

ing the program, write to the chairman, Miss Betty Lockwood, 18420 Wisconsin Avenue, Detroit, Michigan.

CHICAGO, ILLINOIS

The Chicago area will hold its second annual regional meeting of the *National Association of Biology Teachers* on October 31, 1942, at the Morrison Hotel. Although the details of the program have not yet been worked out, the general plans for the meeting are well under way. The entire session, including exhibits, will be of interest to all biology teachers. Attendance at the evening banquet should be "chalked down" as something that will make October 31st complete. Remember! Mark the date on your calendar of activities and come to the Morrison Hotel in Chicago for one of your most outstanding and worthwhile days of 1942-43. The full program will be announced in the October issue of *THE AMERICAN BIOLOGY TEACHER*. For other information, write to the 1942 regional chairman, Mr. I. P. Daniel, Lakeview High School, Chicago, Illinois.

Youth Speaks for Biology

JOHN E. SHOOP

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The place of Biology in the curriculum of our secondary schools has been much discussed by educators and laymen, but little or no attempt has been made to obtain the opinion of the boys and girls who are the actual recipients of this instruction, and whose needs and interests are the center about which courses of study should be formulated. In such complex times as these it is necessary for administrators and teachers to keep in touch with the changing needs and interests of the students so that the subject matter of the courses of study

AUDUBON NATURE CAMP

The Audubon Nature Camp for Adult Leaders opens for its seventh season June 12th for five two-week sessions in 1942. Teachers and youth leaders from all over the nation will gather here.

The camp, located some 65 miles northeast of Portland, Maine, is in the Todd Wildlife Sanctuary, an island comprising 330 acres of climax spruce forest, at the head of Muscongus Bay. This forest, the interesting rocky, sandy and mud shores, the farms, open fields, hardwood forests, freshwater ponds and marshes of the adjacent mainland, seabird colonies on nearby and outlying islands, combine to form a fascinating outdoor laboratory. A daily program of field trips in these varied habitats affords campers opportunity to observe living plants and animals at first hand. Special emphasis is placed on the interrelationships between plants and animals and their dependence upon conditions of light, soil, water, weather as illustrated in the different types of environment visited. Practical suggestions for presenting nature study in schools, camps and clubs are stressed.

A young experienced staff offers field classes in nature activities, birds, plants, insects and marine life.

For illustrated folder and application blank, write to Box 5, National Audubon Society, 1006 Fifth Avenue, New York, N. Y.

may be frequently modified to stress the topics which will be of greatest value to the students at the present time and will also be a preparation for their probable future needs.

Recognizing this necessity for changing stress of certain biological topics, the teachers of the Biology Department of the New Rochelle High School have at the end of each year placed in the hands of all students completing the course a questionnaire designed to determine the student's own personal reaction to the content and conduct of the

course as he has been affected by it. This student reaction is of two-fold value because it reflects not only his own but also his parents' attitude toward the subject matter of the course. This method has proven very satisfactory in modifying and correlating the work for the following year in line with the suggestions and criticisms as compiled from the questionnaire.

Up to the school year 1940-41 the questionnaire had been made out by the teachers of the department, but this year, endeavoring to create a greater freedom of expression by more student participation, the organization and construction of the questionnaire was put into the hands of a representative group of biology students known as the Biology Council. This Council is composed of one elected representative from each biology class, comprising ten in all, and representing two hundred and forty-one students. This group elects its own officers who preside throughout the year. Council members are the contact agents between the teachers of the department and the students in the classes. It is their function to introduce changes of policy and to bring to the attention of the teachers such student suggestions as they think will make the department operate more smoothly.

In preparing the questionnaire the members of the Biology Council were given specific references in the Library on the making of questionnaires and their contents. They also had an opportunity of seeing questionnaires and surveys in this field and other fields. One of the references that they examined was an article by J. W. Galbreath entitled "An Interest Survey in Biology" published in *THE AMERICAN BIOLOGY TEACHER* for November 1940. Since one of the purposes of the questionnaire was to determine student interests, the Coun-

cil members decided to use the thirty-three topics mentioned in this article, in order to compare the rank of student interests in New Rochelle with that of the school mentioned.

During the second week of June, at the completion of the course, this questionnaire was put into the hands of the students by the Council Representative of each class, who very carefully explained each question and asked for the candid opinion of each student on every question. The papers were then collected and all the results tabulated by the Council Members. A copy of the questionnaire with the answers tabulated in percents for 241 students follows:

This questionnaire is being put into your hands to determine what parts of the course should be changed to meet the abilities and interests of students who may take it in succeeding years. We are asking for your candid and whole-hearted opinion of the course as you have taken it this year. Your suggestions and criticisms will be used to make the course a better one. You will not be asked to give your name or class.

Please indicate your opinion by circling the appropriate word or term at the right of each question.

1. Have you liked the course as it has been given this year?
Yes 96%; No 4%
2. Knowing the type of course that it is, demanding the amount of homework that is necessary, would you advise other students to take it?
Yes 96%; No 4%

(In this course of study no one textbook is used. In its place a seventy-five page contract booklet consisting of a series of questions and diagrams based on topics taken from the New York State Syllabus is given to each student. These questions cover material in forty-seven different textbooks, which the student secures from the library. Practically all of this reference work is done outside of class. Doing the contracts is optional rather than mandatory, as the material is all covered in lectures, but most of the students prefer to do the outside reading for background.)

3. Which did you like better, lecture work or laboratory work?
 Lecture 52%
 Lab. 20%
 No choice 28%
4. Do you think that the amount of individual laboratory work should be
 Increased 35%
 Reduced 21%
 Entirely eliminated 1%
 No change 43%
5. In relation to the other subjects you have taken, where would you place this subject as to interest?
 First 66%
 Second 27%
 Third 7%
6. In relation to the other subjects you have taken, where would place this subject in regard to immediate personal applicability?
 First 71%
 Second 20%
 Third 9%
7. In relation to the other subjects you have taken, where would you place this subject in regard to future personal applicability?
 First 65%
 Second 22%
 Third 10%
 Fourth 1%
 Fifth 1%
8. Do you think that the contract method, as used this year, is valuable enough to retain?
 Yes 70%; No 30%
9. Would you prefer a single textbook to the method now in use?
 Yes 18%; No 82%
10. Would you like to have a library period included in the course during regular class time?
 Yes 49%; No 51%
11. Do you approve of the Biology Club as organized this year?
 Yes 78%; No 22%
- (The Biology Club is made up of those members of the Biology classes and any other students in the high school who wish to participate. There are no dues; it is supported by the General Organization. The Club meets bi-weekly throughout the year, and its general program includes outside speakers, exhibits, field trips to hospitals and museums, etc. It has its own elected officers consisting of President, Vice-President, Secretary, Treasurer (who collects funds for trips, etc.) and Publicity Chairman. There were 210 members in the Biology Club during the past school year.)
12. Do you think that the Biology Club has supplemented your cultural background in Biology?
 Yes 70%; No 30%
13. Did you find that the illustrated lectures were more valuable to you than the lectures without the visual aids?
 Yes 85%; No 15%
14. Do you think it is more valuable to have tests given
 Daily 12%
 Weekly 45%
 At the end of each unit of work 43%
15. Do you think that during sex instruction the class should be divided into non-co-educational groups?
 Yes 2%; No 98%
16. Should the female members of the class have a woman teacher for sex education, and the male members a man teacher?
 Yes .7%; No 99.3%
17. Do you think there should be more or less sex education?
 More 99%; Less 1%
18. Would you take an additional course in the biological field if it were given?
 Yes 77%; No 23%
19. Do you approve of the manner in which evolution has been taught?
 Yes 91%; No 9%
20. Do you feel that evolution should be included in the course of study?
 Yes 97%; No 3%
21. Has the course, as presented, stimulated a desire to inquire further into biological problems?
 Yes 92%; No 8%
22. In relation to the other subjects you have taken, has the amount of homework in Biology been
 Below average 8%
 Average 46%
 Excessive 46%
23. In relationship to the value gained from the course, has the amount of homework in biology been
 Below average 24%
 Average 50%
 Excessive 26%
24. Has your study of Biology made you more aware of biological information in newspapers and magazines?
 Yes 96%; No 4%
25. Have you become more interested in biological research and experimentation?
 Yes 87%; No 13%
26. Should contracts be called for
 Once per semester 28%
 Weekly 20%

	Every two weeks	21%			
	Before marking period	31%			
				New	Article
				Rochelle	Ranking
				Ranking	Ranking
27. Which do you feel were the most help to you?	Lantern slides	1%	a. Cells	12	21
	Charts	3%	b. Microscopic study	8	3
	Movies	31%	c. Life processes—digestion, circulation, etc.	7	14
	Diagrams on blackboard	52%	d. Reproduction	2	9
	Plastic figures	14%	e. Classification: plant phyla & animal phyla		17
28. Do you feel that the definite outline form of taking notes was of help?			f. Distribution of plants and animals	23	25
	Yes	79%; No	g. Growth	15	4
	No	21%	h. Interdependence of plants and animals	19	24
29. Do you feel that the method of taking notes should be left up to the pupil?			i. Adaptations	18	16
	Yes	59%; No	j. Behavior (nervous system)	4	6
	No	41%	k. Photosynthesis	22	
30. Do you think that the supervised study period as applied to Biology should be continued next year?			l. Evolution	5	18
	Yes	17%; No	m. Heredity (Mendel's Laws)	3	1
	No	83%	n. Health principles	14	11
31. Do you prefer seven forty-two minute periods with double lab periods, as in use the first semester, or five fifty-five minute periods with single lab periods?			o. Economic importance of plants & animals		22
	Seven	82%	p. Fossils	17	8
	Five	18%	q. Environment	16	7
32. Which part of the lab work did you enjoy most?	Bio-chemical	30%	r. Great scientists	10	19
	Food nutrients	10%	s. Vocational biology	24	27
	Digestion	1%	t. Disease & disease germs such as bacteria, etc.	6	5
	Microscope	34%	u. Conservation of natural resources such as wild life, etc.	25	10
	Dissection	25%	v. Eugenics	11	
33. Under what division of work, in the lab, have you profited?			w. Euthenics	13	
	Group	54%	x. Leisure time biology		
	Individual	46%	y. Common birds, flowers & trees	26	12
34. List below any suggestions you have to increase interest in the Biology Club.			z. Sex education and social hygiene	1	10
35. List below any criticisms of the course from students not taking Biology.			a-1. Hobbies in biology		15
36. List below any criticisms from parents.			b-1. Working on biology projects	20	20
37. List below any criticisms from any other outside sources.			c-1. Reading and reporting books of biological interest	27	
38. List your criticisms.			d-1. First aid	21	2
39. In your opinion, do you feel that a course in Biology should be required for graduation?			e-1. Structure of the human body	9	7
	Yes	53%; No	f-1. Safety education		13
	No	47%			
40. If so, enumerate the topics which you think should be included in the subject matter of such a course.					
41. Select the ten topics that you are most interested in from the following list. In the spaces provided at the right of each topic place "1" after the topic of your first choice; "2" after that of your second choice, etc., until you have ten choices. If there are any other subjects you have studied that are not included in this selection, you may add them at the end of the list.					

CONCLUSIONS

1. There is no basis of comparison in interest unless we first compare the courses of study, as some topics are stressed in one section of the country which are not stressed in others.

2. Recency of study seems to influ-

ence the interest of students so that the rank of topics could be changeable.

3. The greatest interest seems to be in problems that have been more or less "taboo," such as sex, reproduction, heredity, evolution, and behavior.

4. Students are anxious to have sex instruction given in high school.

5. From the answers to questions 17, 19 and 20, and the criticisms and suggestions listed under question 36 it would seem that there is little opposition to the teaching of evolution and social hygiene in connection with this course.

6. Students prefer to formulate their final conclusions from many source materials instead of confining themselves to one textbook and the teacher's opinion.

7. Pupil interest sometimes merely reflects teacher interest.

8. The answers to question 18 would

seem to indicate that this high school is not offering enough courses in biology to satisfy the needs, capacities, and interests of the students.

SPECIAL ISSUES FOR NEXT YEAR

Since the *Special Issues* of THE AMERICAN BIOLOGY TEACHER have met with general approval, plans are under way for the continuation of the series. Assembling of material for three more numbers is well along toward completion; these are *Health and Hygiene*, *Consumer Biology* and *Conservation*. They will probably appear in the first half of Volume 5. Plans have just been started for a special issue on *Vocational Biology*, with J. A. Trent as chairman of the committee; this will appear later next year. Certain other topics are under consideration.

Books

WARD, HENRY B., Editor. *The Foundations of Conservation Education*. The National Wildlife Federation, Washington, D. C. v + 242 pp. 1941. Paper 60¢, Buckram \$1.00.

This is the third in a series of four publications by the committee on Conservation Education of the National Wildlife Federation, Henry B. Ward (Chairman), Paul B. Sears and Cyril J. Ballam.

The book is organized into six chapters, each by a specialist and leader in a particular phase of conservation. The chapter headings and authors are as follows: *Conservation, Liberty, and Economics* by Wesley C. Mitchell. *Conservation of Soil as A Natural Resource* by W. D. Lowdermilk. *The A B C of Conservation* by Paul B. Sears. *The Pitfalls of Conservation* by Arthur M. Paek. *The Role of Applied Science in Conservation and Its Relation to Wildlife* by W. W. Horner and Richard W. Horner. *Biology as the Foundation of Conservation Education* by Henry B. Ward.

The final chapter occupies approximately 40% of the book and is the part that is of greatest interest to those of us who would do an adequate job of teaching the conser-

vation of natural resources. Dr. Ward has divided his chapter into three sections, as follows: Section One, *Life and Natural Resources*. In this section we find a discussion of soil, water, and air in relation to life with some specific teaching suggestions. Section Two, *Man's Control of Nature*, includes the public attitude, cause of the present situation, correcting past errors and protests against the destruction of resources. Section Three, *The Educational Problem*, starts with some general suggestions for correlations of the conservation education program throughout the entire school curriculum and concludes with a discussion of the evils and difficulties which beset the present status of Biology in our secondary schools and the preparation of teachers of Biology.

The book is, as its title indicates, a foundation or background, not a facts or methods presentation. It is well written and in good style. It can easily be read and understood by science teachers not particularly prepared in conservation education. There are twelve full page illustrations, no organized bibliography and no index.

The fourth publication of the committee (in press) is *Teaching Conservation Educa-*