three-eighths of an inch wide, about twelve inches apart and one hundred feet long, were formed west of Weaver's Point.

In some instances the cracks seemed to be formed by an impact at right angles to the field as if some subaqueons cyclops had hurled a thunderbolt against the frozen mass and sent fractures in all directions from this point as center.

Off the Pickwick shore covering a large area the cracks were so numerous as to suggest a fine intricate mosaic. This will to some extent explain the readiness with which ice eight inches thick was removed by the wind and made to resemble slush in a few hours after it begins to move.

January 27, 1896, there occurred an unusual cracking of the ice, lasting all day and far into the night. A constant bursting, crashing and booming pervaded the whole lake. The noises suggested the crunching of heavy falling timbers and the hoarse roar of distant cannonading. The day was clear, sun shining most of the time, with temperature 26 to 34 degrees. The next day, with temperature 30 to 32, and cloudy, the lake was as silent as a cemetery.

After several days' moderately high temperature, during the last week of February the ice was well honeycombed. March 1st the temperature lowered to 26, accompanied by a high north wind and snow. The drifting snow was driven into the cells of the ice, making the whole field resemble a fine piece of öolite.

The Plankton of Turkey Lake.* By Chancey Juday.

The data for this preliminary report were collected during July and August, 1896, at Indiana University Biological Station. To Dr. C. H. Eigenmann, Director of the Biological Station, I am indebted for the plan of the net and for many helpful suggestions.

Hensen, who is the author of the term "plankton," applied this term to all plants and animals which are found floating free and which are carried about involuntarily by winds, waves, tides or currents. Haeckel extended the application so as to include all swimming and floating organisms. At present, however, those organisms that are not subject to the above-named physical forces are not considered plankton, and they shall not be dealt with as such in this report.

It has been demonstrated that a part of the plankton, the crustacea, furnishes nearly all the food of our most important fishes at a very critical period of their lives, that is, while they are very young fry (Forbes, 1889). This makes plankton a very important factor in the environment of these fishes. Its scarcity or abundance and the relative amount of crustacea will have much influence upon the

*Contributions from the Zoölogical Laboratory of the Indiana University under the direction of C. H. Eigenmann, No. 19.

growth and development of the young fish. The plankton of Turkey Lake is here considered as an environment rather than as including a large portion of its inhabitants. As yet very little has been done toward classifying the various organisms composing it, but a great portion of it is crustaceans.

The net used in determining the quantity of plankton is essentially the same as those used by Hensen, Apstein and Reighard. The upper part consists of a truncated cone of canvas, supported by an iron framework. The diameter of the upper or smaller end of this cone is 33.35 cm. and of the larger or lower end 49 cm. The slant height is 36 cm.

The net proper is made of Dufour's No. 20 bolting cloth. It is a truncated cone with a slant height of 86 cm. The larger end is attached to the iron ring supporting the larger end of the canvas cone. To the smaller end is fastened a flat metal ring which supports the bucket. Three ropes attach this flat metal ring to the framework of the canvas cone. This relieves the net proper of the weight of the bucket. A twine net of inch mesh surrounds the net, serving to protect it and to remove as much strain from it as possible.

The bucket is a metal cylinder 6.5 cm. in diameter and 7 cm. deep. A flat metal ring is attached to the top. Through this pass three binding screws, which fasten the bucket to the ring on the bottom of the net. The sides of the bucket, except three narrow strips, are cut away, making three openings, 30 x 50 cm. These openings are covered with a wire gauze which has 77 per cent. of its surface solid and 23 per cent. open for the passage of water. The No. 20 bolting cloth has 83 per cent. of its surface solid and only 17 per cent. open for the passage of water. But an examination of water strained through each proved that the wire gauze is as effective a strainer as the cloth, and when water rich in plankton is forced through each by means of a pipette the gauze is the more effective strainer (Eigenmann, 1895). The bottom of the bucket is cup-shaped and has a small opening in the center. This opening is closed by a rubber stopper through which passes a short glass rod that enables one to remove the stopper conveniently. Three legs, each 10 cm. long, support the bucket.

Three ropes radiating from an iron ring are attached to the framework of the canvas cone and support the entire net. The rope which is used in drawing the net up is attached to this iron ring. This rope is measured off into feet or fractions of a meter, so the depth to which the net descends can be determined easily.

The plankton boat is provided with a swinging derrick in the stern. In the end of this derrick is a pulley through which the net rope passes. The derrick is high enough to allow the net to swing clear of the sides of the boat, so that the net may be swung into the boat after a haul has been made. (Eigenmann, 1895.)

In making a haul, the net is lowered slowly at first, so as to allow it to fill with water that has filtered through the bolting cloth. This prevents any abnormal amount of plankton which might occur if the surface water, rich in plankton, were allowed to fill the net without first being strained. The net is now lowered to the desired depth and hauled in hand over hand. The number of seconds required to raise it to the surface is noted. This will give the velocity, and from this the coefficient of the net, or its efficiency in straining, is calculated. The net is now raised out of the water, and while the process of filtering is going on some water is dashed against it so as to wash down any organisms that may be lodged on the inside. When the filtering process has progressed far enough, the binding screws are loosened and the bucket is removed. Filtering is now hastened by gently tapping the wire gauze with the hand. As soon as nearly all of the water has filtered out the bucket is placed over a small, glass-stoppered bottle which will hold about 250 cc., the rubber stopper is removed and the contents transferred to the bottle. The organisms that may be lodged on the sides of the bucket are rinsed into the bottle with filtered water. Enough 95% alcohol is now added to the contents of the bottle to give the whole a strength of 70%. This kills and preserves the organisms and facilitates the work by eliminating two or three steps which are necessary when some other killing agent is used. Besides, the organisms were found to be in a very good condition for qualitative work when killed and preserved in this way.

In measuring the quantity of plankton, a centrifuge manufactured by Richards & Co., of Chicago, was used. This is preferable to letting the material settle twenty-four hours, because it requires less time and puts the mass into a more compact form. This method also has an advantage in that it makes the measurements more uniform. If there is a large amount of light material in a haul, this will not settle very compactly in twenty-four hours, consequently the volume will be large. On the other hand, another haul may have a greater mass of material, but not yield such a large volume, because it is composed of material that will settle more compactly in the twenty-four hours.

Each bottle is permitted to stand an hour or so after it is taken to the laboratory. Some of the alcohol may then be removed without danger of losing any of the plankton. The remaining material is shaken up and poured into a graduated cylinder. The bottle is carefully rinsed and the rinsings added. The material is now thoroughly stirred with a small glass rod, so as to distribute the organisms equally throughout the liquid. The two sedimentation tubes, which are graduated to tenths of a cubic centimeter, are filled and placed in the metal cases of the centrifuge. The drive wheel is turned through 50 revolutions and the tubes are permitted to stand a few minutes so that the few small organisms that may still be floating in the liquid may settle to the bottom; 50 more revolutions are given and the quantity of plankton is recorded. In all the measurements given in the table below only from 20% to 50% of each haul was actually measured. As a check upon this method several hauls were estimated and then the entire quantity measured. The differences were so slight that they might be accounted for by the small quantity of sand that is nearly always present. This would settle to the bottom of the graduated cylinder quickly, and would not be included when only a part of the haul is measured.

One revolution of the drive wheel of the centrifuge causes $31\frac{1}{2}$ revolutions of the sedimentation tubes, and a hundred revolutions of the drive wheel are made in one minute. Thus in each case the plankton is subjected to 3,150 revolutions per minute, which is equivalent to a centrifugal force of about 391,680 dynes. In order to compare these results with those obtained by letting the material settle twenty-four hours, eight measurements were made by both methods. These show that the quantity obtained by the centrifuge is, on an average, only one-fifth of the quautity obtained by the other method. So it must be borne in mind that the results tabulated below must be multiplied by five in comparing them with results obtained by letting the material settle twenty-four hours.

The quantity of plankton taken at each haul does not represent the entire quantity in the column of water through which the net passes. Some of the water will be forced aside and the amount thus forced aside depends upon the velocity of the net. (Reighard, 1893.) That is, when the net is raised at a velocity of about 77 cm. per second, it will strain only half the column of water. In this case, to get the entire quantity of plankton, the amount taken must be multiplied by two which is the co-efficient of the net for this velocity. If the net is drawn slower more water is forced aside, hence a greater co-efficient. By plotting the results obtained by using the co-efficient for the observed velocity and that for the average velocity of the sixty hauls, it was found that the two curves differ very little except in two places and these represent hauls in which the velocity is very low. So it was deemed best to use the average velocity, 63.5 cm. per second, in computing results. The co-efficient of the net for this velocity is 2.215.

Also, to find the quantity of plankton under one square meter of surface another calculation is necessary. The area of the top of the net is 873.5 sq. cm. or a little less than one-eleventh of a sq. m. $\left(\frac{1}{11.448}\right)$. Thus, the quantity taken multiplied by the co-efficient of the net (2.215) and this by 11.448, or a total of 25.357, will give the amount of plankton under one sq. m. of surface. This result divided by the depth of the haul will give the quantity of plankton per cu. m. of water.

The tabulated results of the sixty hauls are as follows:

Conditions of.														Volume of Plankton in Cubic Centimeters.		
Time, 1896.			Haul.				Water.				Air.				Calculated, Using Mean Velocity .635 meter per second.	
Month.	Day.	Hour.	Serial Number.	Depth in Meters From Which Drawn.	Velocity in Meters Per Second.	Bottom.	Depth in Meters.	Temperature in Degrees Centigrade. Bottom.	Temperature in Degrees Centigrade. Top.	Surface.	Temperature in Degrees Centigrade.	Wind Direction.	Sky.	Taken in Vertical Net.	Under 1 sq. m. of Surface.	Per Cubic Meter of Water.
								Deg.	Deg.		Deg.					
July	1	4.00 P M	I_1	4.5	.42	Muck	6.09	20.5	26	Moderate waves	27	S. E..	Clear	3.25	81.41	18.03
"	1	5.20 "	II_1	6.09	.41	Marl .	8.8	20	26	"	27	S. E..	"	3.9	98.89	16.23
August..	7	9.30 A M	II_2	6.09	.68	" .	8.8	21	27.5	"	26.5	S.....	Cloudy	4.72	119.8	19.68
" ..	7	9.50 "	II_3	6.09	.76	" .	8.8	21	27.5	"	26 5	S.....	"	3.3	83.67	13.74
" ..	7	10.10 "	II_4 ...	3.04	.61	" .	8.8	21	27.5	"	26.5	S.....	"	5.17	131.09	43.1
" ..	7	10.20 "	II_5	3.04	.61	" .	8.8	21	27.5	"	26.5	S.....	"	4.15	105.38	34.6
July	2	4.15 P M	III_1	19.2	.53	" .	20.7	9.5	25	"	32	N. W.	"	2.75	69.73	3.63
August .	21	9.15 A M	III_2	3.01	.51	" .	20.7	14	25	Slight waves....	25	S.....	"	1.98	50.33	16.5
" ..	21	9.30 "	III_3	3.01	.61	" .	20.7	11	25	"	25	S.....	"	2.11	53.5	17.6
" ..	21	10.15 "	III_4	6.09	.68	" .	20 7	11	25	"	25	S.....	"	3.36	85.19	13.9
" ..	21	10.30 "	III_5 ...	6.09	.68	" .	20 7	11	25	"	25	S.....	"	2.74	69.5	11.41
" ..	21	11.05 "	III_6 ..	12.1	.71	" .	20.7	14	25	"	25	S.....	"	2.55	64.66	5.3
July	10	2.10 P M	IV_1	6.09	.68	" .	20.1	11	22	Smooth	......	S. W.	"	3.12	79.24	13.00
"	10	2.30 "	IV_2	6.09	.55	" .	20.1	11	22	"	......	S. W.	"	2.74	62.75	10.3
"	10	3.00 "	IV_3	6.09	.55	" .	20.1	11	22	"	......	S. W.	"	3.23	82.08	13.47
"	10	3.20 "	IV_4 . ..	6.09	.55	" .	20.1	11	22	"	......	S. W.	"	2.67	67.77	11.12
"	20	10.00 A M	IV_5.....	6.09	.71	" .	20.1	11	21.5	Rough	22	N. W.	"	3.22	81.77	13.42
"	20	10.15 "	IV_6 ..	15 2	.76	" .	20.1	11	21.5	Quite rough.....	22	N. W.	"	2.53	64.34	4.22
"	20	10.30 "	IV_7	3.04	.51	" .	20.1	11	21.5	"	22	N. W.	"	2.51	63.84	21

Time, 1896.			Haul.			Conditions of—Continued.								Volume of Plankton in Cubic Centimeters.		
							Water.				Air.				Calculated, Using Mean Velocity .635 meter per Second.	
Month.	Day.	Hour.	Serial Number.	Depth in Meters From Which Drawn.	Velocity in Meters Per Second.	Bottom.	Depth in Meters.	Temperature in Degrees Centigrade. Bottom.	Temperature in Degrees Centigrade. Top.	Surface.	Temperature in Degrees Centigrade.	Wind Direction.	Sky.	Taken in Vertical Net.	Under 1 sq. m. of Surface.	Per Cubic Meter of Water.
								Deg.	Deg.		Deg.					
August	6	10.50 AM	IV_8	18.2	.76	Marl	20.1	14.5	28	Moderate waves	31	S. W.	Broken Clouds	4.1	103.9	5.68
"	6	11.10 "	IV_9	6.09	.68	"	20.1	14.5	28	"	31	S. W.	"	4.74	120 19	19.73
"	6	11.25 "	IV_{10}	6.09	.68	"	20.1	14.5	28	Slight waves....	31	S. W.	"	4.27	107	17.6
"	17	3.30 PM	IV_{11}	6.09	.76	"	20.1	16	26.5	Rough	23	N. W.	Cloudy	3.91	99.27	16.3
"	17	3.45 "	IV_{12}	6.09	.68	"	20.1	16	26.5	"	23	N. W.	"	2.75	69.73	11.4
"	19	9.50 AM	IV_{13}	6.09	.76	"	20.1	15.5	25	Moderate waves	16.5	N. E.	Clear..........	5.85	148.3	24.3
"	19	10.15 "	IV_{14}	6.09	.76	"	20.1	15.5	25	"	16.6	N. E.	"	3.86	97.87	16
"	19	10.25 "	IV_{15}	6.09	.68	"	20.1	15.5	25	"	16.5	N. E.	"	4.24	107.5	17.6
"	20	2.25 PM	IV_{16}	6.09	.68	"	20.1	15	25	Slight waves....	25.5	S.....	"	2.82	71.6	11.76
"	27	11.00 AM	IV_{17}	6.09	.61	"	20.1	16	23	Moderate waves	......	N. W.	Cloudy	1.62	41.2	6.7
July	20	11 00 "	V_1	1.5	.43	Muck	2.4	21.5	21.5	Slight waves....	22	N. W.	"	1.5	38	25
"	20	3.30 PM	VI_1	6 09	.76	Marl	11.27	18	22	Moderate waves	23	W	Broken clouds	2.23	56.5	9.28
"	20	3.45 "	VI_2	6.09	.61	"	11.27	18	22	"	23	W	"	2.17	55.15	9.05
"	20	4.30 "	VII_1'	9.14	.30	Sand	1.8	22	22	"	23	W	"	1.51	38.3	41.8
"	21	9.27 AM	$VIII_1$	2.1	.71	"	3 2	22	22	Smooth	23.5	S. W.	"	1.8	45.6	21.4
"	21	10.00 "	IX_1	6.09	.76	"	13.1	15	23	"	24	S. W.	"	2.5	63.3	10.4
August	3	2.37 PM	X_1	7.62	.76	Marl	10	19	25	Slight waves....	27	S. W.	"	6.17	156.5	20.5
"	12	2.00 "	X_2	6.09	.68	"	10	21	29	"	26.5	E	Cloudy.........	6.52	165.3	27.1
"	12	3.00 "	X_3	6.09	.68	"	10	21	29	"	26.5	E	"	5.42	137.5	22.5
"	12	3.20 "	X_4	3.04	.55	"	10	21	29	"	26.5	E	"	7.75	196.5	64.6
"	7	11.20 AM	XI_1	6.09	.76	"	7.3	23	26.5	"	26	S. E..	"	5.17	131,2	21,5

“	..	7	11.30 “	XI_2	6.09	.76	“ .	7.3	23	26.5	“	26	S. E..	“	3.6	91.2	14.9
“	..	7	3.00 PM	XII_1	1.37	.46	Sand .	2.1	26.5	28	“	28	S.....	“	3.41	86.5	63.1
“	.	7	3.20 “	XII_2	1.37	.55	“ .	2.1	26.5	28	“	28	S.....	“	2.76	70	51.1
“	..	8	10.00 AM	XIII_1 ..	6.09	.68	Marl .	14	16	28	Moderate waves	29	S.....	Hazy	4.9	124.2	20.4
“	..	8	10.10 “	XIII_2 ..	6.09	.71	“ .	14	16	28	“	29	S.....	“	4.68	118.8	19.5
“	..	8	10 25 “	XIII_3 ..	3.04	.61	“ .	14	16	28	“	29	S.....	“	6.5	164.8	54.2
“	..	8	10.40 “	XIII_4 ..	3.04	.61	“ .	14	16	28	“	29	S.....	“	4.59	116.4	38.3
“	..	8	11.00 “	XIII_5 ..	1.5	.43	“ .	14	16	28	“	29	S.....	“	3.85	97.6	64.2
“	..	12	10.20 “	XIV_1 ..	1.5	.51	Muck	3.3	27	29	Calm	25.5	E	Cloudy	8.2	287.9	136.8
“	.	12	4.00 PM	XV_1	1.8	.45	“ .	3.04	28	29	“	26.5	None	“	4.8	121.7	80
“	..	17	9.00 AM	XVI_1...	9 14	.61	Marl .	10.6	....	26.5	“	23	“	Clear	3.39	85.9	9.4
“	..	17	9.35 “	XVII_1..	2.1	.60	Sand .	3.04	26	26.5	“	23	“	“	4.5	114.1	54 3
“	..	17	9.45 “	XVII_2..	2.1	.70	“ .	3 04	26	26.5	“	23	“	“	4.11	104 .3	49.7
“	..	17	10.50 “	XVIII_1.	3.04	.61	“ .	4.5	26	27	Slight waves....	23	N. W.	Cloudy	4.8	121.7	40
“	..	17	11.45 “	XIX_1. .	3.04	.61	“ .	4.5	26	27	“	23	N. W.	“	4.09	103.8	34.1
“	..	21	3.30 PM	XX_1....	6.09	.61	Marl .	13.3	19	25.5	Moderate waves	28	S.....	“	1.8	45.6	7.49
“	..	21	4.00 “	XX_2....	6.09	.76	“ .	13.3	19	25.5	“	28	S.....	“	2.39	60.7	9.98
“	..	21	4.15 “	XX_3	9.14	.70	“ .	13.3	19	25.5	“	28	S.....	“	1.72	43.7	4.78
“	..	25	4.15 “	XXI_1...	6.09	.76	Muck	7.3	23	24.5	“	26.5	S. W.	Hazy	1.71	43.3	7.12
“	..	25	4.30 “	XXI_2...	6.09	.68	“	7.3	23	24.5	“	26.5	S. W.	“	1.91	48.5	7.97

In the table the stations are indicated by Roman numerals and the number of the haul by Arabic. The other points are self-explanatory.

The twenty-one stations are quite widely distributed, as the accompanying map will show, so as to include as many of the various conditions as possible. To see whether local variations affect the distribution of plankton, two or more hauls were made at the same station as nearly under the same conditions and in as quick succession as possible. Following Apstein, the mean for the hauls thus made is taken, and the per cent. of variation of each haul from this mean is calculated. The results are shown in the following table:

NUMBER OF HAUL.	Depth of Haul.	Volume per Sq. m. of Surface.	AVERAGE.	Per cent. of Variation from Average.
II_1	6.09	98.89		1.9
II_2	6.09	119.88	100.81	15.9
II_3	6.09	83.67		20.4
II_4	3.04	131.09	118.23	9.8
II_5	3.04	105.38		12.1
III_2	3.04	50.33	51.94	3.1
III_3	3.04	53.56		3
III_4	6.09	85.19	77.34	9.2
III_5	6.09	69.50		11.2
IV_1	6.09	79.24		7.9
V_2	6.09	62.75	72.96	16.2
IV_3	6.09	82.08		11.1
IV_4	6.09	67.77	....	7.6
IV_9	6.09	120.19	113.61	5.4
IV_{10}	6.09	107.04		6.1
IV_{11}	6.09	99.27	84.5	14.8
IV_{12}	6.09	69.73		21.1
IV_{13}	6.09	148.33		25.1
IV_{14}	6.09	97.87	117.9	20.4
IV_{15}	6.09	107.51		9.6
VI_1	6.09	56.57	55.86	.12
VI_2	6.09	55.15		.12
X_2	6.09	165.32	151.44	8.3
X_3	6.09	137.56		10
XI_1	6.09	131.22	111.25	15.2
XI_2	6.09	91.28		21.8
XII_1	1.37	86.53	78.28	9.5
XII_2	1.37	70.04		11.7
$XIII_1$	6.09	124.24	121.55	2.1
$XIII_2$	6.09	118.86		2.2
$XIII_3$	3.04	164.82	140.65	14.6
$XIII_4$	3.04	116.48		20.7
$XVII_1$	2.1	114.10	109.24	4.2
$XVII_2$	2.1	104 38		4.6
XX_1	6.09	45.64	53.21	16.5
XX_2	6 09	60.78		12.4
XXI_1	6.09	43.36	45.95	5.9
XXI_2	6.09	48.55		5.3

Thus 9 hauls vary between .12 per cent. and 5 per cent.; 12 between 5.1 and 10; 7 between 10.1 and 15; 4 between 15.1 and 20, and 5 between 20.1 and 25; 1 haul varied 25.1 per cent.

Eighty-four per cent. of the 38 hauls do not vary more than 20 per cent and only one over 25 per cent. This variation is slightly greater than in the results obtained by Apstein and Reighard.

Station IV was selected for the purpose of studying changes in distribution from day to day by making daily hauls, but this plan was not carried out. However, five hauls were made here in July and eight in August at a depth of six meters. Those made in July have an average of 12.26 cc. of plankton per cu. m. of water, while the eight made in August have an average of 16.86 cc. per cu. m. of water. This increase of 4.6 cc. is due to the natural seasonal variation, as Apstein (1892) found that there is a rapid increase in the quantity of plankton during August and September, reaching a maximum about the 1st of October.

Turkey Lake is comparatively rich in plankton. Dobersdorf See, which is classed as "plankton rich" by Apstein, contained in July, 1892, 1,062 cc. of plankton under one sq. m. of surface at a depth of 20 m., or 53 cc. per cu. m. of water. One haul (III) in Turkey Lake, July 2, shows that it contained 348.6 (69.73 x 5) cc. under one sq. m. of surface at a depth of nearly 20 m., or 18.15 cc. per cu. m. of water. Thus Dobersdorf See contained not quite three times as much plankton. In comparison with other North American lakes, Turkey Lake has from thirty to fifty times as much plankton in August as Reighard (1893) found in Lake St. Clair in September, and from fifteen to twenty times as much as Ward (1894) found in Lakes Michigan, Round and Pine at the same depths and during the same month, August.

A surface stratum about three meters deep contains most of the plankton of Turkey Lake. The average number of cc. per cu. m. of water for the ten hauls made at a depth of three meters is 36.4, for thirty-one hauls made at a depth of six meters it is 14.8. By means of a pump, a piece of rubber hose, and a small net of No. 20 bolting cloth, it was found that very few organisms live below a depth of six meters and scarcely any but Oligochetes below fifteen meters. Three hauls (III_6, IV_8, XX_3) present some difficulties which are still unexplained. They are hauls from a depth greater than six meters, and show a smaller quantity of plankton actually taken than hauls made just before or immediately after at a depth of six meters. This difficulty was not noticed, however, in time to make further hauls in the same manner to see if an explanation might be found. The unusually large quantity taken in hauls XIV and XV is probably due to a local accumulation, as the wind on the previous day was of such strength and from the proper direction to cause such.

To sum up—

1. The plankton of Turkey Lake is quite uniformly distributed.

2. It is the richest in plankton of any of the North American lakes which have so far been examined, and compares favorably with what are termed "plankton rich" lakes.

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Physical Survey of Lakes Tippecanoe, Eagle, Webster and Cedar. By Thomas Large, Assisted by C. O. & A. D. Fisher.

The method of measurement in this work was the same as that employed by Messrs. Juday and Ridgley and myself last year in the survey of Turkey Lake, differing only in an attempt to follow such established lines as section lines, quarter and half-section lines, which are usually indicated by farm fences, and, therefore, can be readily found, and are thus permanently marked. Profiting by the experience of the previous year, we made but few cross lines, as they are very confusing, particularly when made in rough weather.

Three of the lakes sounded this year are parts of the Tippecanoe drainage system—that river flowing through Lakes Webster and Tippecanoe, and being connected with Eagle Lake by a small stream. Cedar Lake has for its outlet a small stream flowing to the Kankakee River. Of these lakes Tippecanoe is the largest,