

MIDWEST BIOSCENE



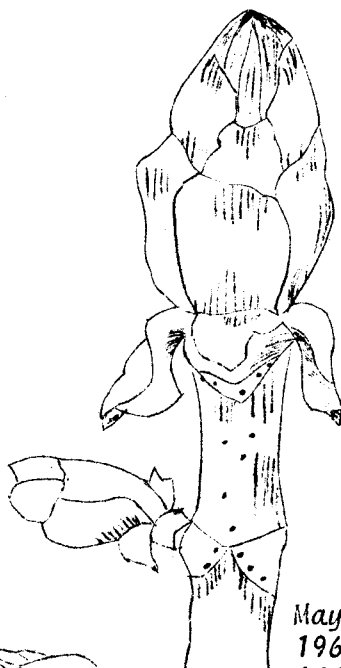
ASSOCIATION OF MIDWESTERN COLLEGE BIOLOGY TEACHERS Vol. 2 No. 4 May, 1976



April 1
1957
1776



April 15
1962
1826



May 1
1967
1876



May 15
1972
1926



May 31
1976
1976

P H E N O L O G Y

* * * * *
 * The following was inspired by an experience of your editor. Practically
 * everything I had seen of the Bicentennial had been a "Real turn-off".
 * Stores advertising a Buy-centennial; red, white and blue toilet seats;
 * souvenirs of non-existent artistic merit; and highly commercialized
 * exhibits had combined to put me in the mood of, "Is this what America
 * has to offer after 200 years?"
 *
 * Then came the awakening. I spent New Years' Eve camped at Pike's Peak
 * in northeastern Iowa. Eight AM New Years' morning found me walking
 * along the bluffs of the Mississippi. A shroud of fog hung over the
 * river, obscuring the mouth of the Wisconsin, from which Marquette and
 * Joliet had first seen the Great River. All around me were Indian
 * mounds. Sweeping up river, only 150-200 feet from me, came a bald
 * eagle. As I turned away from the river with a feeling that on the
 * first day of '76, there was a Bicentennial viewpoint, a deer bounded
 * away, adding one more touch.
 * * * * *

THE MIDWEST BIOSCENE - MEMORABILIA

With our nation in the midst of its Bicentennial celebration and with AMCBT looking
 forward to its Bidecentennial Meeting, a glance at the biology of early Midwestern
 America seems apropos. Descriptions afforded by explorers, early settlers and
 naturalists give us a perspective which is no longer available except in isolated
 groves, prairie patches, herds and flocks.

Like the wild bird and the beast, like the cloud and the forest tree, the primitive
 savage is a part of nature. He is in it and of it. He studies it all through his
 life. He can read its language. It is the one thing that he knows. He is an
 observer. Nothing escapes his eye. The signs of the clouds, the blowing of the
 winds, the movements of birds and animals--all tell him some story. It is by
 observing these signs, reading them, and acting on them that he procures his food,
 that he saves himself from his enemies, that he lives his life.

On his westward journey, Edmund Flag described the Grand Prairie of Illinois.
 Here, indeed, were the rare and delicate flowers; and life, in all its fresh and
 beautiful forms, was leaping forth in wild and sportive luxuriance at my feet. But
 all was vast, measureless, Titanic; and the loveliness of the picture was lost in
 its grandeur. . . . All was bold and impressive, reposing in the stern, majestic
 solitude of Nature. On every side the earth heaved and rolled like the swell of
 troubled waters; now sweeping away in the long heavy wave of ocean, and now rocking
 and curling like the abrupt, broken bay-billow tumbling around the crag.

Earlier, in 1786, James Madison had written to Thomas Jefferson, A great part of the
 territory is miserably poor especially that near lakes Michigan and Erie, and that
 upon the Mississippi and the Illinois consists of extensive plains that have not
 had, from appearance, and will not have a single bush for ages. The districts,
 therefore, within which these fall will never contain a sufficient number of
 inhabitants to entitle them to membership in the confederacy. (Continued on page 13.)

THE RITES OF SPRING

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During the past week (March 28-April 3) in southwestern Wisconsin, the grass has turned a healthy green, chorus frogs have begun to croak, and I have been surprised to find some of our "winter" species of birds present along with the earlier spring arrivals - juncos, evening grosbeaks, common redpoles, along with the volumes of redwings and grackles, the robins, the flickers. The National Weather Service in Madison reported that March had 675 heating degree days, 202 less than normal, and that the month averaged 6.3° F above normal.

These observations collectively fall under the heading of phenology. We all have been practicing phenologists even though some of you may never have been formally introduced. Phenology, if you haven't guessed, is the branch of biology that studies the timing of seasonal biological events. It may compare those of a single species of plant or animal from year to year or from place to place during the same year. It has been also used to correlate events between different species the same way. Naturally, it includes the relationship of these events to weather and climate. Phenology should not be confused with phrenology. The first may require some of the latter, but the latter probably has little to do with the weather.

One particular event that has impressed me on several occasions concerns the differences in blooming time of lilacs. In the area of southern Wisconsin away from Lake Michigan they bloom during the middle of May. However, along the Lake Superior shore at the top of our Bayfield County peninsula I've seen flowering lilacs in mid-June. At La Pointe, the community on Madeline Island, the largest of the Apostles, I've seen it in flower on July 4th.

I've been speaking in general terms. The 1976 data form for the Wisconsin Phenological Society requests: 1) Date when first bud has leafed. 2) Date when nearly all (95%) buds have already leafed. 3) Date of the opening of first bloom, etc.¹ The great variety of records the Society keeps includes such observations as when the sugar maple sap begins to flow, when the soft maple or pussy willow first sheds pollen, the first gopher seen, and the first flashing of the firefly. During 1975 within the 2nd-4th tiers of southern Wisconsin counties fireflies first flashed as early as May 14 and as late as July 4th. This example is given to illustrate what is found by means of these observations. The answers to explain why are yet to come.

Phenology has been of interest to layman and biologists for decades and centuries. From the Spring, 1976, publication of the Wisconsin Phenological Society comes this rhyme:

*"If the oak is out before the ash
'Twill be a summer of wet and splash;
But if the ash is before the oak
'Twill be a summer of fire and smoke."*²

In both Europe and North America various phenological events have been used as a guide for the arrival of spring. "Certain North American Indians waited for the flowering dogwood to bloom before planting corn."²

Agriculturalists have used phenologically related events to forecast pesticide sensitive points in the life cycles of crop insects. In the May 23, 1975, issue of the Wisconsin Cooperative Pest Survey Bulletin is the suggestion: "Pine Needle Scale-Egg hatch should occur very soon, just as lilac is in 1/2 full flower,"³ and in the June 20th issue, "Squash Vine Borer - Moths appear and lay eggs as pumpkins, cantaloupe, watermelons, and squash plants start to run."⁴

Recently, however, it has been much more common to determine the accumulation of degree days as the growing season progresses and to correlate biological events with this value. The degree day measures, somewhat crudely, the amount of energy available each day to promote biological processes - photosynthesis, plant and animal (cold-blooded) development, and the like. Each day, from the average temperature is subtracted a base temperature; 50° F is commonly used. The positive values are added as the season progresses. Again, through previous observations and correlation, predictions can be made. From the August 1, 1975, Wisconsin Cooperative Pest Survey Bulletin; "The degree-day accumulation above base 50°F since March 1 at the Madison airport was 1727 as of July 30, which compares to 1482 on the same date last year; on this basis we are 15 days ahead of last year. . .; at the present rate of temperature accumulation, the major flight of the corn earworm can be expected about August 20. . ."5

The most of us phenology started out as a series of casual observations - the first crocus of spring, or the first dandelion, the first redwing or first singing of the cardinal, even the first sign of campus madness. As the years have progressed it was probably noted (maybe only mentally) that a particular event was either earlier or later in the season; following this more plants and animals were recognized as being influenced by the weather, some occurring in the same sequence, others differing.

If your interest continues, and it begins to take on a more serious aspect, you will begin to keep written notes. Eventually you may reach the stage where you have friends of the same frame of mind; then you have a source of information that can prove to be more than a hobby, of potential scientific value. This is probably how the Wisconsin Phenological Society began to grow to its present 600 or so members. To its data bank it has contributors from almost half of Wisconsin's counties plus upper Michigan. I can see possibilities for either expanding the Wisconsin Society coverage into a wider area, or for the development of similar organizations in other areas.

But regardless of how you look at it, phenology has possibilities for everyone as an individual, but the larger the group the more interesting and valuable it becomes.

If you are wondering about the title, "Rights of Spring", the dictionary says that a rite is a ceremonial or a serious event. I do not think of phenology in either frame of mind. However, for the plants and animals involved that start us off on this track, it must be serious and might be considered ceremonial.

1 Card for reporting Purple Common Lilac Observations. 1976. Lilac Plant-Climate Survey. Wisconsin Phenological Society, publisher.

2 Pauly, Wayne, 1976. Folklore of Phenology. Wisconsin Phenological Society Spring: p. 1.

3 Wisconsin Cooperative Pest Survey Bulletin. May 23, 1975. 20: 3-14.

4 _____ June 20, 1975. 20: 7-38.

5 _____ August 22, 1975. 20: 16-94.

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The world is a scene of changes; to be constant in nature were inconstancy.

Abraham Cowley

LEWIS AND CLARK RE-EXPEDITION:
A SUGGESTED MODEL FOR TEACHING IN 1976

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During the last ten years change has certainly become a part of life in America. We are cognizant not only of increasing taxes and food prices but also of changes in education, mostly called innovations. With greater emphasis on humanizing education, we now speak of "individualized learning" and "work at your own pace." This may be a desired direction educationally, yet today's youth are mostly confined to the classroom with an occasional field trip to the city or forest preserve. Even though our liberal arts courses may require classroom facilities, others need not be so confined. Often it is more a place of convenience. Since college students are no longer restricted to home, greater relevancy in their educational experiences can be the rule rather than the exception. The purpose of this article is to share with colleagues the excitement of a proposed project at College of DuPage which has not only aroused interest of many students but also of faculty and administrators. Since the Bicentennial is filled with various types of celebration for our national birthday we are made aware of historical events through all forms of media. For those teachers who are always looking for new ways to enhance the learning climate of their courses, I propose using the Bicentennial or some other related historic event as a place to "hang" courses from any discipline.

During the summer of 1976 a group of College of DuPage students will spend five weeks re-exploring the Northwest Passage established by Lewis and Clark in 1804 and 1805. The intent of this interdisciplinary re-expedition is to explore the "charge" given to Lewis and Clark by President Jefferson in 1803 following the Louisiana Purchase. According to Gerald S. Snyder, the author of In the Footsteps of Lewis and Clark, Jefferson "charged them with exploring the Missouri River and finding the most direct and practical water route across the continent to the Pacific Ocean. They kept daily records of the weather, visited previously unknown Indian tribes, and described hundreds of plants and animals, many for the first time." Snyder further comments, "I made a discovery of my own . . . some of the country that Lewis and Clark traveled through looks just as it did to them. Although cities, dams, and the changing courses of rivers have obliterated much of the trail, it is still possible in many places to follow in the explorers' footsteps."

In early May, 1804, Lewis and Clark journeyed from the mouth of Wood River in Illinois Country, crossed the churning Mississippi, and entered the mouth of the Missouri. This commenced a journey that would take the explorers hundreds of miles, crossing present day states of Missouri, Kansas, Nebraska, Iowa, South Dakota, North Dakota, and Montana. Once they reached the end of the Missouri River in western Montana, they crossed the rugged Rocky Mountains by foot and horseback. Using the Lochsa and Clearwater Rivers, they crossed Idaho, and joined the Snake River at the border of present day Washington. From that point it was clear sailing down the Snake to its junction with the mighty Columbia and on through Oregon Territory to the Pacific.

Since the purpose of our re-expedition is to retrace the footsteps of Lewis and Clark, studies will be of plants, animals, mountains and tribes of native Americans with a backdrop of scenic and historic grandeur. Credit for participants of the re-expedition is available in biology, geography, and anthropology. Since community college education is designed to serve the community, families of the students are invited to join the expedition, combining their summer vacation with a educational experience in the Bicentennial year. Interactions between family and non-family units should be a beneficial sociological experience for students in which to evaluate their own role and place in our changing society.

The trip has been designed to allow maximum freedom for the explorers who will be living in remote and wilderness places for five weeks. Rather than travel in a bus or a caravan of vehicles from place to place, students will provide their own tents and share costs of food and travel among themselves. Unity of the study group will be maintained by camping and studying for three to five days at each of seven base camps, allowing for individual exploring and travel time between each camp.

Base camps have been selected as study sites because they are representative of the flora and fauna from many different habitats across America. The first is a site near the junction of the Platte and Missouri Rivers, a region where the vegetation is not only representative of the Arkansas forest ecotone but also of the floodplain which is characteristic of prairie rivers. To the north of this site and along the bluffs of the Missouri River, Lewis and Clark held their first council with the plains Indians, overlooking territories of the Omaha, Potawatomi, Oto and Missouri tribes.

Along the river to the next base camp are landmarks which predated the journey of Lewis and Clark, including not only a large bald eagle preserve but also Spirit Mound, a legendary sanctuary of evil spirits. Up the river to the Great Bend of the Missouri near Fort Thompson, South Dakota, is the study site on the Crow Creek Indian Reservation of the Sioux Nation, located in mixed grass prairie and wooded ravines. Through several reservations of the Sioux and territory of the now extinct Mandans, the 1976 explorers will journey on to the next base camp at Fort Peck Lake. Plant and animal species of this high plain in northern Montana exhibit characteristics common to species adapted to a climate of long and cold winters.

On the long westward trek to the Great Falls of the Missouri, the travelers will have their first encounter with the Rocky Mountains, Bear Paw, and Judith Ranges. Flora and fauna of this study area are typical of the northern mountain forests, nut-crackers and Engelmann spruce. Traveling on through the valleys of western Montana, the explorers will reach the Bitterroot Mountains, an awesome challenge for Lewis and Clark. Lolo Pass, our base camp at the summit, will provide the 1976 re-expedition team an opportunity to study a wilderness of spruce, fir, and the recently recut trails of Chief Joseph and the Nez Perce Indians.

West of the Continental Divide all rivers and roads lead to the Pacific. The Clearwater joins the Snake at Lewiston and Clarkston, and then flows into the Columbia Basin. At this point our explorers will experience the deserts of eastern Washington and Oregon. A base camp at the junction of the John Day and Columbia Rivers will emphasize studies of plant and animal biology in the cold northern deserts. The final trek will take the 1976 explorers along the now gentled Columbia River and its dams, through the Columbia Gorge, and on to the pounding surf of the cold Pacific. Reconstructed Fort Clatsop, where Lewis and Clark prepared for their return trip, is the last base camp of the re-expedition. Since the vegetation and habitats of the Pacific Northwest are numerous, daily explorations will be taken to the Oregon Dunes, Olympic Peninsula, Willamette Valley, and Mount Hood, where each location will provide representative flora and fauna for study. The re-exploration team may return to Illinois along different recommended routes, and the experiences of the re-expedition can continue.

Relevant education? However that may be defined, the learning experiences and the friendships made along the Lewis and Clark Trail will never be forgotten!

* * * * *

. . . should have had a comfortable nights lodge but for the musketoes which infested me all night. late at night I was awakened by the nois os some animal running over the stoney bar . . .

Meriwether Lewis, July 30th, 1805

THE AMCBT STORY (Part I)

John R. Carlock, Executive Secretary, AMCBT

As AMCBT moves toward a return to the Drake University campus on the occasion of its 20th Annual Meeting, it does so with members who have been with it for every one of its years of existence, with some who have been members for a few years, and with some who are new to the Association. Although no one, least of all a biologist, can profitably live in the past, a retrospective glance can sometimes be of value in providing a basis for future growth. For those of long continued membership, such a view may refresh their view of where we have been. For others it may provide an understanding of how the present form and interests of the Association evolved. But most important, it may provide us with ideas for future directions.

In 1957 all scientific instruction was in a state of flux. All facets of the scientific community were engaged in introspection regarding content, methods and the nature of the clientele. The impact of the geometric growth in quantity of information was beginning to be widely felt. And probably more important for biologists, the changed nature of available biological information was influencing their thinking. By 1957 an appreciable amount of hard data had become available in the areas of physical and chemical biology, in addition to a continued growth in descriptive material. New instructional techniques utilizing electronic aids, more varied projection systems and TV were widely available.

The Formative Years (1957 - 1961)

The forward thinking of a number of midwestern college biology teachers led to the call for a Midwest Conference of College Biology Teachers. The Conference was held at Drake University, Des Moines, Iowa, October 25 and 26, 1957, and attended by approximately 160 biologists from Iowa, Illinois, Indiana, Missouri, Wisconsin, Nebraska, Kansas, South Dakota and adjoining states. Several of the discussion groups were devoted to the nature of the introductory course, evaluation, and use of research in teaching. It may be significant to note that one discussion session centered on the biological core curriculum, a concept to which entire meetings of this and other organizations were later to be devoted. Service courses for the allied medical professions were also considered.

The general format for this original Conference has persisted throughout the years. Open discussion groups allowing for a maximum of interchange and expression of individual thinking, comprise the heart of the Conference program. The Proceedings indicate that in none of the eight discussion sessions was there a major speaker. Instead there was a chairperson, who directed a very open discussion, and a recorder who prepared a summary of the group discussion for inclusion in a report which was distributed to all who were in attendance. At this conference it was decided that an annual conference of a similar nature would be of value and that formal organization would be the optimum way to provide for planning of such conferences. A Steering Committee was elected with Leland P. Johnson of Drake University as President.

The members of the Steering Committee subsequently met in Indianapolis, Indiana. At this initial meeting of the Steering Committee, the Association of Midwestern College Biology Teachers was established, a committee to develop a statement of purpose and a constitution was formed, and consideration of a meeting place for the autumn of 1958 was begun. Focus for the 1958 meeting was decided upon. As a means of insuring

higher standards for secondary school biologists, a major portion of the 1958 meeting was to be centered upon the training of the secondary teachers and state requirements for the teaching of biology.

The 1958 meeting was held at Western Illinois University, Macomb. In accordance with concerns expressed by attendees at the first meeting, several of the discussion sessions dealt with the preparation of secondary biology teachers. Minimal preparation, certification requirements and graduate curricula were major concerns. Other discussion groups dealt with the freshman course, utilization of library references, seminars and honor programs, and the values of laboratory and field work. The Friday afternoon session was addressed by W.H. Bragonier, Chairman of the Botany Department, Iowa State College. His topic, "Science Education and You," developed the theme of the conference. The evening session featured James F. Crow, Geneticist at the University of Wisconsin, discussing, "What is a Gene?" A portion of the meeting was devoted to completing the organization of the Association. With the adoption of the constitution the Association of Midwestern College Biology Teachers came into formal existence. The objectives of the organization as set forth in the Constitution are:

- 1) to further the teaching of the biological sciences at the college and other levels of educational experience;
- 2) to bring to light common problems involving biological curricula at the college level and by the free interchange of ideas, endeavor to resolve these problems;
- 3) to encourage active participation in biological research by teachers and students in the belief that such participation is an invaluable adjunct to effective teaching;
- 4) to create a voice which will be effective in bringing the collective views of the teachers of the biological sciences to the attention of college and civil government administrations.

Willis H. Johnson of Wabash College, Indiana, was elected President, and the University of Notre Dame was selected as the site of the third meeting. On January 6, 1959, the Association was incorporated in the state of Iowa, with Leland P. Johnson, Rodney A. Rogers, and Fae Shawhan of Drake University as the incorporators.

At the third Annual Meeting the majority of the program was again devoted to problems of the preparation of secondary school teachers. In addition to course requirements for the baccalaureate degree and state certification requirements, attention was given to Masters and the Specialist in Education degrees. Other discussion groups considered undergraduate research participation, seminars and honors activities. The evening address, "Biogeography and Continental Drift," was presented by Theodor Just of the Chicago Natural History Museum. Ted F. Andrews was elected President and Mankato State College, Minnesota was selected as the site of the fourth Annual Meeting.

At the Mankato meeting the program of the Association included the first venture into examination of new curricula. A. Glenn Richards, of the University of Minnesota, described the AIBS High School Biology film course. Included in his presentation was a viewing of one of the films, the summary presentation for the unit on biochemistry. Other featured speakers were Norman S. Kerr of the University of Minnesota and David E. Green from the Institute for Enzyme Research at the University of Wisconsin. Dr. Kerr presented the opening lecture, "The Biology of A True Slime Mold." Dr. Green gave two presentations, the evening address, "Biochemical Machines," and a Saturday morning address, "Oxidative Phosphorylation." The discussion sessions at this fourth meeting showed a diversity which has characterized the continuing growth of the Association. One session was again devoted to the training of

secondary biology teachers. The senior year of the biology major program and the nature of laboratories were also again considered. Other sessions considered instruction in specific areas of biology, namely botany and genetics. Departmental organization and administration attracted the attention of a number of members, and as will be seen, this subject has been treated at a number of subsequent meetings. Another precedent for future meetings was set in the presentation of three experimental programs conducted by Ted Andrews, J. D. Novak, and W. K. Stevenson. These experiments involved teaching of large classes, teaching by means of project work, and the use of self-instructional materials in genetics.

One highlight of this meeting can not easily be forgotten by the members in attendance. The evening banquet, served smorgasbord style, featured a tremendous smoked salmon on a bed of wild rice and an awe inspiring haunch of beef. Looking back on this repast, one wonders how many were able to maintain their full attention during the evening address.

AMCBT participated in the program of the AIBS meetings at Purdue in August of 1961. Sharing sponsorship with the National Association of Biology Teachers and the teaching section of the Botanical Society of America, several sessions on instruction were arranged. These included BSCS developments, special teaching devices and demonstrations of Airborne Television Instruction.

The Fifth Annual Meeting was held at Illinois State University with President William Stephenson presiding. Nobel Laureate George Beadle highlighted the program with his address, "Genes and the Nature of Man." Several new features were added to the meeting. A special display of laboratory experiments and course outlines prepared by members was organized. For the first time, exhibits of commercial firms were included in the meeting. Thirty-five publishers and supply houses participated.

The discussion sessions also introduced some new features. All topics were organized in three major headings. One group concerned Recent Advances in selected areas of biology. Other sessions were concerned with Teaching Large Numbers, and Teaching Devices and Techniques. In addition to the evening address by Dr. Beadle, the Association also heard a presentation, "Energy and Life," by E. L. Powers of the Argonne National Laboratory.

During the business meeting the Association considered and approved of affiliation with the National Association of Biology Teachers. The interest expressed in continuation of the commercial exhibits led to the establishment of a class of sustaining membership. Two resolutions adopted by the Association presaged the increasing involvement of AMCBT in national curricular movements, and, many years before they finally appeared, indicated the need for technique films and modules. Because of their significance in indicating the leadership quality of the Organization, these 1961 resolutions are included here.

"The Association of Midwest College Biology Teachers, in annual meeting, resolve that this organization should offer to participate and cooperate with the AIBS and other appropriate organizations, in the development and evaluation of college biology courses appropriate to the students who will be the products of the "New Approach" in high school biology, as exemplified by the BSCS courses."

"Resolved: There is a need for short, 1 minute to 5 minute films, available at low cost, which illustrate a laboratory technique, a plant or animal structure or activity, a classical experiment in

biology or a personality sketch. To propose that an appropriate agency consider a survey of needed short films for biology. (*sic*) On the basis of suggestions obtained, we recommend a survey of existing appropriate footage, productions of needed film, and distribution at low cost of such films."

The Beginnings of National Involvement (1962 - 1966)

The Sixth Annual Meeting was hosted by Marquette University with James M. Barrett of Marquette serving as President of the Association. Following the lead of the resolution, Arnold Grobman and Walter Auffenberg spoke on "The Articulation of the BSCS With the First Year College Course In Biology" and on "Teacher Preparation For BSCS." The group discussions again featured recent advancements in biology with Growth and Development, Genetics, and Protozoology being featured. The panel on approaches to learning considered research as a teaching method and undergraduate honors. The third panel looked at Advanced Placement, the study of faculty load and a discussion of meeting the needs of future science teachers. In this last discussion, Ben Olson led the groups thinking away from the subject matter centered consideration toward developing an understanding of scientific process.

On the recommendation of the Steering Committee and approval of the Association the President was directed to appoint a Self-Analysis Committee. It was directed that the membership of this committee be represented by the wide variety of schools represented in the Association. The Self-Analysis Committee met at Mundelein College, Chicago, in November of 1962. The preliminary report of the group indicated the nature of their deliberations.

"The first part of the meeting was devoted to establishing an agenda. As each topic was considered, it became more evident that the magnitude and the scope of the responsibilities of the Association were so great that it would be impossible for the Self-Analysis Committee to do any more in one or two meetings than to outline these responsibilities and to make recommendations to the Steering Committee as to the approach that should be made in meeting them. It seemed agreed that because we were the only professional organization of our kind in the Midwest we had a number of responsibilities that devolved upon us just because we did exist. Some of these we shared with other organizations, some were essentially our responsibility alone."

It was agreed to make the following recommendations to the Steering Committee:

Most of the work of the Association should be assigned to a number of standing committees, to be created by the Steering Committee. So that committees might meet with reasonable convenience and frequency, some consideration to geography and ease of travel might be given in making appointments to committees. To give stability to committees and to encourage responsible, far-sighted work by their members, at least some committee appointments should be made for two or three years.

The following Standing Committees should be created:

- | | |
|---------------------------------------|---|
| 1. <u>Long-range Program Planning</u> | 5. <u>Curricula</u> |
| 2. <u>Institutional Cooperation</u> | 6. <u>High School-College Relations</u> |
| 3. <u>Communications</u> | 7. <u>Professional Problems</u> |
| 4. <u>Finances</u> | 8. <u>Constitution & By-laws</u> |

The following ad hoc committee should be created:

Local Arrangements

The membership responsibilities and immediate problems for each committee to consider were indicated. With financial assistance from the Committee on Institutional Cooperation, the Steering Committee held a special meeting in April 1963 in Chicago and approved the implementation of the report of the group.

At the 1963 Annual Meeting at Purdue University, the Association took the first hard look at the entire undergraduate biology program. Henry Koffler, head of the Department of Biological Science at Purdue, gave the opening lecture. He discussed "Developments in Core Courses in Undergraduate Biology." Panel discussions were given in each of six areas, Introductory Biology, Genetics, Structure-Function, Ecology, Cell Biology and Developmental Biology. There were two panels for each area, one comprised of members of the Association from various schools and the other in which the Core courses at Purdue were discussed. The evening address was given by James Ebert, Past President of AIBS. R. Maurice Myers presided at the Purdue sessions. Joseph D. Novak was elected President for 1964 and the University of Kansas at Lawrence was selected for the site of the 8th Annual Meeting.

The 1964 meeting was organized as the Midwest Regional Conference of the Commission on Undergraduate Education in Biological Science (CUEBS). The meeting opened with a discussion of the CUEBS program by Victor A. Greulich, Executive Director of CUEBS, and a report on two previous conferences held by CUEBS at Berkeley and St. Louis. The report was given by Willis H. Johnson, CUEBS Commissioner and former AMCBT President. The numerous discussion sessions were all devoted to Curriculum Ann. Curriculum Ann was a distillation of the discussions from the Berkeley and St. Louis meetings. Each of the discussion groups went forward and developed its own modifications and recommendations in such a manner that Curriculum Ann Adams, Ann Brown, Ann Crowder, . . . Ann Frank, . . . and so on through the alphabet were developed. In a final plenary session all of these mutations were presented to the entire group and other national commissions were described. The final summary of the conference appeared as CUEBS Publication #8.

Probably the most unusual evening program that has been presented at any AMCBT meeting was given. Sam Hinton, Curator at the Scripps Institute of Oceanography was introduced by Ben Olson. Sam accompanied his presentation, "Biology of Folk Music" on the guitar. At the business sessions of AMCBT, J. Bennet Olson was elected President and Northern Illinois University announced as the location for the 1965 meeting.

Two activities of the Association had their inception at this time. A Newsletter, to be published in the Spring of each year, first appeared under the direction of LaRoy Zell. In order to facilitate the business of the Association, a Central Office was established at Purdue University. The Central Office, under the direction of J. Bennet Olson, was responsible for publication of the Newsletter, the Proceedings and provided a permanent mailing address.

In contrast to the concentration on Core Curricula of the preceding two years, the Association moved back to a more diversified set of topics for the 9th Annual Conference. The question of certification of college biology teachers, preparation for medical school, graduate education, programmed audio-tutorial instruction and approaches to undergraduate research were considered. A proposal for microbiology as the first course was made and a formal report of the CUEBS Writing Conference was presented. One of the foremost women biologists, Mary A. McWhinnie, spoke on "Oceanography and Marine Biology: Recent Research In Antarctica."

It is interesting to note, in view of the fact that President Ford recently (1976) signed legislation providing for a shift of the United States to the International System of Measurements, that at this 1965 meeting the Association adopted a resolution, to be communicated to the Secretary of Commerce, advocating the adoption of the Metric System. Jack Bennett of Northern Illinois was elected President of the Association for 1966.

The location for the 10th Annual Meeting is an indication of the geographical extent of the Organization. Southeast Missouri State University at Cape Girardeau took the membership to the seventh state in its short life. Jack Carter, Assistant Director of BSCS, keyed the meeting with his address, "Impact of BSCS on College Biology Teaching." Group discussions on Junior College programs, audio-tutorial techniques, courses in related disciplines, and masters programs for the preparation of biology teachers pursued this theme. In addition, other groups discussed educational opportunities at Argonne National Laboratory and continued the examination of the question of certification of college biology teachers introduced in 1965. David M. Gates, Director of the Missouri Botanical Gardens, discussed "Energy Exchange in the Biosphere." He illustrated his presentation with a remarkable series of photographs taken with a schlieren lens system. These photographs indicated heat loss in biological objects by the temperature induced refraction of light. Brother George Pahl was elected President and Hamline University selected as the site for the 1967 meeting. (*The AMCBT STORY will be continued in a future issue.*)

* * * * *

LONGEST BINOMIAL? In the last issue a nomination for longest binomial was made, the green sea urchin - *STRONGYLOCENTROTUS DROEBACHIENSIS*. Bill Downing of Hamline has reminded us of that old reliable *GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE*. Of course, this leaves the question as to whether a hyphenated term of this nature can really qualify as a binomial. The question is still open and we look forward to receiving a defense from Bill for his nomination.

MEETING DATES

AIBS	1976 Annual Meeting	Tulane University New Orleans, LA	May 30 - June 4
AMCBT	1976 Annual Meeting	Drake University Des Moines, IA	Oct. 1-2
NABT	1976 National Convention	The Regency Denver, CO	Oct. 14-17
AMCBT	1977 Annual Meeting	Monmouth College Monmouth, IL	Oct. _____
NABT	1977 National Convention	Anaheim Convention Center, Anaheim, CA	Oct. 20-24
NABT	1978 National Convention	Chicago Marriott Chicago, IL	Oct. 26-29

Humanity, surely, needs practical men who make the best of their work for the sake of their own interests, without forgetting the general interest. But it also needs dreamers, for whom the unselfish following of a purpose is so imperative that it becomes impossible for them to devote much attention to their own material benefit.

- Marie Curie

P O S I T I O N S

Reply to the position number in care of AMCBT Central Office. Service is free to members. Others may use the service for a fee of \$1.00 per line of copy for each issue.

OPEN

7605 ILLINOIS STATE UNIVERSITY LABORATORY SCHOOL BIOLOGY TEACHER. Masters or bachelors plus special training or experience, biology major with teaching field in physical science - other minors might be considered - to teach secondary biology in large laboratory high school.

WANTED

7601 GENERAL BIOLOGIST Master's degree, 7 yrs teaching experience, sec., coll., and continuing ed. Interested in: biology for the nonmajor, science and human values, interdisciplinary science, methods, anatomy and physiology. Presently on temp. appt.

7602 SUMMER 1976, GENERAL BIOLOGIST Doctorate equivalent, 20+ years coll. teaching. Interested in biology for the non-major, science and society, methods, physiology. Experience includes industrial research, development of teaching materials, workshop direction.

7603 BIOLOGIST Master's, 7 yrs enthusiastic teaching exp. in 4 yr college. Major interest in Aquatic and Marine Ecology. Have taught Zool, Invert, Ent, Ichthy and Herp, Ecology, Limn, Env Bio, Anim Beh, Water Qual Res, Anat and Phys, Field Stud in Mar Ecol.

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(Continued from page 2)

Other writers had a much more optimistic opinion, and the viewpoint of the earlier settlers was greatly different from that of Madison. In his introduction to From Prairie To Corn Belt, Bogue has summarized the thoughts of the early inhabitants. *When the pioneer farmers came, much of the modern cornland empire was part of a grassland peninsula, a lazy V or triangle of tall grass prairie, that projected eastward into the wooded ramparts of the Lake Plains and the drainage basin of the Ohio River. Grasses, sedges, and forbs contested for most of the land here, although trees often grew along the watercourses or stood in isolated groves on the prairie, and hazel "bushes" were common. Ignorant of the fascinating story of the Pleistocene, which later scientists found written in the prairie landscape, early geologists of the Midwest doubtless longed for bolder profiles and more complex rock strata. Less sophisticated folk merely complained of the monotony of the grasslands.*

On close inspection the prairie scene was far from monotonous. Iowa's first state geologist, James Hall, distinguished between the flat prairies like the Grand Prairie of Illinois and the rolling prairies which predominated in Iowa and other parts of the midwestern grassland. The geographer Leslie Hewes has emphasized that there was "wet prairie" and "well drained prairie." In places the rolling prairie was rolling indeed, and the bluffs of both the Mississippi and the Missouri have their own grandeur. Even in the so-called flat prairie regions the glacial moraines shaped the skyline, and if Mahomet, Illinois, does not today have its mountain, at least it has its "Blue Ridge." When the eye of the traveler turned from the horizon and focused on the plant life of the prairies, there was diversity indeed. The distinguished student of the prairies, Bohumil Shimek, named 271 species in a list of the "typical prairie plants" of Iowa. In the prairie groves, the oak, hickory, and walnut were only the most obvious of a considerable number of species of trees.³

Another view of the variety and quantity of life was expressed by Marquette, Nowhere on this journey did we see such grounds, meadows, woods, stags, buffaloes, deer, wildcats, bustards, swans, ducks, parroquets, and even beavers, as on the Illinois River. The populations of some species are recorded in numbers almost beyond belief. In many instances, I counted upwards of ninety nests on a single tree; but the Pigeons had abandoned this place for another, sixty or eighty miles off, towards Green river, where they were said at that time to be equally numerous. From the great numbers that were constantly passing over head, to or from that quarter, I had no doubt of the truth of this statement. The mast had been chiefly consumed in Kentucky, and the Pigeons, every morning, a little before sunrise, set out for the Indiana territory, the nearest part of which was about sixty miles distant. Many of these returned before ten o'clock, and the great body generally appeared on their return a little after noon.

I had left the public road, to visit the remains of the breeding place near Shelbyville (Kentucky), and was traversing the woods with my gun, on my way to Frankfort, when about one o'clock the Pigeons, which I had observed flying the greater part of the morning northerly, began to return in such immense numbers as I never before had witnessed. Coming to an opening by the side of a creek called the Benson, where I had a more uninterrupted view, I was astonished at their appearance. They were flying with great steadiness and rapidity, at a height beyond gunshot, in several strata deep, and so close together, that could shot have reached them, one discharge could not have failed of bringing down several individuals. From right to left as far as the eye could reach, the breadth of this vast procession extended; seeming everywhere equally crowded. Curious to determine how long this appearance would continue, I took out my watch to note the time, and sat down to observe them. It was then half past one. I sat for more than an hour, but instead of a diminution of this prodigious procession, it seemed rather to increase both in numbers and rapidity; and, anxious to reach Frankfort before night, I rose and went on. About four o'clock in the afternoon I crossed the Kentucky river, at the town of Frankfort, at which time the living torrent above my head seemed as numerous and as extensive as ever. Long after this I observed them, in large bodies that continued to pass for six or eight minutes, and these again were followed by other detached bodies, all moving in the same south-east direction, till after six in the evening. . . To form a rough estimate of the daily consumption of one of these immense flocks, let us first attempt to calculate the numbers of that above mentioned, as seen in passing between Frankfort and the Indiana territory. If we suppose this column to have been one mile in breadth (and I believe it to have been much more), and that it moved at the rate of one mile in a minute; four hours, the time it continued passing, would make its whole length two hundred and forty miles. Again supposing that each square yard of this moving body comprehended three Pigeons, the square yards in the whole space, multiplied by three, would give two thousand two hundred and thirty millions, two hundred and seventy-two thousand pigeons! An almost inconceivable multitude, and yet probably far below the actual amount. Computing each of these to consume half a pint of mast daily, the whole quantity at this rate, would equal seventeen millions four hundred and twenty-four thousand bushels per day!⁴

As much as any other species, the bison is a symbol of bountiful nature in the Americas. Bonneville, writing in 1832 of the region of the north fork of the Platte River said, As far as my eye could reach, the country seemed absolutely blackened by innumerable herds. Townsend describing a journey in the same area in 1833 recorded the following scene. Towards evening, on the rise of a hill, we were suddenly greeted by a sight which seemed to astonish even the oldest among us. The whole plain, as far as the eye could discern, was covered by one enormous mass of buffalo. Our vision, at the very least computation, would certainly extend ten miles, and in the whole of this great space, including about eight miles in width from the bluffs to the river bank, there was apparently no vista in the incalculable multitude.

Garretson, in his book The American Bison, tells of a conversation with an old plainsman. *Picture in your mind an open grassy valley a mile wide and straight for many miles, level as a floor, bare of any trees or brush, and on each side bluffs stretching away east and west in parallel lines to the horizon. Early one morning in 1851 I stood on an eminence overlooking this valley; and from bluff to bluff on the north and on the south, and up the valley to the westward--as far as the eye could reach--the broad valley was literally blackened by a compact mass of buffalo, and not only this--the massive bluffs on both sides were covered by thousands and thousands that were still pouring down into the already crowded valley, and far as eye could reach, the living dark masses covered the ground completely as a carpet covers the floor. It looked as if not another buffalo could have found room to squeeze in, and a man might have walked across the valley on their huddled backs as on a floor.*

It was not only the birds and mammals that reflected the bounty of the midwest bioscene. The prairie itself struck the early settlers with its magnificence. Although possibly not as technically correct as might be found elsewhere, the writings of Herbert Quick contained many descriptions of the early Midwest. In one volume of the Iowa Trilogy written by this early conservationist-novelist can be found the following. *The roads leading west out of Dubuque were horrible, . . . After a few miles, we reached a point from which I could see the Iowa prairie sweeping away as far as the eye could see. . . I shall never forget the sight. It was like a great green sea. The old growth had been burned the fall before, and the spring grass scarcely concealed the brown sod on the uplands; but all the swales were coated thick with an emerald growth full-bite high, and in the deeper, wetter hollows grew cowslips, already showing their glossy, golden flowers. The hillsides were thick with the woolly possblummies in their furry spring coats protecting them against the frost and chill, showing purple-violet on the outside of a cup filled with godlen stamens, the first fruits of the prairie flowers; on the warmer southern slopes a few of the splendid bird's-foot violets of the prairie were showing the azure color which would soon make some of the hillsides as blue as the sky; and .. standing higher than the peering grass rose the rough-leafed stalks of green which would soon show us the yellow puccoons and sweet-williams and scarlet lilies and shooting stars, and later the yellow rosin-weeds, Indian dye-flower and goldenrod. . . The wild-fowl were clamoring north for the summer's campaign of nesting. Everywhere the sky was harrowed by the wedged wild geese. . .and ducks quacked, whistled and whirred overhead. . .so far up that they looked like specks. . .floated huge flocks of cranes. . .*⁵

Much of the Midwest terrain was striking because of the great vistas of flat or gently rolling land. The Great River also had its impact on the first visitors. Samuel Clemens recorded one view of it that can still be captured. *We noticed that above Dubuque the water of the Mississippi was olive-green-rich and beautiful and semitransparent, with the sun on it. Of course the water was nowhere as clear or of as fine a complexion as it is in some other seasons of the year; for now it was at flood stage, and therefore dimmed and blurred by the mud manufactured from caving banks. The majestic bluffs that overlook the river, along through this region, charm one with the grace and variety of their forms, and the soft beauty of their adornment. The steep, verdant slope, whose base is at the water's edge, is topped by a lofty rampart of broken, turreted rocks, which are exquisitely rich and mellow in color--mainly dark browns and dull greens, but splashed with other tints. And then you have the shining river, winding here and there and yonder, its sweep interrupted at intervals by clusters of wooded islands threaded by silver channels; . . .And it is all as tranquil and reposeful as dreamland, and has nothing this-worldly about it--nothing to hang a fret or a worry upon.*⁶

As we look back over the midwest bioscene from the days of the Amerind, through the days of the explorers and settlers and to today, we can still find the grandeur. "After you have exhausted what there is in business, politics, conviviality, love, and so on--have found that none of these finally satisfy, or permanently wear--what remains? Nature remains: to bring out from their torpid recesses the affinities of a man or woman with the open air--the sun by day and the stars of heaven by night."

REFERENCES

- ¹George Bird Grinnell, The Story of the Indian, 1895.
- ²Edmund Flagg, The Far West, 1838.
- ³Allan G. Bogue, From Prairie To Corn Belt, University of Chicago Press, Chicago, 1963.
- ⁴Alexander Wilson, American Ornithology, 1808.
- ⁵Herbert Quick, Vandermark's Folly, 1922.
- ⁶Mark Twain, High Water On The Mississippi, 1883.
- ⁷Walt Whitman, Nature Remains.

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COMMENT, PLEASE:

In the late 1950's and early 1960's there was wide spread curricular development in the field of biological science. AIBS earlier made the decision that the place to make a start was the secondary curriculum, with the hope that the change made would provide the impetus for change at the collegiate level and would move down into the elementary. The AIBS Film Course and BSCS secondary programs developed. AMCBT was involved with Core Curricula and other CUEBS programs.

We are now into another generation of developments which it may behoove AMCBT members to examine closely. Most of these are interdisciplinary in nature. A few follow the pathway of "unified science" but many are going far beyond that. At the secondary level there are programs such as Exploring Human Nature in which material from the biological sciences, psychology, sociology and anthropology are brought together into a coherent unity. At the elementary level, BSCS has produced the Human Sciences Program. Educational Developments Corporation has the controversial MACOS (Man: A Course of Study) and People and Technology. These are all different from existing course syllabi in that they truly integrate material from various courses. They pose real questions as to the subject matter course content of teacher preparation programs. The biology major who has pursued the typical program may well be at a loss in dealing with this material. Much of this work presumes an understanding of Piaget's Stages of Intellectual Development, Kohlberg's Stages of Moral Growth, techniques of value clarification, and approaches to decision making, as well as content outside the scope of traditional science courses.

At the college and university levels there are many examples of courses dealing with "Science and Society," "Science and Values", "Biology and Human Values." Many of these are team taught, others depend upon the initiative of someone already

specialized in a field extending his or her background so as to develop competency. This new generation in curriculum development poses questions for AMCBT members. How might we best become acquainted with the philosophy, the approach and the content of these new programs; become knowledgeable of the innovations made in various colleges and universities in science - values courses; and evaluate these changes in view of our own work? Possibly the most crucial question is: If AMCBT is to continue in the forefront of change, an earmark of the Association for many of its years, must we become involved in these trends, not only as individuals but as an organization?

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COMMUNICATIONS

Dear Fellow Naturalist:

Sixty million springs have witnessed the annual pondward scramble of ambystomatid salamanders. For years they have been seen crossing highways, roads and ditches, singly and in groups, moving toward their breeding sites in temporary ponds.

Herpetologists know a good deal about *Ambystoma maculatum*, but have virtually no information on the schedule of migration, mating, egg masses, larvae and metamorphosis over the range of the species.

It would be extremely useful to have a maintenance-free mechanism which would "time" the salamanders for us. This mechanism may exist in early flowering plants. If we could correlate, for example, the flowering of some plant with the arrival of adults at temporary breeding pools, we would have a useful parameter for comparing seasonal cycles within the geographic range of a species.

I am trying to establish a network of interested naturalists who would report phenological data concerning *Ambystoma maculatum*, spotted salamander, and *Symplocarpus foetidus*, skunk cabbage, an early flowering plant. I have chosen *Ambystoma maculatum* because it is unmistakable, has a wide range and a restricted breeding season. *Symplocarpus foetidus* was chosen because it is distinctive and earliest to appear.

In the 1974 Yearbook of Herpetology H.G. Dowling suggested that phenological studies of reptiles and amphibians could be valuable. He stated that there exist scattered references to dates of salamander migrations, breeding, development of larvae, and emergence of metamorphosed young in the herpetological literature for specific locations, but no overall pattern for the range of a species has yet appeared. The paucity of such information is underscored in the newly-published book, Phenology and Seasonality Modeling (Helmut Lieth, ed., Springer-Verlag, New York) which contains phenological information on every terrestrial vertebrate except amphibians and reptiles.

If you know of a local breeding site for *Ambystoma maculatum*, it would be relatively simple to observe the progress of salamander breeding and development while noting the progress of a nearby patch of skunk cabbage.

If you would like to participate in this first effort toward the phenology of an amphibian species, please write for additional information.

Janann Jenner

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BIOLOGY: NEW INTERFACES

THE 20th ANNUAL MEETING

DRAKE UNIVERSITY, DES MOINES, IOWA

OCTOBER 1-2, 1976

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PIGEON LAKE FIELD STATION The University of Wisconsin system is offering a number of biology programs at the Pigeon Lake Station from May 24 through August 20, For details write Russel Wagner, Biology Department, Univ. of Wisconsin-Platteville, Platteville, WI 53818.

MISSISSIPPI RIVER RESEARCH CONSORTIUM MRRC will meet June 4-5 at St. Mary's College, Winona, MN 55937. This group was organized almost ten years ago at St. Mary's to provide forum for the exchange of all types of information on the Mississippi. The membership is largely made up of professional biologists, but many other disciplines are represented, and all types of people and viewpoints are welcome. The only criteria for membership is an interest in the Mississippi River. The annual meeting provides the best available forum for an exchange of scientific reports, current research, political action, and many other topics that affect the river. Rory Vose indicated that in addition to the papers and discussion, the meeting will feature a steak fry on a Mississippi River sand bar, both large and small boat trips and a nature-bird walk. If you wish further information correspond directly with Dr. Rory Vose at St. Mary's.

PUBLICATION DATES Copy for MIDWEST BIOSCENE should be submitted according to the following schedule: May issue by April 10, September issue by July 10, November issue by October 10, February issue by January 10. In addition to articles, remember that notes regarding positions, requests for information, information which will be shared, letters to the Editor are all desired. Formal articles may concern reviews of special areas, new programs, workable laboratory experiments, teaching techniques, etc. Only you, the contributing member, can make the publication of value to the membership.

-----Detach Here-----

Application for Membership ASSOCIATION OF MIDWESTERN COLLEGE BIOLOGY TEACHERS

Regular Member (\$6.00) Retired Member (\$3.00) New Renewal
Dues payable July 1

Name _____ Date _____

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Institution _____

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