and are at no disadvantage in competition for food. It would seem that they have become segregated in caves and other retired situations because they can survive there and are unable to do so elsewhere.

The occurrence in *Drosophila* of a "bar-eyed" mutant (eye much reduced in size and in effective elements) and an "eyeless" mutant (in most cases not really eyeless but eyes more or less rudimentary) lends credence to the theory that eyeless cave animals, or such animals with very defective eyes, may have arisen as the result of mutations. One does not however lose sight of the fact that the eyeless daphnid mentioned may have arisen from a disturbance in development such as the writer has seen in eyeless salamander larvae and as have been found in other experimentally treated material. Of course in such cases one does not in general (Guyer's rabbits possibly form a notable exception) anticipate any degree of inheritance whatever, even if the abnormal individuals were viable and capable of producing young.

In the case of this eyeless daphnid however there were embryos in the brood chamber and there seemed every reason to believe that it possessed the normal capacity for producing young.

ARTHUR M. BANTA

[1] Banta, Carnegie Institution of Washington, Publication No. 67, 1907.

THE EASTER MEETING OF THE AMERICAN MATHEMATICAL SOCIETY AT CHICAGO

THE sixteenth regular Western meeting of the American Mathematical Society was held at the University of Chicago on Friday and Saturday, March 25 and 26, 1921. The meetings were attended by over sixty persons, among whom were fifty-three members of the society.

The session of Friday afternoon was devoted to a lecture by Professor Dunham Jackson on "The general theory of approximation by polynomials and trigonometric sums."

It was voted at this meeting that the Christmas meeting of the Chicago Section be held in Toronto, in affiliation with the Convocation week meetings of the American Association for the Advancement of Science.

A dinner at which forty-seven persons were present was held at the Quadrangle Club on Friday evening.

At the sessions of Friday and Saturday forenoons, the following papers were presented:

1. I. J. Schwatt, "On the expansion of powers of trigonometric functions."
2. I. J. Schwatt, "On the summation of a trigonometric power series."
3. W. B. Ford, "A disputed point regarding the nature of the continuum."
4. Mayme I. Logsdon, "The equivalence of pairs of hermitian forms."
5. C. C. MacDuffee, "Invariants and vector covariants of linear algebras without the associative law."
6. E. J. Wilczynski, "Some projective generalizations of geodesics."
7. W. L. Hart, "Summable infinite determinants."