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REPORT OF THE ACTIVITY OF THE TISZA-RESEARCH WORKING COMMITTEE IN 1979

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The work of the Tisza-Research Working Committee was carried out in 1979 — the 22nd year of its existence — in the framework of the subject, sponsored by the Hungarian Academy of Scienes, entitled Complex research into the flood plain of the Tisza, with regard to the river barrages and nature reserves, connected with the international programme "Man and Biosphere", within the partial task, entitled "2,3: Research into the water ecosystem", of the main direction of the Hungarian Academy of Sciences, entitled: "Protection of the man and his natural environment (biosphere)".

Owing to the death of the late Prof. Dr. IMRE HORVÁTH, president of the Tisza-Research Working Committee, our collective has sufferred a great loss. He was an excellent organizer, an extremely work-loving, always helpful leader. During his activity for nearly a decade, he did not only intensify and extend the Tisza-Research work but also led it on, with success, to the international field.

I. General investigations carried out in the water system of the Tisza

The relations of downflow were cleared up in the interaction of the configurations of the terrain and climate, as well as the investigation into the joint effect of artificial interventions and natural factors on the kinetic relations of surface waters. The whole Tisza water system was taken into consideration, in the order of magnitude of the side-catchment areas. In this way, evaluating statements can be given about the formation of the water quantity of the Tisza.

II. Investigations carried out, in the longitudinal section of the Tisza

Being commissioned by the National Water Office, the Water Conservancy of the Middle Tisza Region, together with the Tisza-Research Working Committee, carried out an investigation into the longitudinal section of all the Tisza reaches in Hungary. The aim of the investigation was to analyse the sediment of the Tisza and its tributaries physically, chemically and biologically.

In the work, the experts of 14 institutes participated. In addition to the laboratories of the Water Conservancies of the seven Tisza Regions, testing water materials, the co-operation of the co-workers of the Station of Public Hygiene and Epidemics of County Heves, the Biological Research Centre of the Hungarian Academy of Sciences in Szeged, the Teachers' Training College in Szeged, the Scientific Research Institute of Water Management and Research Institute of Fish Husbandry in Szarvas enabled to carry out the investigation in a duly wide range.

The canalization of the Tisza, the increase in loading it with polluting matters, are at present not connected, as yet, with a change of so high degree, which would restrict the use of water considerably. The investigations into the sediment, however, cast light upon the direction of change and the consequences to be expected.

The accumulation of organic matters and vegetable nutritive materials in the sediment periodically induce the development of anaerobe conditions, which will not leave the present water quality unchanged, either. The change in zoobenthos, the decrease in number of the rather sensitive species, the prevailing of the euryecious ones indicate the future to be expected, which cannot be considered as something favourable. Implementing the principles of regulating water quality and in case of a continuous supervision, at any rate, the present-day state can be retained and, possibly, even improved.

III. Investigations performed in different Tisza reaches and nature reserves

In the course of algological investigations, in this year from among the tributaries of the Tisza: the Bódva, the Hernád with the brook Szártos and the Kraszna have been analyzed.

In the flood plain of the Jugoslav reaches of the Tisza, the investigations have demonstrated several plant species of rare presence.

The tree-groups Populus alba, developed on the Körtvélyes island, overshadow the marsh-meadow associations of their environment, in different degrees, depending upon the points of the compass. It has been demonstrated by the investigations in detail that, as a result of the different light intensities, the species components of the single associations respond in different degrees.

The plant associations of the flood plain of the Tisza were investigated in the area of Abádszalók after the passing of the flood-wave of record height in the Spring of 1979. It has been established that — as a result of the vigorous human intervention — the fundamental plant associations have survived in the flood plain but essential areal displacements followed.

A considerable proportion of the stock of fish in the Tisza dead arm (17 per cent of the total weight of fishes, fished up from the Tisza) were predatory fishes. The rapid breeding of these species may be explained by the fortunate sequence of the passing floods and the spawning-season of fishes.

As a result of the environment-forming activity of man, the original meadow-biocoenosis at the Tisza has changed, grown poor. This phenomenon can be observed at the bird-communities of the meadow, as well. In the flood plain of the Tisza, however, there are to be found some meadows, resp. ecosystems, which have preserved comparatively much of the aspect of their original avifauna. The flood-plain meadow at Rakamaz is also like this. It would, therefore, be justified, to place it under nature conservation.

After investigating into the alimentation-biology of wild cat (Felis silvestris), living in the flood plain of the Tisza reaches in Jugoslavia, it was established that this rapacious species has an important influence on the population of the single rodent species within the given ecotones.

The comparison of the investigations, carried out recently in various biotopes in the Tisza-valley, drew the attention to the evolutionary changes in the structural elements of the ondatra (Ondatra zibethica) populations. Among the data of the structure elements there are some that may exert a negative influence on the human economic activity. It is, therefore, advisable to take these into consideration at planning and building the establishments of water conservancy.

In the XIth Tisza-Research Conference, held in Szeged in April, 32 of our co-workers rendered account, in 28 lectures, of the results of investigations. The lectures were discussed by the participants in more than 80 contributions. Our colleagues from Jugoslavia have also participated actively in the Conference.

Further 35 lectures were delivered about the results of the Tisza-Research work by 22 of our co-workers in 10 towns, at 10 different instances.

The results of researches in the last ten years were primarily recorded by the TISCIA, a periodical journal of the Tisza-Research. Its last volume XIV contains 21 papers. Further 12 papers and other articles were published in other scientific and popularizing journals.

The Tisza Research was carried out in unpaid voluntary work by 44 researchers from Hungary and five from abroad. (The professional division of the former researchers is: climatology one, water-chemistry three, hydrobiology thirteen, botany six, zoology twenty-one). The centre of research is Szeged. Co-workers live in sixteen different towns.

Last year, three co-workers of us became holders of a candidate's degree and three entered for an academic doctor's degree.

Our basic buildings at Tőserdő, Körtvélyes, our mesoclimate-measuring stations at Körtvényes, Sarud, Tiszaszöllős, our light-traps for entomologizing at Körtvélyes, our small ship „Kolokán" have served the research work with success.

Our library, containing more than 1000 volumes of valuable, special professional material, considerably enlarged this year, as well. Its development has mostly taken place by means of the international material we have received in exchange for the Tiscia. Similarly, photoarchives, our collections of sketch maps, of climatological and waterchemical data have also grown.