

6. There is a mound located on the Pence farm, on Flatrock River, Flatrock township, two miles northeast of Clifford; explored by Dr. Arwine in 1898. Bones, ashes and arrow-points were found.
7. There is a mound one and one-half miles east of the last mentioned (No. 6) on James Hagar's farm. Never explored.
8. Burial place on farm of James Remy, near Burnsville. See eleventh Geological Report, 1881, page 204.
9. Bones have been taken from the Remy gravel bed, near Burnsville. *Ibid.*
10. Bones have been taken from the Hacker burial place. *Ibid.*

MICROSCOPICAL ORGANISMS FOUND IN THE LAFAYETTE (IND.) RESERVOIR.

SEVERANCE BURRAGE.

The reservoir of the city of LaFayette is located in a park on Oakland Hill, the highest point of land east of the city, with an altitude of about two hundred feet above the level of the Wabash River. The reservoir itself is built up above the surrounding land level, and the survey head of the reservoir is given as two hundred and thirty-two feet. The reservoir is not quite two hundred feet square, has a depth of twenty-eight feet, and a capacity of four million two hundred thousand gallons. The water with which this reservoir is supplied is obtained from the regular city supply wells, which are driven forty or more feet into the bed of the Wabash River. The water from these wells is remarkably pure and free from organisms. A recent bacteriological analysis showed but one germ to a cubic centimeter, and a microscopical examination was a complete blank. Of course, this remarkable purity is at once lost when this water is pumped up to the reservoir and exposed to the air and sunlight.

It is the purpose of this paper to give a census of the micro-organisms, exclusive of the bacteria, found in this reservoir water, the figures being obtained from twenty microscopical analyses, covering a period of five years:

	Maximum number in any one sample.	Average in all samples.	Percentage of occurrence.
Diatoms—			
Asterionella	8,700	271.8	60
Cyclotella	2,500	129.5	50
Diatoma	600	10.9	30
Navicula	3,100	108.6	75
Synedra	135,400	18,766.6	100
Pinularia	200	3.8	25
Cocconeis	600	15.4	25
Gomphonema	100	0.9	5
Meridion	100	0.9	5
Cocconema	300	8.1	20
Melosira	4,200	47.2	10
Fragilaria	300	4.4	15
Nitzschia	50	0.4	5
Tabellaria	50	0.7	10
Algae—			
Chaetophora	100	5	5
Oedogonium	100	5	10
Raphidium	50	0.4	5
Protococcus	100	5	5
Scenedesmus	2,800	671.4	20
Fungi—			
Crenothrix	4,400	106.4	35
Beggiatoa	1,200	90	10
Infusoria—			
Dinobryon	64,000	6,546.6	90
Peridinium	28,900	1,031.8	50
Uroglena	800	75.3	25
Rotatoria—			
Anurea	500	126	25
Polyarthra	100	5	5
Crustacea—			
Cyclops	10	0.6	15

Total number of species represented, 27.

Particular attention is called to the three forms, Uroglena, Asterionella and Dinobryon.

The colony-building infusorial form *Uroglena* has appeared in the water of the LaFayette reservoir rather regularly in the summer months since 1896, and has been the cause of much annoyance to the water works officials. At such times it has imparted a very disagreeable odor and taste to the water, leading many consumers to complain that there were dead fish or eels in the pipes. In the summer of 1898 it became necessary to have the water completely drawn off from the reservoir in order to thoroughly cleanse it and get rid of the *Uroglena*. There has been no serious trouble since that time.

The star-shaped diatom *Asterionella*, although occurring in considerable numbers, has not, as far as known, caused any noticeable effect on the odor or taste of the water. Yet this is the organism which has so often given the characteristic geranium taste to many eastern water supplies.

Another infusorial form, *Dinobryon*, is present in the water of the reservoir in large numbers at the present time. Should this number increase to any great extent, we may expect to have a fishy odor and taste imparted to the water.

Aside from these three above mentioned forms, the organisms found in the reservoir have practically no effect on the odor or taste of the water.

PHYSICAL OBSERVATIONS OF THE PLANET MARS AT THE OPPOSITION OF 1901.

W. A. COGSHALL.

Observations of the last opposition of Mars were made at the Kirkwood Observatory of Indiana University from the time the twelve-inch telescope was in place, early in February, till late in May. The observations consisted mainly in drawing the surface markings and were carried on nearly every good night between the dates mentioned. The drawings submitted herewith were all made between February 15 and May 1. Drawings of two different observers are included in the series, part being by Professor J. A. Miller, and part by the writer. Where the drawings of both for the same night are placed together they are generally marked by the proper initials. In all this work the drawing was done as independently as possible, neither looking at the other's drawing until both were complete. It will be seen that in every case the markings drawn are essentially the same, although the drawings vary slightly both in detail and in the location of the dark areas, Dr. Miller almost always placing the dark regions of the southern hemisphere somewhat farther to the south than did the writer.