Kansas Association of Biology Teachers Newsletter

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KABT Web Site
http://kabt.org
NABT Web Site
www.nabt.org

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Dr. Charlie Drewes Articles

One of the articles featured in the last newsletter introduced a novel way to study hatching brine shrimp eggs in biology classrooms. (Stuck on Artemia, by C. Drewes) The author, Charles Drewes is a member of the Iowa State faculty and he is intensely interested in invertebrates and invertebrate education. If you are looking for exciting new ways to study invertebrates in your classroom, then this is the source. You may be more familiar with Dr. Drewes' work with Lumbriculus or the blackworm since he has presented a number of times at NABT. Two KABT board members attended his workshop this past summer at Iowa Lakeside Laboratory at West Okoboji Lake in northwest Iowa (http://www.ag.iastate.edu/centers/lakeside/lakehome.html). One, Sandy Collins, has an article about the experience in this issue.

On his web site: http://ww.mbb.iastate.edu/htm/drewes.html Dr. Drewes outlines his goals in biology eduation:

Educational Outreach

(1) Developing new materials and hands-on activities for biology teaching

(2) Guest presentations for all levels of classes and other educational groups

(3) Hands-on workshops for teachers; emphasis on live invertebrates

(4) Distance-mentoring of student research

Dr. Drewes has given KABT permission to reprint some of his articles in our KABT newsletter. However, several of his articles have been published in

journals and are not available for the newsletter

In this issue of the newsletter we include a bibliography of articles that can be requested from Dr. Drewes. This list is also available on his web site. He'd like to hear from you.

(Bibliography is found on page 12 & 13 of this newsletter.)

IMPORTANT!

Your membership **expiration date** can be found on your mailing label. Starting immediately, all dues received before June 30th will be applied to the current year if you are past due. If your dues are current, they will apply for the extended year of your current due date. Dues received and postmarked between June 30th and September 30th will be applied to the next year of membership. The membership list was last updated on **August 18, 2001**.

THIS WILL BE THE **LAST** NEWSLETTER SENT TO ANYONE WHOSE DUES ARE **NOT** PAID UP AND CURRENT!

Outstanding Biology Student Certificates

These are available for students who have completed a biology course under you and have shown outstanding achievement. 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

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NABT news:

NABT continues to take a lead role in the evolution education controversy at the national level. We've had successes and setbacks this year. Successes include averting science standards language in Hawaii and Pennsylvania that would have introduced "alternatives" to evolution as a scientific theory. One potential setback is still in play at this writing: a special amendment to this year's federal education bill that is known as a sense of the U.S. Senate amendment. It's non-binding but it introduces wording that will be a problem in the future. Harry McDonald speaks to this in his column.

The 2001 convention is in Montreal, Canada. The banquet speaker is E.O. Wilson. The pre-registration is a new record for NABT. If you are planning to go, you'd best not wait.

NABT has a newly overhauled web site with some areas member-only. The member-only area will feature online versions of ABT articles, forums and other areas. Check it out.

President's Message From: Harry McDonald

Much is going on in the world of science/biology education. This column may ramble a bit, but I will try to update you on a few of these issues and finish by discussing ideas on how to stay current with ever advancing biological thought and understanding.

First, much is afoot with the Elementary and Secondary Education Act. A version of this re-authorization has passed both the House and the Senate. It is currently in a conference committee to resolve the differences in the two bills. One significant change is the replacement of the Eisenhower professional development monies with a new science and math partnership program. The Senate version establishes this as a separate, funded program whereas the House version would lump this program with others and states could distribute monies as they see fit. The fear, of course, is that the Kansas legislature would allocate these funds to other programs thus eliminating professional development money earmarked specifically for science and math. For more information on this and suggestion for action, go to **www.nsta.org** and click on Legislative Update.

Another issue with the ESEA is the Santorum amendment passed by the Senate. Tucked into the bill was an amendment introduced by Senator Rick Santorum (R-PA).

"It is the sense of the Senate that – (1) good science education should prepare student to distinguish the data or testable theories of science from philosophical or religious claims that are made in the name of science; and (2) where biological evolution is taught, the curriculum should help students to understand why this subject generates so much continuing controversy, and should prepare the students to be informed participants in public discussions regarding the subject."

While appearing innocent enough at first glance, the wording comes largely from Phillip E. Johnson, an advisor to the Discovery Institute and a leading

Intelligent Design advocate. After the amendment passed, the Discovery Institute bragged: "Undoubtedly this will change the face of the debate over the theories of evolution and intelligent design in America … It also seems that the Darwinian monopoly on public science education, and perhaps the biological sciences in general, is ending."

Surely, teachers could follow this amendment and teach excellent science but the wording is vague enough to act as a shield by those who would introduce their personal religious beliefs into the classroom. Such an amendment would give them some defense against requests to cease and desist. Additionally, since the concept of evolution is singled out, it is clear that the amendment is less interested in the data and theories of science, while definitely interested in undermining the quality of teaching about evolution.

Senator Pat Roberts, KS, is on the conference committee. I have contacted him and encourage you to do the same. Go to www.senate.gov to get address and email information.

There are several science groups working on this issue. As I understand it, the National Academy of Sciences will take a position that the amendment be deleted. That failing, the suggestion is to replace "where biological evolution is" with "when controversial issues are" and to delete "so much continuing" from between "generates" and "controversy." I support both of those suggestions.

Second, a group has formed called The Teacher Laptop Foundation. The goal is to provide every K-12 teacher in the US with a laptop computer and internet service. Registration will begin soon. You can pre-register at www.teacherlaptop.org. You can also read about the program at that site.

Third, middle school teachers may wish to sign up for a free resource called, How Stuff Works Express. It is a print and online magazine providing a website and 60 monthly copies of their magazine. For information and to sign up, go to www.howstuffworks.com/teacher-info.htm. For more information, contact Tanya Martin, 919-345-8129, tanya.martin@howstuffworkds.com.

Fourth, I hope you have heard about the upcoming PBS special, Evolution. WGBH is releasing an eight-hour series to be telecast on consecutive evenings, Sept. 24 – 27. Check with your local PBS station for the time. The series is receiving rave reviews. More impressively, funding has been provided for extensive teacher inservice on the topic of evolution. Twenty-five lead teachers have been identified nationally to provide workshops and other support in this area. I have been named as one of the lead teachers.

Currently, I plan an all-day thread at KATS Kamp next spring. I will also ask you at our fall meeting on Sept. 9 what you would suggest for other programs. Steve Case is offering several opportunities as well. He will offer a course through the KU School of Education. Another class will be offered at Science City in KC on Oct. 6, 13, and 20. Contact Steve at scase@kancrn.org.

Fifth, students are constantly introducing ideas into the classroom which are pseudoscience, nonscience or nonsense. If you are like me, you recognize most of this for what it is. But occasionally, kids bring something up and appear, on the surface, to have some sort of support for the idea. You think it is bogus but you aren't sure. Skeptic magazine to the rescue. They have published a Baloney Detection Kit. These are available for $5 at www.skeptic.com.

Lastly, how do we keep up with all that is going on in science and biology today?

The science of stem cell research provides much hope for curing/treating a number of human ailments but it is at odds with many people's personal beliefs. President Bush has just announced guidelines for dealing with this. The HGP provides new information and insight, almost daily, into the working and interaction of genes. Ongoing investigations of our biosphere provide new insight into ecological interactions both man-made and natural. The list goes on and on. I have come to the realization that I am a biological generalist, a jack of all trades and a master of none. I want to keep up with all broad developments but I won't have the time or resources to specialize. In my mind, this is what I need in the high school biology classroom. So, what do I do?

I start with attending professional conferences. At the top of the list, I attend the fall KABT conference and the spring KABT field trip. See the information elsewhere in the newsletter on our conference for Sept. 8 in Manhattan. These have been extremely valuable to me over the years, not only for the formal presentations but more so for the personal exchange and networking with outstanding biology teachers from around the state.

I attend KATS Kamp most years. I try to get to a national convention as often as possible, yearly as of late.

I take an occasional course and have even organ-

ized credit from colleges for local inservice-type activities.

I subscribe to and try to read (I'm way behind) The Kansas Biology Teacher (KABT), The American Biology Teacher (NABT), The Science Teacher (NSTA), Science (AAAS), Science News, Bioscience (AIBS), Discover, and Scientific American. This gets out of hand, but I enjoy having these magazines around to read when I have the time.

I read books when I can. This summer I read Parasite Rex, by Carl Zimmer. I recommend this one for a whole new perspective on parasites. It is definite food for thought.

If you have ways that you use to keep current, drop a letter to the newsletter and we will include it in the next addition.

As always, contact me if you have concerns about anything. biologycctrack@hotmail.com

A Summer TRIP—Sandy Collins

Armed with plankton tow nets, hip boots, pails, pans, jars, and sunscreen, a group of teachers from Kansas, Iowa and Indiana hit the roads in northwestern Iowa. We cruised the bogs, fens, lakes and streams in an Iowa State University van, the back of which proudly displayed our motto, "Inverts R Us". We were in search of sponges, bryophytes, leeches, snails, blackworms, hydra, flatworms, and aquatic insect larvae. In fact, if it was any species of spineless animal, we wanted to collect it and study it back at Lakeside Lab. In our quest for invertebrates, no price was too great to pay - not even falling hip-high into a fen, as 6-foot-4, Olathe North High School teacher, Randy Dix can tell you!

I was one of those fortunate teachers chasing invertebrates for two weeks this summer at Lakeside Lab, a research and teaching station that is part of Iowa State University. The workshop is the result of the dedication of Dr. Charlie Drewes (Department of Zoology and Genetics, ISU). The workshop presented a wonderful opportunity to explore the world of invertebrates. In the words of Steve Ranak (of Jefferson High School in Lafayette, Indiana) everyday was like being in a candy store.

The mornings started with collecting trips and were followed by time back at the lab to sort, identify, observe, and learn about the animals. Afternoons were spent in a variety of activities: from learning about snail development to talking to teacher Lori Ihrig about her incredible student project "Days of our Spineless Lives". Evenings found us on a porch where conversations ran from the serious, discussing what we saw as major issues facing secondary science education, to the silly, what non-human animal might we want to be. And of course, throughout the mornings, afternoons, and evenings, we never stopped listening to each other as we shared our ideas, questions and concerns about teaching.

All of which finally brings me to my point (which in spite of appearances so far, is not to share a "What I did this Summer" essay). Without fail, every biology workshop, institute or convention I have attended has provided me with opportunities. Opportunity has been provided to learn more about the living world. How rewarding. Aren't we all biology teachers because we are fascinated by the living world and because we are avid learners? Opportunity has been provided to hear colleagues share labs, techniques, and tips. How invaluable. Aren't colleagues our most valued source for new ideas and for jump-starting our own thinking? Lastly, opportunity has been provided to feel genuinely good about my profession and what I do. I look around and see dedicated, intelligent people. I think if I am a part of this profession I must be OK. I leave with a sense of pride and a renewed commitment to improve.

We all deserve opportunities to learn more biology, share our teaching ideas, and feel good about our profession. Let's help each other in this endeavor. During the school year, as you learn of opportunities that are out there - workshops, institutes, classes and/or conferences - please forward them to the KABT newsletter or web site. Then let's encourage each other to attend. It is a good thing to do for each other.

NOTE: Many of the summer workshops and institutes pay for participants' room and board. A few even provide stipends. If this is not the case, remember that all districts have Eisenhower funds that can be appropriated for these kinds of activities.

Sandy Collins, West Junior High School, Lawrence, KS, scollins@usd497.org

Lisa Volland 2001 OBTA Recipient

The Outstanding Biology Teacher Award for 2001 went to Ms. Lisa Volland of Topeka West High School. Lisa is a native Kansan. She received her BSED from Pittsburg State University in 1985 and later in 1989 earned her Masters Degree in Biology from Emporia State University. Lisa Volland's teaching career spans 14 years. The last 9 years

have been at Topeka West High School. She teaches Advanced Placement Biology, Honors Biology, and General Biology. Lisa has been an active member of the Kansas Association of Biology Teachers for 14 years. She has served two year terms for KABT as Vice President and President. Lisa Volland is constantly trying to gain knowledge that will help her in her classroom. Each year she travels throughout Kansas and the United States to attend different biology conferences. At many conferences she is also asked to be a presenter.

Lisa believes that "lab work, hands-on experiences, and scientific inquiry are what biology is all about". Besides an emphasis in lab work, Lisa also tries to use different teaching strategies to motivate and stimulate her students. Lisa Volland wants every student to learn biology. One of Lisa's colleagues wrote: "Lisa is a very dedicated and committed teacher, and that is evident in that her students have a great deal of respect for her. Her firm, fair, consistent dealings with the students lets them know that she cares about them, and wants them to succeed." Another colleague wrote about Lisa's ability to incorporate new technology into the classroom. "She infuses new activities into the curriculum every year allowing students to have new experiences with newer technologies like electrophoresis. Students find this particularly fascinating as she links this to DNA testing and forensic studies used in crime scene investigations. Students simulate a crime scene by collecting information and testing hypothesis using this technology." When you get a chance, please congratulate Lisa Volland for being selected the 2001 Outstanding Biology Teacher of Kansas.

FALL KOS Meeting—GPNC—Wichita

Information about the Fall 2001 Kansas Ornithological Society meeting, to be held Oct. 5-7 in Wichita KS, can be found by going on the link for "meeting information" at:

http://www.ksbirds.org/kos/index.html

The information includes a program as well as forms for registration, abstract submission, etc. Hope to see you in Wichita in October!

Evolution Series on PBS

Tune in and log on September 24-27! Public broadcaster WGBH Boston (producer of the award-winning science series NOVA) and Clear Blue Sky Productions will premiere an educational experience 4.6 million years in the making. The Evolution project is a groundbreaking public television series, a content-rich and easy-to-navigate Web site, and extensive educational resources tackles evolution in a big way, illuminating this remarkable theory, which ranks as one of the greatest breakthroughs in the annals of science.

WGBH and your local public television station invite you to take full advantage of this treasure trove of programming and multimedia educational resources to enhance awareness in your community and schools about evolution. Evolution project resources can help you convey the importance of evolution and its impact on our lives. We hope you'll use these resources to complement your own offerings, to dispel common misconceptions, and to provide the latest thinking on this important subject.

The Evolution series will premiere on PBS, September 24-27, 8-10pm (check local listings). You can capitalize on the public's increased interest in evolution and biology, sure to be sparked by this PBS initiative, by developing an event and partnering with your local public television station.

Tune in to Evolution on PBS, September 24-27, 8-10pm and log on to www.pbs.org/evolution for outstanding resources!

Evolution, Education & Ecology: Spotlight on KS

Program Title: Evolution, Education & Ecology: Spotlight on Kansas

Producer: **Dave Kendall**

Length: **57:00 (includes :15 tape offer)**

Broadcast premiere: **Monday, September 24, 2001 – 7pm -- on KTWU/Channel 11, Topeka**

Program Description:

This documentary reviews the decision made by the Kansas State Board of Education in August of 1999 to de-emphasize the teaching of evolution and considers the role of evolutionary theory within the science classroom. It goes on to review the ecological implications of a world view in which human beings are seen to be part of a natural process that is increasingly affected by changing technology.

Program participants:

Brad Williamson, Biology Teacher, Olathe East High School

Steve Abrams, Board member, Kansas State Board of Education

David McDonald, Chair, Biological Sciences, Wichita State University

Larry Scharmann, Chair, Secondary Education, Kansas State University

Eugenie Scott, Executive Director, National Center for Science Education

Phillip Johnson, Emeritus Professor of Law, University of California, Berkeley

Leonard Krishtalka, Director, Natural History Museum, University of Kansas

Jane Goodall, Primatologist

Paul Ehrlich, Professor of Population Studies, Stanford University

Host: Ralph Titus

Program Title: Evolution, Education & Ecology: Spotlight on Kansas

Producer: **Dave Kendall, Executive Producer, KTWU, Topeka, KS**

Length: **57:00 (includes :15 tape offer)**

In August of 1999, the Kansas State Board of Education voted to de-emphasize evolution as a unifying concept within the biological science curriculum of public schools. The locally produced documentary "Evolution, Education & Ecology: Spotlight on Kansas" reviews this decision and explores the impact it has had on science education in the state and the larger impact that it may have on American culture. The program also highlights the connection between an evolutionary worldview and an environmental ethic as expressed by national figures such as the noted primatologist Jane Goodall and Stanford biologist Paul Ehrlich.

Presented in six parts, the first part considers the role that evolutionary theory plays within science education. A high school biology teacher who helped draft curriculum standards that were rejected by the state board of education, Brad Williamson describes how the process was initiated, while Steve Abrams, the board member who led the effort to de-emphasize evolution, relates his rationale for the actions that were taken. This leads to a discussion of the meaning of a theory within science as compared to the implications of that term in common parlance, which relates to the contention that evolution is only a theory.

Noting that some people find the notion of evolution problematic because they perceive that it leaves no room for a Creator, part two considers the basic premise expressed in the doctrine of Intelligent Design. One of the most visible advocates of this school of thought, University of California emeritus law professor Phillip Johnson, came to Kansas in the midst of the debate over science standards. He describes the primary focus of Intelligent Design while local educators explain why they believe that it does not belong in a science classroom.

At the beginning of part three, the program host notes that the Kansas State Board of Education has recently revised its position on the teaching of evolution as newly elected board members cast their support to it. A visit to the Museum of Natural History at the University of Kansas provides an opportunity to reflect upon the role of such public institutions in educating the populace about the nature of evolution.

Part four opens with an excursion to another local public institution -- the Sunset Zoo in Manhattan, Kansas. The noted primatologist Jane Goodall visited the zoo soon after the initial vote on evolution thrust Kansas into the spotlight. Her comments on the subject reveal a preference to focus on what she deems to be urgent environmental crises confronting the planet rather than to become embroiled over debates about evolution. Her sense of the urgency of activating greater concern for the environment is echoed by Paul Ehrlich, a Stanford University biologist who obtained his doctorate from the University of Kansas.

A more expansive discussion of the relationship between science and stewardship of resources takes place in part five of this program. It considers the importance of developing a greater level of scientific literacy within contemporary societies and addresses common misconceptions about evolution. The director of the National Center for Science Education, Eugenie Scott, explains the concept of common ancestry as it relates to the evolutionary process.

The program concludes with a consideration of cultural evolution, which provides an opportunity to consider the impact of social and technological change in an age characterized by information overload. Acknowledging a tendency for people to yearn for simpler times, a sense of urgency is emphasized once again as references are made to pressing environmental and social issues that must be addressed in the interest of future generations as well as our own.

AIBS Textbook Analysis

Last year AAAS's Project 2061 released a scathing evaluation of ten biology textbooks; finding that none were acceptable for standards-based biology education. Details of this review are available at:

http://www.project2061.org/newsinfo/research/

textbook/hsbio/default.htm

Over the last year several biology teachers have indicated that new textbook adoption in their districts were hampered by this review. This predicament was described in Roger Bybee's editorial in the January, 20001 issue of The American Biology Teacher, titled "Unintentional Consequences of an Unacceptable Evaluation." What's a teacher to do? How is a school district that needs a new text going to proceed? This spring AIBS also released a review of 10 of the top biology programs. This review is more in line with how most teachers (and publishers) feel about texts. You'll find that in the AIBS review no text is without fault but on the other hand almost all of the texts reviewed had some utility for student learning. Consider using this document and AAAS's evaluation to inform your decision for textbook selection. AIBS has made the entire document, Review of Biological Instructional Materials for Secondary Schools, available at:

http://www.aibs.org/outreach/resources/TextbookReview.pdf

What follows is a copy of the executive summary of the document.

AIBS

Executive Summary

The American Institute of Biological Sciences (AIBS) has undertaken a review of ten textbooks that are currently used in year-long courses in the biological sciences in secondary schools. The goal is to:

Provide information - a snapshot of the year 2000 - to those in school districts who choose instructional materials to make informed decisions that help teachers provide ALL students with standards-based learning environments for biological literacy.

A nine-person review team, of scientists, teachers, and science educators reviewed ten programs of biology instructional materials with publication dates from 1997-2000. The team developed a review instrument for the evaluation based on the National Science Education Standards. Three of the life science content standards for grades 9 to 12--Evolution, Interdependence Of Organisms, and Molecular Genetics-- along with the "Other Content Standards," and the "Pedagogical and Other Considerations" were used as criteria and the results are presented.

Instructional Materials are grouped into three categories:

1. 1)"Traditional" instructional materials that do not particularly respond to the standards but simply focus on new content and new options at each printing,
2. 2)"Innovative" instructional materials that are specifically designed to meet all of the National Science Education Standards, and
3. 3)"Mixed" instructional materials that come from the traditional background, including updating and adding of content, but have responded to some or all of the pedagogy and other standards in presentation.

Results indicate:

- • For the most part, the content is accurate and up-to-date, but the way the materials are presented for teaching leaves room for vast improvement.
- • Most books are too large, too encyclopedic, and leave too much responsibility on the teachers to determine how to use them to meet the standards.

The AIBS study was conducted at the University of Washington in Seattle, with funding from the David and Lucile Packard Foundation.

Book Reviews

1n the last newsletter we reprinted a number of descriptions/reviews that appear on the Amazon.com web site that describe books that are of particular interest to biologists and their students. This is a continuation of that effort to inform your decisions. I have read each of the following recommendations. I am not reviewing the books here, only providing the descriptions/reviews from the Amazon site. I do recommend each of these books.

The Eternal Frontier, by Tim Flannery (what's particularly intriguing about this book is that the author is an Aussie)

From Amazon.com:

Reading The Eternal Frontier might be the closest you'll get to taking a class from Tim Flannery--and that alone makes it an opportunity just too good to pass up. This ambitious retelling of North America's dramatic ecological history grew out of a course that Flannery taught at Harvard surveying the continent's ancient past up to its tumultuous near-present: from the extraterrestrial "death-dealing visitor" that struck 65 million years ago all the way through to the tidal invasions, adaptations, and extinctions that have washed over North America since, each idiosyncratically influenced by an ever-changing geology, geography, and climate.

Flannery admirably balances his twin roles as scientist and storyteller. As a thoughtful teacher, he employs memorable and effective examples to illustrate broader topics, but he's also willing to commit to theoretical explanations (with fair warning) when necessary to thread together the narrative. But Flannery's greatest strength might simply be the empathy he inspires as a fellow human being trying to sort out an intricate, often richly beautiful puzzle. It's hard not to identify with his curiosity and enthusiasm, whether he's recalling memories of late nights spent as a child reading the How and Why Book of Prehistoric Mammals (and the uintathere nightmares that followed) or just marveling over the vast American West from his window seat on a plane.

The Eternal Frontier certainly leaves you with a solid outline of the how, why, and when of North America's enigmatic ecology, and what the implications of a dwindling frontier have for our future. But don't be surprised when what you remember best are Flannery's countless details--worthy of repeating at any self-respecting pub--from marsupial sperm that swim in pairs to the reason that Native American cultures might owe their very existence to squirrels' taste in nuts. --Paul Hughes

Four Wings and a Prayer, by Sue Halpern (I found that this book has done a great job of capturing the science and personalities of Monarch butterfly research. It also includes some first hand account of Terry Callendar's classes.)

From Amazon.com

Sue Halpern, a gifted student of the natural world, has a knowing passion for butterflies--"not love, exactly, offered suddenly, but a similar quickening of heart and desire ... tugging on my imagination as if it were a loose sleeve."

In Four Wings and a Prayer, that passion takes flight in quest of the monarch, a species of butterfly suddenly much in the news. In the company of freelance biologist Bill Calvert, ecologist Homero Aridjis, and other scientists and activists, Halpern travels into the highlands of Michoacan, Mexico, to which monarchs born east of the Rocky Mountains migrate each autumn, flying as much as 200 miles a day to get there before the onset of the highland winter. There she ponders the complexities of the monarch's life--after all, she writes, "how did the monarch butterflies from the eastern United States and Canada, millions of them, end up every year in the same unlikely spot, a remote and largely inhospitable fifty acres of oyamelis pine forest?"--and the unfortunate events that have felled monarchs by the untold millions in recent years, including the destruction of habitat and climate change.

Halpern's enthusiasm for Lepidoptera is catching, and her graceful advocacy of the monarch should inspire renewed concern for their well-being in the world. --Gregory McNamee

The Ghosts of Evolution, by Connie Barlow (I found that this was a nice exploration of an idea presented to the research community several years ago. The writer begins to dabble with the premise and presents some hypotheses that may be fresh fodder for high school science research.)

Book Description From Amazon

A fresh voice in science and nature writing presents an engaging first-person account of a revolution in ecological thinking A new vision is sweeping through ecological science: The dense web of dependencies that makes up an ecosystem has gained an added dimension-the dimension of time. Every field, forest, and park is full of living organisms adapted for relationships with creatures that are now extinct. In a vivid narrative, Connie Barlow shows how the idea of "missing partners" in nature evolved from isolated, curious examples into an idea that is transforming how ecologists understand the entire flora and fauna of the Americas. This fascinating book will enrich and deepen the experience of anyone who enjoys a stroll through the woods or even down an urban sidewalk. But this knowledge has a dark side too: Barlow's "ghost stories" teach us that the ripples of biodiversity loss around us now are just the leading edge of what may well become perilous cascades of extinction.

The Borderlands of Science, Where Sense Meets Nonsense, by Michael Shermer (This analysis is also in the borderlands but it does provide some interesting ideas to consider.)

Book Description From Amazon

As author of the bestselling Why People Believe Weird Things How We Believe, and Editor-in-Chief of Skeptic magazine, Michael Shermer has emerged as the nation's number one scourg of superstition and bad science. Now, in The Borderlands of Science, he takes us to the place where real science (such as the big bang theory), borderland science (superstring theory) and just plain nonsense (Big Foot) collide with one another.

Shermer argues that science is the best lens through which to view the world, but he recognizes that it's often difficult for most of us to tell where valid science leaves off and borderland science begins. To help us, Shermer looks at a range of topics

that put the boundary line in high relief. For instance, he discusses the many "theories of everything" that try to reduce the complexity of the world to a single principle, and shows how most fall into the category of pseudoscience. He examines the work of Darwin and Freud, explaining why one is among the great scientists in history, while the other has become nothing more than a historical curiosity. He also shows how Carl Sagan's life exemplified the struggle we all face to find a balance between being open-minded enough to recognize radical new ideas but not so open-minded that our brains fall out. And finally, he reveals how scientists themselves can be led astray, as seen in the infamous Piltdown Hoax.

Michael Shermer's enlightening volume will be a valuable a to anyone bewildered by the many scientific theories swirling about. It will help us stay grounded in common sense as we try to evaluate everything from SETI and acupuncture to hypnosis and cloning.

Human Natures, by Paul R. Ehrlich
From Amazon.com

It's common to blame "human nature" for some of the unpleasant facts of life--road rage, say, or murder, or war. The problem with this convenient out, argues the distinguished scientist Paul Ehrlich, is that there really is no single human nature. Humans, it's true, share a common genetic code with remarkably few large-scale differences (if all but native Africans disappeared from the planet, he notes, "humanity would still retain somewhat more than 90 percent of its genetic variability"); and evolution has endowed us with capabilities shared by no other species. But for all that, he adds, our separation into haves and have-nots, weak and strong, and other such categories is more often than not a product of cultural evolution, a process far more complex than the mere mutation and adaptation of a few genes. And, in any event, those genes "do not shout commands to us about our behavior," Ehrlich says. "At the very most, they whisper suggestions."

In this wide-ranging survey of what it is that has made and that continues to make us human, Ehrlich touches on a number of themes--among them, his recurrent observation that science has taught us little about how genes influence human behavior. (Instead, he notes wryly, "science tells us that we are creatures of accident clinging to a ball of mud hurtling aimlessly through space. This is not a notion to warm hearts or rouse multitudes.") He urges that scientists take a larger, interdisciplinary view that looks beyond mere genetics to the larger forces that shape our lives, a view for which Human Natures makes a handy, and highly accessible, primer. --Gregory McNamee

KanCRN Update

The KanCRN Collaborative Research Network is a community of people interested in doing scientific research. The network currently consists of 823 classrooms from across the United States and thirteen countries outside of the States. On the KanCRN web page; http://kancrn.org , you will find several of the research areas. Our front page is designed for our student researchers and therefore the research projects dominate the front page of KanCRN. The projects span all grade levels, from kindergarten to graduate school! You are welcome to explore any of these project area that you might be interested in. Many schools are working with Ground-level Ozone and the Digital Monarch Watch at the beginning of this school year. In addition to our schools, we have over 1000 citizens who have registered to participate in our projects.

An important part of KanCRN is the use of Geographic Information Systems (electronic mapping) for data analysis. This fall we are implementing a new mapping system, ARC IMS. This is an interactive, internet-based mapping system. The map showing the location of our participating schools <http://webmaps.kgs.ukans.edu/kancrn/ims/teachers.cfm> is an example of this new mapping system. This map is designed to help schools communicate by showing the geographic location of the schools and providing identification and contact information. KanGIS, <http://kangis.org> is the support area for the use of Geographic Information Systems in extending student research. There are many resources posted in this area that make it worth a visit.

On the upper black bar of the KanCRN web pages are several links. These links will help you find your way around the web site. To begin your schools participation in the projects, you need to register your school. If you are receiving this email you are probably already registered however you may want to share registration information with a colleague. Each teacher should register individually so that project data can be appropriately shared. The registration is located in the Teacher's Corner. Notice that one of the links on the upper black menu bar of the KanCRN front page is called Teacher's. Click on that link. You will be entering the Teacher's Corner. This is a dynamic page with lots of information for teachers about the project and our teaching tools. On the Teacher's Corner page, on the left side of the page is a link to registration. This link will take you to a page for registration. Record all of the information requested in the boxes on the page. You can move between the boxes by using the tab key, or by using the mouse and clicking in the box.

Welcome back to school and we look forward to working together this year.

September 8th 2001 - KABT Fall Conference

Cost of Conference ($5) + Membership Dues ($15):

Lifetime Members.....$5.00

KABT Members.....$20.00

Nonmembers 25.00

Morning Session

KSU (Akert Hall)

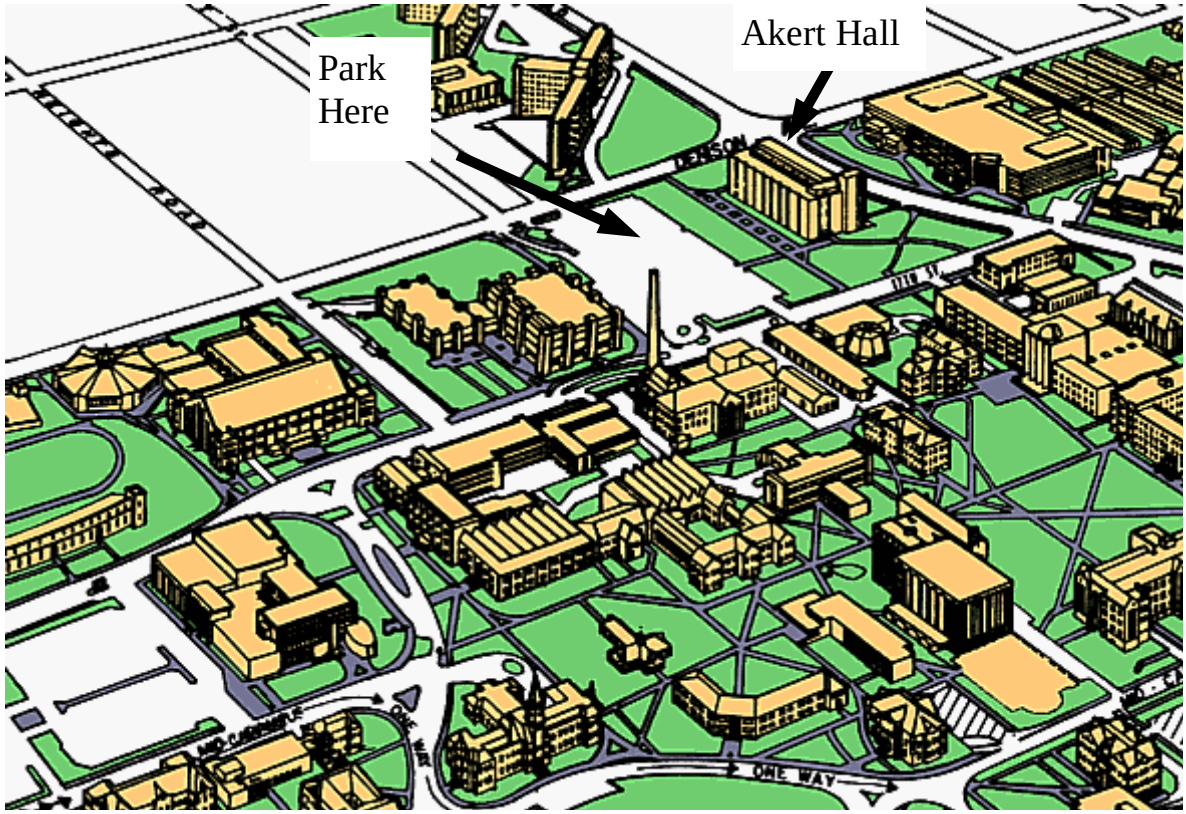
8:00 - 8:30 Registration
9:00 - 12:00 The morning will consist of presentations and tours. The following is a partial list of presenters and the topics that they will present. Dr. Beth Montelone will speak on DNA repair in yeast and how it can be utilized in a high school classroom. Dr. Ferguson is the director of Kansas State University's herbarium. His presentation will be on the molecular systematics of plants. He will emphasize plant taxonomy based on DNA comparisons. For those interested Dr. Ferguson will also provide a tour of the herbarium. Dr. Rollie Clem will speak on programmed cell death in insects due to the baculo viruses. He will also describe how this virus can be used to control insect populations. Dr. Lorena Passarelli will also talk about baculo viruses. However, her presentation will revolve around how the virus replicates. Several other presentations are being finalized. If there is time we will also tour the "new" studio classroom used for the Principles of Biology course.

Lunch 12:00 - 1:00

Afternoon Session

Konza Prairie Ed. Center

1:30 - 4:00 Dr. Valorie Wright will start the afternoon with an introduction of the Konza Educational Center. Dr. Wright's introduction will include a description and tour of the facilities. She will then describe the different ecological projects designed for students.
If you are looking for some real field based labs that are designed to expose students to ecological research, you cannot miss Dr. Wright's presentations. Here are some of the lab activities that Valorie will talk about: Fire Reversal Project, Stream Study Lab, Prairie Plant Diversity Study, Hulbert Plot (Fire/Diversity) Analysis, Gall Study, and Grasshopper Collection Lab. The last two labs we will actually go out on the Konza prairie to perform. Since changes in ecosystems usually take longer periods of time (longer than one scientist's life time), Dr. Wright has worked hard to try to set up a computer system for student data. Now students can not only learn different field biology techniques, but they can also compare their results to all the data from previous years. The computer data already contains Konza's average temperature and rainfall amounts for the last 100 years. With time who knows what students may be able to discover from these long term ecological labs.



KABT

Fall Conference

Kansas State University

Akert Hall

Manhattan, KS

Saturday, September 8th

Invertebrate Biology (non **-oligochaete miscellaneous**)

Hard copy of any materials below may be obtained upon direct request to C. Drewes. Teachers or students who request materials should clearly specify the desired article(s), their school affiliation, and their complete mailing address (school or home). Requests may be transmitted via mail, email, or phone to:

Mail: C. Drewes
Zoology and Genetics Department Rm 339 Science II Building
Iowa State University
drewes.html
Ames, IA 50011 USA

EMAIL: cdrewes@iastate.edu
PHONE: (515)294-8061
WEB: http://www.mbb.iastate.edu/htm/

Educational Articles and Materials for Invertebrate Biology (C. Drewes)

"**Artemia franciscana"** [A compilation of hard-to-find background information about the natural history, reproduction, development, and growth of brine shrimp (Arthropoda: Branchiopoda: Anostraca). Includes literature citations and web sites for commercial sources and additional background biology. Presented at 1999 NABT; 5 pp.]

"Stuck-On Artemia" [New methods and classroom activities using brine shrimp (Artemia) cysts --way to systematically follow the developmental fate of individual cysts while quantifying the hatching success of small populations of cysts. Methods allow small numbers of cysts to be easily transferred and kept in the same focal plane for viewing. Presented at 1999 NABT; 3 pp.]

"Triops longicaudatus" [A compilation of hard-to-find background information about the natural history, reproduction, development, and growth of tadpole shrimp (Arthropoda: Branchiopoda: Notostraca). Includes literature citations and web sites for commercial sources and additional background biology. Presented at 1999 NABT; 7 pp.]

"Leaf Litter Critters" [Illustrated background information about the invertebrates that reside in leaf mold and compost. Includes diagrams and instructions for making and using a simple Burlese funnel with a 2-liter pop bottle and hardware cloth. Emphasizes diversity of body form and feeding interactions. 7 pp.]

"Feeding Frenzy for Freshwater Invertebrates" [A humorous and unique educational place mat featuring "yellow-pages" descriptions of invertebrate eating establishments. Paper or plastic. Includes a 1 page supplemental table entitled: "Biology Features of Selected Freshwater Invertebrates" which relates information about invertebrate development, reproduction, feeding, body plan, locomotion and ecology.]

"Water" [Comparison of desirable and undesirable sources of water for maintenance and culture of invertebrates. 1 p.]

"Making Flexible Foam Well Slides" [A simple, illustrated explanation making unbreakable, re-usable, non-seeping view chambers (well slides) from transparency sheets and foam tape; excellent for viewing microcrustaceans or other small aquatic invertebrates with compound or dissecting microscope; 2 pp.]

"Freshwater Invertebrates of the Iowa Great Lakes" [A color-illustrated booklet of a few representative invertebrates (non-insect) from Iowa lakes and wetlands. Color photos are from freeze-frame videotape images made by biology teachers at Iowa Lakeside Laboratory. This is not meant to be a key or comprehensive survey, rather a celebration of diversity of invertebrate form and function. 18 pp.] {NOTE: A non-profit price ($10) is for partial cost-recovery. Ask about personal or institutional order.}

"Pencil Pipet Technique" [A simple, reliable method for transferring small invertebrates, invertebrate fragments, protists, or fluid volumes. Excellent for delivering small fragments of Lumbriculus variegatus to Hydra when studying prey capture and feeding in Hydra. 1 p.]

"Culturing Freshwater Snails for Developmental Studies" [Authored by C. Schutte: A detailed and unique compilation of biology background information about the biology and development of freshwater snails, with special attention given to collection, culture, and classroom activities. Presented with C. Drewes and D. Cronkite at 1999 NABT meeting in Fort Worth, TX; 8 pp.]

"Invertebrate LocOlympics" [Student exercise for quantitative analysis of invertebrate locomotion using video documentation; students measure velocities of swimming, walking, and jumping, and compute other parameters of locomotion, such as wave velocity and Reynolds number. In progress]

"McWorm: Invertebrate Fast Food: [New ideas and procedures for using Lumbriculus (blackworms) to study preda-

tory attack and feeding behaviors in other organisms, such as Hydra, Planaria, crayfish, Triops, leeches, ostracods, and nearly all species of freshwater tropical fish. Co-authored with K. Cain.

see also "Pencil Pipet Technique." 4 pp.]

"Day of Our Spineless Lives" [A new, interdisciplinary, creative writing activity in which students write a first-person essay that incorporates their researched answers to more than thirty key questions pertaining to the biology and natural history of an invertebrate they choose to be. Co-authored with L. Ihrig., 2 pp]

"Unbreakable, non-seeping alternative to depression slides" [Use clear acetate sheets to make unbreakable, custom-sized slides and cover slips for viewing invertebrates that would ordinarily be viewed with a depression slide. 2 pp]

Lumbriculus

"Those Wonderful Worms" [Illustrated article; Carolina Tips, Aug., 1996, vol. 59, no. 3, 4 pp.]

"Sources of California Blackworms" [Listing of recommended commercial sources for Lumbriculus, 1 p.]

"Culturing Lumbriculus" [Brief explanation for culturing Lumbriculus in the lab, 1 p.]

"Lumbriculus variegatus: A Biology Profile"[Background about taxonomy, lifestyle, reproduction, muscle, circulation, and behavior of blackworms (Lumbriculus) that can't be found in any general or advanced text; 4 pp.]

"Biology Facts about Mudworms" [Brief summary of Lumbriculus biology, K-12 level; 1 p.]

"As the Worm Turns" [Detailed student lab exercise on Lumbriculus locomotion: crawling, swimming, and reversal behaviors; reprint of article in American Biology Teacher, 61: 438-442)

"Heads or Tails" [Detailed exercise on head and tail regeneration in Lumbriculus; published in Proceedings of the Association for Biology Laboratory Education (ABLE), Vol. 17, J.C. Glase, Ed., 1996; pp. 23-34.]

"Blackworms, Blood Vessel Pulsations, and Drug Effects" [Detailed student lab exercise on pulse rates and drug effects in Lumbriculus dorsal blood vessel; reprint of article in American Biology Teacher, 61:48-53.

"Non-invasive Recording of Giant Nerve Fiber Action Potentials from Freely Moving Oligochaetes" [Detailed student lab exercise involving recording of all-or-none action potentials from intact Lumbriculus; in Proceedings of the Association for Biology Laboratory Education (ABLE), Vol. 20, S.J. Karcher, Ed., 1999, pp. 45-62.]

"Functional Organization of the Nervous System in Lumbriculus variegatus" [Background information about Lumbriculus nervous system, especially anatomy, physiology, and behavior; information about Lumbriculus that can't be found in any general or advanced text; 4 pp]

"Worm Limericks" [Lumbriculus "poetry;" 1 p.]

"Making Flexible Foam Well Slides" [A simple, illustrated explanation of how to make unbreakable, re-usable, non-seeping view chambers (well slides) from transparency sheets and foam tape; excellent for viewing Lumbriculus, or any other small aquatic creature, under compound or dissecting scope; 2 pp.]

"Biological Smoke Detectors" [A mini-manual for students and teachers that gives background information and ideas for using invertebrates (especially Lumbriculus and earthworms) for basic toxicity testing; especially written as a guide to student research or science fair projects; 14 pp.]

"Through a Looking Glass" [An inquiry-based lab exercise that gives stunning views of the internal and external features and functions in Lumbriculus, 8 pp; Presented at 1999 NABT meeting.]

"McWorm: Invertebrate Fast Food" [New ideas and procedures for using Lumbriculus (blackworms) to study predatory attack and feeding behaviors in other organisms, such as Hydra, Planaria, crayfish, Triops, leeches, ostracods, and nearly all species of freshwater tropical fish. See also "Pencil Pipet Technique"]

"Pencil Pipet Technique" [A simple, reliable method for transferring small invertebrates, invertebrate fragments, protists, or fluid volumes. Excellent for delivering small fragments of Lumbriculus variegatus to Hydra and Planaria when studying prey capture and feeding in these predators. 1 p.]

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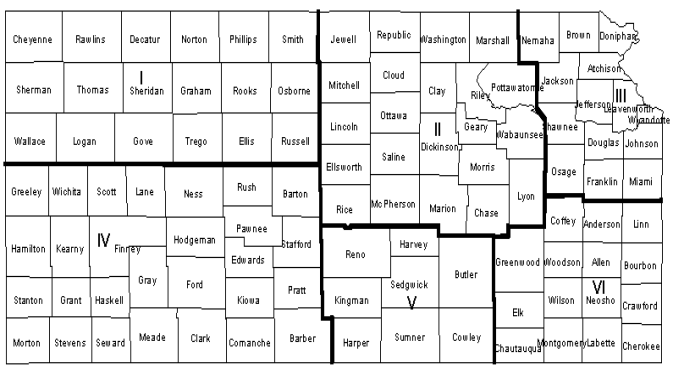
KABT Regions



Counties In Region 1

Cheyenne, Decatur, Ellis, Gove, Graham, Logan, Norton, Osborne, Phillips, Rawlins, Rooks, Russell, Sheridan, Sherman, Smith, Thomas, Trego, Wallace

Counties, In Region 2

Chase, Clay, Cloud, Dickinson, Ellsworth, Geary, Jewell, Lincoln, Lyon, Marion, Marshall, McPherson, Mitchell, Morris, Ottawa, Pottawatomie, Republic, Rice, Riley, Saline, Shawnee, Wabaunsee, Washington

Counties In Region 3

Atchinson, Brown, Doniphan, Douglas, Franklin, Jackson, Jefferson, Johnson, Leavenworth, Miami, Nemaha, Osage, Wyanodotte

Counties In Region 4

Barber, Barton, Clark, Comanache, Edwards, Finney, Ford, Grant, Gray, Greeley, Hamilton, Haskell, Hodgeman, Kearny, Kiowa, Lane, Meade, Morton, Ness, Pawnee, Pratt, Rush, Scott, Seward, Stafford, Stanton, Stevens

Counties In Region 5

Butler, Coffey, Cowley, Harper, Harvey, Kingman, Reno, Sedgwick, Sumner

Counties In Region 6

Allen, Anderson, Bourbon, Chautauqua, Cherokee, Crawford, Elk, Greenwood, Labette, Linn, Montgomery, Neosho, Wilson, Woodson

Your membership **expiration date** can be found on your mailing label. Starting immediately, all dues received before June 30th will be applied to the current year if you are past due. If your dues are current, they will apply for the extended year of your current due date. Dues received and postmarked between June 30th and September 30th will be applied to the next year of membership. The membership list was last updated on **August 18, 2001**.

KABT Membership Application - Renewal - Form

Name: _____

(Mr.-Mrs.-Ms.-Dr.-Miss) First Name Last Name

Mailing Address: _____

City: _____ State: _____ Zip: _____ - _____

School/Institution: _____

Position: _____

City: _____ State: __ Zip: _____ - _____

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

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

Enclosed Dues For KABT **$15** / Year—Life Membership Available For **$300**
National Association of Biology Teacher Dues: **$59.00** / Year
Dues Payment For Next Year Must Be Received Between Dates Of June 1st to September 30th
Dues Received On Dates Preceding June 1st Or After September 30th Will Be Applied To Current Year
Make Check Payable To KABT - Tax ID #: 48-0945206
Send Dues & Information To:
Kansas Association of Biology Teachers
2311 Applewood Lane
Salina, KS 67401 - 3707

Kansas Association of Biology Teachers

EVENT CALENDAR

Date **Event**

September 8, 2001..... KABT Fall Meeting-KSU Manhattan

Molecular Biology—Molecular Systematics—Viruses— Konza Prairie Education Center

Complete Program Details Can Be Found On Pages 10-11 Of This Newsletter

September 21-22, 2001 ..... Kansas Wildflower Society Annual Meeting— KU—Lawrence

September 29, 2001 ... Kansas Audubon Society Fall Field Trip—Benedictine College—Atchison

Trip will be to the Benedictine Bottoms

October 5-7, 2001 .....KOS Meeting-Great Plains Nature Center-Wichita

October 12-13, 2001 ..KESTA (Earth Sc. Teachers Assoc.) Meeting—Emporia State University

November 2-3, 2001..... KACEE Environmental Ed. Conference, Great Bend

November 7-10, 2001.....NABT annual convention, Montreal, Quebec, Canada

June 8, 2002 ..... Spring Field Trip-Smoky Valley Ranch, Logan Co.

September 14, 2002.... Fall Meeting-Biology Teacher Exchange Retreat—Site Later

October 30-November 2, 2002 .....NABT Annual Convention - Cincinnati, Ohio

Brad Williamson will be President during this convention so help out by attending and presenting!

October 8-11, 2003 .....NABT Annual Convention - Portland, Oregon

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Please send meeting dates and other items of interest to biology teachers to: John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401-3707, 913- 825-7742 - E-mail: wachholz@swbell.net