

in rivers in the winter months.

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Observations made by us throughout the year of the oxygenation and colouration of river waters showed that there was a relation between these and the water level. This was not a simple direct relationship (ref. 1) A characteristic divergence from this was seen in some rivers in the woodland belt where rise in level was not related to a rise in oxygenation and colouration.

Also noted in the warm period of the year there was a disproportionately great increase in oxygenation and colouration due to the decomposition of dissolved organic matter which had been washed into the rivers by rain from the land. In rivers which had a high level of suspended matter in them oxygenation reached its highest level before the maximum water level and seems to be related more to the maximum of suspended matter. From this it would seem that the organic matter in the suspended material determines the change in the oxygenation of the water.

Are the annual changes in oxygenation and colouration due to changes in organic matter content? At present there is a lack of data on the matter.

From some data from the rivers of the Moscow region we suggest :-

- 1) the average level of the oxygen of permanganate oxidation in acid medium is almost equal to the organic carbon content (mg/l.) - for peaty waters this relationship does not hold true and the oxygen is much greater than the organic matter.
- 2) Between the colouration and organic carbon there is no linear relationship.

i) above is of great interest as the amount of organic matter varies at different times of the year.

In the table is given data of the organic carbon content of river water collected in March 1941, (+ other data) - organic carbon from dried residues in glass flasks - determined by Krilovas dry combustion method with chromate (ref.4.) For comparison some data on the carbon content in 1940 has been added.

Alkalinity and hardness data shows that the waters tested showed a high degree of mineralization - as the tests were taken in mid winter this would be at ^a minimum as the depth of ground water is at its deepest. Carbon content (& oxygenation) in waters in winter was lower than the relative levels found in summer especially when compared with Aug. 1940. At mid. season, especially mid. winter, we attach minimum significance to determinations of oxygen and colouration of river waters.

The closeness of the Oxygen / organic carbon ratio calculated at mid. winter and at mid. summer confirms that the source of organic matter in the waters i.e. from soil water is the same all the year round.

Further gathering of data is desirable.

TABLE		Alkalinity mg/eq	Hardness	C. mg/1	Oxygen mg O ₂ /1	Colouration.	O ₂ org. carbon.	C mg/1 Aug. 1940
Place & date								
Oka 16/3	(a)	5.02	17.8	3.24	3.53	17	1.09	3.18
	(b)	-	-	3.12	3.36	12	1.08	2.15
Volga 21/3	(a)	3.41	9.9	5.70	4.50	27	0.80	5.85
	(b)	-	-	4.44	4.10	17	0.92	4.27
Tvertsa 21/3	(a)	4.32	13.2	13.9	19.4	64	1.39	14.6
	(b)	-	-	12.0	18.5	43	1.54	15.2
Canal 22/3	(a)	3.32	10.1	11.6	12.0	70	1.03	-
	(b)	-	-	11.3	12.0	55	1.06	-
Peaty water 14/3	(a)	2.71	7.9	18.9	27.1	210	1.43	20.1
	(b)	-	-	14.5	20.3	132	1.40	13.5

a - Natural water. b Water filtered through glass filter no.3 & BaSO₄

Notice

Please note that these translations were produced to assist the scientific staff of the FBA (Freshwater Biological Association) in their research. These translations were done by scientific staff with relevant language skills and not by professional translators.