

# Kansas Association of Biology Teachers Newsletter

February 1993 Volume 34, No. 1

John Wachholz, Editor

Your membership **expiration date** can be found on your mailing label. All dues are now payable on September 1st of each year. Please note that the Post Office will **not** accept staples. This is the reason for your newsletter being mailed in an envelope. This will also allow for machine stamping at a small savings which will help cover the cost of the mailing.

Please mail or phone meeting dates and other items of interest to biology teachers to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401, (913) 825-7742 (Home) 913 826-4751 (School).

## From Your President

Dear KABT Members,

In this newsletter there are several very important decisions that we as biology educators are going to have to make. The first two are closely related. Joe McInerney has worked hard to make another draft for NABT's policy on the use of animals in biology education. Since I use cats extensively in my Anatomy and Physiology class, I am very interested in NABT's policy. While I commend Joe McInerney's efforts and agree with his rewritten portions of the draft, I personally cannot agree with the very last paragraph. It refers to the proper use and care of animals as described in NABT's monograph "The Responsible Use of Animals in Biology Classrooms," including Alternatives to Dissection. While I definitely do not want to influence your decision on this important issue, I do want to encourage you to read the entire policy which includes both the draft and the monograph. As KABT board members, we would appreciate your suggestions and observations so we can develop a policy that represents our members. Also NABT will, through its "News and Views" publication, soon ask its members to comment on this new draft. Please take the time to write NABT and give them your opinion. You can photocopy your letter and mail us the

copy. This way you can kill two very important birds with one stone.

The third issue that I would like to bring to your attention is the state's effort to standardize science education. There is a real need for the input of science teachers' ideas and recommendation into this process. Please take time out of your very busy schedules to go to a meeting close to your school. They need to hear from the science teachers in this state before they make a policy for us.

Don't forget to mark Memorial Day weekend down on your calendar for our spring trip to the Cimarron Grasslands. Bob Rose and Stan Roth have worked hard to set up a great weekend. Don't miss this chance to learn from some great biologists.

Steve Case and I are already starting to set up the fall KABT Ecology Conference. It has tentatively been set for Saturday, September 18. In an effort to bring our meetings further west, we have decided that Salina will be the site of the conference. Ernie Brown from Wakeeny quickly informed me that Salina was definitely not WEST. In any case, if you have any ideas, favorite labs, or know of any good speakers, please share them with Steve or myself. We are in the planning stages and would appreciate any suggestions.

I hope to see you this spring in KC or the Cimmaron Grass

Lands. Have a good semester and keep the kids excited!  
Pat Lamb, KABT  
President

## PROPOSED CONSTITUTIONAL AMENDMENTS

So as to eliminate confusion in the future, I am proposing the following changes in the KABT constitution. These changes are only to acknowledge the position of KABT Journal Editor and describe the method of selection for this newly formed position.

Article II, Section 1, b. of the Bylaws will read as follows:

**b. The appointed officers shall include the Editor of the KABT Newsletter, Editor of the KABT Journal, and the Administrative Secretary.**

Bylaws, Article II, Section 6, move (b.) to (c.) and insert a new (b.)

Article II, Section 6, b. of the Bylaws will read as follows:

b. The Editor of the KABT Journal, "The Kansas Biology Teacher", shall be responsible for all phases of publication and may appoint staff members to assist. In general, the Editor shall be obligated to implement the stated objectives of the KABT. The journal's purpose is to inform the members of new developments in science and to be of assistance to biology teachers. The Editor is responsible for reporting annually to the Executive Council.

#### **Request From KABT Board on POLICY**

This is the section KABT would like you to read. The entire policy which includes both the draft and the monograph follows. The KABT board members would appreciate your suggestions and observations so we can develop a policy that represents our members. NABT will, through its "News and Views" publication, soon ask members to comment on this **new** draft. Please take the time to write Pat Lamb with your opinion for KABT and give NABT your opinion. You can photocopy your letter and mail Pat the copy.

### **THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS' POLICY ON THE USE OF ANIMALS IN BIOLOGY EDUCATION**

The National Association of Biology Teachers (NABT) believes that the study of whole organisms, including non-human animals, is essential to understanding life on Earth. Furthermore, NABT believes that biology teachers should foster a respect for life and should teach about the interrelationship and interdependency of all things, and that they should teach that humans must care for the fragile web of life that exists on this planet.

Classroom experiences that involve non-human animals range from observation to dissection, and NABT supports these experiences so long as they are conducted within the long-established guidelines of proper care and use of animals, as developed by the scientific community.

As with any instructional activity, the use of non-human animals in the biology classroom must have sound educational objectives. Any use of animals, whether for observation or dissection, must convey substantive knowledge of biology, and NABT believes that biology teachers are in the best position to make this determination for their students.

NABT acknowledges that no alternative can substitute for the actual experience of dissection and urges teachers to be aware of the limitations of alternatives. NABT supports the use of alternatives to dissection such as models and videodiscs only if the teacher determines that the alternatives are the most effective means to meet the objectives of the class. The association encourages teachers to be sensitive to substantive student objections to dissection and to consider providing appropriate alternatives for those students.

NABT provides guidelines for the care of live animals in the classroom and for the use of live animals in classrooms and science fairs. These guidelines, which are consistent with the tenets of proper care and use of animals and reflect the consensus of the teaching and biomedical research communities, are elaborated in the NABT monograph [The Responsible Use of Animals in Biology Classrooms, including Alternatives to Dissection.](#)

### **NABT GUIDELINES FOR THE USE OF LIVE ANIMALS (Revised April 1991)**

Living things are the subject of biology, and their direct study is an appropriate and necessary part of biology teaching. Textbook instruction alone cannot provide students with a basic understanding of life and life processes. The National Association of Biology Teachers recognizes the importance of research in understanding

life processes and providing information on health, disease, medical care and agriculture.

The abuse of any living organism for experimentation or any other purpose is intolerable in any segment of society. Because biology deals specifically with living things, professional biology educators must be especially cognizant of their responsibility to prevent the inhumane treatment of living organisms in the name of science and research. This responsibility should extend beyond the confines of the teacher's classroom to the rest of the school and community.

The National Association of Biology Teachers believes that students learn the value of living things, and the values of science, by the events they witness in the classroom. The care and concern for animals should be a paramount consideration when live animals are used in the classroom. Such teaching activities should develop in students and teachers a sense of respect and pleasure in studying the wonders of living things. NABT is committed to providing sound biological education and promoting humane attitudes toward animals. These guidelines should be followed when live animals are used in the classroom:

- A. Biological experimentation should be consistent with a respect for life and all living things. Humane treatment and care of animals should be an integral part of any lesson that includes living animals.
- B. Exercises and experiments with living things should be within the capabilities of the students involved. The biology teacher should be guided by the following conditions:
  - 1. The lab activity should not cause the undue loss of a vertebrate's life. Bacteria, fungi, protozoans and invertebrates should be used in activities that may require use of harmful substances or loss of an organism's life. These activities should be clearly supported by an educational rationale and should not be used when alternatives are available.
  - 2. A student's refusal to participate in an activity (e.g., dissection or experiments involving live animals, particularly vertebrates) should be recognized and accommodated with alternative methods of learning. The teacher should work with the student to develop an alternative for obtaining the required knowledge or experience. The alternative activity should require the student to invest a comparable amount of time and effort.
- C. Vertebrate animals can be used as experimental organisms in the following situations:

- 1. Observations of normal living patterns of wild animals in their natural habitat or in zoological parks, gardens or aquaria.
  - 2. Observations of normal living functions such as feeding, growth, reproduction, activity cycles, etc.
  - 3. Observations of biological phenomenon among and between species such as communication, reproductive and life strategies behavior, interrelationships of organisms, etc.
- D. If live vertebrates are to be kept in the classroom the teacher should be aware of the following responsibilities:
- 1. The school, under the biology teacher's leadership, should develop a plan on the procurement and ultimate disposition of animals. Animals should not be captured from or released into the wild without the approval of both a responsible wildlife expert and a public health official. Domestic animals and "classroom pets" should be purchased from licensed animal suppliers. They should be healthy and free of diseases that can be transmitted to humans or to other animals.
  - 2. Animals should be provided with sufficient space for normal behavior and postural requirements. Their environment should be free from undue stress such as noise, overcrowding and disturbance caused by students.
  - 3. Appropriate care - including nutritious food, fresh water, clean housing, and adequate temperature and lighting for the species - should be provided daily, including weekends, holidays and long school vacations.
  - 4. Teachers should be aware of any student allergies to animals.
  - 5. Students and teachers should immediately report to the school health nurse all scratches, bites and other injuries, including allergies or illnesses.
  - 6. There should always be supervised care by a teacher competent in caring for animals.
- E. Animal studies should always be carried out under the direct supervision of a biology teacher competent in animal care procedures. It is the responsibility of the teacher to ensure that the student has the necessary comprehension for the

study. Students and teachers should comply with the following:

1. Students should not be allowed to perform surgery on living vertebrate animals. Hence, procedures requiring the administration of anesthesia and euthanasia should not be done in the classroom.
  2. Experimental procedures on vertebrates should not use pathogenic microorganisms, ionizing radiation, carcinogens, drugs or chemicals at toxic levels, drugs known to produce adverse or teratogenic effects, pain causing drugs, alcohol in any form, electric shock, exercise until exhaustion, or other distressing stimuli. No experimental procedures should be attempted that would subject vertebrate animals to pain or distinct discomfort, or interfere with their health in any way.
  3. Behavioral studies should use only positive reinforcement techniques.
  4. Egg embryos subjected to experimental manipulation should be destroyed 72 hours before normal hatching time.
  5. Exceptional original research in the biological or medical sciences involving live vertebrate animals should be carried out under the direct supervision of an animal scientist, e.g., an animal physiologist, or a veterinary or medical researcher, in an appropriate research facility. The research plan should be developed and approved by the animal scientist and reviewed by a humane society professional staff person prior to the start of the research. All professional standards of conduct should be applied as well as humane care and treatment, and concern for the safety of the animals involved in the project.
  6. Students should not be allowed to take animals home to carry out experimental studies.
- F. Science fair projects and displays should comply with the following:
1. The use of live animals in science fair projects shall be in accordance with the above guidelines. In addition, no live vertebrate animals shall be used in displays for science fair exhibitions.
  2. No animal or animal products from recognized endangered species should be kept and displayed.

## **PUBLISHING DATES FOR NEWSLETTER**

The newsletter is published on or near the first week of September, November, February and April. Manuscripts must reach the editor by the 15th day of the previous month if possible. 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 (913) 825-7742.

### **Newsletter & Journal Information Needed**

Articles are needed for the newsletter. Please forward them to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401, (913) 825-7742. Please help with the newsletter. The most helpful occurrence would be for all individuals sending information to the newsletter to send it via PSINet-KEMNET or on a disk. If you send it on a disk, any format is acceptable. ASCII text is easy for me to work with. Your help is appreciated. (MSDos, Mac, Apple - just send it!) Articles for the Kansas Biology Teacher should be sent to John Richard Schrock, editor KBT, Division of Biology, Box 50, Emporia State University, Emporia, KS 66801-5087.

### **Outstanding Biology Student Certificates**

These are available for students who you feel 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

### **Kansas Biology Teacher Is Off The Ground**

The forth issue of KABT's journal, The Kansas Biology Teacher is in your hands or will be soon. We hope you found its contents helpful and stimulating, just as the first two issues. While you examine its contents, think about what you can do to make the next issue even better. I'd suggest you plan to write your own contribution to the journal. Its purpose is to share ideas regarding the teaching of biology. We know you have many ideas the rest of us would like to know about.

Send your article(s) to John Richard Schrock, editor KBT, Division of Biology, Box 50, Emporia State University, Emporia, KS 66801-5087.

Cimarron National Grasslands Field Trip: Bob Rose is in charge and Stan Roth will lead this spring field trip. Bob is putting together a field trip booklet for participants. He will mail them to the first 15 or so that pre-register. Each booklet will have natural history checklists, maps, historical notes, and other tidbits pertinent to a field trip. Watch for pre-registration details in future newsletters. Contact Bob or Stan For Information

## Items For Thought

From Newsletter - Jim Morris T-Shirts

### NICE PEOPLE SEEM TO END UP DOING ORGANIC GARDENING

One friend used to run the Boulder Greenpeace office and then taught ecology to students. Now he's working in an organic garden. Another person did a bike across America to raise money for cancer research. He did this with his father, but he spent the summer, before going back to school, working in an organic farm. I'm not sure if working on an organic farm is a reward or maybe it's just a good thing to do, both rewarding and good hard direct work.

### ANTARCTIC

Good news: Countries have agreed to a 50 year moratorium on oil and gas exploration and mining for the Antarctic. This will help the fragile ecosystems there.

### WHO ARE GOOD PEOPLE?

Teachers, those who teach something they love and give confidence to students that the students can understand. Gardeners, organic farmers, people who do something well that benefits others or the environment. Birdwatchers, nature protectors. People who testify on behalf of wildlife and nature at hearings. People who make and share good food ... People who help injured wildlife. People who protect wildlife habitat. People who are kind, cheery, and upbeat. People who kid in a gentle way.

### THE DEMANDS OF LAWNS

Lawns require more care than any other way of vegetating your yards. Between the pesticides, fertilizers, mowing, thatching and everything else, you spend more money on a lawn than on any other kind of vegetation like roses and bushes. Anything else would be better. Kentucky blue grass is only needed for intensive use, things like soccer, volleyball, or badminton. The rest of the yard could be converted into plants that were good for wildlife and humans to eat. You could make it something that would help provide birds, bats, bugs and migrating animals with stuff to eat and places to live. The National Wildlife Federation (1400 16th St. N.W., Washington, DC 20036-2266, Phone: 202-797-6800) has info. on making your yard nice for wildlife. I think I remember that the largest use of pesticides and herbicides in the U.S. is for lawn maintenance, especially if you include the parks and schools. That's to say whether that includes things like golf courses and stuff. Well, anyway, people shouldn't be struggling to try to make enough money to take care of their lawns for some sort of status reason. This is a fertile field for research. (Source: Jono Miller)

### HOUSEHOLD POLLUTANTS

The top sources of pollution in household personal care and automotive products, ranked by the amount of

solvents and alcohol that they emit in hydrocarbons, are hair spray, windshield washer fluid, insecticides, air fresheners, perfumes and colognes, anti-perspirants and deodorants, general cleaners, engine degreasers, charcoal lighter fluid, furniture polish and floor polish, glass cleaners, laundry pre-wash and laundry starch, carburetor choke cleaners, adhesives, nail polish remover, oven cleaner, brake cleaner, aerosol cooking spray, hair mousse, dusting aids, bathroom cleaners, aerosol insect repellents, hair styling gels, shaving cream and fabric protectants.

Substitutes for insecticides include a mixture of two parts boric acid with one part flour for roaches and sweeping, vacuuming and beating carpets. Substitutes for general cleaning include vinegar and salt for surfaces and, for deodorizing surface cleaning, four tablespoons of baking soda and one quart of water. A glass cleaner can be made with one teaspoon of lemon juice or vinegar and one quart of water, and a bathroom cleaner disinfecting agent can be baking soda and water, or lemon juice or vinegar and water, or a half cup borax in a gallon of water (by Robert Service, Audubon Activist, April, 1992).

The hydrocarbons that come from solvents and alcohol in these products form ozone or urban smog.

### THE GASIFICATION OF THE LAND

Activities that used to just be done by hand in a person's own time are now done using gasoline and producing pollution, both of the air and of the quiet. An example is the blowers people use to blow grass and leaves off of streets and sidewalks. Instead of sweeping them off by hand, they're blown off, so people carry little gasoline motors on their backs and make an awful noise while blowing grass clippings away. Similarly, boaters on lakes used to be confined to medium sized boats and then hydroplanes. Well, now there are jet skis everywhere, zooming back and forth, driven by five year olds or people with the brains of two year olds. The Japanese companies manufacture the all terrain vehicles and motorcycles that are sold to people to go into the wilderness. They also make jet skies. Both of these limit where wildlife can find peace and quiet. However, maybe wildlife doesn't need that much peace and quiet. Wildlife seems to be doing OK. at the bombing site 10 miles off of Martha's Vineyard, although it won't mind not being bombed.

### RAINFORESTS

Costa Ricans have set up a park to protect their rainforest. They are getting income from the Merck Drug Company for drugs derived from their rainforest. They're teaching local people that their water comes from the rainforests. They are taking local children and adults into the rainforests.

The World Bank stopped plans to fund a \$50 million logging road into the rainforest homes of natives

of Malaysia on Borneo after letters and pressure from activists. 400 Penan natives have set up small blockades of logging roads.

2,500 acres of Penan homeland are destroyed each day by Malaysian logging operation (from In Context, No. 29). There are only 35 nomadic Penan families still living in the Borneo rainforest.

Please write to Dixon Ticonderoga pencils, 2600 Maitland Center Parkway, Suite 200, Maitland, FL 32751. Gino M. Paula is the president. Ask him to not use jelutong for pencils, which is a tropical hardwood. It's often harvested illegally. Jelutong is used sustainably by local people who tap it for latex use. Jelutong comes from rainforests from Indonesia and Malaysia (from Rainforest Action Network).

### **VIRUSES AND OTHER DISEASES COME FROM THE TROPICS AFTER WE DESTROY THE RAINFORESTS**

In the New Yorker's article, "Crisis in the Hot Zone", on page 62 in the October 26, 1992 issue, they describe how many diseases seem to be coming from the viruses and bacteria that live in the rainforest, normally, as parasites or symbiots of animals that live in the rainforest. When the rainforest is cut down, the animals disappear and the viruses and bacteria look for new hosts, such as humans. It's a fascinating article. It's like a thriller, as they describe the attempts to stop epidemics of new viruses.

### **FOREST SERVICE CLEARCUTS LAST OLD GROWTH FORESTS**

The Forest Service can't count money. They've been losing over half a billion dollars a year, giving away our forests to multinational corporations. When an employee of the Forest Service protests these giveaways, they are persecuted. U.S. Forester Mumma was ousted. He refused to meet high quotas of boardfeet cut, saying that to meet the logging quotas he would have to violate environmental laws protecting other values of the forests including wildlife and water quality. Interior Committee Chairperson Miller's hearing uncovered that the Forest Service has been counting many phantom forests, trying to show that there are lots of forests left. The forest in western Montana and northern Idaho is counted as mature timber, even though 75% of it is barren and clearcut. Also, for every mile of road on the U.S. interstate highway system, there are ten miles of logging roads in the U.S. National Forests.

Boise Cascade and the U.S. Forest Service are poised to cut old growth trees in the Kangaroo roadless area in the Siskiyou's in Oregon.

### **EVERGLADES**

Mercury levels are increasing in the Florida Everglades. Greenpeace earlier thought it was coming from incinerating waste, which sometimes contains batteries. In the last two to five years, the mercury level

has gone up from 20% to 300% (from Colorado Daily, 7-21-92, p.2).

### **LOSING TOPSOIL**

Over \$3 billion acres of farmland have been damaged since the end of World War II. Every year there are 24 billion tons less topsoil left, and we're trying to feed 92 million more people. The U.N. survey on soil found that 22 million acres of land can no longer support vegetation. Another 740 million acres need restoration. That's expensive. Another 2.3 billion acres require very expensive reclamation, such as installing drainage ditches. 35% of the topsoil loss is due to livestock overgrazing. The animals also compact soil, reducing its ability to retain moisture. 30% of the soil damage is from deforestation. 28% of the soil damage is from harmful farming practices such as over fertilization or ignoring fallow periods. Villages are now abandoned because the topsoil has washed away. In the U.S., 25% of the crop lands are eroding faster than they can be preserved (Science News, April 4, 1992), Science Service, 1719 N St. NW, Washington, DC 20036. A subscription is \$39.50 per year).

### **BEEF TAKES WATER**

Irrigation takes 82% of all fresh water in the 17 Western states. Most water is used to grow crops to feed cattle and sheep. In California, 74% of water is used for this. Boycott beef and stop cattle and sheep from trashing our public lands and sucking up all the water, either directly or for feed crops for them. Ask Congress to stop the overgrazing of public lands. Our tax dollars pay for the dams and irrigation canals. Some of our national wildlife refuges have dried up totally, as the water is used up by cattle and sheep. Salmon, trout, and grailing cranes and ducks suffer. Fish, wildlife, plants, recreational users and rivers have rights to the water. Rivers have a right to exist and flow unimpeded (from Forest Voice, reprinted in Earth First!).

### **PCBs HARM HUMANS, WHALES, SEALS, DOLPHINS AND BIRDS**

PCBs have effects like dioxins. They interfere with reproduction and growth, damage immune systems and cause cancer. Most of the PCBs are still in use in transformers and capacitors. Other PCBs have been sent to landfills. Both of these need to be contained so that PCBs do not go into the general environment. Around 370,000 tons have already escaped into the general environment, where they bio-accumulate in animals. Fish-eating birds and mammals (dolphins, seals, sea lions and some whales) can't metabolize them, so they build up more rapidly. Monsanto produced PCBs and Westinghouse used them. We need to find a way to keep PCBs out of the environment. We should find a way for Monsanto and Westinghouse to pay for cleaning them up (from Rachel's Hazardous Waste News, 7-22-92, published by Environmental Research Foundation, P.O.

Box 73700, Washington, DC 20056-3700, \$40 a year, weekly).

One third of women will get breast cancer and there's a 50% to 60% increase of PCBs in cancerous breast tissue. Since 1973 through November 28, 1991, there's been a 50% increase in prostate cancer.

### **TIGERS**

Only 7,000 tigers are left. They're killed for Chinese medicine.

### **BEAR REINTRODUCTION IN THE NORTH CASCADES**

The Greater Ecosystem Alliance is planning to help reintroduce bears to the North Cascades. They're developing a brochure to distribute to hiking groups, making up a workbook that will show how to do environmental assessments on proposed logging sales and how to monitor and challenge grazing plans. They'll have a conference and a visit from bear expert Doug Peacock. Please send them money. Their address: Greater Ecosystem Alliance, Suite 316, 1155 N. State St., Bellingham, WA 98225.

### **HOW TO PREVENT GLOBAL WARMING**

The way to prevent global warming is to pass a law requiring more efficient autos. More efficient cars will save us oil and lots of money, prevent us from having to get oil from other countries, and it would also prevent hundreds of millions of tons of carbon dioxide from going into the atmosphere, where it could contribute to global warming. The biggest step we can take to saving oil and curbing global warming is to get a law passed that requires higher miles per gallon in cars. Ralph Nader says we can do this safely, that lighter weight cars can be safe, just by designing them with more safety features. A goal would be to have cars that, on the average, get 40 to 45 miles per gallon.

Good news: Amsterdam banned cars.

Other ways to reduce global warming include laws to improve lighting efficiency, laws to improve appliance efficiency, federal actions for more industrial efficiency, actions for renewable energy, federal conservation, reserve forestry program, more tree planting, tax credits for renewable energy, taxing pollution, rather than using taxes as a way to generate income off of gas and oil taxes, and energy management for building and transportation by the federal government, which is the nation's largest energy consumer. Support for energy efficiency and renewable energy R & D would be great too. Senator Paul Wellstone is introducing a new energy bill, S. 2020, for the new Congress.

### **ENERGY EFFICIENCY**

The U.S. could reduce its energy consumption by 30% to 75%. Compact fluorescent light bulbs use 90% less energy. Buildings and homes can double with their

energy efficiency. Automobiles can get 60 miles per gallon or use natural gas, hydrogen or electricity (from Scientific American, September 1990). We could reduce our heating, lighting, ventilating and air conditioning. Industry could have adjustable speed drives and high efficiency motors.

### **STATE GOVERNMENTS CAN SUE THE FEDERAL GOVERNMENT OVER POLLUTION**

A new law has passed Congress that will give state governments the right to enforce environmental laws against the federal government (from Sierra Club National News Report, October 9, 1992).

### **SUPREME COURT ECHOES RULING THAT WARNINGS DON'T PREVENT SUING**

Earlier, the Supreme Court ruled that people could sue cigarette companies under state liability laws, even though there were warnings on cigarette packages. Now, they've ruled that similar warnings on pesticides do not keep people from suing pesticide makers for dangerous pesticides (from Wall Street Journal, 7-17-92, p. B-6).

### **WASTE MANAGEMENT INDICATED ON FRAUD CHARGES**

It appears that Waste Management took some trash from other cities and dumped it at a dump where they billed it to San Jose. Waste Management paid penalties of \$5.4 million in 1990 and \$8.1 million in 1991 (from Wall Street Journal, 7-17-92, p. B-6).

### **CANCER AT SCHOOLS NEAR HIGH TENSION LINES**

The December 7, 1992 New Yorker has a great article on electromagnetic fields from high power electric lines within a few hundred feet of schools and how they may cause clusters of cancers in school children and teachers. It shows the utilities, state health department, and school bureaucracies trying to minimize any investigation into connection between the cancers and the high tension high power lines.

### **GENETIC ENGINEERING TO INCREASE PESTICIDE SALES**

Monsanto is researching different types of crops that can withstand its Roundup pesticide. They're hoping to increase their sales by \$150 million a year. 26 other corporations are doing similar research on developing crops resistant to pesticides. Our Dept. of Agriculture has spent over \$10 million on this also. This is a bad idea because most pesticides are bad, killing people, wildlife, and many of the small bacteria and insects that are necessary to healthy soil. Bio-technology may concentrate the ownership of the world's foods and plants into the major corporations. It also increases the dependence on high-polluting and high-energy use agriculture that uses fertilizers and pesticides while increasing soil erosion and polluting the groundwater. It benefits large corporations and discriminates against small farmers. The giant chemical companies and the

researchers into genetic engineering seem to care about giant farming companies, not about family farms. Wendell Berry wrote, "Sustainable agriculture is agriculture that does not deplete soils or people". The article points out that chemical inputs and bioengineering may continue to give control of agriculture to large corporations. Atrazine is found in groundwater and 2-4-D has been shown to cause non-Hodgkin's lymphoma in farmers. Some of the inert ingredients in glyphosate or Roundup are toxic to fish and other organisms. Farmers now spend \$20 billion a year on oil-based fertilizers. The chemical companies are not researching plants that will fix their own nitrogen. Instead, they are working on these pesticide-resistant plants.

Using grass instead of corn to feed cattle might reduce soil erosion. Some grasses could be used to produce fuels. The goal should be healthy food, healthy local communities and a healthy environment (from "Mean Green", Buzzworm, February, 1992, p.33 (\$21 for annual subscription, Phone: 800-825-0061). For more information, contact Bio-technology Working Group, c/o Rebecca Goldberg, Environmental Defense Fund, 2571 Park Ave. S., NY, NY 10010, Phone: 212-505-2100 and Center for Rural Affairs, P.O. Box 406, Walt Hill, NE 68067, Phone: 402-846-5428.

Other people say that we need to name things properly in order to view them properly. Our opponents play at this game well, with Reagan having the MX Missile the "peacekeeper".

### **TOBACCO INDUSTRY VERSUS THE EPA OVER SECOND HAND SMOKE**

The Tobacco Institute is challenging the 30 studies on non-smoking women whose husbands smoked. The Tobacco Institute is opposing the studies, claiming that there's not enough evidence to show lung cancers and respiratory problems are caused by second hand smoke. The EPA is claiming that second hand smoke is a powerful carcinogen and worsens asthma in children (from Rocky Mountain News, July 22, 1992).

There are several good articles in the January/February Multinational Monitor: "Tobacco Imperialism", "China's Tobacco Wars", "Addicting the Young: Tobacco Pushers and Kids", "The Tobacco Lobby", "Fighting for Smoke-Free Skies", "The Marlboro Man Goes East", "Targeting Corporations: Canada's Anti-Smoking Program", "Tobacco Buster" and "RJR Nabisco: Transnational Tobacco Trafficker". For a copy contact Multinational Monitor, Essential Information, Inc., 1530 P St., NW, Washington, DC 20005.

### **ORGANIZING**

Maybe one way of organizing a group is to imitate the plan used by the people who designed the human-powered airplane that first flew across the English Channel. They met every week (stood in a circle to keep

the meetings shorter), spoke in turn, one after another, going around the circle, and each agreed to do something by the next meeting to help. Maybe this method would work for trying to save the salmon. Instead of having lots of groups trying to pretend to save the salmon but really protect their own interests, such as continued electrical power generation, maybe they could actually do something.

## TROPICAL RAINFOREST

The Nature Conservancy International Program  
1815 N. Lynn Street  
Arlington, VA 22209  
1-800-628-6860

### THERE'S ONE SIMPLE THING YOU CAN DO TO SAVE THE RAINFOREST...

You know that the world's rainforests and the wondrous diversity of life they support are in peril. Rainforests the size of football fields are axed for timber, burned for cultivation, or clear cut for cattle grazing ... every second of every day.

You also know that finding a way for one person to make a difference for the rainforest can be difficult. But you may not know that ...

Through the Nature Conservancy's Adopt An Acre program, you can get personally involved. It gives you the chance to play a direct role in saving critical rainforest land--and everything that lives on it.

For \$35 you can protect one acre of rainforest. When you adopt acres, you enable The Nature Conservancy to work side by side with local conservation groups in Latin America to protect your acres by:

- buying land
- hiring, training, and equipping forest rangers
- building ranger stations and other conservation facilities
- supporting environmental education programs for local people
- developing environmentally sound uses for rainforest lands

This is the approach The Nature Conservancy and local conservation partners have used successfully to help protect 35 million acres of tropical habitat throughout Latin America--home to millions of plant and animal species.

But the rainforests are falling faster now. Our ability to keep up with the ax, torch, and the bulldozer depends on you--and your willingness to get involved.

Once you adopt your acre(s) of rainforest, you will receive an honorary land deed from The Nature

Conservancy specifying the location of your adopted acreage and the name of the local conservation authority.

You'll also receive regular "Reports From the Field," letters from local land managers keeping you informed about the management activities affecting your adopted acreage--the very conservation activities you've made possible.

Although you won't personally own the rainforest land you've adopted, you will directly provide for its protection. Your commitment represents a critical investment in the health of the global environment--an investment in the future.

Whether you adopt one acre or a dozen, you'll have the satisfaction of knowing that when it mattered most, you took action.

I want to take direct action to protect rainforest and all the plants and animals that live in them.

I will adopt:

1 acre of threatened rainforest - \$35

2 acres of threatened rainforest - \$70

4 acres of threatened rainforest - \$140

10 acres of threatened rainforest - \$350

\_\_\_\_\_ acres of rainforest at \$35/acre

(Please add \$2.50 per deed for shipping & handling)

My tax deductible check is enclosed for

\$ \_\_\_\_\_

Visa                      MasterCard

American Express    Circle ONE

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Send my deed to:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_

Return form with credit card information or check payable to:

The Nature Conservancy

1815 N. Lynn Street

Arlington, Virginia 22209

Gifts of adopted rainforest acres are available.

Gift from \_\_\_\_\_

Address \_\_\_\_\_

To order by phone, CALL TOLL-FREE 1-800-628-6860

The Nature Conservancy is an international, non-profit environmental organization committed to the protection of biodiversity. Since 1951, the Conservancy has helped to protect millions of acres of important ecosystems and habitats in the United States, Latin American, the Caribbean, and the Pacific Islands.

January 25, 1993

Science Department  
Goddard High School  
Goddard Kansas 67052

Dear Colleague:

The National Association of Biology Teachers, in conjunction with Prentice Hall, annually sponsor a program whose aim is to locate and identify an outstanding biology teacher from each state, Canada and Puerto Rico. The winner of this prestigious award will be presented a framed certificate and a pair of world class binoculars. An awards luncheon will also be held to honor these teachers at the National Association of Biology Teachers Convention.

If you know of a biology teacher or life science teacher who, in your opinion, is doing an excellent job, won't you please take the time to nominate him/her? Self nominations are also welcome. The teacher need not be a member of NABT or any other organization to win. The overriding criteria are excellence in biology or life science teaching and teaching more than 50% of the regular school day in those areas.

Responses will need to be made shortly, with the deadline for submitting nomination materials March 15, 1990. Please feel free to pass this along to another person who may also be aware of an excellent teacher. There are many outstanding biology teachers in Kansas that are deserving of this award.

Please send the name and address of your nominee(s) to the above address.

Sincerely,  
Barry Schartz  
Kansas OBTA Director

### WHY BICYCLE ?

Something happens on a long ride as you near the apex of your loop. It's akin to what astronauts must experience when they leave the atmosphere of Earth. You're cut free from concerns you left behind and you become a mere satellite, a roving dot, a noiseless trajectory that exists simply to keep on

moving. You're out there--if you run into rain or wind or bugs, they hit you, not the windshield--and you're self-sufficient, with food, water, warmth, and tools all within arm's reach. One difference from the space program is that, rather than entering into orbit and proceeding passively by force of magnetism, you rely solely upon your own energy. But that's the glory of it! As the journey continues and you faithfully follow the route you've mapped, watching the hawks, the willows, and the clouds, standing on your pedals to attack each oncoming hill, then settling back into the saddle to carry on

with the ride, you acquire the aspect of some rolling wanderer--a pilgrim whose truth consists of strong legs, engrossing sights, and involvement with the elements. And when it's over, and you return home and get something to drink and soak your taxed limbs, you still retain the glow that arises not only from the exertion, and the elation, but the knowledge that you did it by yourself.

Bianchi USA, Inc.

"Common sense isn't so common."

Voltaire

"Success is going from failure to failure without the loss of enthusiasm." Winston Churchill

## Kansas State Science Outcomes

Betty Holderread & Craig Shove

What impact will the Kansas State Science outcomes and upcoming assessment have on district curriculum planning and science instruction in the classroom? Betty Holderread and Craig Shove will be addressing this question on Tuesday, March 2, 1993.

### Agenda For The Day

- |             |   |
|-------------|---|
| 8:30-10:00  | In this overview session "Change" will be the topic. Betty and Craig will explore the reasons for major changes in education, targeting the field of science. They will discuss the pace at which change is occurring and the challenge of implementing lasting, meaningful change in our districts and classrooms. |
| 10:15-10:45 | Breakout Sessions: K-2, 3-5, 6-8, and Secondary<br>These sessions will focus on the grade levels which have been identified by the state as "benchmarks." Discussion about necessary science instruction leading to those benchmarks will be held.  |
| 10:45-11:30 | Large Group Question and Answer Session   |
| 11:30-12:45 | Lunch   |
| 12:45-2:00  | A General session addressing performance-based science assessment and specifics of the Kansas State Assessment will begin the afternoon.  |
| 2:00-3:00   | Breakout Sessions: Elementary and Secondary<br>The afternoon breakout sessions will discuss integration of local science outcomes and state outcomes. Science outcomes of relevant significance to students will be the focus of the discussion.  |

Date: Tuesday, March 2, 1993

Time: 8:30am - 3:00pm

Location: ESSDACK Office, 1600 N. Lorraine - Suite #210, Hutching, Kansas

Cost:	ESSDACK participating in Math/Science	\$10.00
	ESSDACK not participating in Math/Science	\$45.00
	Non ESSDACK	\$90.00
PDC Credit:	5 points	
Target Audience:	Science Educators and Administrators	
Registration Deadline:	Friday, February 19, 1993 (An early deadline in order that outcome documents can be sent to the participants before the workshop date.)	

Registration Information Requested

Name: \_\_\_\_\_ Position: \_\_\_\_\_ Building: \_\_\_\_\_ District: \_\_\_\_\_

Registration Deadline is Friday, February, 19, 1993. (\$5.00 Late Fee)

Make Checks Payable to ESSDACK

Mail to:       ESSDACK/INT #622  
                  1600 N. Lorraine - Suite #210  
                  Hutchinson, KS 67501  
                  (316) 663-9566  
                  FAX (316) 663-5734

Betty Holderread is the Elementary Science Coordinator for the Newton Public Schools. Her science program has been recognized by the National Science Teachers Association as an Exemplar of Excellence. Betty is a frequent ESSDACK presenter and a member of the Science Curriculum Outcomes Writing Team.

Craig Shove is the Outcomes Education Team Leader with the Kansas State Board of Education in Topeka. He is the project leader of the Science Outcomes Writing Team.



K. A. B. T. Calendar of Events

Date	Event
March 2, 1993, Tuesday .....	ESSDACK State Outcomes Meeting - Hutchinson
April 1-4, 1993 .....	NSTA National Convention - Kansas City
May 30-31, 1993 Saturday - Sunday .....	KABT Spring Field Trip - Cimarron National Grasslands
Contact Bob Rose For Information Concerning This Field Trip	
September 18, 1993, Saturday .....	Fall Meeting - Main Topic Ecology - Salina
November 17-21, 1993.....	NABT National Convention - Boston

Please Send Dates and Information to:  
John Wachholz, 2311 Applewood Lane, Salina, KS 67401

KABT Membership Application - Renewal - Form

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_ Zip: \_\_\_\_\_

School/Institution: \_\_\_\_\_

Position: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_ Zip: \_\_\_\_\_

Phone: Work (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_ Home: (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_

Enclosed Dues For KABT.\$10.00 / Year \_\_\_\_\_

Life Membership Available For \$200

Yearly Due Date is September 1st.

Make Check Payable To KABT -- Tax ID #: 48-0945206

Date Sent: \_\_\_\_\_ Check #: \_\_\_\_\_ Date Received: \_\_\_\_\_

Remit total to:

Kansas Association of Biology Teachers

John Wachholz, Treasurer

2311 Applewood Lane

