

Michigan Community College Biologist

April 1983

THE PRESIDENT'S PERSPECTIVE

We are off to a fine start!! The meeting at Mott C.C. in Flint was an unqualified success thanks to the hard work of the Mott contingent. Membership is growing, people are volunteering for positions and enthusiasm is high. Planning has begun on our fall 83 meeting but we could use ideas from you. If we can't use all of the ideas for the fall 83 conference it gives us a list to start from for the spring 84 meeting. Please communicate with your officers. This organization exists to serve the needs of its members. We also have the advantage that we do not have any traditions or historical precedents to constrain us. Therefore, the organization can grow and develop in many different ways to meet the needs of its membership. Do you have other professional concerns? Let me know what is on your mind and we may be able to investigate ways of meeting your needs. Send your ideas or input to:

Eldon Enger
President MCCB
Biology Dept.
Delta Community College
University Center, Michigan
48710

OFFICERS

President: Eldon Enger, Delta President-elect: Janet Dettloff, Wayne C.C.
Secretary: Ruth Thrash, Mott C. C. Treasurer: Clete Brummel, Lake Mich. C.C.

THE REPRESENTATIVES TO THE MCCB
OPERATING COMMITTEE FOR EACH SCHOOL
FOR THE 1983-1984 YEAR

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John McGill
Delta C.C.
Fred Ross
Grand Rapids J.C.
Jerome S. Miller
Henry Ford C.C.
Tom Shellberg
Highland Park C.C.
Dorothy Greene
Jackson C.C.
Janet Russel
Kalamazoo C.C.
Verne Mills
Kellogg C.C.
Eddie Walter
Lake Michigan C.C.
Clete Brummel
Lansing C.C.
Mary Brown
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Mid-Michigan C.C.
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Northwestern Michigan C.C.
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St. Clair Co. C.C.
David Shook
Washtenaw C.C.
Jim Stayer
Wayne Co. C.C.
Ed Benson
West Shore C.C.
David Rondell

(Several schools are still in the process of determining their representative and will be added to the list at a later time.)

LABORATORY STUDIES OF MAMMALIAN DNA



The discovery in 1944 that genes are composed of DNA spawned a biological revolution which is still gathering momentum. Recent advances in molecular biology make it possible to isolate one of the million-odd genes in an animal cell, fuse that gene with part of a bacterial gene, and insert the combination into bacteria. As those bacteria multiply, they make millions of copies of their own genes and of the animal gene inserted among them. If the animal gene is fused to a bacterial gene in such a way that a bacterium can treat the gene as one of its own, the bacteria will produce the protein specified by the animal gene. New ways of rapidly and easily determining the exact sequence of the chemical groups that constitute a molecule of DNA make it possible to learn the detailed structure of such 'cloned' genes. After the structure is known it can be manipulated to produce DNA structures that function more efficiently in the bacterial cell. The potential medical, economic and other societal impacts of this recombinant DNA technology can hardly be overstated.

Students of biology in schools and colleges should have ample opportunity to study the facts and implications of this revolution surrounding the molecular biology of the gene. Ideally, their studies should include laboratory experiences with DNA itself.

Simple procedures for extracting and studying DNA from mammalian tissues make an effective classroom demonstration. It can also be used by students as a foundation for open-ended lab investigations of DNA.

It is important to choose the right kind of cells for DNA extraction, since the concentration of DNA in many tissues is quite low. Lymphocytes make ideal types for high yields of DNA due to their high ratio of nuclear volume to cytoplasmic volume. It is difficult to collect large numbers of lymphocytes directly from blood, so lymph-

(cont'd pg 4...DNA)

AAS

Annual Meeting
Detroit
26-31 May 1983

Meeting Information

FALL MEETING - mark it on your calendar!
The fall meeting of the MCCB will be at Northwestern Michigan Community College, Traverse City, October 28-29. Some preliminary planning has already taken place, but ideas for programs and activities are welcome. Please send ideas to Eldon Enger and they will be forwarded to the right people!

...Have an item

Your friendly MCCB Newsletter editor is ALWAYS looking for news and information that can be added to this little publication to make it of greater value to its readers. Drop him a line, article or news release whenever something comes across your desk that others might be interested in reading.

No more promises

Of the 190 Community College Biologists in the state eligible to join MCCB, 79 have done so to date! We should be proud of this 42% enrollment. Our organization has just begun and already we have almost as many members (and a higher percentage!) than the MABT! C'mon Folks! If each of the present members encouraged one more person to join the MCCB, our organizational activities and interests could better be met. Please recall:

"There are many objects of great value to man which cannot be attained by unconnected individuals, but must be attained if at all, by association"

Daniel Webster

Send your check for \$15.00 to:

Carl Altenhof, D-132, Delta College, University Center,
MI. 48710

MICHIGAN COMMUNITY COLLEGE BIOLOGISTS (MCCB) MEMBERSHIP APPLICATION

Enclosed is my check in the amount of \$_____ for 1983-84 academic year dues. Please enroll me as a ___full; ___associate member. Voting (full membership) requires that you be employed in one of Michigan's 29 community colleges.

Last name First name

School

Home address and street

School address

MI

MI

City Zip code

City Zip code

() ()

() () ()

Area code Home phone number

Area code School phone # Ext.

Please list names of courses you teach once a year or more.


CLAY IS NOT JUST FOR KINDERGARTEN



At the March 18 meeting of the MCCB in Flint, Nelson Greene (Biology) and Denise Lovay (Dental Hygiene) from Delta College gave a presentation on the use of model building in the teaching of head and neck anatomy. Nelson and Denise use this teaching technique for Anatomy of the Head and Neck, Dental Hygiene 118, a team-taught course. Students in the course are provided with a plastic model of a human skull and modeling clay and are required to fashion all the muscles, arteries and veins of the head and neck on the model. This teaching method requires each student in the class to learn the shape, size and placement of these anatomical structures as they reconstruct their skulls. This is a unique approach because the students are learning through building rather than dissection. This also eliminates the need for expensive cadavers used in many such courses. Those attending this presentation were very excited about the concept. Several expressed an interest in using the method in their own programs. If you would like additional information, you may contact either Nelson or Denise at Delta.



SPRING WILDFLOWER PILGRIMAGE
APRIL 28-30, 1983
GREAT SMOKY MOUNTAIN NATIONAL PARK
GATLINBERG, TENN.
CO-SPONSORED BY THE NATIONAL PARK
SERVICE OF TENNESSEE
VARIED FIELD TRIPS ALONG WITH EVENING
PROGRAMS.

(cont'd pg 2...DNA) 

oid tissue is often used since it contains a large number of lymphocytes in addition to other cell types. Typical lymphoid organs in humans and other mammals are the thymus gland and the spleen. I have an exercise that outlines the method of preparing bovine spleen tissue for DNA extraction with citrate-saline buffer in 'zip-lock' bags. The quantities of DNA extracted from a measured sample of spleen tissue can be determined colorimetrically if the DNA solution is treated with Dische's Reagent. The Dische reagent specifically imparts a blue color to DNA. The intensity of the blue color is proportional to the concentration of dissolved DNA over a specified range. If the intensity of the blue color is measured with a colorimeter or spectrophotometer, the DNA concentration can be read from a standard curve for DNA.

If you are interested in trying this exercise in class, please feel free to contact me. Literature that may be of some help to you and your students include:

- Chambon, P. 1981 (May) Split Genes Sci. Amer. 244:60
- Chargaff, E. & J. N. Davidson, eds., 1955. The Nucleic Acids, I, New York: Academic Press, Inc.
- Cohen, S. 1979 (July). The Manipulation of Genes, Sci. Amer. 233:24
- Crick, F. 1979. Split genes and RNA splicing, Sci. 204:264
- Watson, J. 1970. Molecular Biology of the Gene, 2nd ed. N.Y. W.A. Benjamin, Inc.

Verne Mills
Kalamazoo Valley Community College
Kalamazoo, Mich.
49009

COMPUTER NOTES FOR FACULTY

Have you been wondering about a personal computer for use in your teaching? "Who, me?" you say, "I don't speak that language." Perhaps not but that doesn't mean that a computer can't save you time, make you more productive and improve the quality of the instruction you are providing your students. Probably the biggest single aid to faculty that a personal computer can provide is word processing capability. Imagine a typewriter that lets you compose your lab outline, exam, letter, whatever you write for your job, at the keyboard but is forgiving enough to let you correct errors instantly. No white out, no eraser cartridge to insert, no papers to shuffle. Just back up, gobbling your errors, as you go and retype corrections. In the seven minutes I have been at this prose I have made and corrected at least 15 errors mostly due to carelessness, but I have also corrected them. No secretary will have to try to decipher my awful hand writing and the proof reading will be done before any word is in print. Other features of a good system will let you shuffle parts of the text about until you get the flow of ideas you want, embed print directions that format your copy as in outline form for example, search through a document to find a key phrase or word, generate a glossary and even, believe it or not, check and suggest corrections for your spelling errors. These are a few of the simpler tasks you learn to do as a beginner and it makes you a better more productive writer almost immediately.

Then there is another possibility. You might find that programming is the mind expanding hobby you have always needed but didn't know existed. Also not to be overlooked is the capability of the computer to double in your absence as a video game system for your children who will have a better shot at becoming computer literate by virtue of free access to the machine. However, It is not for me to convince you of the worth of owning a personal computer. My mission in writing this is to make all my colleagues in the state aware of the opportunities that exist which encourage educators to take the plunge if they are so inclined.

COMPUTER PURCHASE HINTS

Most of the Regional Media Centers are part of the Intermediate School District structure throughout the state. Many of these centers are cooperating in acting as purchasing agents for educators within their service area. Within the framework of a state wide bid arrangement your local media center can allow you to purchase a wide variety of computer system hardware, accessories, software and peripherals at, in most cases, prices well below those available from any other source in the state, and free of state sales tax, as well.

Example:

Apple IIe starter system including computer, green screen monitor, one disk drive, 80 column word processing card and monitor stand costs \$1995.00 plus tax in most computer outlets. Same package via State of Michigan Buy price to educators is \$1436.40, no tax, a savings of 32%. The best prices are for packaged systems and the lowest prices for such systems right now are at the media centers. This however doesn't necessarily apply to the purchase of printers, modems and other accessories. The best prices in this area are found at one of the more aggressive mail order houses. Their advertisements are in all the major computer magazines and many maintain a toll free phone line for ordering.

TAX BENEFITS

If you've been thinking about a computer perhaps a big discount will be attractive, but that is not the bottom line. Apparently your federal government wants you to own a computer because they sure are making it an attractive kind of purchase. i. e. you can take some substantial business related tax deductions on these purchases. Realistically these laws weren't passed for educators but for businesses, howsomever we qualify under the law and that is what counts. So here is the scoop! There are three different ways you may elect to recover your investment at tax time.

Option one: Treat the purchase of the computer system and related equipment as a business expense. The maximum amount that can be deducted as a business expense in 1983 is \$5,000. This is a deduction from gross income and operates to reduce the tax bracket in which your ultimate tax liability will be determined.

Assume a gross income of \$44,000 and itemized deductions of \$8,400. Using the 1982 tax table tax liability for married joint return would be \$8,815. A computer system purchased in 1983 for \$4,000. (plenty of money for a good system with printer and word process software) and used for education related activities could be deducted from the gross income reducing it to \$40,000. The net tax savings resultant would be \$1,550 or a recovery of about 39% of the purchase.

Expensing is limited to \$5,000, and eliminates any future deductions or depreciation of the equipment. There is no

requirement to prorate the portion of the year the equipment is used and in fact the same deduction would result for a system purchased as late as Dec. 31, 1983.

Option two: Take a 10% investment tax credit against 1983 tax liability and reduce the basis of the system by that credit before beginning depreciation for the first year (1983). Computer systems are depreciated as 5 year property at 15%, 21%, 22%, 21%, 21% each respective year. As in the expensing provision above no pro rating is required and a late 1983 purchase would qualify as well as a Jan. 1, 1983 purchase.

Assuming the same basic income information as above our educator would save \$400. as a direct credit against tax and \$215. due to increased itemized deduction; a total first year savings of 15.4% of the purchase price. Similar itemized deductions in the subsequent years would yield 7.3%, 7.7%, 7.3%, and 7.3% for a total recovery of 45% of original purchase price over 5 years and assuming a static income and static tax rates.

Option three: Take a reduced investment tax credit of 8% for 1983 and depreciate as 5 year property using same percentages as above but figuring each year's deduction upon the original \$4,000 purchase price. Note: this is a special rule for 1983 and is not apparently intended to make sense.

However, applying these rules our hypothetical educator now realizes the following. Investment tax credit of \$320. plus depreciation deduction savings of \$254. for a total first year recovery of 14.35% of purchase price. The specially permitted 100% depreciation base more than balances the reduced tax credit and over the 5 years, assuming static income and tax rates he recovers 55.85% of the original purchase price.

So, there you have, in my opinion, the major positive reasons for an educator purchasing a personal computer. As to brand there are many pros and cons, too many for this is too long already. Beware the very small short memory units flooding into the market. Nearly all can be outgrown very quickly and few are reliably increased in size. Apple systems, IBM PC, Atari 800, and several other rarer comparable units like H.P.'s and N.E.C.'s have capabilities likely to meet an educator's needs for the first year or so and perhaps for much longer. Franklin seems to have all the whistles and bells of Apple IIe and is being sold in package deals rivaling the Apple bid price stated above. Add to that the fact that Franklin has a numeric keypad built in and it really looks good. Another new entry announced just this month is the William Tell supposedly having all the goodies of the Apple and list priced substantially under Apple. For those who grow into programming that requires greater capabilities the systems mentioned can be upgraded fairly cheaply and this cost is continuing to fall.

If you have found this informative and would like more information, contact your Intermediate School District Media Center and see your tax accountant for verification of these rules. Thanks for readin' the ramblin'. Carl L. Altenhof D-132 DELTA COLLEGE, University Center, MI 48710

Calendar of Events

- * Central Michigan Univ.-Biology Station, Beaver Island courses starting in May until August. Contact:

Dr. Robert King, Coordinator
Dept of Biology
Central Michigan University
Mt. Pleasant, MI 48859

- * Annual AIBS Mtg.
Univ. North Dakota
Grand Forks, N.D.
August 7-11 1983

- * Conf. on Biol. Specimen
Prep. for Microscopy
Sugar Loaf Mtn Resort
Traverse City, MI
April 23-28

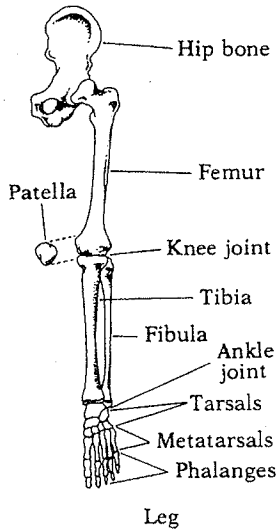
- * 6th Annual Systematics
Symp. on Extinction
Field Museum
Chicago, Ill
May 14,

- * 4th Ann. Mtg, Soc.
of Wetland Sci.
St. Paul, Mn
Contact:
Courtney Hackney
Dept. Bio. Sci.
Univ. North Carolina
Wilmington, N.C.

- * AAAS 149th Natl Mtg
Westin Hotel
Detroit, MI
May 26-31

- * 24th Ann. Mtg, Soc. for
Economic Botany
Ethnobotany in the Neo-
tropics
Miami Univ.
Contact: Chas. Heimsch
Botany Dept.
Miami Univ.

2 X 2 SLIDES AND LAB PRACTICALS



The standard lab practical test for use in biology courses, as well as human anatomy, has been to place specimens and/or models of cells, tissues, organs or organ systems in various places throughout the lab. The specimens are accompanied by appropriate questions and a certain amount of time is allotted to answer those questions at each station on a rotational format. If more than one section took this kind of test, and if it was given at different times or days, it necessitated the removal of the specimens (cat, human, etc) from the lab, temporary storage, and then set up again for the next class.

Having purchased and/or produced a variety of 2 x 2 slides on human/cat anatomy on various organ systems, I find this method and use of these A/V materials for lab practicals has been successful and has several advantages over the standard lab practical set-up.

This has been one method that I have used over the past five years which has increased by teaching effectiveness, as well as student learning and comprehension.

Clete Brummel
Professor of Biology
Lake Michigan College
Benton Harbor MI 49022

JAYCEES PRESENT AWARD FOR TOP EDUCATOR

Roger Sutherland from Schoolcraft College was presented with the Jaycees Distinguished Service Award as an outstanding educator. This honor comes as a result of Roger's work to preserve nature areas in Bicentennial Park, his leadership as president of the Michigan Audubon Society and Activities in 4H and Scouting. Roger is a registered physical therapist and was instrumental in developing a shared cadaver program with colleges and universities in the Livonia area.

CONGRATULATIONS

AMENDMENT TO THE BYLAWS
PASSED AT MARCH MEETING

As a result of a general concern for meeting the financial obligations of the MCCB in a timely manner at all times, a motion was made to amend the bylaws of the constitution to enable the president to assume the responsibility for the treasurer in his or her absence. The motion as seconded and passed.



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MCCB Newsletter
F. C. Ross, editor
Delta College
University Center
MI 48710

7-12 August. *Microbial Ecology Symposium (3rd International)*. East Lansing, Mich. The Kellogg Center for Continuing Education, Michigan State University, East Lansing, MI 48824.

FACULTY VACANCY:

Place: Delta C.C. Starting: August 24, 1983
Rank: Instructor Salary: based on education and experience

Qualifications: Master's Degree in Biology; ability to teach a variety of biology courses; strength in anatomy, physiology and microbiology; teaching experience preferred.

Position Accountabilities: 30-36 contact hours over two semesters; includes both lecture and lab; also expected to participate in non-teaching functions of the college.

Application deadline: June 1, 1983

Bruce C. Corliss
Science Division Chair
Delta Community College
University Center, MI
48710

E.O.E

COMMITTEE CHAIRS SELECTED FOR 1983:

According to our new constitution, several formal committees are to be formed in order to more effectively govern the MCCB. Three of the chairs listed have agreed to serve for the upcoming year while two others are only temporary. Should you be interested in serving as chair of the Planning or Professional Concerns Committees, please contact Eldon Enger.

Membership Committee: Carl Altenhof, Delta College

Nominations & Elections: Frank Omilian, Wayne Co.

Publicity & Newsletter: Fred Ross, Delta College

Planning: Vern Mills (temporary), Kalamazoo Valley

Professional Concerns: Dick May (temporary) Wayne Co.

FREE FREE FREE !!!

General Mills Nutrition Dept. has a monthly newsletter:

"Contemporary Nutrition"

You can receive this mailing free of charge, just write:

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