ECOLOGY

Chairman: Carl H. Krekeler, Department of Biology, Valparaiso University, Valparaiso, Indiana 46383

Alton A. Lindsey, Department of Biological Sciences, Purdue University, Lafayette, Indiana 47907, was elected Chairman for 1972

ABSTRACTS

A Water Quality Study of the Tippecanoe River. Paul T. McKelvey, Tippewa Technical Institute (IVTC), Lafayette, Indiana 47905.——A field study of water quality of the Tippecanoe River in north-central Indiana was conducted during June-September 1971. Surface samples were collected at 18 sites covering the 168-mile length of the Tippecanoe River from North Webster to Delphi, Indiana. Quantitative determinations were made for temperature, dissolved oxygen, total alkalinity, ortho-phosphate, nitrate-nitrogen, pH, and total coliform bacteria. Results indicated a high potential productivity due to more than adequate quantities of dissolved nutrient material. Total coliform bacteria counts were typical of small river systems flowing through both rural and urban areas.

The Howe's Rapid Biochemical Oxygen Demand Index and its Technique. Robert H. L. Howe, Eli Lilly and Company Tippecanoe Laboratories, Lafayette, Indiana 47902.——The meaning of a rapid biochemical oxygen demand index and its usefulness was described. The development of a technique for the determination of this index was presented.

Stimulation of Branch Abscission in *Quercus alba* by 2-Chloroethylphosphonic Acid. William R. Chaney, Department of Forestry and Conservation, and A. Carl Leopold, Department of Horticulture, Purdue University, Lafayette, Indiana 47907.——Abscission of young branches of a mature white oak (*Quercus alba*) was stimulated by 1 per cent and 2 per cent 2-chloroethylphosphonic acid in lanolin applied to the base of the branches. Treatments were applied 4 times at approximately 2-week intervals in the fall. The greatest stimulation of branch abscission resulted from treatment on September 11. Thirty-six per cent of control branches were shed, whereas 80 per cent of branches treated with 2-chloroethylphosphonic acid abscised. The current shoot of abscised branches was significantly shorter than the current shoot of branches retained on the tree, suggesting that the less vigorous branches were shed. Branches of juvenile trees of white oak did not abscise naturally and were not induced to abscise by treatment with 2-chloroethylphosphonic acid.

Basin Leakage Considerations in Ecological and Hydrological Studies of Experimental Watersheds. H. E. McReynolds, U. S. Forest Service, 633 Wisconsin Avenue, Milwaukee, Wisconsin 53203.——In the last two decades, there has been an increase in the number of ecological or hydrological watershed studies. More often, these experiments have concerned

nutrient cycling, water-yield, and measurements of vegetative manipulations. Basically, these studies have considered the watershed to be a collecting basin with a single output point.

Too often, these watershed studies have not considered hydrologic "basin leakage" (*i.e.*, interbasin imports and exports of ground water flow). This paper explored a number of processes by which interbasin transfer can occur (non-coincidental topographic and phreatic divides; interbasin solution tubes; intercepting pre-glacial channels; seasonal variations in flow direction). It appears that the basic assumptions concerning precipitation input area and piezometric flow patterns are seldom validated in the experimental design.

NOTE

A New System for Ecological Education—SEE. JOHN W. HART, Hayes Research Foundation, Inc., and JESSIE M. TURNER, Finley School; Richmond, Indiana 47374.——Man's activities are shaping his environment; in turn, the environment he creates surreptitiously molds him. The industrial revolation initiated a speed up in man's ability to modify his surroundings. The pressures of a steadily increasing number of people, each demanding more and more goods and services are dictating the direction of movement of environmental change. That these forces are carrying us on a tidal wave in the wrong direction is particularly apparent in the developed nations of the world. We are surrounded on all sides by activities which degrade our environment—and hence our lives. Our senses are constantly insulted by noise, visual blight, dirty water, and stinking air, but man is a sensitive creature, and it is this very sensitivity which separates him from the other animals. The problem is not that man will not be able to adapt to this hostile environment. The problem is that he is doing so already, and in so doing, he is becoming a less sensitive organism. When man has finally lost his sensitivity, man has been lost. Nature may add a noble name to the list of animal failures.

Education is the last hope for creating citizens who are environmental assets, members of a citizenry atuned to its responsibility to all living things on Earth.

The system which provides the American education has for the most part given only lip service to the need for environmental training. An equally serious indictment of the system is that it has not recognized the life-centered approach to learning as an exciting way to escape today's educational doldrums. A few innovative teachers have found that students can be turned on by *involving them* in the study of their surroundings and the interrelationships therein. Unfortunately the efforts of these teachers, while not wasted entirely, are greatly diluted by the absence of any continuity of environmental learning. The one shot environmental/ecological learning experience may come at any level from kindergarten thru college, or even in that limited education after college or high school which we call "continuing".

SEE, the System for Ecological Education, was created to fill the need for an orderly, planned, life-centered approach to education which

will encompass the entire educational experience of an individual from kindergarten throughout life. SEE introduces a systematic way of developing in each child an understanding of environmental problems, their causes, solutions, and man's moral reasponsibility to solve them. It introduces and progressively develops concepts. At each grade level the student attains a more comprehensive understanding of each component of the environment and of the interrelationships among its physical and biological components.

SEE is envisioned as a unifying framework within which the environmental inputs of all educators may become cumulative. The system, while designed primarily for use as a K-12 instrument, can be used to develop college courses for teachers, resource majors, and students of other disciplines. It is equally adaptable for use in adult education.

OTHER PAPERS READ

Natural Areas and the Indianapolis Parks Department. GLENN PATRICK JUDAY, Department of Biological Sciences, Purdue University, Lafayette, Indiana 47907.

Response of Eyeless Cave Beetles to Light. CARL H. KREKELER, NEAL BRANDT, and BRUCE RUTLAND, Department of Biology, Valparaiso University, Valparaiso, Indiana 46383.