

PRESIDENTIAL PALAVER

Do you realize that new, young and energetic faculty are active in AMCBT? We talk about recycling minerals, materials and humans, but we also need to recycle teaching ideas. Would you believe that the young faculty wonder whether or not senior faculty are still interested in the nature of a good biology course, a comparative anatomy course, a physiology course, or a genetics course and in the recent advances in the research areas of biology? Are we really ever too young or too old to learn about biology and teaching? Can we redirect our efforts and thoughts back to the fundamentals of biology and share our wisdom and knowledge - young and old alike?

The recent years have had biology on some interesting trips (all were important), but now with so many young faculty involved in AMCBT it is time to recycle the basic biology in light of new knowledge.

May I suggest that we repledge ourselves to the stated objectives of AMCBT which were adopted 18 years ago. "The objectives of the organization shall be:

1. To further 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."

One core idea that I have always liked about AMCBT program planning is "trying to design a program that will foretell, detect, forecast or predict new directions in biology." Would you be the person to:

1. Give the Recent Advances in Biological Science Teaching? Send me your name.
2. Give the Recent Advances in Biological Curriculum? Send me your name.
3. Give the Recent Advances in Biological (any area) Research. Send me your name.
4. Give the Recent Advances in Public Relations and Biology? Send me your name.

Can you take one new step to develop AMCBT? Our mission is clear!

Robert H. Buchholz
President, AMCBT

- P.S. 1. How about doing more to facilitate sabbaticals for individuals? We all need the views of other departments. Can positions be exchanged for a term or a year?
- P.S. 2. How can we use the services of Professors Emeriti? In this day and age they are really young. They have an abundance of mental energy. They have experience with wisdom. They have no vested interest. They could help us keep a perspective or help us refocus our thinking in AMCBT. They will not lose their commitment to biology.

MAN MADE RIVERS

*A summarization of the Evening Address delivered
at the 18th Annual Meeting of AMCBT*

William H. Dieffenbach, Resource Specialist
Missouri Department of Conservation, Jefferson City, MO 65101

In Missouri we are blessed with two of the largest rivers in the world. We share a small part of the 553 miles of the Missouri River with Kansas and Nebraska, but we "own" all of the 367 miles across the middle of the state. The Mississippi River is three different rivers in one. From St. Louis north to Iowa we share 159 miles of river-lakes created by low navigation dams with Illinois. Below St. Louis the Mississippi River is similar to the canalized Missouri for about 200 miles to the Ohio River. Below the Ohio River the Mississippi River is a giant river, broad and impressive. We share 127 miles of the giant with Kentucky and Tennessee. So all totaled, Missouri has a big stake - over 1,000 miles - in our Big Rivers.

In our studies of the Missouri and Mississippi Rivers, we have found tremendous man made changes. From the time the early settlers arrived when the rivers were wild, with numerous productive back waters, side channels, cutoffs and sand bars, to the present we have lost a tremendous acreage of habitat for fish and wildlife. There is still a remnant of the Missouri River above Sioux City, Iowa, in which we can see what the river must have been like.

Man's early efforts were to remove snags and shoals to eliminate hazards to shallow draft vessels. Later the Corps of Engineers was authorized to develop navigation channels on the Mississippi River, and to stabilize the river banks and provide for navigation on the Missouri River. These early efforts were with pile dikes and proved to be fairly effective. As an example of the work done, the two maps of the Missouri River depict the loss of aquatic habitat and channel capacity for flood waters.

In later years the Corps switched from pile dikes to stone dikes. Stone dikes are very effective tools in canalizing sediment carrying rivers. Where dikes fail to produce adequate channel depths the Corps moves in and dredges sand and gravel from the river bottom. This material is usually dumped adjacent to the navigation channel with some further loss of channel capacity and aquatic habitat.

Millions of dollars have been spent to canalize our rivers for navigation and millions more have been spent for flood control. The step by step canalization of the Missouri River can be depicted in slides of various reaches of the river. At times we suspect engineers dream of a rock lined canal with uniform height levees and gravel roads for maintenance of the canal. My suspicions were confirmed one day when visiting the University of Wyoming, I noticed the following inscription over the Engineering Building front door, "Strive on...The control of nature is won, not given". Why must we "control nature"? Can't we accommodate into our system of life natural forces?

In Missouri in 1973 nature took control and flood waters covered many thousand acres of bottomland along the Missouri and Mississippi River. Levees built too close to the channel were topped and broken, homes and farms were flooded. The flood was far from a record in the amount of water that passed St. Louis (850,000 cubic feet per second), but the height of the water (43.5 feet) was a record, surpassing the previous record (42.7 feet) set in 1846, when 1,300,000 cfs. flowed past St. Louis in what must have been a wider floodway. Data have been collected that indicate a

serious trend in the loss of flood channel capacity due to navigation works like stone dikes, and levees placed too close to the river channel. In the 1973 flood, one of the key purposes of canalizing the rivers was disrupted when navigation closed for several weeks. Long reaches of the Missouri and Mississippi Rivers have been subjected to canalization. The end result is an aggravation of flooding and cessation of navigation during flood periods. The consequences of continuing the canalization of our large rivers are severe. It seems apparent that we must begin with nature in mind, rather than continuing our faltering efforts to control nature.

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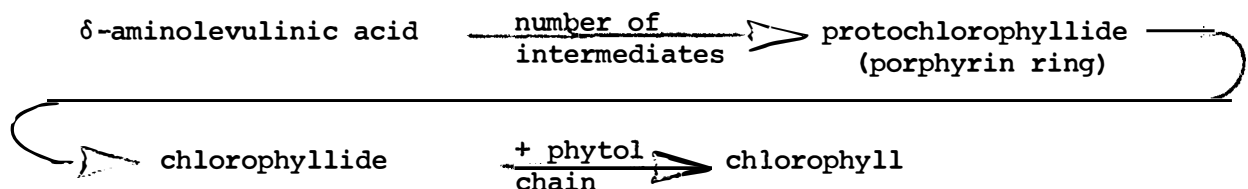
BIOSYNTHESIS OF CHLOROPHYLL

Derek McCracken, Assistant Professor of Biological Sciences
Illinois State University, Normal, IL 61761

The following is a laboratory exercise that I developed for my Plant Physiology course, based on an exercise in Experimental Plant Physiology, ed., San Pietro. The purpose of the exercise is to make the students aware of the fact that plastids contain DNA and their own protein synthesizing machinery. The results of this experiment will allow the students to draw some conclusions as to the source of the mRNA for certain enzymes and also the site of synthesis of these enzymes.

The students need to be informed that δ -aminolevulinic acid (δ -ALA) is a precursor of chlorophyll and that (1) rifamycin inhibits the RNA polymerases which function in plastids, (2) chloramphenicol inhibits protein synthesis on the 70S ribosomes found in plastids, and (3) cycloheximide inhibits protein synthesis on the 80S ribosomes found in the cytoplasm.

Biosynthesis of chlorophyll:

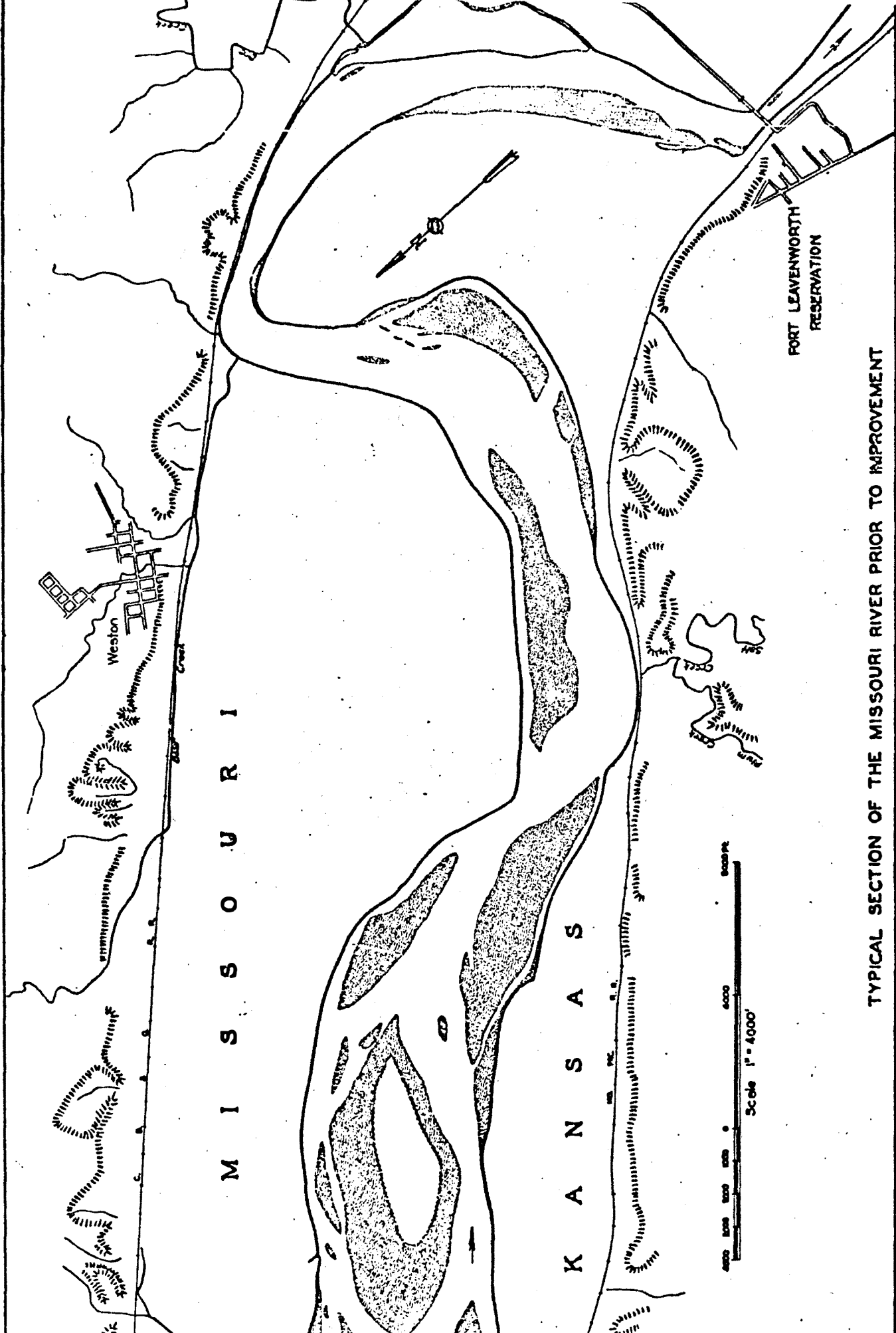


Materials:

0.2 M sucrose
0.01 M δ -ALA in 0.2 M sucrose
50 μ g/ml cycloheximide in 0.2 M sucrose
same but containing 0.01 M δ -ALA
3 mg/ml chloramphenicol in 0.2 M sucrose
same but containing 0.01 M δ -ALA
1 mg/ml rifamycin in 0.2 M sucrose
same but containing 0.01 M δ -ALA
methanol
7 day old dark grown bean seedlings
small petri dishes

Method:

Unless otherwise indicated all work with the etiolated plants must be done in a darkened room.

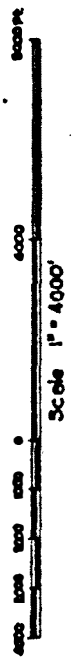


M I S S O U R I

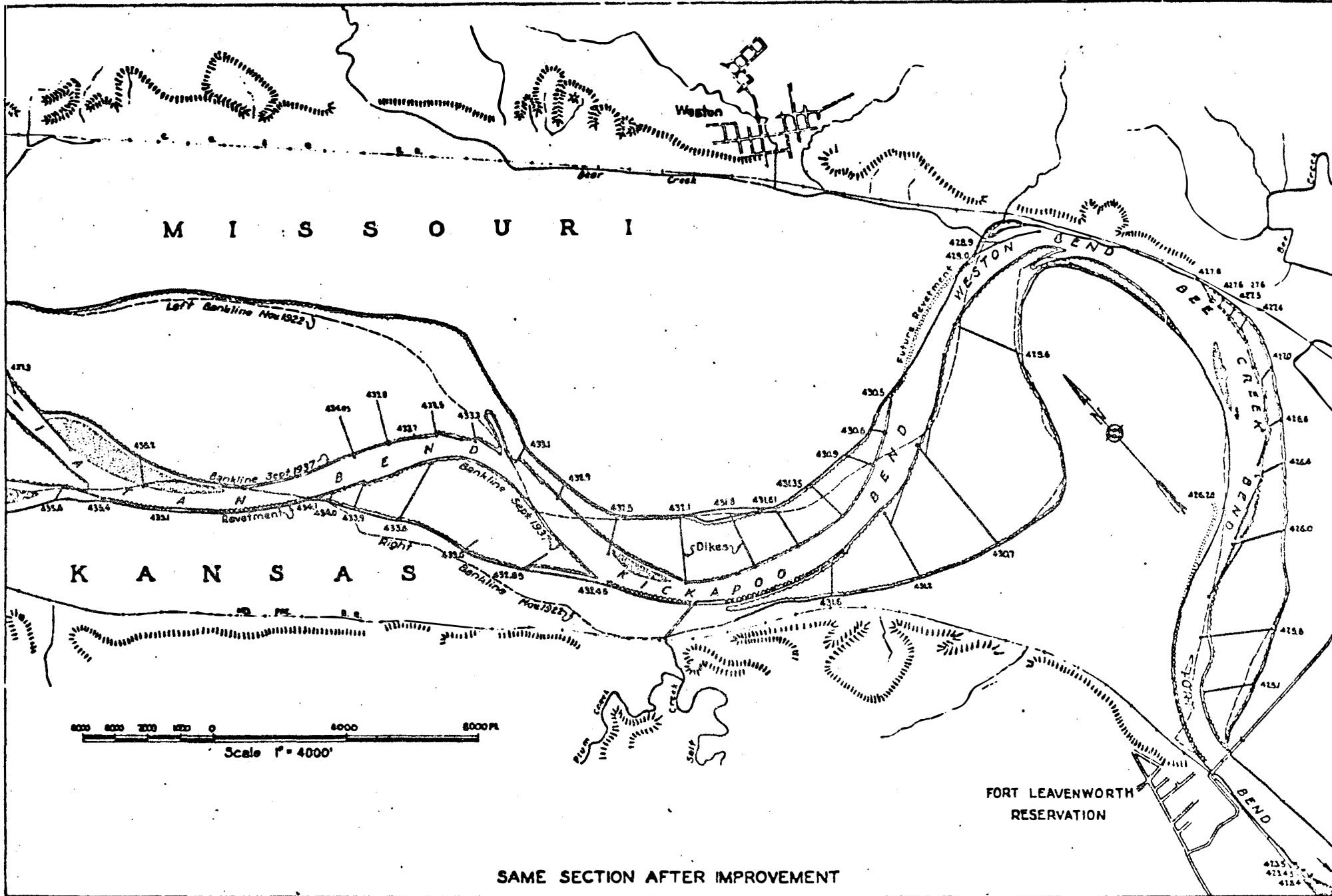
K A N S A S

FORT LEAVENWORTH
RESERVATION

Weston



TYPICAL SECTION OF THE MISSOURI RIVER PRIOR TO IMPROVEMENT



SAME SECTION AFTER IMPROVEMENT

Pick ten bean leaves, weigh them to the nearest 0.01 gm, and place into 15 ml methanol in a small beaker. Allow these leaves to sit in the methanol for at least 10 minutes before the beaker is exposed to light. Set this preparation aside for extraction later.

Prepare 13 petri dishes as follows:

1, 2, 3, 4, and 9 to contain 3 ml 0.2 M sucrose; 5 to contain 3 ml rifamycin; 6 to contain 3 ml chloramphenicol; 7 to contain 3 ml cycloheximide; 8 and 9a to contain 3 ml δ -aminolevulinic acid (these should be placed in the refrigerator until 20 minutes before they are needed); 10 to contain rifamycin- δ ALA; 11 to contain chloramphenicol- δ ALA; 12 to contain cycloheximide- δ ALA.

Harvest ten leaves for each petri dish except 8 and 9a. Place the leaves in the dishes so that a maximum of their surface is in contact with the solution. Place dishes 2 through 7 and also 9-12 in the light (make sure the etiolated plants have been returned to the dark before you do this). Dish 1 should be placed in the dark.

After 5 hours (afternoon lab) or 10 hours (morning lab) place dish 3 in the dark (do not allow light to strike dish 1). At the same time, place 10 leaves in dish 8 and transfer the leaves from dish 9 to dish 9a (both dishes 8 and 9a should now be placed in the dark). Finally, at this time remove the leaves from dish 2, blot them dry, weight to the nearest .01 gm, place them in 15 ml methanol in a small beaker, and store this preparation in the dark.

After 24 hours treat all leaves as #2 (remember to keep dish #1 in the dark during this procedure).

In the next lab period boil each of the sets of leaves for 2 to 3 minutes to extract the pigments. After boiling discard the leaf tissue and add enough methanol to the pigment solution to bring the volume back to 10 ml. Determine the absorbances of each of these solutions at 626 nm and at 667 nm. The former is the absorption maximum for protochlorophyllide; the latter is the absorption maximum for chlorophyllide and chlorophyll. Calculate the amount of these pigments/gm fresh weight of leaves (assume that 0.1 absorbance = 1 unit of pigment). Obtain the class results and interpret this experiment.

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THE ANATOMY OF A NEW PROGRAM

James C. Royce, Director, Environmental Technology Program
Iowa Central Community College, Fort Dodge, IA 50501

Recently I returned from a trip to the Antarctic. While there I was befriended by a young penguin. The little monster would follow me everywhere. So, to make a long story short, I brought the penguin home with me. Still he followed me - up-stairs, downstairs, mowing the lawn, and even to the grocery store!

People stared at me, laughed, and made jokes - they asked me if I had taken up the tuxedo trade.

One day I got fed up with the jokes and asked one of my friends what he would do if he had a penguin following him around. He replied, "Take it to the zoo." So I did.

Later that week the same friend saw me and the penguin waiting in line at a Lions football game.

"I thought you took that thing to the zoo," he remarked.

"I did, and had such a good time we decided to go to a football game this weekend."

This is how one feels with a new program.

Others look at you

you have broken from tradition

you have defied the system

you are different - estranged from your colleagues

At times you feel paranoid

as if a penguin were following you around

So why undertake the enormous task of preparing and introducing a new program?

Why fight the system?

Why make waves?

Why - I'll tell you why.

The system is failing

not all at once

not quickly

but having a slow, lingering cancer which is

eating right at its very core - its tradition.

You ask for proof.

1. We have been bombarded with reports over the past two years of
 - a. decreasing enrollments
 - b. academic financial instability
 - c. folding institutions.
not a pretty picture.
2. Institutions are already giving in to the pressures
 - a. allowing coeducational housing
 - b. allowing alcoholic beverages on campus
 - c. converting segregated schools, racially and sexually, to integrated facilities
 - d. introducing new programs of study

This is why I'm writing this article - I Have a Penguin!

The first question most people ask is how to get a penguin accepted in a system that doesn't recognize his species. The keys are:

Innovation

1. The program must offer an immediate picture of goodness. Even in its name!
2. The idea must reach out and grab the administrative personnel - who will pat you on your back and send you on through the chain of command - with their blessings and their support.
3. And most important, the program must offer something that will attract students.

Esthetic Appeal

1. The program must be of the now generation.
2. The program must be contemporary in nature.
3. The program must offer some feedback or immediate remuneration for the student.
4. The program must be more than academic - it must be functional.

Cognizance

1. You must be aware at all times of the status of your program.
 - a. solicit administrative concern and suggestions
 - b. circulate student interest forms regularly
2. You are your program - if it is going to work, you have got to make it work.
3. Be proud of your penguin!

My penguin's name is Environmental Control Technology. Environmental Control Technology is a rapidly expanding area. The need for technicians is increasing every year. Employment opportunities are excellent and include work in pollution control plants, water treatment plants, industrial waste treatment facilities, and in municipal inspections. There is also a growing need for people trained in solid waste disposal and air pollution abatement.

The Environmental Control Technology Program at Iowa Central Community College is designed to prepare students for immediate employment by various governmental units and industry. The two year sequence leads to the Associate of Arts degree with flexibility in scheduling based upon the students interests and abilities. The student can option at any time to transfer to a four year institution and continue study in some area of environmental science.

The program includes laboratory and classroom instruction along with a supervised field experience in some aspect of environmental control technology. The program will provide in-service training for those already employed in the field.

We have been fortunate in having our students employed with such agencies as the Iowa Department of Health, Department of Natural Resources, Webster County Department of Forestry, and the Iowa Department of Environmental Quality.

The opportunities are there, the student interest is there, you are there - go for a walk with a penguin!

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M A T R I X (*Letters to the Editor*)

As soon as we get some we will fill this space.

HAVE YOU HEARD ABOUT

HUMAN DIMENSIONS IN WILDLIFE PROGRAMS This collection of 18 selected papers from the 1973 North American Wildlife and Natural Resources Conference is edited by Hendee and Schoenfeld. The papers are best described as applied studies of people/resource problems. Most are multi-authored, combining varied backgrounds and training in the biological, ecological and social sciences. Almost all rest on new research data, reflecting the values, preferences, and behavior of people pertaining to their interactions with wildlife and other natural resources. Collectively, the papers markedly increase available information about human dimensions in wildlife use and management. From the Foreword, "Our most neglected and crucial research needs are those concerning human social behavior . . . We have long bewailed our inability to reach the general public with facts and create a better understanding of sensitive management issues. We do not yet know the limitations of human densities in outdoor programs. Or how to serve best the long-term interest of the people in decisions of quantity versus quality." This monograph is available from People/Natural Resources Research Council, 4507 University Way N.E., Seattle, WA 98105. Send check for \$2.95.

SOCIAL IMPLICATIONS OF GENETIC ENGINEERING This film is produced by the Society for Developmental Biology and is available on loan at \$10 plus postage. A one-half inch videotape version is available at the same cost. The black and white sound film covers 33 minutes of excerpts from a panel discussion held in conjunction with the 1972 symposium meeting of the Society. It was intended to help inform the public of recent advances in biomedical research but is appropriate for high school and college student use. For additional information on rental contact Dr. Winifred W. Doane, Department of Biology, Kline Biology Tower, Yale University, New Haven, CT 06520.

SANDHILL CRANE MIGRATION Tentatively, our members at Kearney State are planning a meeting for late March, 1975 with unique appeal. They propose a two day session with one day devoted to items of concern to college biology teachers and the second day given over to a field study of sandhill cranes and other migratory waterfowl. AMCBT members would be invited, as well as members of biology departments in the area of Kearney. As further details are worked out they will be published in MIDWEST BIOSCENE.

ENERGY SEMINAR Highland Community College, Freeport, IL is planning a seminar entitled "Examining Energy Options" to be held April 18, 1975. The all day seminar will be free and open to the public. The speakers will be Dr. S. David Freeman, Ford Foundation Director Of the Energy Policy Project; Illinois Lt. Gov. Neil F. Hartigan; Sidney M. Marder from the Illinois Pollution Control Board and Mr. Mahotra from the Illinois Geological Survey. The speakers will discuss energy options available on the local, state, national and global levels. Following the speakers there will be a panel discussion by a Rockford, IL, based organization known as COAC (Community on Academic Cooperation.) AMCBT members who might wish to attend, and possibly bring students, can get additional information from Keith Blackmore, Biology Department, Highland Community College, Freeport, IL 61032

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More diversity in our science, our patterns of living, and our education would enrich us all.

WELL SHARE

Correspondence concerning these items should be addressed to the individual

BEN OLSON, Purdue University, West Lafayette, IN, is engaged in developing a Coop Work-Study Program for biology majors. He has promised a formal report to AMCBT next year on the program and employment opportunities for bio-majors. Interim information will be shared with interested members.

William Brett, Indiana State University, Terre Haute, IN, reports that ISU is considering a summer exchange program in research for undergraduates. Students could earn up to three hours credit in five weeks. Fees would be waived; the only expense would be room and board. The object would be to enable students to participate in research activity in areas of interest not covered by the faculty at their home institution. If you have students who are interested, Dr. Brett will send you a list of ISU faculty and their research interests.

JOHN C.W. BLIEST, Kearney State College, Kearney, NB, is associated with the People/Natural Resources Research Council. He reports that the group is primarily sociologists, psychologists and wildlife specialists putting expertise to work studying people management, especially in relation to wildlife. A publication resulting from a 1973 conference is described elsewhere in this issue. John believes some AMCBT members might wish to know more about the group, or become involved with it. He will be glad to give AMCBT members more information concerning P/NRRC.

WHO KNOWS

Correspondence concerning these items should be addressed to the individual

WILLIAM BRETT, Indiana State University, Terre Haute, IN, is interested in internships for such programs as pre-vet, pre-med, pharmacology, biology teaching, ecologist, etc. ISU is working on an internship for pre-vets. The major interest is in providing on-the-job experience for all students before they get "too far" into a program. Who else has internships for various programs?

POSITIONS

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

7401 SEVERAL POSITIONS To write program descriptions, laboratory exercises, review articles, and items of general interest to college biology teachers. Salary: Open. Commensurate with degree of satisfaction with service rendered to the profession. Send example of writing, suitable for publication in MIDWEST BIOSCENE, to AMCBT Central Office.

WANTED

7402 GENERAL BIOLOGIST Master's degree 6 yrs. teaching experience, sec., coll., and continuing ed. Interested in: biology for the non-major, interdisciplinary science, methods, anatomy and physiology, Presently on temp. appt.

7403 BOTANIST MA in plant taxonomy, female. 5 yrs. college teaching experience. General biology, botany, hygiene, microbiology lab. 2 yrs. histology lab work. Special interest - local flora. Presently on temp. appt.

1975 DIRECTORY

ASSOCIATION OF MIDWESTERN COLLEGE BIOLOGY TEACHERS

STEERING COMMITTEE

			MEMBERS AT LARGE
PRESIDENT	- Robert H. Buchholz	1 YEAR	- W.J. Brett
	Biology Department		Biology Department
	Monmouth College		Indiana State Univ.
	Monmouth, IL 61462		Terre Haute, IN 47809
	Ph: 309-457-2021		Ph: 812-232-6311 x2551
PRESIDENT	- Russel Wagner		C.L. Christensen
ELECT	Univ. of Wisc.-Platteville		Iowa Central Comm. College
	Platteville, WI 53818		Webster City Campus
	Ph: 608-342-1632		Webster City, IA 50595
			Ph: 515-832-1632 x7
1ST VICE	- Joseph E. Kapler		
PRESIDENT	Biology Department	2 YEAR	- Robert VandenBranden
(75 Program)	Loras College		M207, Drake University
	Dubuque, IA 52001		Des Moines, IA 50311
	Ph: 319-588-7128		Ph: 515-271-3708
1ST VICE	- Phyllis Kingsbury		Leland O. Hansen
PRESIDENT	Biology Department		Biology Department
ELECT	Drake University		Highland Comm. College
(76 Program)	Des Moines, IA 50311		Freeport, IL 61032
	Ph:		Ph: 815-232-6121
2ND VICE	- W.J. Brett	3 YEAR	- David E. Finley
PRESIDENT	Biology Department		Department of Biology
	Indiana State Univ.		Lincoln University
	Terre Haute, IN 47809		Jefferson City, MO 65101
	Ph: 812-232-6311 x2551		Ph: 314-751-2325 x220
SECRETARY	- Terry Gillespie		Janice K. White
TREASURER	443 Shabbona Dr.		Biology Department
	Park Forest, IL 60466		Manchester College
	Ph: 312-747-8322		North Manchester, IN 46962
			Ph: 219-982-2141 x267
PAST	- Fr. John Ostdiek	EXECUTIVE	- John R. Carlock
PRESIDENT	Biology Department	SECRETARY	AMCBT Central Office
	Quincy College		Illinois State Univ.
	Quincy, IL 62301		Normal, IL 61761
	Ph: 217-222-8020 x217		Ph: 309-438-8479

COMMITTEE CHAIRPERSONS

1975 Program	Kapler	1975 Local Arrangements	Brett
1976 Program	Kingsbury	Constitution and By-laws	Christensen
Budget	Wagner	Honorary Membership	Ostdiek
Nominations	Hansen	Membership Development	VandenBranden
Resolutions	White	NABT Representative	Carlock

ASSOCIATION NEWS

19th ANNUAL MEETING

INDIANA STATE UNIVERSITY

TERRE HAUTE, INDIANA

OCTOBER 3 - 4, 1975

STEERING COMMITTEE MEETING The Steering Committee will meet January 18, 1975. Plans for the 19th Annual Meeting will be the major items of business. Almost all other Association business is also handled at this winter meeting. Suggestions and concerns may be communicated to the appropriate committee or to any officer or member at large. Addresses and Committee Chairpersons are given in the Directory elsewhere in this issue.

NECROLOGY Mr. Roland Wiese, an instructor of biology and general zoology at Lincoln Land Community College, died suddenly on August 30, 1974. He is survived by his wife Clarice and daughter Christina, 6.

Mr. Wiese had taught at Lincoln Land Community College since the fall of 1971, with a previous assistant professorship at Missouri Western College in St. Joseph, Missouri. He received his bachelor's degree in zoology from the University of Arizona and master's degree in the biological sciences from Arizona State.

Mr. Wiese was a member of the National Association of Biology Teachers, AMCBT, and the Orange Empire Trolley Museum.

DUES The amendments to the By-laws proposed to the membership in September were passed at the meeting in Jefferson City with minor alterations. Dues for regular members will be six (\$6) dollars, effective July 1, 1975. Dues for retired members (a new category created by vote of the membership) will be one-half the regular member dues (\$3 at present).

LEAN ON A FRIEND Each year some of our members retire, move away from the Midwest, become administrators, and, removed from the active site of educational synthesis, drop membership. AMCBT must have a continued input of new members. Some hear of our meetings, come to the meeting, and join. But this is chancy recruitment. AMCBT needs each member as a recruiter. On the back of this note is a membership blank. Lean hard on a colleague, in your own institution or in a neighboring school. Promise the recruit that dues will be applied to 1975-6, but that publications, membership, and mailings will start immediately. For selling points, think back over the ideas you have picked up from past meetings and publications. Point out the new features being incorporated in this issue of **MIDWEST BIOSCENE**: a placement service, a question-answer column, an idea exchange.

There is good reason to believe that slight changes in the conditions of life give vigour and fertility to all organic beings . . . A cross between the distinct individuals of the same variety, and between distinct varieties, increases the number of their offspring, and certainly gives to them increased size and vigour.

Charles Darwin

RETIRED MEMBERS Several of our members have retired this past year. Two, Sr. Hilaire Ryan and J. Louis Martens, have already joined as our first retired members. Some have supplied their new addresses. These are included here for the convenience of members who might wish to correspond with them. If you know of other retirees who might wish to join, or merely leave their new address with the organization, please have them contact the Central Office. Members who have resigned and have supplied their new address are also listed.

J. Louis Martens
POB 177
Branson, MO 65616
(formerly Illinois State Univ.)

Clinton O. Mack
486 E. Exchange St.
Sycamore, IL 60178
(formerly Wheaton College)

Sr. M. Hilaire Ryan, Prof. Emerita
Rosary College
River Forest, IL 60305

Robert D. Sisson
5020 Pelican Blvd.
Cape Coral, FL 33904
(formerly Illinois Central College)

Jerrold T. Haldiman
Biology Department
Louisiana State University
Baton Rouge, LA 70808
(formerly Culver-Stockton College)

SUSTAINING MEMBERS

AMERICAN OPTICAL CORPORATION

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SCIENCE KIT, INC.

-----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 or at Annual Meeting

Name _____ Date _____

Title _____ Department _____

Institution _____

City _____ State _____ Zip _____

Address preferred for mailing _____

City _____ State _____ Zip _____

Return to:
AMCBT Central Office
c/o John R. Carlock
Illinois State Univ.
Normal, IL 61761