NEWSLETTER

Kansas Association of Biology Teachers

Volume 40 Number 4 - November 1999

Calendar & Activities

Please mail, e-mail or phone meeting dates and other items of interest to biology teachers to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401-

Date	Event
January 30, 2000, Saturday	KABT Board Meeting – Topeka West High School
March 31 – April 1, 2000	Kansas Academy of Science Annual Meeting - Hutchinson Comm. College
April 22, 2000	KOS Spring Field Trip
May 12-14, 2000	Morton County Field Trip
Todd Carter will be leading this trip. We will have more information in the February newsletter.	
September 16, 2000	Fall Meeting – Great Plains Nature Center, Wichita
October 25-28, 2000	NABT National Convention – Orlando, Florida
Spring 2001	Northeast KS Field Trip

Please send calendar and activity events so we can include them in our newsletter.

Your membership **expiration date** can be found on your mailing label. All dues are now payable on September 1st of each year. The membership list was last updated on **November 15, 1999**. If you sent dues in after this date they were not recorded before the mailing list was printed. Pay you dues before September 30th and save $5.00. Dues increase to $15 after Septem-

KABT Web Site

http://kabt.org

Made Available by KanCRN

http://kancrn.org

Send comments to:

jwachholz@midkan.net

NABT Web Site

http://www.nabt.org

Publishing Dates For Newsletter

The newsletter is published during the months of September, November, February and April. Manuscripts must reach the editor by the 15th day of the previous month. The KABT Newsletter includes abbreviated minutes of the official meetings, announcements of future activities, brief news notes, and other brief items of interest to biology teachers. Send your contributions to John Wachholz, Editor, 2311 Applewood Lane, Salina, KS 67401 785-825-7742. You may send you information to jwachholz@midkan.net.

Newsletter & Journal Articles

Articles are needed for the newsletter and journal. Send them via e-mail to jwachholz@midkan.net or on a disk. If you send it on a disk, any format is acceptable. Your help is appreciated.

Articles for the Kansas Biology Teacher should be sent to John Richard Schrock, editor KBT, Division of Biological Sciences, Box 50, Emporia State University, Emporia, KS 66801-5087. E-mail: <ksnaturl@esumail.emporia.edu>

Please remember to keep your dues up to date so you will continue to receive KABT publications.

Outstanding Biology Student Certificates

These are available for students who you feel have completed a biology course under you and have shown outstanding achievement. We have just updated our supply. Send your name and address to KABT Student Certificates, 2311 Applewood Lane, Salina, KS 67401-3707.

Please use these certificates as valuable awards for outstanding students.

NABT Contact Information

Address: ..... 11250 Roger Bacon Drive #19
Reston, VA 22090-5202

Web Site:..... http://www.nabt.org

Phones: ..... 703-471-1134 or 800-406-0775

Fax: 703-435-5582

E-mail: ..... NABTer@aol.com

Dues Increase

Starting September 30th, 1999 the annual dues for KABT membership increased from $10 to $15 per year. Life memberships increased from $200 to $300.

Any membership dues received by the KABT treasurer that are still paying the old amount will be notified to submit the correct amount. KABT has been carrying some members past their due dates but this will soon end. Please keep you dues payment up to date and help us to maintain a strong organization. Check the outside your mailing label to see if you are up to date.

Your cooperation concerning the above is appreciated.

From the President

What a great way to start the year--KABT had an excellent fall conference at the Sternberg Museum in Hays, Kansas. A big thanks goes out to Ernie Brown of WaKeeny, KS, Region I representative, for his work in organizing such a wonderful conference. We listened to Mr. Greg Liggett, assistant director of the Sternberg Museum, discuss how the geology of Kansas was forming over time by looking at three different periods in geologic time. He discussed the various organisms that lived during those periods and what can be found in the fossil remains. After an impressive tour of the completed museum, we reconvened for a brief membership meeting, followed by an informative panel discussion of the state science standards, the trials and tribulations, comprised of those members who were on the state science standards writing committee. We were constantly flanked by news media type people all day--waiting for something controversial to be said or done--alas, we may have disappointed them.

In the afternoon, we went to Castle Rock and Wildcat Canyon. If you weren't there, YOU REALLY MISSED OUT! Fossil collection in the Smoky Hill chalk beds is fantastic! After combing the sides of the chalk beds for some time, I finally found a unique fossil. I found a thin, spiny covering that covered the tentacles on a large ammonite called an apticus. Ammonites went extinct during the Cretaceous period. Apparently the ammonite shell didn't preserve well due to its chemical composition, but the apticus did, although they have rarely been found. I felt pretty special!!!

Last week, I, along with many other KABT members, attended the NABT Convention in Fort Worth, Texas. All of the sessions were excellent. We spent three days learning new content, updates in biology (and there are many!!), new strategies for old ideas, and being informed and entertained by a variety of guest speakers. We had a great time! Sandy Collins, John Wachholz, Harry McDonald, Pat Wakeman, and I presented our favorite labs to a room full of biology teachers. We were representing KABT and used that opportunity to hand out our last newsletter along with our lab handouts--it went over very well. It was really great spending time with such super colleagues and being able to share our knowledge and questions with each other.

It was interesting to observe first hand how the nation's biology teachers have responded to the teaching of evolution issues in Kansas and other states at the NABT meeting. Kansas was definitely at the forefront in discussions on the topic. We had very good support coming from NABT and its membership overall.

If you would like an application to join NABT, send me an e-mail, and I'd be glad to share one with you! One of the biggest benefits of joining NABT is receiving the American Biology Teacher. The updates are valuable and timely and the how-to-do-its are great for high school teachers. NABT also offers a wide variety of other publications as well as corporate discounts for insurance and credit cards.

A special congratulations goes out to Ken Bingman of Shawnee Mission West High School for being awarded the 1999 BSCS Teacher of the Year Award. He was chosen because of his dedication to the teaching of biology and using inquiry to help his students understand the nature of science. KABT is especially proud of Ken for his outstanding work with students as well as for being a respected role model for Kansas biology teachers!

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On Saturday, January 29, 2000, a KABT board meeting is scheduled for 9 a.m. at Topeka West High School in S506 (my room--I'll send a letter with directions). All board members, re-

gional representatives, and directors at large should plan to attend. We will be planning upcoming events, the 2000 KABT fall conference and the 2001 spring conference. Look for more information to come your way--and mark your calendars!

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Our SPRING FIELD TRIP is scheduled for May 13, 2000 in Morton County, Kansas (the southwest corner of the state). More information will be in the February newsletter. Please plan to attend. It will be interesting sharing a different part of the state of Kansas. We will arrange for Friday night lodging for those wishing to travel on Friday evening. Todd Carter, Region III representative, of Liberal, will be organizing the Saturday field trip for us. Thanks, Todd, in advance!!

NABT Fort Worth Convention Summations

I have attended four NABT conventions and this one in Ft. Worth may rank as the best. Highlights include: great discussion going and returning; exhibits with all the latest gadgets; sessions filled with updates, lab and teaching ideas; great support for Kansas teachers in the face of the disgraceful actions of the state BOE; KABT board members presenting their favorite labs; a panel discussion about our experience with the state BOE; Ken Bingman, long-time teacher at SM West, receiving the Teacher of the Year Award from BSCS; wonderful networking opportunities with colleagues from around the country; great food; and last but not least, wonderful visits with KABT friends from around the state.

Five of us drove down together in a van: Mickie Pemberton - Blue Valley; Lisa Volland - Topeka West; Vernon Wranosky - Colby Comm. College; his daughter, Shannon - Abilene and yours truly. Mickie and Shannon were attending their first NABT conventions. Although the trips down and back took nine hours, the time flew. We discussed biology from A to Z. It was really nice to have Vernon along. As a college micro instructor, his depth of knowledge allowed us to explore many topics in greater detail.

One thing I especially enjoyed and appreciated was that we did not always agree on every point. Lively discussion and disagreement occurred on several points. When the problem was biology, we pulled out some of the many books we accumulated at the convention and we usually reached a resolution. When the discussion was about teaching methodology we sometimes just had to agree to disagree.

In reflection, I think this is another example of John Richard Schrock's perspective on what separates science meetings from those in education. The nature of scientists and science causes us to voice our disagreements, not in an attempt to vilify but in a sincere effort to resolve issues according to the "rules of science." Logic applied to evidence settles most discussions. Above all, we are not afraid to challenge anyone. There is no appeal to authority. The only authority rests in the evidence.

I fear that the reason we were unable to resolve many education issues is that education is still full of bandwagons driven by authority figures. A considerable volume of writing and "research" backs up the authority but often the research is flawed and unacceptable to anyone with a science perspective. I realize that this situation may be improving, but we educators need to strive for better data to drive our educational decision-making.

Eugenie Scott from the NCSE gave a great talk on transitional fossils. Perhaps the single most interesting point to me was that we don't look for ancestors in the literal sense. There is little if any way to tell if a particular organism is literally the ancestor of today's organisms. We think of transitional fossils more as demonstrating transitional features. If collateral kin (relatives of our direct (lineal) ancestors) had certain transitional features, then we can infer that our direct ancestors likely had those same features. So whether a fossil can be demonstrated to be our lineal kin or not makes no difference, so long as the feature is at least found in our collateral kin.

Look for info from the NIH about three new FREE curriculum supplements due out next summer. These are - Human Genetic Variation; Cell Biology and Cancer; Emerging and Re-emerging Infectious Diseases. Get more info at http://science-education.nih.gov/supplements.

Check out the offerings from Cold Spring Harbor Laboratory at http://vector.cshl.org/resources/bioserver.html. They have posted mitochondrial DNA sequences from students around the country. Software on the site allows you to come differences resulting from point mutations, additions, deletions, etc. You can also compare individual DNA to samples taken from around the world, from "Ice Man," and from Neanderthal fossils. With a kit from Carolina Biological, you can sample and amplify your own student's DNA, send it to Cold Spring and they will sequence the DNA for $8 per student. CHECK IT OUT.

Just as cool is a site from Genbank, www.ncbi.nim.nih.gov. Here you can find base sequences from the HGP with accompanying info that will help you locate specific genes, their introns and exons, start and stop codes, the codon sequence for the proteins, etc. CHECK IT OUT. .

The American Society of Microbiology has a new series, Intimate Strangers, which will air on PBS, Nov. 9,16,17 and 24. CHECK IT OUT.

Next year the convention is in Orlando. Consider going. Consider presenting. Those of us from KABT who presented this time found it very rewarding.

Finally, be of firm resolve on this matter of the state science "substandards." Others around the country are fighting similar battles and those who are not are entirely supportive. We will correct this travesty. For now, teach good science. Teach evolution and the nature of science like you have never taught them before. Next year, vote for qualified candidates for the school board.

Submitted by Harry McDonald

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The NABT Convention in Ft. Worth, TX was incredible. This was my first time going, and it was certainly worth it! There was so much to do, and so many sessions to go to. These are a few of the most notable sessions I attended. I began on Thursday by seeing Dr. Eugenie Scott lecture on “Ancestors, Traditional Fossils, and Evolution”. This was a great kick-off for the convention. I also went to an excellent demonstration on using invertebrates in the classroom, and I received 5 labs that can be modified to study many different aspects of invertebrate biology, along with a lot of background information. Another session was called “Biology Best Bets IV”, where two excellent teachers gave out and discussed about 10 labs and activities to teach population trends, genetics and much more. On Friday, I went to

a session that was a hands-on investigation of Goldenrod Galls, and received a lab written in conjunction with the Cornell Institute for Biology Teachers. Friday evening, several of our own biology teachers formed a panel to discuss "Evolution in Kansas: Science, Politics and Religion", and many people from other states came to listen and ask questions. Everything slowed down on Saturday, and I went to three presentations, one by Sam Rhine on "Ethical Issues in the 21st Century", one by Brad Williamson on the Monarch Watch, and one by an author and research biologist/ornithologist Marcy Houle.

The most difficult part of the convention was trying to figure out which sessions to go to because invariably, there was more than one very interesting topic scheduled for each time slot. There were sessions for every level of teacher there, from junior high to university level, from the novice teacher to the master teacher, and from the field biologist to the molecular biologist. It was also nice to see Kansas so well represented by so many of our Biology teachers. NABT was a very valuable experience, and I gained so much by going to the sessions and by talking to so many wonderful teachers there. The NABT Convention was an outstanding experience.

Kylee Moon
Student teacher/graduate student
University of Kansas

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The camaraderie associated with spending time among other teachers that share the same passion that I do for biology, as evidenced by the strong turnout and excellent presentations overall, at the recent NABT convention in Dallas is hard to describe. As an undergraduate secondary biology major from the University of Kansas, I cannot tell you what pride it gives me to be associated with Kansas biology teachers. Our turnout from Kansas was respectable, and a presentation of some of KABT's labs given by our Sandy Collins, Lisa Volland, Harry MacDonald, Pat Wakeman, and John Wachholz brought in a packed crowd. Brad Williamson moderated a Friday afternoon panel discussion, including a group of our Kansas teachers and Roger Bybee from the BSCS, on the topic of Evolution in Kansas. Many teachers from across the country attended this discussion and quite a few addressed concerns along the same lines pertinent to their respective regions, which reminded me how much larger than Kansas this problem has become. Additionally, Kansas was honored in the form of a BSCS Teacher of the Year Award for Ken Bingman of Shawnee Mission West.

The conference was an incredible experience for me and a wonderful introduction to a national society of biology teachers. My only disappointment with the convention was the realization that the schools that do not contribute to help their teachers attend such important professional development institutions are truly hurting the quality of their science education programs. Many teachers that I talked with have been attending these conventions for years, and the fresh ideas/perspectives, sense of community, and overall good time associated with them will hopefully ensure the proliferation of academically and pedagogically strong teachers in our cherished area of biology.

Scott Sharp
University of Kansas

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The Collins Award Goes To Emporia State Photographer

At the Saturday night social and auction of the twenty-sixth annual meeting of the "Kansas Herpetological Society" at Pratt County Community College in Pratt, Gregory Sievert, Division of Biological Sciences at Emporia State University, Emporia, Kansas, was chosen as the recipient of "The Suzanne L. & Joseph T. Collins Award for Excellence in Kansas Herpetology." Sievert is the author of numerous scientific articles, and with his wife, Dr. Lynnette Sievert at ESU, recently publish a booklet, "A Field Guide to Reptiles of Oklahoma," featuring his color photography. At the banquet, Robert Powell, Professor of Biology at Avila College in Kansas City, Missouri, and representing "The Center for North American Amphibians and Reptiles," joined KHS President Chris Mammoliti in presenting Sievert with a commemorative certificate and a check for $1000.00, to the applause of the 75 meeting participants from Kansas, Oklahoma and Nebraska. "The Collins Award" is the largest biological award given annually in the state of Kansas, and one of the largest annual presentations made nationally to further research on and photography of amphibians and reptiles.

In odd-numbered years, the recipient of "The Collins Award," established in the early 1990s with an endowment from Western Resources, Topeka, is selected on the basis of the best photograph of a native Kansas amphibian, turtle, or reptile. The exquisite award-winning image by Gregory Sievert of an Eastern Gray Treefrog (*Hyla versicolor*), was judged of such quality as to merit "The Collins Award." As provided for in the conditions of "The Collins Award," at next year's meeting of the KHS in Kansas City, Missouri, the recipient will be chosen for the best scientific paper published or presentation made during 1998 and 1999 on a native Kansas amphibian, turtle or reptile by a KHS member.

Also on Saturday evening at the meeting in Pratt, John Tollefson of Lawrence was the recipient of the KHS Howard K. Gloyd/Edward H. Taylor Scholarship for $100.00 for a project on the Common Musk Turtle in Kansas. The scholarship honors the memory of two great biologists with strong ties to Kansas. Gloyd was born in Ottawa and attended both Kansas State University and the University of Kansas, and Taylor graduated from Garnett High School and was a biology faculty member for many decades at the University of Kansas, Lawrence.

Following the Sunday morning scientific paper session, two other KHS meeting attendees were recognized as the first recipients of "The Big Croaker Awards," sponsored by the Kansas Department of Wildlife and Parks and the Kansas Amphibian Monitoring Program, and given to those individuals that monitored choruses of frogs and toads with diligence and excellence during the spring of 1999. Dwight R. Platt, Emeritus Professor at Bethel College, North Newton, Kansas, and graduate student Nicole Gerlanc, Kansas State University, Manhattan, were each given a commemorative certificate and a check for $100.00 by KAMP Coordinator Joseph T. Collins, Kansas Biological Survey, Lawrence. Each spring, over 100 KAMP volunteers census choruses of amphibians on eighty 15-mile routes across Kansas, establishing baseline information that will eventually be used to determine whether amphibian populations are declining, increasing, or remaining stable.

For verification and further details about the meeting, presentations, and other activities, telephone (785) 749-3467.

Joseph T. Collins
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Darwin CD Review

The following is a review of the Darwin CD discussed on the list about a month ago. This review is also be posted on the KABT website.

Darwin on Disc
The Darwin CD-ROM
Michael T. Ghiselin, Ph.D. Peter Goldie, Ph.D.

The Darwin CD ROM is a collection of Darwin's published works plus associated resources that will interest both the scientist and historian of science. To review this CD, I installed the Macintosh viewer on my Quadra 650 at 33 MHZ Set up was easy and in spite of the warning that the CD would be slow on my machine, it ran at a tolerably fast speed.

The CD includes Darwin's Origin of the Species 6th edition; Voyage of the Beagle, one of my favorite books; The Descent of Man and the Origin of Emotions in Man and Animals. In addition the disk includes a number of lesser known works such as Darwin's Work on fossil Cirripedia (Barnacles). It is not a complete compendium, for instance to my disappointment it did not have Darwin's 'Formation of Vegetable Mould by the Action of Worms' but does provide a complete bibliography to Darwin's publications as well as secondary references. Darwin's work on the formation of coral reefs is found on the CD. This is an important work, because as noted by Ghiselin in his excellent introduction, Darwin uses much of the same sorts of hypothetical deductive reasoning that he exhibits here in the development of the Origin of the Species.

Along with Darwin's main works, the CD also includes a series of contemporaneous articles by Richard Owen and others on the fossils and zoological material brought back by Darwin from the voyage of the Beagle. This is quite interesting material as it includes images of the drawings made in the original monographs on Darwin's material. Exploring this part of the CD yields some unexpected gems. For instance, John Gould's monograph on the birds from the Beagle expedition has excellently reproduced colored illustrations. But the presentation is augmented by recordings of the bird songs. So while reading about Darwin's finches I found myself playing and comparing the songs of the different species and thinking about what parts of the songs might parallel the presumed phylogeny of these birds and what aspects of the songs might be adaptations to particular habitats. Indeed, the authors state: "Our goal in future releases of this disc is to have pictures of every important scene, sound, specimen or activity which Darwin discusses."

The CD also includes several modern resources including a reissue of Ghiselin's Triumph of the Darwinian Method. This is an excellent summary of the development of Darwin's thinking and deserves careful reading in conjunction with the Darwinian texts on the CD. Having both the primary sources and this analysis will keep me occupied for some time I'm sure! In addition there is a Darwin time line and a study guide both of which should be of interest to people just beginning their study of Darwin or those of us wishing to reacquaint ourselves with him.

Generally I do not care for CD books, and indeed I do not find this CD to be particularly easy to read. This though is a general problem with most CD material and this CD has some nice features that make it worth having. The screen is divided vertically in half. To get into the Darwin material click on the appropriate menu item in the left hand frame. On the right the list of material appears. Selecting one of those opens up a new menu on the left side. This might correspond to chapters in the text. Each item in the left frame has a plus sign that when clicked on reveals subheadings as appropriate. Clicking on these reveals the text in the right hand frame. Thus, you can navigate a work fairly quickly by skipping down the outlined menu in the left frame. You can easily resize the text frame to take up the page. Another handy feature is the ability to search for a word. The search feature is a bit primitive but serviceable. When the title index is displayed in the right hand frame and you search for a word, say coral, the display will show the number of occurrences of that word in each of the volumes listed. So for instance a search for the word 'worm' brought me to explore the Descent of Man and Selection in Relation to Sex, a fascinating work that I had not previously read.

Two other possibly useful features are the ability to create a journal to retrace your path through a work. I haven't found this particular feature useful yet, but one that I do like is the ability to create notes at selected spots along the text. When I read I like to make notes in the margins of my books and this is the closest on line feature to that I've seen. Another cool feature is the ability to make hyperlinks. Suppose for instance you want a student to compare two distant passages. You can have a hyperlink take the student to the other passage. These links maybe one directional as is a standard HTML link or bi-directional so that when the student jumps to the second passage, he or she can jump back to the original passage. This plus the ability to attach notes to different parts of the manuscript opens up some interesting possibilities for teaching especially with advanced undergraduates.

In summary this CD should be a valuable resource for both the practicing biologist and for the more serious Darwin Scholar. The coverage of Darwin's material is fairly complete and well chosen and the annotation aids such as bookmarks, hyperlinks and the ability to keep comments associated with the test will be useful to the reader. If I have any complaints, aside from the standard one of wanting better technology to view books on, it is that I would wish for a sampling of Darwin's notebooks. This would enhance the CD's utility for the serious Darwin researcher. That said, I highly recommend this CD and the author's long term vision to make Darwin and his world accessible to everyone. Clearly in this time of resurgent creationism and "intelligent design" our world is sorely in need of a dose of Darwin's common sense.

Paul G. Decelles. Ph.D.

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Redesign of KS Science Teacher Licensure

I have posted a summary of the redesign of Kansas Science teacher licensure that I have received from Dr. Jim Ellis of KU on the KATS web site. You may review this document at: http://kats.org/proposedlicensure.html

Please send any comments to the KATS listserv at kats-l@busboy.sped.ukans.edu for other members to see or you may post your comments in the discussion area on the KABT web site at http://kabt.org and click on the discussions link.

Gary Andersen

Lawrence Wildlife Photographer Featured In New Audubon Books

The Center for North American Amphibians and Reptiles
November 2, 1999

Suzanne L. Collins, nationally-recognized wildlife photographer from Lawrence, Kansas, recently had forty (40) of her images of amphibians, turtles, and reptiles featured in four new books sponsored by the National Audubon Society. The four 1999 books, recently released by Chanticleer Press, New York, are the "National Audubon Society Guide to the Southwestern States," "National Audubon Society Guide to the Southeastern States," "National Audubon Society First Guide to Amphibians," and "National Audubon Society First Guide to Reptiles." The guides are available in all bookstores and libraries.

Collins, who recently retired from the School of Education after 30 years with the University of Kansas, is one of the leading photographers of amphibians and reptiles in the United States and Canada, and nationally maintains the largest available stock of North American amphibians, turtles, and reptiles, with over 14,000 color slides of these creatures, which are marketed by her international agent, Photo Researchers in New York, and by her local agent, JTC Enterprises, Lawrence. She is Treasurer and a member of the Board of Directors of The Center for North American Amphibians and Reptiles, a non-profit 501c3 foundation headquartered in Lawrence, Kansas.

Collins' numerous photographic book credits include: Natural Kansas, Kansas Wildlife, Kansas Wetlands: A Wildlife Treasury, Peterson Field Guide to Venomous Animals and Poisonous Plants, Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America, Amphibians and Reptiles in Kansas, Fishes in Kansas, An Illustrated Guide to Endangered or Threatened Species in Kansas, Reptiles and Amphibians of Cheyenne Bottoms, and dozens of other books, book covers, magazines, and posters. Current exhibits of her work may be viewed at the Tennessee Aquarium (Chattanooga) and the Bronx Zoo (New York).

Kansas Venomous Snake Poster Available Free

The artistic images of Suzanne L. Collins, a nationally well-known wildlife photographer, are featured in a new public service poster sponsored by Preferred Medical Associates of Wichita. The 18 X 24-inch full-color poster, entitled "Venomous Snakes of Kansas," features ten photographs of the five kinds of native, venomous serpents known from Kansas.

Collins, a Lawrence resident, has provided photographs for dozens of books about wildlife, from illustrated volumes on the natural environment of Kansas to field guides on fishes, amphibians and reptiles. She is best known nationally for her photographs in the best-selling third expanded edition of the Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America, which has the greatest distribution of any book written in the history of herpetology. She is currently at work on photographs for the fourth edition.

Regionally, Collins has provided photographs for Amphibians and Reptiles in Kansas and Fishes in Kansas, Kansas Wildlife, Kansas Wetlands: A Wildlife Treasury, and Natural Kansas. Recently, Western Resources published a public service booklet, A Guide to Great Snakes of Kansas, featuring her photography.

Collins was born in St. Joseph, Missouri, and joined the staff at the University of Kansas in 1967 where she retired last year as the Teacher Certification Officer and Assistant to the Dean at the School of Education. She is now a Board Member and Secretary-Treasurer of The Center for North American Amphibians and Reptiles, a non-profit 501c3 foundation headquartered in Lawrence, Kansas.

Free copies of the Venomous Snakes of Kansas poster are available from Preferred Medical Associates in Wichita, and from co-sponsors Western Resources and Kansas Heritage Photography in Topeka, the Kansas Department of Wildlife and Parks in Pratt, and from the Kansas Biological Survey, University of Kansas, Campus West. Copies must be picked up; no mail or delivery service.

AAAS Statement on the Kansas State Board of Education Decision on the Education of Students in the Science of Evolution and Cosmology

The American Association for the Advancement of Science deplores the recent decision by the Kansas State Board of Education to remove references to evolution and cosmology from its state education standards and assessments, thereby making central principles for the scientific understanding of the universe and its history optional subjects for science education. This decision by the Board is a serious disservice to students and teachers in the State of Kansas. To become informed and responsible citizens in our increasingly technological world, students need to study and judge for themselves the empirical evidence and concepts central to current scientific understanding. The actions of the State Board of Education may place Kansas students at a competitive disadvantage in their education and work environments. By discouraging teachers from using the best available professional knowledge about the nature and history of the universe, the Board's decision will make it more difficult for Kansas to recruit capable and inspiring science teachers.

Recognizing that the State Board of Education decision is a serious setback for public education in the State of Kansas, the AAAS adopts the following resolution:

> *Whereas*, it has never been more important for American citizens to achieve a basic understanding of contemporary science and technology; and
>
> *Whereas*, the concepts and evidence inextricably linked to our understanding of the nature and history of the universe

are fundamental to the basic education of all Americans; and

Whereas, learning succeeds best when teachers and students can explore, investigate, and criticize the fundamental concepts and ideas in science; and

Whereas, learning and inquiry are severely inhibited if teachers are placed in a position where they may feel pressured to alter their teaching of the fundamental concepts of science in response to demands external to the scientific disciplines,

Therefore Be It Resolved, that the AAAS urges the citizens of Kansas to restore the topics of evolution and cosmology to the state curriculum. AAAS stands ready to assist all concerned citizens of Kansas in securing the repeal of this damaging ruling by the State Board of Education.

Therefore Be It Further Resolved, that the AAAS and others committed to educational excellence in science work aggressively to oppose measures that could adversely affect the teaching of science, wherever they may occur.

Therefore Be It Further Resolved, that the AAAS encourages its affiliated societies to endorse this resolution and to communicate their support to the citizens and appropriate public officials in Kansas.

Adopted by the AAAS Board of Directors
October 15, 1999

Some Important Listserv Addresses

The address you need to subscribe.

Physics education
Send messages to: PHYSHARE@lists.psu.edu
Send commands to: listserv@lists.psu.edu

Chemistry education
Send messages to: chemed-l@atlantis.uwf.edu
Send commands to: listserv@atlantis.uwf.edu
Archives: http://www.optc.com/chemed-l-thread/

Biology education
Send messages to: biopi-l@KSU.EDU
Send commands to: LISTSERV@KSU.EDU
Archives: http://www.phys.ksu.edu/biolog/

Clarifying the Creation -Evolution Issue with Biology Students

Richard A. Walker Sterling College Sterling, Kansas 67579
Thomas R. Mertens Jon R. Hendrix Ball State University
Muncie, Indiana 47306

I don't believe in evolution because it is against my religious beliefs!" This statement, following a quiescent period of several decades, is again being expressed by more and more students. For those of us in the biology classroom, the creation-evolution issue is far from being dead. Students themselves are raising questions that necessitate our dealing with the issue. Many students infer that what they learn in their biology class is in conflict with what they have been taught in home and church.

Reprinted from THE AMERICAN BIOLOGY TEACHER, Vol. 39, No. 1, January 1977 Copyright (K) 1977 by the National Association of Biology Teachers

Although we firmly believe that as biology teachers we have no business presenting the creationist position in the science classroom, we also recognize that many of the young people with whom we deal have honest intellectual concerns relative to the creation - evolution issue. We hear biology teachers who are concerned with their students increasingly asking the question, "How do you deal with a student who has a real and honest question over the creation - evolution issue?" Considering the current climate of questioning the value of science as authority, and recognizing the pluralistic society in which we live, it would seem prudent that biology teachers be prepared to deal with this situation in a concerted and forthright manner.

A student with an honest concern over the creation -evolution question cannot understand the basis for the conflict without first clarifying what is really at issue. The basic conflict does not center on evolution as a process, but rather on the differing explanations of the ultimate origin of man. Biology teachers must focus on this critical point or face a needless repetition of the Scopes debate.

Dialogue

Biology teachers must be willing to enter into a prolonged dialogue with the interested student if that student is to be aided in rationalizing these conflicting positions. Since the issue is a metaphysical one, parameters and definitions must be agreed upon before any meaningful discussion can take place. Such a discussion might begin by pointing out to the student that there are different ways of looking at the world. The creation - evolution issue involves a clash between a restricted theistic world view and a naturalistic or scientific world view. Each of these views is based upon a different set of presuppositions that must be clarified at the outset if a meaningful discussion is to ensue.

Science presupposes that nature is reality, while reality to the theist transcends nature and embraces the supernatural. The scientific world view limits its consideration to natural phenomena only, whereas the theistic world view focuses predominantly on the supernatural. These are not necessarily mutually exclusive ways of looking at the world, but they are mutually exclusive ways of framing initial questions about problems. The theist frames questions on the basis of who, such as, "Who created man?" In contrast, the scientist poses questions on the basis of how, such as "How was man created?" This pronounced difference in ontologies must be perceived by the student who is to come to grips with the creation evolution question.

The difference in epistomology between these two world views must also be understood by the student. Truth to the scientist is always tentative, whereas truth to the theist is absolute. Any scientific theory, principle, or law will remain "true" or valid only as long as it continues to account for new data as they arise through further testing. Thus, scientific truths are based upon the authority of empirical observation. In contrast, theistic truths are absolute and final, accepted on faith, and based on the revelations one chooses to accept. Absolute truths, held on faith, are untestable using the tools and methodologies of science. Therefore, absolute truths remain unchanged and all empirical observations must be explained as extensions of these truths.

These marked distinctions in epistomologies of science and religion must also be perceived by the student who is to understand the creation evolution issue.

Another distinction that must be considered is the difference in meaning between the terms evolution and evolutionary schemes. Evolution is a process defined in terms of a change in gene frequency brought about through differential reproduction, Thus evolution as a process describes the mechanism for producing changes in a population in time and space. Development of antibiotic resistant strains of bacteria and DDT resistant strains of insects, as well as cases of industrial melanism, are well documented. To most biologists these empirical observations provide a sound basis for accepting evolution as the process that accounts for changes in the gene frequencies of populations, in response to environmental changes. On the other hand, evolutionary schemes are attempts to look backward in time and to describe the nature and magnitude of past changes in populations. Currently existing data from such disciplines as biochemistry, genetics, embryology, morphology, serology, and paleontology provide the biologist with evidence upon which evolutionary schemes are based. It is entirely possible that new data could arise that would not be consistent with current schemes of phylogenetic relationships. These new data, however, need not affect our prevailing theory of evolution as a process.

Only when these distinctions in ontologies, epistomologies, and biological definitions are clearly understood by both teacher and student can the current creation evolution issue be meaningfully addressed. Evolutionary schemes consider humans to be a product of the process of evolution. On the other hand, the creationist considers humans to be the direct product of God's action at the instant of creation. The evolutionist bases his position on interpretations of empirical, "scientific" evidence at hand, while the Christian creationist bases his position upon a literal interpretation of the first two chapters of the book of Genesis as being absolute truth revealed by God to man. This creationist view is a restrictive theistic position and does not represent all of the theistic views that exist.

Three Positions

Only with an understanding of the foregoing parameters could a student identify the major positions available for individual choice. In our culture, there appear to be at least three predominant positions: Christian creationist, Christian theistic evolutionist, and atheistic evolutionist.

1. Christian Creationist. For the individual assuming the stance of Christian creationist, a literal interpretation of the first two chapters of the book of Genesis is accepted as absolute truth. According to this position, creation, including the creation of mankind, occurred in six days; therefore, mankind could not be the product of an evolutionary process requiring millions of years. The Christian creationist may still accept the occurrence of evolution as a process, but restrict the nature and magnitude of change produced by evolution.

2. Christian Theistic Evolutionist. To one assuming the Christian theistic evolutionist position, the God described in biblical scripture did indeed create the Universe; God and his actions are revealed to man through biblical scripture. Since this biblical scripture was written and rewritten by men, each word need not be taken literally. To the theistic evolutionist, biblical scripture is viewed not as a book of science but as a record of mankind's way to salvation. Therefore, evolution and the evolutionary scheme accepted by the individual may satisfactorily describe the manner in which God created mankind.

This position is in agreement with the creationist view on who created man, but is in conflict on how man was created.

3. Atheistic Evolutionist. To the atheistic evolutionist the supernatural and a supernatural being do not exist. Therefore, mankind is a product of a nontheistic process of evolution. The evolutionary scheme an atheist chooses to accept depends on individual interpretation of the available scientific evidence.

As a consequence of the discussion of these parameters and positions, the concerned student should come to understand that the creation evolution issue appears to be a clash between the creationist view and the atheistic evolutionist view. The student should also recognize that an intermediate position does exist, which is consistent with the discipline of biology as well as with a less restrictive theistic world view than that of the creationist. In discussing these positions, students should always be free to adopt the position of their own choice. Following an honest discussion of the issues, students should better understand why they have chosen a particular position and why others hold different positions. Only through frank and open discussion of the aforementioned basic points can we hope to avoid repeating the past mistake of debating "Who created?" rather than "How might creation have occurred?" The biology teacher who wishes to examine these issues further is referred to the references which follow.

References

DOBZHANSKY, T. 1973. Nothing in biology makes sense except in the light of evolution. ABT 35:125.

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LAYTON ' D.H. 1913. Scientists versus fundamentalists: the California compromise. Phi Delta Kappan 54:696.

MAYER, W.V. 1973 Evolution and the law. ABT 35:144.

MOORE, J.N. 1973. Evolution, creation, and the scientific method. ABT 35:23.

WOLFE, E.C.D. 1975. Acceptance of the theory of evolution in America: Louis Agassiz vs. Asa Gray. ABT 37(4):244.

Messages from an Owl

Max R. Terman – Tabor College – KABT Member

Paper | 1997 | $15.95
230 pp. | 6 x 9 | 65 halftones 1 map
Cloth | 1996 | $37.50
240 pp. | 6 x 9 | 60 halftones, 1 map

"There are very few books written by knowledgeable scientists that truly show the animal (and the researcher) 'beneath the skin.' This is one of them."--Bernd Heinrich, author of One Man's Owl

When zoologist Max Terman came to the rescue of a great horned owlet in a Kansas town park, he embarked on an adventure that would test his scientific ingenuity and lead to unprecedented observations of an owl's hidden life in the wild. In Messages from an Owl, Terman not only relates his experiences nursing the starving owlet, "Stripey," back to health and teaching it survival skills in his barn, but also describes the anxiety and elation of letting a companion loose into an uncertain world. Once Terman felt that Stripey knew how to dive after prey, he

set the owl free. At this point his story could have ended, with no clue as to what the young bird's fate would be--had it not been for Terman's experimentation with radio tags. By strapping the tags to Stripey, he actually managed to follow the owl into the wild and observe for himself the behavior of a hand-reared individual reunited with its natural environment.

Through this unique use of telemetry, Terman tracked Stripey for over six years after the bird left the scientist's barn and took up residence in the surrounding countryside on the Kansas prairie. The radio beacon provided Terman with information on the owl's regular patterns of playing, hunting, exploring, and protecting. It enabled him to witness the moments when Stripey was bantered and mobbed by crows, when other owls launched fierce attacks, and when a prospective mate caught Stripey's eye. On occasional returns to the barn, the owl would follow Terman around as he performed chores, usually waiting for a handout.

Until now, scientists have generally believed that an owl nurtured by humans becomes ill-adapted for meeting the challenges of life in the wild. Terman's research proves otherwise. Stripey surpassed all expectations by becoming a totally independent wild creature. With Terman, however, Stripey remained tame, allowing the author to explore something one rarely sees in owls: a warm interest in humanity. Terman engagingly recreates this dimension of Stripey as he describes with humor and compassion the daily challenges of probing the life of a "phantom winged tiger."

Reviews:

"Terman's book combines an off-beat adventure story with pertinent observations on the nature-versus-nurture debate and stylistically wavers between scientific detachment and a more anthropomorphic tone. He is a skilled and dedicated animal behaviorist. The book is a unique and fine testament to long hours spent on the twilit Kansan prairie."--John Bonner, New Scientist

"This is a meticulously recorded scientific observation. But it's one appealingly interwoven with emotion and sentiment. In a word, it's readable, for ornithologist and layman alike. . . . The strength of Terman's writing is an unaffected blend of feeling and precise scientific note-taking. It could well take its place among naturalist classics."--Keith Henderson, The Christian Science Monitor

"Terman gives an engaging account of his experiences in training and tracking a captive-reared great horned owl."--Publishers Weekly

"This book provides a readable, informative account of the intimate relationship between a college biology professor and an abandoned nestling great horned owl named Stripey. Ornithologists and bird watchers will enjoy reading this interesting book."--Wildlife Activist

"A wise and delightful account."--Library Journal

Table of Contents

http://pup.princeton.edu/titles/5796.html

http://www2.southwind.net/~mjterman/

Christmas Bird Count Dates - Kansas December 1999 - January 2000

Chuck & Jaye Otte – mailto:otte@jc.net – 785-238-8800

Here are all the dates and whatever else information I have collected. It is often best to contact the compiler ahead of time for any last minute changes or meeting information. Check your KOS directory if you are not sure how to get in touch with some of the compilers. But most importantly, dress warm, get out and have fun!

TBA (Contact compiler if you are interested)

Webster Reservoir - Mike Rader, 785-658-2595, mike_rader@hotmail.com

Thursday, December 16

Cedar Bluff Reservoir - Scott Seltman, 785-372-5411, sselt@ruraltel.net

Friday, December 17

Quivira NWR - Gary Meggars, 316-486-2393

Saturday, December 18

Dodge City - Joleen Fromm, 316-227-6342

Halstead/Newton - Dwight Platt, 316-283-6708, platword@southwind.net, please contact if you are planning to attend.

Hays - Greg Farley, 785-628-5965, gfarley@fhsu.edu

John Redmond - Bob Culbertson, 316-364-2522

Lakin - Leonard Rich

Lawrence - Galen Pittman, 785-842-7105, glpitt@falcon.cc.ukans.edu

Manhattan - Dave Rintoul, 785-532-6663, drintoul@ksu.edu

Olathe - Don Weiss, dweiss@step1inc.com, Meet at 7 a.m. at Ernie Miller Nature Park, Hiway 7 and 127th St, Olathe

Parsons - Paul Milks

Salina - Harold Lear

Sawyer - Ken Brunson

Topeka - Gary Haden, 785-273-5598

Waconda - Mike Rader, 785-658-2595, mike_rader@hotmail.com

Wichita - Pete Janzen, 316-832-0182, prarybrd@southwind.net, Meet at Lawrence Dumont Stadium at 7:30 a.m.

Sunday, December 19

Emporia - Jean Schulenberg

Oskaloosa/Perry Lake - Richard Rucker

Syracuse - Art Nonhof

Wakefield/Upper Milford Lake - Chuck Otte, 785-238-4161, otte@jc.net, Meet at Lakeview Restaurant at 7 a.m.

Wilson - Mike Rader, 785-658-2595, mike_rader@hotmail.com

Winfield/Udall - Max Thompson, 316-221-1856, maxt@jinx.sckans.edu

Monday, December 20

Cheyenne Bottoms - Helen Hands, 316-793-3066, helenh@wp.state.ks.us, Meet at the office at 8 a.m.

Olsburg - Gary Jeffrey, 785-468-3587 Meet at the Randolph Cafe between 6:30 and 7:00 a.m. Lunch will be served at the Jeffrey residence.

Sandhills - Debra Bolton

Tuesday, December 21

El Dorado - Bill Langley, Meet at McDonalds in El Dorado at 7:30 a.m.

Wednesday, December 22

Canyonlands (SE Logan County) - Tom Shane

Slate Creek Wetlands - Gene Young, 316-221-8380, youngg@jinx.sckans.edu

Sunday, December 26

Arkansas City - Gene Young, 316-221-8380, youngg@jinx.sckans.edu, Meet at Newman Park by the US77 bridge in Arkansas City at 8 a.m.

Monday, December 27

Baldwin - Roger Boyd, 785-594-3172, boyd@harvey.bakeru.edu, Meet at 7:20 a.m. at the Santa Fe Depot on the west end of High Street in Baldwin.

Junction City - Chuck Otte, 785-238-4161, otte@jc.net, Meet at Sapp Bros Truck Stop, I-70/US77 Exit 295 at 7 a.m.

Wednesday, December 29

Linn County - Roger Boyd, 785-594-3172, boyd@harvey.bakeru.edu, Meet at 7:15 a.m. at the Texaco station just south of the LaCygne interchange on Highway 69.

Old Garfield County - Barbara Campbell

Friday, December 31

Cimarron National Grasslands (Morton County) - Sebastian Patti

Leavenworth - John Schukman, 913-727-5141, schuksaya@aol.com, Contact John for details.

Saturday, January 1

Black Mesa, OK - Sebastian Patti

Kirwin NWR - Bill Schaff

Southeast KS Mined Land

Sunday, January 2

Bonner Springs - Galen Pittman, 785-842-7105, glpitt@falcon.cc.ukans.edu

Liberal - Sebastian Patti

Red Hills - Barber County - Pete Janzen, 316-832-0182, prarybrd@southwind.net Please contact Pete ahead of time in case they need to reschedule due to weather.

Scott Lake - Tom Shane

Saturday, January 8

Blackwolf - NW Ellsworth County - Mike Rader, 785-658-2595, mike_rader@hotmail.com

Garden City - Marie Osterbuhr, 316-276-8145, moster@midusa.net

Sunday, January 9

Kanopolis - Mike Rader, 785-658-2595, mike_rader@hotmail.com

Ulysses - Dan LaShelle

ENZYMES - A TAKE HOME EXPERIMENT

Submitted by Sandy Collins

West Junior High School, Lawrence, KS

TEACHER BACKGROUND.

A familiarity with how enzymes function is essential in understanding how organisms stay alive. Furthermore, when students are familiar with the properties of enzymes, the can use this knowledge to understand ideas as serious as the relationship between disease and enzymes, and as practical as why enzymes are used to stone-wash their jeans.

The activity described below is a very simple investigation in which students can explore the properties of enzymes. Knowledge of this lab came through conversations with Brad Williamson and Steve Case and from reading the article cited below.

Clariana, Roy, (1991). pH and Rate of Enzymatic Reactions. *The American Biology Teacher*, 53(6), 349-350.

MATERIALS. Each student group will need the supplies described below.

- 1 beaker with a supply of hydrogen peroxide. (I give them about 50 ml to start.)
- 1 beaker/container for disposal of "used" hydrogen peroxide
- 1 dropping pipette
- 1 beaker with about 5 ml of active yeast culture (Follow the directions on the package and let it set for about 30-60 minutes before using the yeast culture.)
- 20+ filter disks (Use a hole punch to make disks from coffee filters.)
- forceps
- 3-6 10 ml test tubes in a rack

PROCEDURE

1. I start with a demonstration of the problem they are to explore. Simply soak a filter disk in the prepared yeast culture. Using forceps, place the yeast-soaked disk in a test tube that has been filled with hydrogen peroxide. The enzyme, catalase, will immediately break down the hydrogen peroxide. The resulting oxygen will form on the surface of the disk, causing the disk to remain afloat.
2. I use the demonstration as an opportunity to present students with basic information about how enzymes function and how they are critical to all organisms. I try not to discuss information about factors that affect the efficiency of an enzyme.
3. Student groups are asked to think about what factors might affect enzymes, using the yeast and catalase as an example.
4. Next students are asked to solve a problem using what they think they know about enzymes and the factors they think might affect how enzymes function. The problem is to set-up a situation in which the yeast soaked filter disk when placed on the surface of the hydrogen peroxide in the test tube will take a total of 10 seconds to fall and rise to the top. The students are limited to supplies available in the classroom. Once they have a devised a method that gives them 2 successful trials, they need to demonstrate this to me. (You will probably need to remind them to empty the contents of the test tube after each trial.)

5. At the end of class period, the students compare results and try to summarize what they have learned about enzymes. At this time I distribute the "take home experiment" described in the student hand-out below.

ENZYME INVESTIGATION: A TAKE-HOME EXPERIMENT

Hydrogen peroxide is toxic to yeast. Yeast cells, however, have a defense in the form of the enzyme, catalase. The catalase will breakdown the hydrogen peroxide, thereby releasing oxygen, as you witnessed in the demonstration today. Your group was given a problem to investigate: you needed to devise a method that would allow the yeast soaked disks to take 10 seconds to fall to the bottom of the test tube of hydrogen peroxide and return to the surface.

Now you need to solve the problem in a manner different than that used by the groups in class today. You need to think about what other factors might affect how enzymes function in living organisms: what else could you alter in the "environment" that would result in the yeast disk requiring 10 seconds to rise and fall in a tube of hydrogen peroxide. Once you have an idea, you need to propose a testable hypothesis, design an appropriate experiment and report your results. The specific time line for this investigation is outlined below. You will conduct all of this investigation at home.

For this investigation you will need the following supplies

- 1 or 2 packages of dry yeast. (Follow the package directions. If none are available, mix 2 teaspoons yeast in ¼ cup of warm water. Let the yeast set at room temperature for 30 - 60 minutes.)
- 1 bottle of hydrogen peroxide. (Safety note: Hydrogen peroxide should be handled with care. Read the safety note on the bottle.)
- 1 coffee filter from which you cut out the disks

TIME LINE

1 Submit your hypothesis on: _____

2 Submit a draft of your experiment on: _____

3 The final lab report will be due on: _____

RINSO WHITE: **AN INVESTIGATION OF A BIOENGINEERED ENZYME**

The second investigation I presented at our KABT session was taken from a collection of labs presented in an NABT soon-to-be published lab resource book entitled "High Quality Biotechnology Education Through A Shoestring, Hands-on Approach". As described in the Teacher Background information, in this investigation "students will experiment with the effectiveness of bioengineered proteolytic enzymes in cleaning material of protein food stains and compare the effect of these enzymes on material washed with ordinary soap."

I learned of this collection of twenty-one outstanding labs from attending an NABT workshop during the summer of 1998. These labs are not yet available but I wanted to take this opportunity to make KABT members aware of this NABT project. According to Kathy Frame, NABT Education Director, at least part of the collection will be on the NABT website sometime in December. This collection will be a great asset for those of us still struggling with incorporating biotechnology into our classrooms in a meaningful manner.

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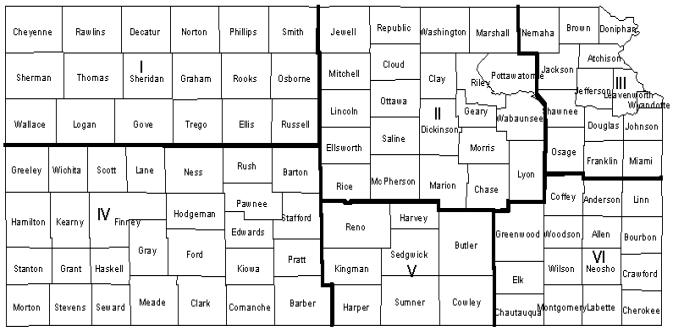

KABT Listserv

The listserv for KABT is now up and running. We also have it mirroring in a web discussion area. We will subscribe all member for which we have e-mail addresses. If you do not want to be on the listserv, you will get information to unsubscribe when you get the first information page. You may also use the simple box on the web site (http://kabt.org) that will allow you to enter your e-mail address and get you subscribed as a participant of the KABT listserv. Wait a few days to make sure you are not automatically subscribed. You should receive your information message by then if we have your correct e-mail address. So you will be automatically subscribed if we have your information or you can subscribe via the web site. It should be really helpful to get the biology teachers online before the next State Board meeting on the standards. KABT listserve - biology teachers communicating information.

YOU MUST!

Check Out The KABT Website

http://kabt.org

Special Thanks to Steve Case and Tom Baker for all their good work!

KABT Membership Application - Renewal - Form

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Phone: Work (____) _____ - _____ Home: (____) _____ - _____

FAX: (___) ___ - _____Internet Address: _____@_____

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