NEWSLETTER

Kansas Association of Biology Teachers

Volume 38 Number 2 - April 1997

Calendar & Activities

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

Date	Event
April 25-27, 1997	KATS Kamp - Rock Springs 4H Ranch
April 25-27, 1997	KS Ornithological Society - Spring Meeting - KSU , Manhattan
May 10, 1997	KABT Spring Field Trip Meeting - Northern Red Hills - Belvidere
Fall '97	KABT Fall Meeting - Fort Hays State University
October 3-5, 1997	Fall KOS Meeting, Great Plains Nature Center in Wichita
October 8-11, 1997	NABT National Convention - Minneapolis MN
May 9, 1998	Spring Meeting & Field Trip - Kanopolis Reservoir Area
Summer 1998 Tentative	Picket Wire Canyon Trip - SE Colorado
September 19, 1998 Tentative	KABT Fall Meeting - Wichita

REMEMBER: Spring Field Trip Departs 8:15 AM, May 10th, From Belvidere, Kansas. Read the info in this newsletter for details. Contact person is Stan Roth.

Brad Williamson who teaches at Olathe East High School is our regional representative to NABT. Contact Brad via Fax at (913) 780-7137.

Your membership **expiration date** can be found on your mailing label. All dues are now payable on September 1st of each year. If an envelope was enclosed with your newsletter your membership has expired. Please use the envelope to mail your dues and the other information requested. A registration form appears on the last page of this newsletter.

Check Out The
KABT Web Site
http://www.midkan.com/kabt
Send comments to:

Printed On Recycled Paper

Publishing Dates For Newsletter

The newsletter is published during the months of September, November, February and April. Manuscripts must reach the editor by the 15th day of the previous month. The KABT Newsletter includes abbreviated minutes of the official meetings, announcements of future activities, brief news notes, and other brief items of interest to biology teachers. Send your contributions to John Wachholz, Editor, 2311 Applewood Lane, Salina, KS 67401 (913) 825-7742. You may send you information for the newsletter to jwachholz@midkan.com.

Newsletter & Journal Information Needed

Articles are needed for the newsletter. Please help with the newsletter. The most helpful occurrence would be for all individuals to send information to the newsletter. Send it via internet to jwachholz@midkan.com or on a disk. If you send it on a disk, any format is acceptable. Your help is appreciated. (PC, 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. Keep your dues up to date so you will continue to receive the Kansas Biology Teacher.

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 67401-3707.

Please use these certificates as valuable awards for outstanding students.

NABT Contact Information

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

Phones: 703-471-1134; 800-406-0775

Fax: 703-435-5582

E-mail: NABTer@aol.com

KABT Web Site

Well thanks to the KABT board and a little work on my part we now have a web site. the address is:

http://www.midkan.com/kabt

You will have access to the following areas or topics when you access the site.

1. Biology Links
2. Biology Quotes
3. Board of Directors
4. Current Article
5. Current Lab Activity
6. Event Calendar
7. e-mail KABT
8. Field Trip
9. National Association of Biology Teachers
10. Newsletter
11. State Representatives & Regions

Biology Links will allow you to access interesting biology sites fast. This will be updated regularly so please send me sites that you know of so they can be added.

Biology Quotes is a listing of famous quotes that relate to biology. If enough members or individuals send in new ones I will categorize them in the future.

The Board of Directions is just a listing of the board members. Their e-mail address, if they have one plus school name and address are included.

Under the Current Article area I will list current topics or articles that relate to biology education or instruction. These will be updated regularly and you will also be able to access the older articles. Currently I have a suggested reading list of books for AP biology students.

Current Lab Activity will be updated regularly. This will have a lab activity that is tested. Access will be available for both current and past labs.

The Event Calendar will be an update for KABT activities. Currently I have the information for our spring field trip with a map showing exactly where Belvidere, Kansas is located. You will also find all the material concerning the field trip in this newsletter located in this area.

Punch e-mail KABT and you can send me a message, materials for the newsletter, a biology quote, lab activity, biology article or tell me how to improve the site.

Clicking on the Field Trip will highlight our next field trip activity directly without traveling via the event calendar.

National Association of Biology Teachers is a direct link to NABT. Click it and check out the NABT site.

The Newsletter area will have some of the most important articles (past and current) from each newsletter so these can be downloaded for your use.

And finally, the State Representatives - Regions is just a listing of the regions, the counties in each region, the regional directors and eventually a map

showing the various regions.

Well, enough about the site. Load up Netscape and type in the address and let me hear both positive and negative comments.

John Wachholz, Web Master - KABT

Candidates Needed For Directors At Large

Two openings exist on the KABT executive board. They are directors at large. If you are interested in serving please contact Terry Callender.

Stan Roth, Meeting coordinator, Lawrence High School, 1901 Louisiana St., Lawrence, KS 66046-2938. (913) 832-5050 ext 252 or FAX (913) 832-5054. email: jroth@falcon.cc.ukans.edu.

SPRING FIELD TRIP - May 10, 1997

There is potable water and pit toilets along with adequate flat ground for tents and campers.

Plans for the day will begin with a look at the upper Thompson Creek wetland to find Arkansas Darters (bring aquatic-dip nets) and wee beaver dam communities. We will proceed through the mixed grassland pasture areas to study the Cretaceous upthrust through the surrounding Permian rocks. The Champion shell bed will have collectable fossils. We will tour the area of Cheyenne Sandstone outcrop south of Belvidere and hike the deep ravines. Lunch time will happen around this period so plan to have this available. We will divide into two groups and one will tour Hells-Half-Acre in northeast Comanche County and the other group will travel to Triple Arch cave in Barber County.

Ken Brunson from the Pratt office of Wildlife and Parks is planning to conduct his annual herp count at the time of our meeting and has agreed to assist us. We can also assist him as we conduct our meeting.

For those that might stay Saturday evening, this part of Kansas can be very productive for hearing and seeing nocturnal ecology via road cruising pursuits. We could get out a bit on Sunday the 11th before heading back home.

One last thing. We will travel between study areas via car pooling. If you can bring a CB radio for your vehicle, we will monitor and share via channel #4.

- Bring Your Own Provisions
- Private Land - No one goes back later - respect.
- Bring Flashlights
- It is Mothers Day Week-end.
- Final Info in April Newsletter

Stan Roth, Meeting coordinator, Lawrence High School, 1901 Louisiana St., Lawrence, KS 66046-2938. (913) 832-5050 ext 252 or FAX (913) 832-5054. email: jroth@falcon.cc.ukans.edu.

The Natural History Possibilities of Belvidere, Kansas, and Vicinity.

By C. N. Gould

From: Transactions of the Kansas Academy of Science vol. XVI, 1897-1898

To the student of natural history there is no more interesting locality than the country surrounding Belvidere. Nestled among the low, rounded hills of the upper Medicine valley, the little village is indeed picturesque. The gentle slopes covered with cattle, the broad, fertile valley, the rushing stream, clear with the sparkling water from the hills, the clumps of elms and cottonwoods fringing its banks; and over all the grim old sentinel, Osage rock, standing eternal as the hill of which it forms a part, all combine to render the scene unforgotten.

Here have the great men of Kansas science labored. Professor St. John, Robert Hay, Colonel Goss, and others who have gone to complete their investigations in the great unknown have here spent weeks in research. Chancellor Snow found meteorites here. Professor Cragin traveled over these hills and wrote his famous paper “A Study of the Belvidere Beds.” Professor hill came from Washington, Professor Prosser from New York, and Professor Ward from the Smithsonian Institution. Each of these testifies to the wealth of material to be found in the vicinity. Doctor Williston has here found bones of extinct reptiles. Professors Hitchcock and Failyer came here from Manhattan; one to collect rare plants, the other to analyze water from the medicinal springs of the Indians.

The problematic Red Beds are well developed a few miles down the river. Upon these the Comanche Cretaceous lies unconformably. This apparently grades upward through a series of transition beds into the true leaf-bearing Dakota sandstone, which in turn is covered with the Loup Fork Tertiary and Pleistocene. In the line of paleontology few localities yield a greater diversity of fossils. Professor Hill, in 1894, first found dicotyledonous leaves in the Cheyenne sandstone, Professor Ward, in his two summers in the field, has discovered scores of species; Professors Cragin and Hill have collected numerous invertebrates from the Kiowa shales. Doctor Williston finds saurian, crocodile, and fish bones in this horizon. Insects have also been found in the shales. On the hills and in the Medicine valley bones of Pleistocene mammals are to be found.

The botany is excellent. Professor Ward has found

the Texas mesquite on the hills and the soapberry on the creeks. The ornithologist will be interested in such birds as the Mississippi kite and the scissor-tail flycatcher; and the entomologist will here find insects galore.

On the Osage rock are pictographs left by the Indians, and on the canon walls in the vicinity may be found records engraven of deeds of daring and bravery. Old settlers will tell of implements and traces of dwellings found along the creeks and in the ravines, and over all the mystic traditions of Indian battles and cavalry raids.

The work of a lifetime lies within the hills surrounding the valley. Much has been done, but more remains to be done. Fortunate will he be who in this region devotes himself to the task of learning nature's secrets.

This article represents the 100 year anniversary of it's publication.

Stan Roth, May 1997

Harry McDonald III - Outstanding Biology Teacher - 1996

Harry McDonald was presented with the 1996 Outstanding Biology Teacher Award by the National Association of Biology Teachers. Harry McDonald is a biology teacher at Blue Valley High School in Stilwell, KS. He received both his B.S. and M.S. degrees from Kansas State University. He has been teaching in Kansas Since 1970, with a two year break for service in the U.S. Army. Harry has continued his education through I course-work at various universities studying curriculum I & instruction, technology for classrooms and biology.

Harry has always been committed to providing a quality education for his students. McDonald says "I am committed to hands-on science." He sees a need to develop a better understanding in his students for how science works and not just memorization of facts. "I need to help them deal with the ever increasing volume I of our knowledge and with the 'impermanence' of various traditional 'facts'. This is what science literacy really means."

Harry has never let inexperience stop him. Harry I tells students, " You don't have to know how to do ! something, just decide what you want to do and we will figure out how to do it." "Mr. McDonald gets his ' students to master the art of critical thinking," ! commented one former student. Harry also serves as the students guide to ensure that they stay on the right path. Colleagues say that Harry listens with compassion and understanding. to students.

Harry is the sponsor of the Environmental Club and has encouraged student participation in a variety of T activities and competitions. The group is responsible for the school's recycling program for aluminum and paper. Harry has also been instrumental in curriculum changes which incorporate Honors Biology students into the regular Biology class. Harry had a hand in developing and promoting "Biology Night", an opportunity for all biology students to share accomplishments and projects with parents and community.

A colleague said, "Harry is a good role model for his students. Being a person of action, an excellent teacher and highly motivated are attributes that make Harry McDonald a truly outstanding teacher."

Field Experiences in Kansas Biology

A solid foundation of field and laboratory experiences is an essential element of a biology curriculum that seems to be underrepresented in many programs. Allowing students the opportunity to experience the world around them first hand is an invaluable experience.

Having grown up in a suburban area, and now having the opportunity to teach in a suburban area, I am quite aware of the lack of quality time in the outdoors that many of our students have today. There is much to see just outside our back door that many of our students don't even know exists. Too often, students, and the public in general for that matter, tend to think about biodiversity in terms of the rainforest and other exotic locales rather than what they see on their trip to school every day. As a biology teacher, I feel that one of the most important things that I can do for my students is to expose them to the great diversity of life, right here in the heartland.

I think that my biology classes and I have found a way to fight the end of the freshman year blues. Our final few weeks will be spent covering very much the same curriculum we normally would, but with a slight twist that will allow us to explore the diversity of life while spending some time this spring in the land surrounding our school.

After an introduction to classification, and organization of living things, my students will begin a project based intensive study of our local surroundings. We start our study of biodiversity with a fantastic lab that was given to me by Brad Williamson at Olathe East High School. The lab illustrates the species area curve, and allows students to see the relationship between the amount of land available and the number of species that can survive in a given area. Each of my five biology classes sets up a plot on the school lawn. The main

thing to take into consideration is that the plot must not be weed free; the greater diversity the better. I like this lab so much because it forces the students to see just how many different organisms there are in something as seemingly ordinary as their back yard. It also is a great introduction to our study because students do not have to be able to make identifications of the plants. They assign made up names for the plants, which works very well as long as the students keep things consistent. We save the true identification and name game for later.

The bulk of the remainder of our study will be done individually by students with them making many of the decisions on their field work. In the Lawrence area, and near our school in particular, we are blessed with a wide variety of different habitats for exploration. Within walking distance of the school, we have a 2 acre pond, a small deciduous woodland plot, a 10 acre plot recently reseeded with prairie grasses, and the Wakarusa river. Within a very short drive, my students also have ready access to Clinton Lake Reservoir, and the Baker Wetlands. With this kind of diversity in such a close proximity to school, coming up with projects was not difficult.

My requirements are fairly broad, but with some guidelines to keep the students focused on the task at hand. There are three major parts to the project with some flex in each part; and a research component that will be added to one of the parts at the student's discretion. All of the parts of this project are kept in a detailed field/lab notebook, and will be added to on a daily basis. Because this project involves the collection of organisms, or parts of organisms (leaves), there is of course a discussion on the proper way to collect, and the need to take only what is needed, and to leave any species that may be endangered or in need of conservation. The 3 parts of the lab are as follows.

Part 1: Bird observation

This is a great lab that was given to me by Sandi Collins at Lawrence West Junior High, and involves students making bird observations in a minimum of three different habitats. Students have observation sessions of 30 minutes each, and have a minimum number of species to be observed and identified. The species observed will depend upon the habitat, and students are responsible for recording any behavior, number of birds of each species, and any environmental information (weather, vegetation, etc...). Students will cross reference all observed birds with field manuals, and report any findings that might be pertinent to their observations.

Part 2: Insect Collection

In this portion of the field work, students collect a minimum of 30 insects, from a minimum of 9 different orders. the collection can be done in a variety of manners. The most obvious way to do an insect collection is to collect and mount the individual specimens. Students have the choice to collect live and make sketches, or photographs of the insects. In conjunction with our student's study of the wetlands, we have a local entomologist come in and teach the students bout the various stages of aquatic insects, and to help with the identification of collected specimens.

Part 3: Plant Collection

Students make pressed leaf collections of Kansas tree species, as well as Kansas weeds, and wildflowers. When possible, students collect the entire plant for preservation. As with the other portions of this project, students make many of the choices regarding their individual plant interests, but there are guidelines to assure that students have the opportunity to see the diversity of the plant kingdom found in our area.

Research:

Students conduct individual research projects that they have a design that can be conducted in the field with one of the portions of the project outlined above. Students will be responsible for submitting a research proposal, conducting the research and submitting a final report. Possible research could include things like food preference studies, stomatal density of various tree species, variance in stomatal density in correlation to the distance from water, and insect behavior; the possibilities are endless.

This project requires some organization on the teacher's part, as well as the student's part. Because much of this is new material and new experiences for my students, there is a need for time in the classroom to introduce basic concepts, as well as time together in the field to experience some of these things together. Students have 2-3 days a week in class to work on conducting their research, and writing and analyzing their observations. Many of the students do not have access to the necessary field guides and manuals, so I assure that there is time allowed for that portion of the research.

It has been my experience in the past, that students gain a great deal from hands on experiences, and that most are very excited to learn about their local flora and fauna. Whether you are teaching in an urban, suburban, or rural area, your students too may benefit from a little extra real life experience.

If you have done field work similar to this in the past (or very different for that matter), and have suggestions you would be willing to share, please let me know. It is always nice to hear from other

excited teachers.

Justin Wood, Southwest Junior High, Lawrence, KS 66047, (913) 838-9606

HUMAN GENOME MAPS

Have you been wanting a human genome map for your classroom but don't want to pay the catalog price? You can obtain a free copy of the latest edition of Landmarks of the Human Genome by calling Promega at 1-800-356-9526. (The map will have a small advertisement for Promega at the bottom.) Just call and explain that you are a biology teacher that would like to have a human genome map for your classroom, and they will send you one. (I did this last year, so I'm assuming that Promega will still send them out to teachers upon request.)

Thoughts on Cell Respiration and Photosynthesis

One strategy I've found beneficial whenever I get around to using it is the use of analogies to improve student comprehension of a concept--to explain something unknown to the student in terms of something they are familiar with. Teaching without using analogies is like cell respiration without oxygen. (Okay, maybe I'm getting a little carried away with the analogy thing.) Cellular respiration does tend to be difficult for many students to grasp. Many of you may already have special things you do to help get the main ideas across. Some of you may even use the same ideas that I am about to describe. (I don't think I borrowed this analogy from anyone, but potential credit could be given to various teachers that I have been influenced by--Pat Lamb, Jim Hunter, Larry Scharmann, Ernie Drowatzsky, or my colleagues at Wichita East High School.)

Our bodies are complex machines that require glucose (with oxygen) to live. But, technically, our bodies don't run on glucose--they require energy in the form of ATP's to help make all the little life-sustaining chemical reactions in your body happen. Glucose does not make chemical reactions happen--ATP's do. Glucose is a very important commodity for living things--like money is to us. Our bodies, as complex machines, are like a car. Our bodies do not run on glucose just like our cars do not run on money. To make our cars run, we need to convert our money into gasoline. To make our bodies run, we need to convert our glucose into ATP's. This conversion of glucose into ATP's is the what cell respiration and its steps are all about. This analogy really helped my students comprehend the big picture of respiration.

I would like to share one more thing that I learned as I taught respiration and photosynthesis this year. Again, many of you probably already know this. (If you did know it, you should be ashamed of yourselves for not telling me so now everyone has an idea about just how ignorant I am). I was talking with my students about the inverse relationship between photosynthesis and respiration (and thus the interrelationship between plants and animals). And we were discussing how many molecules have a cycle--like NADP within photosynthesis and NAD and FAD within cellular respiration and even water, oxygen, and carbon dioxide between the two processes. NADP, NAD, and FAD are often called hydrogen (and electron) carriers for the job they do in their respective processes. Then it hit me. I had realized before (from Pat Lamb) that the ultimate reason why we breathe is so that oxygen can accept protons and electrons in the last step of the electron transport chain (which provides the opportunity to make a lot of ATP's). I now realized that oxygen also acts as a hydrogen carrier, carrying hydrogen (in the form of water) from respiratory systems to photosynthetic systems. I further realized that oxygen could also be considered a carbon carrier, since it carries carbon (in the form of carbon dioxide) from respiratory systems to photosynthetic systems. So not only is oxygen a hydrogen acceptor within respiration, but also a hydrogen and carbon carrier between respiratory and photosynthetic systems. This may be beyond what you actually want to teach some students, but it sure made sense to me and helped me understand the big picture of cell respiration and photosynthesis better. Let me know if I have made any errors in my thinking. I hope that you can use any of these ideas or that these ideas will prompt new ones. Lastly, I would encourage (and challenge) each of you to share your insights into biological concepts so that we can all learn from each other and, as a group, help us be better teachers.

Tyson Yager, Wichita East High School

Editor's Choice

Since it seems that there is not a great deal of material that comes my way for the newsletter I have chosen to highlight some articles and abstracts relating to food choices, health, and the environment.

APRIL IS SOYFOODS MONTH

Although we are already two weeks into April, which has been proclaimed National Soyfoods Month, it is still worth celebrating the "bean supreme." Studies support evidence that soyfoods'

micro nutrients called isoflavones may help lower cholesterol, protect against coronary artery disease, and lower the risk of prostate and breast cancer, as well as osteoporosis. Soy has also been found to lessen the severity of menopause symptoms.

Soybeans are a nutritional powerhouse. A complete protein, soybeans contain essential amino acids. They are also a good source of fiber and minerals such as iron, calcium, phosphorus, magnesium, and the B vitamins thiamin, riboflavin, niacin and folic acid. Soybean oil is also unique in that it is a source of the Omega-3 fatty acid, linolenic -- the type found primarily in fish oil.

With these remarkable attributes consumers have good reason to want to add soyfoods to their diets. But in what form and how much?

Soyfoods are used in a variety of ways -- from tofu, tempeh, and textured vegetable protein to soymilk, miso and soy flour. Nearly 14 percent of the total U.S. population have eaten soyfoods five or more times in the past year. Yet many Americans remain in a quandary when it comes to incorporating soy-based products into their everyday life.

Soymilk, the liquid pressed from soaked soybeans, is probably the simplest way to introduce soy into the diet. It's so easy to splash cereal with soymilk. And a blended smoothie made with soymilk, fruit and juice is quick and delicious. Try some this month.

Although we have published some of the nutritional values of soyfoods in the U.S. Soyfoods Directory, we are continually asked for nutrient values such as potassium and phosphorus that not are published in the printed version of the Directory. To help people find the information they are seeking we have set up a link from the U.S. Soyfoods Directory Web site to the USDA Nutrient Database for Standard Reference. Now anyone with a Web browser can quickly and easily find the nutrient values of any food, including soyfoods.

<http://soyfoods.com/nutrition/nutrition.html>

Permission is granted to reprint this information by the Indiana Soybean Development Council

Research Update

This is a service offered by the Research Department at EarthSave International.

HEALTH

BREAST CANCER: Researchers have found that 50-something women who are overweight are at heightened risk for breast cancer. Breast cancer risk was twice as high for the heaviest women than for the lightest women; twice as high for women who gained more than 10 pounds in the preceding decade than for those with no weight change; and 30 percent lower for women who lost at least 10 pounds over the preceding decade than for those whose weight didn't change.

Source: *Journal National Cancer Institute* 1996;88:650 as cited in *Nutrition Action Healthletter*, Oct 1996, p3.

CROHN'S DISEASE: Crohn's Disease is a chronic illness involving the intestines. Though the cause of Crohn's Disease is uncertain, recent findings suggest that diet may play a role in its prevention. Researchers in Japan (where Crohn's Disease is growing in prevalence) found that animal protein is the nutrient most closely linked with the disease. Vegetable protein was associated with a reduced incidence of the disease.

Am J Clin Nutr 1996;63:741-745 as cited in *Vegetarian Journal*, Sep/Oct 1996, p14.

EXERCISE: The 1996 *Surgeon General's Report on Physical Activity and Health* found that fewer than 60 percent of US citizens are meeting the minimum guidelines for moderate physical activity—about 30 minutes a day, most days of the week. Hundreds of studies confirm that regular physical activity reduces the risk of premature death, heart disease, colon cancer, heart attack, high blood pressure and much more.

Source: Julie Walsh, RD, "No More Excuses; Uncle Sam Wants YOU to Get Moving," *Environmental Nutrition*, Oct 1996, p2.

FISH and CONTAMINANTS: A recent report by the Center for Science in the Public Interest (CSPI) warns consumers, "Shellfish feed by filtering two to three gallons of water an hour. That means they take in whatever's floating by—not only plankton and other foods, but viruses, bacteria, mercury, and who-knows-what-else."

Fish with fins aren't always squeaky clean either, CSPI adds, noting the risk of chemical contaminants. "Harmful metals, industrial chemicals, and pesticides like mercury, PCBs, dioxin, and chlordane often wash into rivers, lakes and oceans. In fact, 47 states currently have fish consumption advisories that warn about eating certain species. They cover 1,740 rivers and lakes (including all the Great Lakes) and large chunks of coastal areas."

Source: David Schardt and Stephen Schmidt, "Fishing for Safe Seafood," *Nutrition Action Healthletter*, Vol 23, #9, Nov 1996, p1-5.

FISH and PCBs: A Sept. 12, 1996 article in the *New England Journal of Medicine* reports lower IQs in Michigan children exposed to polychlorinated biphenyls (PCBs), a persistent industrial compound once widely used in the manufacture of electronic equipment and in paper recycling. The average IQ was 6.2 points lower in children with the highest prenatal exposure compared with children with the smallest exposures. The children with the highest levels of PCBs were traced to mothers who had eaten large quantities of Great Lakes fish, infamous for PCB contamination. PCBs now taint most soils and waters. The study's authors note,"women who eat no fish may accumulate [PCBs] from other food sources, including dairy products, such as cheese and butter, and fatty meats, particularly beef and pork."

Source: *Science News*, Sep 14, 1996; 150:165. Also, *New York Times*, Sep 14, 1996, pA-14.

FOOD CHOICES and CHILDREN: A recent study finds that 10-year-olds are eating—and parents and schools are serving—less red meat but more chicken and seafood. Total meat consumption has stayed about the same. This trend more--or-less mirrors changes in adults.

Source: Rod Smith, "Kids, schools switching from meat to poultry," *Feedstuffs*, Oct 28, 1996.

FOOD CHOICES and CHILDREN and THE NATIONAL SCHOOL LUNCH PROGRAM: The percentage of public schools offering brand-name fast foods (like items from Pizza Hut, Domino's, Taco Bell and Subway) increased dramatically from about 2 percent in the 1990-91 school year to 13 percent in the 1995-96 school year.

Source: General Accounting Office, "School Lunch Program: Role and Impacts of Private Food Service Companies," August 1996.

FOOD SAFETY and ANIMAL DRUGS: In June 1996, a federal jury found a Wisconsin company guilty of importing illegal drugs including clenbuterol, and adding them to animal feeds. Evidence showed that Vitek Corporation sold more than 1.7 million pounds of products containing these unapproved drugs between 1988 and 1994. The US attorney involved in the case stated, "The evidence established that veal feed suppliers and veal producers throughout the country paid Vitek extra for veal [feed] containing these illegal and harmful animal drugs." The investigation is ongoing and additional charges are expected soon.

Source: "Guilty verdict returned in veal feed case," *Feedstuffs*, Sep 23, 1996, p19.

FOOD SAFETY and DAIRY: A recent report sheds new light on one of the largest salmonella outbreaks in US history. The Centers for Disease Control and Prevention calculates that 224,000 people were sickened by salmonella-contaminated Schwan's ice cream in 1994. Only 300 cases of salmonella poisoning were reported to federal agencies from all causes that year, pointing out just how hidden and widespread food contamination (much of it associated with animal foods) is. One review of published studies estimates as many as 81 million cases of foodborne illness occur in the US each year, with only thousands ever officially reported.

Source: *New England Journal of Medicine*, May 16, 1996, cited in *Science News*; 150: Sep 14, 1996, p173.

FOOD SAFETY and E. COLI and GREAT BRITAIN: An outbreak of E. coli in Scotland had killed nine elderly people by early December, 1996, with at least 204 cases confirmed overall. The outbreak was linked to meat eaten at a retiree's luncheon. The British government said that there had been more than 1,300 cases of E. coli poisoning in Scotland since 1990.

Source: "Ninth person dies in British E. coli outbreak," Dec 8, 1996, found on WWW home page of Federal Meat Inspectors Union.

FOOD SAFETY and E. COLI and JAPAN and US BEEF EXPORTS: In the second-half of 1996, an outbreak of E. coli poisoning killed 11 Japanese and sickened more than 9,500 others. The outbreak has led to a sharp decline in Japan for US beef. Sales were down 30-50 percent.

Source: "E. coli outbreak in Japan takes toll on US exports," *Meat Marketing and Technology*, Oct 1996.

FOOD SAFETY and MEAT: In Sept. 1996, the editor of a meat industry trade journal called *The National Provisioner* warned readers, "brown may be the color of a cooked [hamburger] patty, but it may not be the color signaling that it is well done and thus safe to eat." This cautionary note was the focus of an editorial entitled, "Burgers cooked to the right color may still contain poison."

Source: Barbara Young-Huguenin, *The National Provisioner*, Sep 1996, p8.

HEALTH GENERAL: Half of all adults—100

million Americans—suffer from one or more chronic diseases such as heart, liver and kidney diseases, cancer, stroke, arthritis, diabetes and senility, according to the *Journal of the American Medical Association*. Two of three adults between 45 and 64, and nine of ten elderly have one or more of these health problems. These chronic health problems consume three quarters of all health care dollars. By the year 2030, according to government estimates, one of five Americans will be 65 or older, and 150 million of them will suffer from chronic diseases.

Source: *JAMA*, Nov 13, 1996;276:1473.

HEART DISEASE: Heard that we are winning the war against heart disease? Don't celebrate yet. According to the Feb. 1997 issue of *Environmental Nutrition*, "It seems that, contrary to previous reports, deaths from heart disease haven't dropped, they have merely been delayed. In other words, efforts to fend off heart disease may gain the average person a couple of years, but may not keep the disease at bay forever." *EN* continues, "last fall the health community was rocked by news that deaths from heart disease may actually be rising. According to government figures, instead of about 150 of every 100,000 people dying yearly from the disease, the toll might be as high as 260 to 270." The good news of the past, it seems, was based mostly on the decline in heart disease among 40-to-60 year olds. But four out of five heart disease deaths occur among people over 65. When baby boomers begin to reach 65, experts anticipate a surge in the incidence of heart disease.

Source: Marsh Hudnall, RD, "Heart Disease Handbook—Part 1," *Environmental Nutrition*, Feb 1997, p1-4.

HEART DISEASE and CHILDREN: Coronary heart disease risk factors are prevalent at an early age according to a study in the *Journal of the American Dietetic Association*. Researchers found that of the 14- and 15-year olds studied, 41 percent of boys and 48 percent of girls were obese; 14 percent of boys and 8 percent of girls were severely obese; dietary fat and saturated fat intake was higher than recommended; and cardiovascular fitness scores were below average. The results suggest the need to reduce intake of fat while increasing exercise.

Source: *JADA* 1996;96:238-242, cited in *Nutrition Close-Up*, Vol 13, #2, 1996.

HEART DISEASE and CHOLESTEROL and SOY: Numerous studies have demonstrated how soy foods can lower LDL ("bad") cholesterol. But a recent exciting finding is that soy also increases HDL ("good") cholesterol, in some cases by as much as 50 percent. To date, relatively few dietary approaches have been shown to raise HDL cholesterol. According to nutrition authority Mark Messina, PhD, "The combined effect of a decreased LDL and an increased HDL strongly support the use of soy for reducing heart disease risk."

Source: Mark Messina, PhD, "Researchers From Around World Present On Wide Range of Chronic Diseases," *The Soy Connection*, Vol 5, #1, Winter 1997.

HEART DISEASE and CHOLESTEROL and STROKE: HDL's (the "good" cholesterol) have long been known to protect against heart disease. Researchers in Israel have recently found that raising HDLs may also protect against stroke, which is caused by blocked blood flow to the brain. Smoking, older age, high blood pressure and diabetes are other stroke risk factors.

Source: *Stroke*, Jan 1997, as cited in *Environmental Nutrition*, Feb 1997, p1.

HEART DISEASE and ESTROGEN REPLACEMENT THERAPY: One of the strongest arguments for taking Estrogen Replacement Therapy (ERT) has been the belief that it reduces women's risk of heart disease. But new research suggests that this may be overrated. Researchers at the University of Pittsburgh School of Medicine say that the link between the two doesn't take into account the possibility that ERT users were simply healthier before menopause anyway.

Source: Amy O'Connor, "Heart to ERT," *Vegetarian Times*, Feb 1997, p22.

HEART DISEASE and FIBER: A recent Harvard University study concluded that a high-fiber diet alone—independent of fat intake—can prevent heart disease. Men who ate the most fiber—29 grams per day on average—were 36 percent less likely to suffer a heart attack than those who ate the least, about 12 grams per day, which is roughly the US average fiber intake.

Source: "Fat and Fiber Square Off in the Fight Against Heart Disease," *Environmental Nutrition*, Oct 1996, p2.

Simply replacing four slices of refined bread with whole wheat bread can increase dietary fiber intake by as much as 8 grams per day and would be a

significant step toward helping consumers reach the 20-35 grams that experts recommend.

Source: Mark Messina, PhD, "Small Changes Can Lead to Big Improvements," *The Soy Connection*, Fall 1996, p1.

HEART DISEASE and FISH: Despite high hopes in the early 1980s that fish consumption protected humans from heart disease, the consensus among researchers now seems to be that a little fish may still do some good, but more fish is not necessarily better. Since the early 80s, studies have shown conflicting results about the purported benefits to the heart from eating fish. Several studies have shown no link. A study of 45,000 male dentists in 1986 found that men who ate six or more servings of fish a week had no lower risk of heart disease than the men who ate only one serving a month.

Source: Bonnie Liebman, "Is Seafood a Heart Saver?, *Nutrition Action Healthletter*, vol 23, #9, Nov 1996, p6-7.

HEART DISEASE and FOLIC ACID: Researchers have known for some time that the B vitamin folic acid (also called folate) can prevent birth defects. Now cardiac experts believe that it can avert up to 10 percent of all cases of heart disease and stroke as well. Folate benefits cardiac patients by lowering elevated levels of homocysteine in the blood. Homocysteine is an amino acid found at elevated levels primarily in people who eat meat. High levels of homocysteine have also been linked to senility. Good sources of folate include dark green leafy vegetables, fruits (especially citrus), other vegetables, whole grains and enriched breakfast cereals.

Source: Frances Sigurdsson, "Folate For All," *Vegetarian Times*, Feb 1997, p22.

HEART DISEASE and FRUIT CONSUMPTION: Eating fresh fruits daily appears to significantly lower the risk of dying from heart disease, stroke and other causes, according to British researchers. A study of more than 11,000 adults aged 45 and older found that people who ate fresh fruit daily had 24 percent fewer heart attacks, 32 percent fewer strokes and 21 percent fewer deaths overall compared with those who did not.

Source: "The Healthy in a Study Eat Fresh Fruit Daily," *Washington Post*, Oct 8, 1996.

HIGH BLOOD PRESSURE and PLANT-RICH DIETS: Currently some 50 million Americans suffer from high blood pressure, also known as hypertension. Patients taking part in a recent study at five medical centers across the country significantly reduced their high blood pressure within two weeks of consuming a diet rich in high-fiber fruits, vegetables and low-fat dairy products. These results suggest that dietary improvements—along with lifestyle changes—can replace pharmaceutical drugs for some patients. Blood pressure drugs often have unwanted side effects.

Source: Stuart Auerback, "Diet Lowers Blood Pressure," *Washington Post*, Nov 19, 1996.

HOSPITAL FOOD: A recent survey of 57 teaching hospitals in the US found that hospital food is not only notoriously bad tasting, it's nutritionally substandard as well. The survey found that 39 percent of the hospital menus exceeded the recommended levels for fat, 47 percent for saturated fat, a whopping 81 percent for cholesterol and 54 percent for sodium. The researchers concluded, "Hospitals should assume a greater role in promoting healthful diets. We cannot think of a more appropriate place to encourage the nutritional health of Americans.

Source: Don Colburn, "Hospital menus fare poorly in nutrition," *Washington Post*, Jan 2, 1997.

IRON: New findings by US Department of Agriculture researchers indicate that women eating a vegetarian diet do not have significantly different levels of iron in their blood than women eating meat every day. The study's results suggest that the body may absorb the iron it needs from plant sources as well as it does from animal sources. Previous studies have found that people eating a vegetarian diet consume more iron-rich foods than do omnivores.

Source: Amy O'Connor, "The Iron-clad Truth," *Vegetarian Times*, Feb 1997, p22.

MAD COW DISEASE: In October 1996, British researchers reported in the journal *Nature* of having direct evidence that Mad Cow Disease was indeed transmitted from cattle to people.

Source: *Science News*, Vol 150, Nov 2, 1996, p282.

What worries many is that the US continues to recycle animal scraps, turning them into cattle feed. On January 2, 1997, the Food and Drug Administration proposed a ban on feeding cows back to other cows.

Source: FDA Press Release, January 2, 1997

MAD COW DISEASE and *TIME* MAGAZINE: In January 1997, *Time* magazine ran a 2-page story on Mad Cow Disease. *Time* cited a recently published paper suggesting that 1996's outbreak of

human illness resulting from Mad Cow "might be only the tip of an epidemiological iceberg, and that thousands of Europeans are unknowingly infected and could die from the disease."

"The only thing that stands between us and an epidemic is unmitigated luck," Robert Rohwer told *Time*. Rohwer is director of molecular virology at the VA Medical Center in Baltimore. Rohwer added, "I hope we're not on the same course as the British, but we could be."

The *Time* article concludes, "There are 44 million head of cattle in the US, and 7 million are killed for food each year. If just one of those slaughtered cows turns out to be a mad cow, the illness that's now an ocean away could establish its first beachhead on American shores."

Source: Jeffrey Kluger, "Could Mad-Cow Disease Strike Here?," *Time*, Jan 27, 1997.

MAD COW DISEASE and *NEW YORKER* MAGAZINE: In its December 2, 1996 issue, *The New Yorker* devoted eleven pages to a story on Mad Cow Disease entitled "A New Kind of Contagion." "Is British beef safe?," the author asks. "If the infectivity is restricted to the parts of the cow's body which are being removed and discarded [that's the brain, the spinal cord, and so forth], and if we can trust the abattoirs to remove the offal, then the beef

"You have just dined, and however scrupulously the slaughterhouse is concealed in the graceful distance of miles, there is

is probably safe... Unfortunately, that doesn't necessarily mean that British beef has always been safe. From 1985 until the offal ban in November 1989, infected matter was routinely passing into the human food supply." After the ban, offal was still often passing into the food supply because the ban was rarely enforced... A single gram—less than a twentieth of an ounce—of infective BSE material given to a cow is enough to kill it.

Source: John Lanchester, "A New Kind of Contagion", *The New Yorker* , Dec 2, 1996, p70-81.

MAD COW DISEASE and FEED EXPORT: An article in the journal *Nature* on June 12, 1996 alleges that agricultural firms in England exported feed containing meat byproducts suspected of causing Mad Cow Disease for two years after those feeds were banned in Britain. Tens of thousands of tons of the contaminated feed may have been exported, apparently with the full knowledge of British authorities. Exports of the feed doubled after they were banned in Britain in 1988. Much of the exported feed was sold to France, but also to other European countries, the Middle East and Asia.

Source: Ian Elliot, "Exports of bad British feed alleged," *Feedstuffs*, June 24, 1996.

PLANT-BASED DIETS: The Center for Science in the Public Interest ran an excellent article in the October 1996 issue of their publication *Nutrition Action Healthletter* on the health and environmental benefits of plant-based diets. "There's no question that largely vegetarian diets are as healthy as you can get," says Marion Nestle, chair of the nutrition department at New York University. "The evidence is so strong and overwhelming and produced over such a long period of time that it's no longer debatable." Nestle adds, "My number-one reason for eating a plant-rich diet is that it tastes good. I feel deprived if my meal doesn't have lots of vegetables in it."

Source: Bonnie Liebman, "Plants for Supper: 10 Reasons to Eat More Like a Vegetarian," *Nutrition Action Healthletter*, Oct 1996, p10-12.

SENIOR'S HEALTH and SENILITY and FOOD CHOICES: Symptoms such as dementia, mental disorientation and memory loss, commonly associated with senility, may actually be due to nutritional deficiencies, according to several recent studies in prominent medical journals. In March 1996, the *American Journal of Clinical Nutrition* published a study showing that homocysteine, an amino acid found at high levels in the blood of people who eat meat, is linked with a type of mental disorientation frequently seen in the early stages of Alzheimer's disease. The study found that eating

foods rich in folic acid lowers blood levels of homocysteine and improves mental functioning.

Source: Carol M. Coughlin, RD, "Nutritional Rx for Aging," *Vegetarian Times*, Feb 1997, p30.

WOMEN'S HEALTH and MENOPAUSE and SOY: Researchers at Bowman Gray School of Medicine in North Carolina found that women given soy supplements reported significantly less-severe hot flashes and night sweats than those taking placebos. The soy also had other beneficial effects for those in the 18-week study: total cholesterol dropped an average of 10 percent, LDL ("bad" cholesterol) levels dropped 12 percent and diastolic blood pressure dropped six points. Soy may prove to be a potential alternative to traditional estrogen replacement therapy. A much larger study using more soy protein is currently underway.

Source: "Research News," *Environmental Nutrition*, Feb 1997, p8.

WOMEN'S HEALTH and OSTEOPOROSIS and SOY: "Four [recent] animal studies and two human studies...strongly suggest a role for soy in inhibiting bone resorption [i.e. bone loss], stimulating bone formation or both, although all of this work should be considered preliminary."

Source: Mark Messina, PhD, "Researchers From Around World Present On Wide Range of Chronic Diseases," *The Soy Connection*, Vol 5, #1, Winter 1997.

ENVIRONMENT

BARBEQUES and GREAT BRITAIN: Britain's backyard barbequers burn 60,000 tons of charcoal each year to cook their favorite summer meats. Ninety-five percent of the charcoal is imported, with a third coming from Southeast Asia's mangrove forests.

Source: "Charcoals to Newcastle," *Earth Island Journal*, Spring 1996.

CHICKEN and CHINA: In news with both serious health and environmental repercussions, China is currently increasing its overall meat demand by four million tons per year. Of that amount, China's consumption of poultry meat is rising by 700,000 tons per year.

William A. Dudley-Cash, "Producers must get ready to supply chicken for 9 billion people," *Feedstuffs*, Oct 7, 1996, p11.

FISH and MEXICO and CALIFORNIA: In December 1995, the *Sacramento Bee* newspaper ran a remarkable 4-part series on the devastation of the Sea of Cortez between mainland Mexico and Baja California. The Sea of Cortez is 700 miles long, 60 to 150 miles wide, and nearly twice the size of Lake Superior, and more than 300 times larger than Lake Tahoe.

Part One: Tom Knudson, "A Dying Sea," Dec 10, 1995.

"This great amniotic sea, this world showcase of marine life is being destroyed. The problem is basic. It is overfishing, aided by greed, corruption, poverty and lawlessness. This is 1995, but the Gulf of California is a frontier sea where marine life is slaughtered for markets in the US and Asia, for foreign exchange and sometimes for little more than gas money."

"The Sea of Cortez is more than just a dazzling spectacle of nature. It is a Pacific Caribbean for the western US. It is California's Riviera."

"Gone are the huge navies of game fish that fed so savagely they forced schools of bait fish to burst out of the water—volcanoes of fish erupting into the air. Gone are the immense, slow-moving cumulus clouds of turtles, manta rays, the thick, spiraling columns of hammerhead and thresher sharks, the clams thick as cobblestones on the beach. Gone too is the future for many families who make their living from the sea."

"By all accounts, the entire gulf is being utterly devastated by overfishing," said Paul Dayton, a professor of marine ecology at the Scripps Institution of Oceanography in La Jolla, Ca, one of the premier marine science centers in the world."

"And there's something else: This is no isolated disaster. It is one spore in a larger pox, the plundering of oceans worldwide."

"Catch a ride on a shrimp trawler, the sea's most destructive fishing machine. Watch the big nets scoop up tons of unwanted species, such as sea horses, starfish, manta rays and enormous quantities of baby fish. Help the crew sort out the shrimp and heave the excess overboard—dead. For every pound of shrimp caught in the Sea of Cortez, nearly 10 pounds of other marine life dies."

"The world is not just losing the treasures of the Sea of Cortez. It is eating them. Fishing is supposed to be done conservatively to protect stocks. But in poverty-stricken Mexico, another rule applies: If you will buy it, they will kill it. They will liquidate their sea." And the US is the biggest buyer of Mexico's seafood.

"Here the ocean was full of fish, like a smorgasbord. Now there's nothing. The gulf is exhausted." Manuel Palacio, 65, Mexican fisherman.

"The damage doesn't stop at the water's edge. In some places, seabirds are fading from the sky too, apparently because there's not enough fish to eat."

Part Two: Tom Knudson, "Waste on grand scale loots sea," Dec 11, 1995.

There is massive waste in commercial fishing. "It is one of the most serious environmental problems in the world," said Paul Dayton, of Scripps Institute of Oceanography in La Jolla. "And it's out of sight. Fisherman don't advertise it. People don't know what's happening."

"Worldwide, more than 57 billion pounds of sea life are caught unintentionally and wasted every year, estimates the UN's Food and Agriculture Organization in Rome. That is more than 200 pounds of dead, discarded marine life for every man, woman and child in the US. It is one-quarter of all annual marine catches on Earth and more than double the entire commercial marine catch of the world's largest fishing nation, China."

"Almost 92 percent of northern Australia's prawn catch isn't prawns. It's 240 other species, mostly fish, crabs and mollusks."

"By wasting so much marine life, fisherman may be literally throwing away the future."

"In the Sea of Cortez, for every pound of shrimp caught, 9.7 pounds of other marine life dies. And sometimes, the ratio climbs to 40 to 1, according to people who live on the sea."

The Sea of Cortez was once a place teeming with life—"a Serengeti of the sea." "It was like diving into an aquarium," says one old-timer.

"The sea is a vast piece of machinery, composed of billions of moving parts. But whole segments are being stripped away before anyone knows how they work or fit into the larger whole...Species that were abundant 20 years ago are ghosts today."

Part Three: Tom Knudson, "Bribery, lawbreaking, scarce law enforcement abound," Dec 12, 1995.

"Oceans everywhere are hard to police. And poaching is commonplace."

"As the seas are depleted, something else is damaged, too: the human communities that depend on them...Ironically, those who suffer the greatest are those who need the sea the most—simple fishermen and their families."

Part Four: Tom Knudson, "It's not too late, and the sea itself may show the way," Dec 13, 1995.

"But the biggest reason for hope has nothing to do with people. It is the Sea of Cortez itself. The sea is a recovery project waiting to happen."

FISH and SHRIMP: A recent report in *Science News* on the environmental horrors caused by shrimp fishing found, "Most of what trawlers catch in their nets is not what they seek. However, even the vast quantities of unwanted species that make it onto a ship's deck offer only a superficial glimpse of the unintended damage that deep trawls wreak as they scour the ocean floor."

Ten to 20 pounds of animals are being killed for each pound of commercially caught shrimp. What's more, trawling is inflicting havoc on the ocean floor and the species that dwell there, and may underlie the recent collapse of many commercial groundfish stocks, including cod, haddock, pollock and flounder.

Elliot Norse, director of the Marine Conservation Biology Institute in Redmond, Wash., told *Science News*, "We're talking about destruction of marine habitat that is, if not equivalent, at least in the ballpark with clear-cutting forests on land."

Researchers in Australia have found that a single pass by a prawn trawler removes from 5-20 percent of the seafloor animals. On average, commercial trawlers plow through most of the prawn-rich waters at least once, and as many as eight times annually.

Source: Janet Raloff, "Fishing for Answers," *Science News*, Oct 26, 1996, vol 150, p268-271.

ORGANIC AGRICULTURE: A field of organically grown grain corn survived a summer drought much better than the same kind of corn grown using chemical fertilizers and pesticides according to researchers at the Rodale Institute in Kutztown, Pa. Researchers attribute the organic fields' better production to the fact that they held water better than the chemically treated land.

Source: "Organic corn hardier than conventional," *Science News*, vol 148, Oct 14, 1995.

PESTICIDES and CUMULATIVE EFFECT: A study published in the journal *Science* has found that pesticides which by themselves are linked to breast cancer and male birth defects are up to 1,000 times more potent when combined. Such findings could force a revolution in the way that the environmental and health effects of pesticides are measured.

"Instead of one plus one equaling two, we found in some cases that one plus one equals a thousand," said study leader John McLachlan of Tulane University.

Source: Associated Press, "Pesticide mix called riskier than alone," *The Arizona Republic*, June 7, 1996.

PESTICIDES and INERT INGREDIENTS: An historic court ruling in October 1996 means that the Environmental Protection Agency (EPA) must now provide information about the identity of so-called "inert" ingredients in pesticide products. Inerts are any of more than 2,300 substances added to pesticides but not named on the product labels. Despite their name they are neither biologically, chemically nor toxicologically inert. Until now EPA has been routinely accepting manufacturers' claims that inerts are trade secrets. An appeal of the decision by the pesticide industry is likely.

Source: Caroline Cox, "Judge Rules Pesticide 'Inerts' Are Not Trade Secrets," *Journal of Pesticide Reform*, Winter 1996, vol 16, #4, p8.

PESTICIDES and SAN FRANCISCO: On October 15, 1996 San Francisco's Board of Supervisors passed a landmark ordinance banning all city pesticide use beginning in the year 2000. There will also be an immediate ban on the most toxic pesticides used by the city.

Source: Anita Regan, "New San Francisco Ordinance Will End City Pesticide Use," *Journal of Pesticide Reform*, Winter 1996, vol 16, #4, p9.

Other

ORGANIC FOODS: The sale of organic foods reached a new high in 1995: $2.8 billion. The US Dept of Agriculture reports that the acreage of organic farmland more than doubled between 1991 and 1994.

Source: Christine Blank, Coming to Market From All Directions," *Vegetarian Times*, Nov 1996, p24.

ORGANIC FOODS and JAPAN: Japanese officials expect that country's market for organic foods to triple to about $2.6 billion by the year 2000. The trend is attributed to growing interest in health and food safety among Japanese consumers.

Source: "Organic Foods Make Inroads within Japan," *Knight-Ridder/Tribune Business News*, Dec 30, 1996.

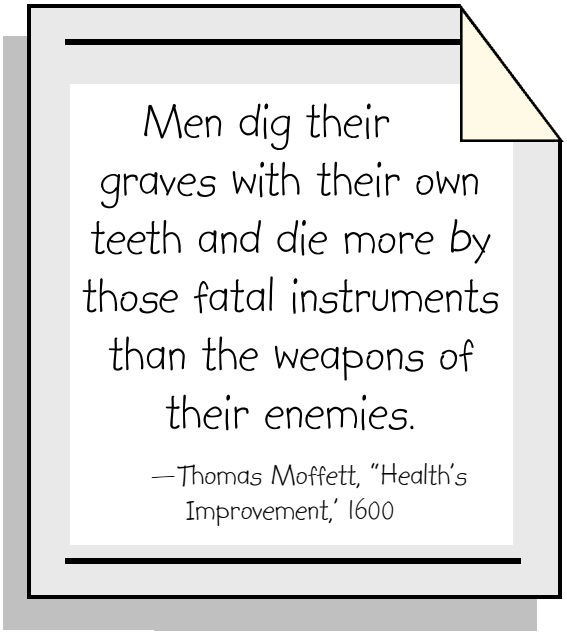
FROM THE MANAGER

Dear Members,

A new genetically-altered food is about to enter the American marketplace. This new food is Monsanto Corporation's genetically- engineered soybean, the Roundup Ready Soybean (RRS). It gets its name from Monsanto's Roundup herbicide, which it is designed to resist. These soybeans will not be kept separate from normal soybeans, and will not be labeled as genetically altered.

The purpose of these new soybeans is to make them more compatible with agricultural chemicals and to increase the sales of Roundup, the world' largest selling herbicide. Organic farmers have no need for Roundup and no need for Roundup Ready seed.

Roundup is Monsanto's trade name for the glyphosate, a broad spectrum herbicide that acts systematically in plants - that is, it is taken up into



the plant and kills all parts of it. According to the environmental organization Greenpeace, residues of Roundup have been found on food crops one year after it was applied. It has been shown to be very toxic to humans and to such organisms as earthworms and fish. The herbicide's use is sure to increase if farmers switch to Monsanto's new seed.

Monsanto is well-known as a leader in the production of herbicides and genetically-engineered products. They developed the defoliant Agent Orange, which was used in the Vietnam conflict. They invented the now banned PCB's. Monsanto is also the maker of the controversial growth hormone rBGH that is fed to dairy cows. Monsanto has fought successfully to keep dairy products from

being labeled as containing mild from cows fed bovine growth hormone. similarly, they strongly oppose the labeling of their new soybean as genetically engineered.

The new genetically-altered soybeans will only make up about two percent of this year's soybean crop, but Monsanto hopes this number will be as high as 33 percent next year. this projection is especially significant considering that some 60 percent of food products contain soy products. In addition to the obvious foods like tofu and soy milks, foods as diverse as margarine, candies, and ice cream contain soy derivatives.

Just how is this soybean biogenetically altered? Genetic engineering is a process whereby genes can be transferred between entirely unrelated special. Roundup Ready Soybeans contain virus and bacteria genes. Specifically, they have received gene splices from a cauliflower mosaic virus, an bacterium, and petunia.

What is being unleashed into the environment? The extent to which such a genetically-engineered plant will crossbreed with other plants on the farm or in the wild are unknown. If other plants are able to acquire resistance to herbicides like Roundup, farmers will only have a much greater problem on their hands.

Studies on genetically-engineered canola seed have demonstrated that canola easily cross-pollinates with other plants in the wild. Researchers think that the genes that pass on resistance to herbicides can be transferred quickly to other plants in the way.

Roundup Ready Soybeans is no benefit to the consumer. They do not taste, ship or keep better. They are not more nutritious. They are simply designed to be compatible with one company's herbicide.

At Ozark Cooperative Warehouse, we are informing our suppliers that we want foods that do not contain genetically-engineered soybeans. We want organic soybeans used wherever possible. We support efforts to continue to ban transgenic soybeans from being classified as organic.

Michael Potter, the chairman and president of Eden Foods - one of our major soy milk suppliers, has testified before the USDA's National Organic Standards Boards and expressed Eden 's opposition to classifying such products as Roundup Ready Soybeans as organic in the future. Westbrae, another of our major soy milk suppliers, also used only certified organic soybeans in its soy milks.

Ozark Cooperative Warehouse will not knowingly stock products containing genetically-altered soybeans. We will make organic soy products available whenever possible. We encourage you to use certified organic soy products and certified organic foods. Thank you for your support.

Nick Masullo, General Manager, Ozark Food Cooperative, *Thanks to Paul Clarke of Greenpeace, Myron Cooper of the California Organic Advisory Board, Sally Gralla of Eden Foods, Westbrae Inc., and Anne Shelley for assistance with and information used in this column..*

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NABT FOCUSES ON 1997 MINNEAPOLIS CONVENTION |

Reston, VA—More than 2,000 biology and life science educators will "Focus on the Study of Life" October 8-11 at the National Association of Biology Teachers' 1997 National Convention & Exhibition at the Hyatt Regency on Nicollet Mall in Minneapolis, Minnesota. Featuring more than 250 educational sessions and an extensive exhibit hall, this year's meeting promises to be the premiere gathering of life science educators across the globe.

As the theme suggests, participants will focus on a wide variety of workshop and field trip opportunities, speakers, and presentations that will explore all aspects of the study of life.

- *Special workshops* investigate such topics as:
  - —Biology on a Shoestring
  - —Schoolyard Ecology: Strategies for Teacher Training Programs
  - —In Search of the Human Cancer Gene
  - —PCR Without a Thermal Cycler
  - —DNA Profiling Using DNA Amplification of Short Tandem Repeats: Preservation of an Endangered Crane Species
  - —Human Genetics Classroom Activities—Risque Family Reunion.
- *Field trips* to local attractions—including the Wildlife Science Center, the University of Minnesota's Raptor Center, the Minnesota Arboretum, the University of Minnesota College of Biomedical Sciences, and the Science Museum—offer unique settings in which to examine life on our planet.
- Thought-provoking *presentations* by Neal Lane, Director of the National Science Foundation; Donald Kennedy, Bing Professor of Environmental Studies at Stanford University; Eugene Rice, Director of the American Association for Higher Education Forum on Faculty Roles and Rewards; Eugenic Scott,

Executive Director of the National Center for Science Education; Barbara Bancroft, Associate Visiting Professor at the University of Arkansas; and other invited speakers are sure to be highlights of the convention's busy daily session schedule.

Those interested in participating are encouraged to register early and bring their families and friends! Family members of all ages can focus on Minneapolis and its environs on special trips to local attractions planned so they can explore the city during convention sessions. By taking advantage of the earlybird special, those who register before May 31st receive the following reduced rates:

- Members—$65 ($75 by September 15/$95 on-site)
- Nonmembers—$95 ($ 105 by September 15/$ 125 on-site)
- Retired Members—$35 ($45 by September 15/ $55 on-site)
- Fulltime Students—$25 ($35 by September 15/ $45 on-site)
- Nonteaching Spouses, Family, or Guests—$ 15 ($25 by September 15/$35 on-site)

Nonmembers may also take this opportunity to join NABT and save the additional $30 charge for nonmember convention fees. For more information or to request a registration form, contact NABT at 11250 Roger Bacon Drive, #19, Reston, VA20190-5202; phone(703)471-1134/(800) 406-0775; fax (703)435-5582; e-mail NABTer@aol.com.

The National Association of Biology Teachers is the leader in life science education. Its international membership is comprised of biology educators, scientists, and administrators. Nearly 8,000 strong, NABT members teach more than one million students each year.

New NABT Publication Examines Contemporary Bioinstrumentation

Reston, VA—*Bioinstrumentation: Tools for Understanding Life*, published recently by the National Association of Biology Teachers (NABT), presents a comprehensive and in-depth look at contemporary tools and methods used in the biology laboratory. Written by teaching professionals and edited by James H. Wandersee, Louisiana State University; Dennis R. Wissing. Louisiana State University Medical Center. and C.T. Lange, University of Missouri— St. Louis; this new publication clearly demonstrates how "new technologies often extend the current levels of scientific understanding and introduce new areas of research" (*National Science Education Standards*, NRC, 1996, p. 192).

The 328-page manual includes the following features planned especially for high school educators, college professors, and medical and health-care professionals:

- Basic explanations for all instruments discussed
- Sixteen key topics (the core technologies)
- Sixteen chapters written by 21 instrumentation specialists who also teach
- Many authors who are university and medical school professors
- Overhead transparency masters for every chapter
- Wirebound for ease in making transparencies
- Concept maps introduce each chapter
- Abundant diagrams and photographs
- Margin notes for every chapter
- Questions written by biology teachers at the end of each chapter
- Related web site listings and references at the end of the manual
- Emphasis placed on the use of bioinstrumentation to gain biological knowledge so users can learn "how we know what we know"

According to users, the manual is indispensable for high school teachers who want to update their content knowledge about bioinstrumentation and its applications, for high school and college biology teachers who want to introduce their students to the broad range of instruments available, for teacher workshop leaders who want to provide their participants with a teaching tool related to their summer workshop experiences and to the National Standards, and for basic biomedical training programs where an understanding of bioinstrumentation is desired.

Check Out NABT AT

http://www.nabt.org/

Bioinstrumentation: Tools for Understanding Life

is available to NABT members for $24 ($28 for nonmembers) plus shipping and handling. Copies can be ordered by contacting NABT at 11250 Roger Bacon Drive, #19, Reston, VA 20190-5202; phone (703) 471-1134/(800) 406-0775; fax (703) 435-5582; e-mail NABTer@aol.com. MasterCard and VISA are accepted.

"I have come to a frightening conclusion.
I possess tremendous power to make
a child's life miserable or joyous.
I can be a tool of torture or an instrument of inspiration.
I can humiliate or humor, hurt or heal.
In all situations it is my response that decides whether a crisis will be escalated or de-escalated, and a child humanized or de-humanized.

Haim Ginott
Teacher and Child

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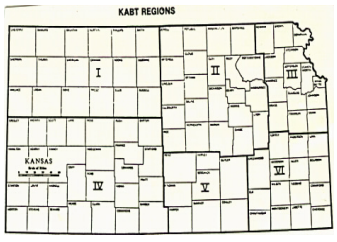

"A wise man should consider that health is the greatest of human

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: (____) ____ - _____

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Enclosed Dues For KABT $10.00 / Year - Life Membership Available For $200

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Yearly Due Date is September 1st. - Make Check Payable To KABT - Tax ID #: 48-0945206

Send Dues & Information To:

Kansas Association of Biology Teachers

John Wachholz, Treasurer

2311 Applewood Lane

I slept and dreamt that life was joy;

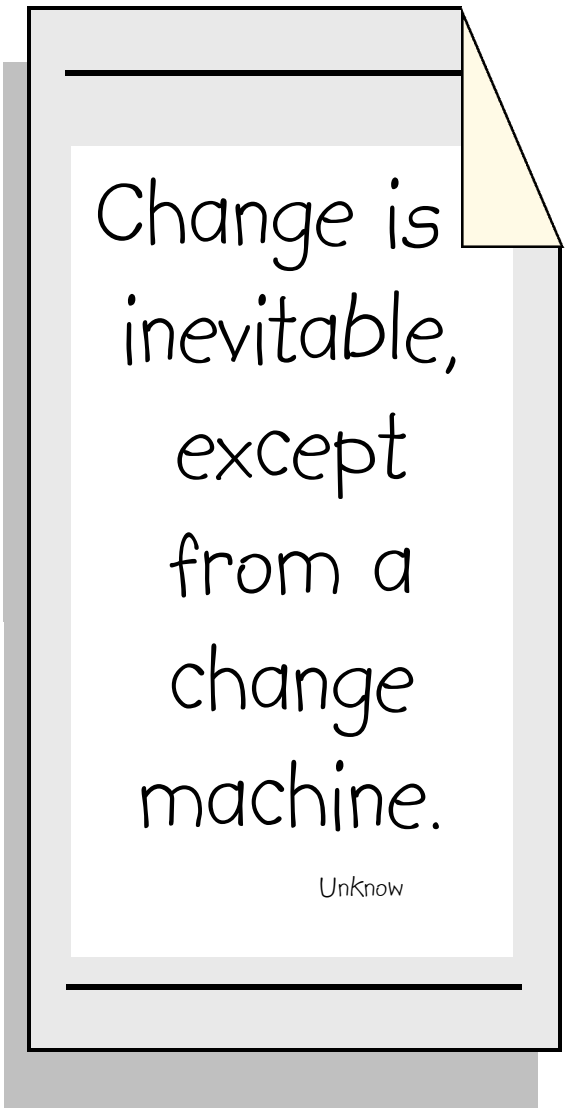
I awoke and saw that life was service;

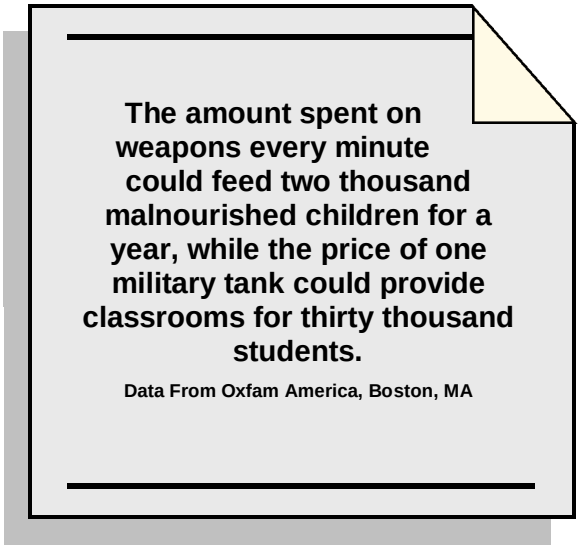
I acted, and behold, service was joy.

Rabindranath Tagore

"Until we extend the circle of our compassion to all living things, we will not ourselves find peace."

Dr. Albert Schweitzer




The amount spent on weapons every minute could feed two thousand malnourished children for a year, while the price of one military tank could provide classrooms for thirty thousand students.
Data From Oxfam America, Boston, MA