

Journalism (17)

Sponsored by
the Center for Integrated
Science Education (CISE)
University of Utah *

ANNOUNCING

Third Annual 1994-'95

High School/Middle/Elementary School Science Writing Awards

Prizes will be awarded in three general categories:

- 1) High School,
- 2) Middle and Junior High School, and
- 3) Elementary School.

Science Topics can include:

- Health and Medicine,
- Environment & the Biosphere,
- Life Science & Technologies, and
- Physical Sciences & Technologies.

The Prizes:

- Prizes will be awarded in each category. The awards will consist of a certificate and cash prize (\$75 1st place and \$25 2nd place in each category). In case of multiple writers, the cash prize will be equally divided among the authors.
- The awards will be presented at the 1994 Journalism awards convocation at Brigham Young University in April, 1995.

Eligibility:

- All high school, jr. high school, and elementary class newspapers and magazines in the state of Utah are eligible to compete, both public and private.
- Entries may consist of news stories, features, editorials, reviews, interviews, fiction, etc, including complete issues of class or school newspapers.
- Entries may be submitted by individuals, by parents or guardians, by teachers (for example, Journalism, English, Science, or by anyone in the general public who sees the story, newspaper, or magazine..
- Although there are no specific requirements as to minimum or maximum length, it is expected that they will be of sufficient length and quality to be of general benefit in improving or enhancing the reader's science and technology awareness, literacy, and/or understanding.

To Enter:

- Entries must be submitted by April 1, 1995.
- Entries should be in the form of a letter addressed to Mary McDonald, Manager, CISE, 2480 MEB, University of Utah, 84112 and indicate that they are to be considered for the Science Writing Awards for 1994-'95.
- Entries should include a photocopy or clipping of the story, including the mast head of the paper or magazine showing the date of publication.
- Entries should indicate the prize category, complete name & address of student writer, their social security number, their age, year in school, the name of the newspaper or magazine, and the complete address of the editor. Contest winners will be requested to submit a photo for publication by CISE.

The Center for Integrated Science Education reserves the right not to award one or more prizes if, in the opinion of the judges, there is insufficient competition or quality in the entries.

* Funds provided by a grant from the Dreyfus Foundation, the American Chemical Society, the Michael Foundation, US West, and by the Center for Integrated Science Education.



RELEASE AT WILL
May 26, 1993

UTAH STUDENTS HONORED FOR SCIENCE WRITING

Student writers at Bingham, Cottonwood, Roy, and Layton high schools captured honors in the first science journalism awards competition conducted by the University of Utah Center for Integrated Science Education.

Diem-Phuong Nyugen of Cottonwood High School and Taylor S. Fielding of Roy High School were double winners in the science writing competition in which the center awarded a total of \$400 in prize money to seven students.

Dr. Joseph D. Andrade, U. professor of bioengineering and director of the center, says student writers competed in the categories of health and medicine, environment and biosphere, life sciences, and physical sciences and technology. The competition was funded by the Herbert I. and Elsa B. Michael Foundation.

The award winners, by category and article title, are:

Physical sciences and technology: Ryan M. Hoglund, Bingham High School, first place, "Virtual Reality or Virtual Destruction," \$75.

Health and Medicine: Alicia Harrie and Diem-Phuong Nguyen, Cottonwood High School, first place, "Dead and Deadly: The HIV Virus," \$75; Brenda Binkerd, Bingham, second place, "Dangers of Doing It," \$25.

Environment and Biosphere: Katie Iverson, Layton High, first place, "Burn Plant Sparks Controversy," \$75; Taylor S. Fielding, Roy High, second place, "Drought

(over)

NEWS AND
INFORMATION
SERVICES
308 Park Building
Salt Lake City, Utah 84112
801-581-6773
FAX 801-581-3467

Threatens Summer Water Recreation," \$25.

Life Sciences: Diem-Phuong Nguyen, Cottonwood High, first place, "Staying Young Forever," \$75; Taylor Fielding, Roy High, second place, "Antelope Island Bison," \$25; special award, Abbie Klein (age 11), Cedar City, "Slug Invasion Slimes Spring," \$25.

#

News Service contact:

James C. Bapis, 581-7932

CISE - Science Journal Contest - 93

Awardees

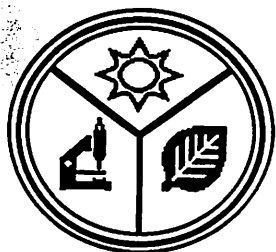
First Annual Utah Science Journalism Awards

Center for Integrated Science Education (CISE)
University of Utah
581-4379

(17)

See - I don't need this anymore - do you want copies of the certificates?
no - only a blank

Author	Address	Title	Category	Prize	Paper	Editor
✓ Ryan Hogleund	3059 W. 14700 S. Bluffdale, 84065	Virtual Reality or Virtual Destruction	Physical Sciences and Technology	First \$75.00	Prospector Bingham High	Marcie Marie O'Donnell 2270 W. 13510 S. Riverton, 84065
✓ Brenda Binkerd	13484 S. 2290 W. Riverton, 84065	Dangers of Doing It	Health and Medicine	Second \$25.00	Prospector Bingham High	Marcie Marie O'Donnell 2270 W. 13510 S. Riverton, 84065
✓ Alicia Harrie and Diem-Phuong Nguyen	5095 S. Boabab Ct. S.L.C., 84117 and 6496 S. 2600 E. S.L.C., 84121	Dead and Deadly: The HIV Virus	Health and Medicine	First \$75.00	Colt Roundup Cottonwood High	Kim Henderson 9279 Julieann Way West Jordan, 84088
✓ Diem-Phuong Nguyen	6496 S. 2600 E. S.L.C., 84121	Staying Young Forever	Life Science	First \$75.00	Colt Roundup Cottonwood High	Kim Henderson 9279 Julieann Way West Jordan, 84088
✓ Taylor Fielding	4525 S. 1600 W. Roy, 84067-3002	Drought Threatens Summer Water Recreation	Environment and Biosphere	Second \$25.00	Round Table Roy High	Johanna Wead 2150 W. 4800 S. Roy, 84067
✓ Taylor Fielding	4525 S. 1600 W. Roy, 84067-3002	Antelope Island Bison	Life Science	Second \$25.00	Round Table Roy High	Johanna Wead 2150 W. 4800 S. Roy, 84067
Katie Iverson	434 W. Gentile Layton, UT 84041	Burn Plant Sparks Controversy	Environment and Biosphere	First \$75.00	Centurion Layton High	Katie Iverson same
Abbie Klein (age 11)	P.O. Box 2022 Cedar City, 84721	Slug Invasion Slimes Spring	Life Sciences	Special \$25.00	TLC Times Cedar City	Krista Dykstra TLC School P.O. Box 1257 Cedar City, 84721



Sponsored by
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ANNOUNCING

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- Entries may be submitted by individuals, by parents or guardians, by teachers (for example, Journalism, English, Science, or by anyone in the general public who sees the story, newspaper, or magazine..
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- Entries should indicate the prize category, complete name & address of student writer, their social security number, their age, year in school, the name of the newspaper or magazine, and the complete address of the editor. Contest winners will be requested to submit a photo for publication by CISE.

The Center for Integrated Science Education reserves the right not to award one or more prizes if, in the opinion of the judges, there is insufficient competition or quality in the entries.

* Funds provided by a grant from the Dreyfus Foundation, the American Chemical Society, the Michael Foundation, US West, and by the Center for Integrated Science Education.

ANNOUNCING
the 1993-94
High School/Middle/Elementary School
Science Journalism Awards

Sponsored by the Center for Integrated Science Education (CISE)
University of Utah

*COPY OF
1993-1994
ANNOUNCEMENT.*

In order to encourage science and technology awareness in the high school and junior high school populations in the state of Utah, the Center for Integrated Science Education (CISE), University of Utah, is pleased to announce the second annual science journalism awards.

All high school, junior high school, and elementary class newspapers in the state of Utah are eligible to compete, both public and private.

Entries may consist of news stories, features, editorials, reviews, interviews, or other forms, including complete issues of class or school newspapers.

Prizes will be awarded in three general categories:

- 1) High School,
- 2) Middle and Junior High School,
- 3) Elementary.

A first prize and a second prize will be awarded in each category.

Science topics can include:

Health and Medicine,
Environment and the Biosphere,
Life Sciences and Technologies,
Physical Sciences and Technologies.

The judges will consist of Utah science writers and journalists and scientists and engineers affiliated with the Center for Integrated Science Education.

Entries may be submitted by individuals, by their parents or guardians, by their journalism or science teachers, or by anyone in the general public who sees the story or newspapers.

Entries should be in the form of a letter addressed to:

J.D. Andrade
Director, Center for Integrated Science Education
2480 MEB
University of Utah
Salt Lake City, UT 84112

and indicating that it is an entry for the science journalism awards for 1993-94. The prize category should be indicated, as well as the name and complete address of the student writer, their age, year in school, the name of the newspaper, and the complete address of

the newspaper editor. In addition, a photocopy or clipping of the story must be attached, including the mast head of the paper showing the date of publication.

Each entry submission should be accompanied by a statement signed by the author and by the editor or publisher of the paper giving the Center for Integrated Science Education permission to reproduce the story in brochures, reports, or other materials relating to science journalism, science education, and science literacy.

Contest winners will also be asked to submit a photo which the Center may use for publicity and publication purposes.

Although there are no specific requirements as to minimum or maximum length of the story, it is expected that they will be of sufficient length and quality to be of general benefit in improving or enhancing the reader's science and technology awareness and literacy.

Entries can be submitted at any time up through April 1, 1994. Shortly after April 1, the selection committee will meet, review all entries, and select first and second prize winners in each of the four categories.

We reserve the right not to award one or more prizes if, in the interests of the judges, there is insufficient competition or quality in the entries.

The awards will be presented at the 1994 Journalism awards convocation at Brigham Young University in April, 1994. The awards will consist of a certificate and a cash prize; \$75 for the first prize in each category, and \$25 for the second prize in each category. The checks will be made to the writer of the story or the editor of the newspaper. In the event of multiple student authors, the prize will be equally divided among the authors.

For further information contact J.D. Andrade at (801) 581-4379.

Awardees

First Annual Utah Science Journalism Awards

Center for Integrated Science Education (CISE)
University of Utah
581-4379

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Staying Forever Young

Science Journalism Awards 1992-93

Category: Health and Medicine

by Diem-Phuong Nguyen

6496 South 2600 East
Salt Lake City, Ut. 84121

17 years old, senior

Newspaper: Colt Roundup

Editor: Kim Henderson

9279 Julieann Way
West Jordan, Ut. 84088

COLT

ROUNDUP



MARCH 15, 1993 VOL. XXIII ISSUE 6 COTTONWOOD HIGH SCHOOL 5715 SOUTH 1300 EAST

Diem Phuong Nguyen
News Editor

What is cryonics? According to Craig Clifford, senior, cryonics is the disease of compulsive crying. Junior Katie Clifford, disagrees, saying it's the "science of creating new Crayola colors." Actually, cryonics is the process of freezing human beings after death in the hope that medical science may be able to revive them in the future.

The process begins immediately after death. The patient is put on a heart-lung machine to keep oxygenated blood circulating through the body. Chemicals such as glucose are then injected into the body to

prevent further damage while body temperature reduction proceeds. If, however, the patient is not within the vicinity of a cryonics laboratory, the blood is drained from the body and replaced by chemicals such as glycerol, usually used to preserve organs for transplants. The body is then flown to a cryonics facility where it will be cooled to -110 degrees Fahrenheit by bathing it in a solution of rubbing alcohol and dry ice, and then transferred into liquid nitrogen at -320 degrees Fahrenheit, a temperature at which biological changes cease.

Members of the scientific community remain skeptical and reject the idea of

Staying Forever Young

cryonics, labeling it as science fiction. Cryobiologists (not to be confused with cryonicists), who study the effects of cold on human organs in the hope that one day they will be able to store frozen, transplantable organs in banks, state that the very process of freezing them destroys them.

One of the major problems during freezing is that the interstitial fluid (fluid between the cells) expands and crushes the cells. In addition, it also crystallizes, causing lacerations in the cell membranes. There are two possibilities known to minimize and prevent cell damage. One option is to inject nonfreezing chemicals, called cryoprotectants, into the body (this is the currently used process). The problem with these cryoprotectants is that they are usually toxic and the process of perfusing the body with them evenly and quickly is primitive, resulting in the poisoning of cells. The other alternative is to freeze and thaw the body so quickly that ice crystals do not have time to form. Unfortunately, these processes are also immature.

However, there have been breakthroughs. For example, a technique called vitrification preserves an organ by

replacing the water in cells, were then thawed the organ with a laser and grafted onto the cryoprotectant that kidneys of diabetic labo- when cooled becomes laboratory rats, resulting in hard, like glass thereby their effective function leaving the organ intact. of creating insulin and However, it has not been reversing the disease. determined whether the Cryonicists are also organ will function af- relying on a new tech- ter transplant. nanotechnology. It's David Pegg says, "basically a process of "Nothing...clearly...injecting molecular- points the way to a sized machines into the technique to preserve a bloodstream. The- viable frozen organ, nano-robots" would much less a whole body, then replicate them-

On the molecular scale, however, freezing damaged cells one at a time resulting in the successful repair of cells damaged through freezing. Sounds like the Body are not susceptible to sharp external crystals during freezing. For example, frozen ova and sperm cells remain viable. Similar techniques have been used to preserve extinct animal species; the sperm and bone marrow of the world's last dusky seaside sparrow were frozen in January of 1980 in hope of repopulating their species through cloning from single cells.

More significantly, this process has been applied to the treatment of diseases. One breakthrough occurred when researchers at the University of Alberta, looking for a new way to manage diabetes, succeeded in freezing and preserving pancreatic cells known as the islets of Langerhans. These

Wars ride at the Epcot Center? Maybe not. According to Eric Drexler, this process will be feasible within a few decades. These painstaking and tedious breakthroughs, however, are not usually enough to satisfy cryobiologists and their immortality-seeking patients. They are freezing themselves today in the hope that cryogenic science will eventually catch up. According to Charles Platt, science fiction writer and committed cryonicist, when medicine has advanced far enough to revive cryonics patients, it should also be able to rejuvenate them. The search for immortality continues.

DEC 03 1992

UTAH
PRESS
ASSOCIATION
Clipping Service
(801) 328-8678
MAGNA
TIMES

Student journalists urged to enter contest

Student journalists at all Utah high schools and middle schools — public and private — are invited to participate in the first annual Science Journalism Awards sponsored by the University of Utah Center for Integrated Science Education.

Certificates and a prize of \$75 for first place and \$25 for second place will be awarded in each of four categories:

- Health and medicine
- Environment and the biosphere
- Life sciences and technologies
- Physical sciences and technologies

"Entries may consist of news stories, features, editorials, reviews, interviews, or other written forms," says Dr. Joseph D. Andrade, professor and chair of the Department of Bioengineering and CISE director. "The purpose of the contest is to encourage science and technology awareness in the high and middle schools in the state of Utah."

Entries may be submitted by individuals, their parents or guardians, their journalism or science teachers, or by anyone who happens to see a student's story. Entries should be submitted in the form of a letter addressed to Andrade at 2480 Merrill Engineering Building, University of Utah, Salt Lake City, UT 84112. Entry deadline is April 1, 1993.

Indicate on the envelope that it is a CISE contest entry. Include the prize category, the full name and complete address of the student writer, their age, year in school, the name of the newspaper in which it was printed,

and the complete address of the paper's editor. A photocopy or clipping including the paper's masthead showing the date of publication also must be attached.

Each entry must be accompanied by a statement signed by the author and the paper's editor or publisher granting CISE permission to reproduce the story in brochures,

reports, or other printed materials related to science journalism, science education, and science literacy. Contest winners will be asked to submit a photo that CISE will use for publicity and publication purposes.

Although there are no specific requirements for story length, it is expected that submissions will be of sufficient length and quality to be of

Continued on page 4

Young Utah journalism event slated

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The contest will be judged by Utah science writers, journalists, scientists and engineers affiliated with CISE.

The awards will be presented at a convocation at Brigham Young University in April.

PROVO HERALD
12/10

Monday, December 14, 1992

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- Health and medicine

Dead and Deadly: The HIV Virus

Science Journalism Awards 1992-93

Category: Health and Medicine

by Alicia Harrie and Diem-Phuong Nguyen

5095 South Boabab Court
Salt Lake City, Ut. 84117

and

6496 South 2600 East
Salt Lake City, Ut. 84121

18 and 17 years old, senior and senior

Newspaper: Colt Roundup

Editor: Kim Henderson

9279 Julieann Way
West Jordan, Ut. 84088

Dead and Deadly: The HIV Virus

Diem Phuong Nguyen
News Editor
Alicia Harrie
Editorial Editor

"Good morning, class," says your biology professor, "today we will discuss something so insignificant, it cannot be seen without a microscope and is not even classified as a living organism; the virus. To understand the structure and function of a virus, we will examine the bacteriophage as a basic model."

"A virus, essentially, is composed of cellular fragments capable of only a partially independent existence. Independent of what you ask? No, no, Billy, don't answer—that's a rhetorical question. You will understand when I am through explaining the bacteriophage. The bacteriophage is basically a protein capsid enclosing DNA. Other viruses may have RNA instead of DNA. As you can see from the diagram, tail fibers extend from the protein sheath that descends from the protein capsid."

"Because a virus is unable to reproduce itself, like living cells, it must invade a host cell and utilize the cell materials to replicate its own genetic material. Invasion occurs when the viral membrane proteins match specific receptor sites in the cell membranes of certain cells."

"Understanding the above information," the professor continues, "it is now possible to examine the root of a current illness of epidemic proportions; Acquired Immune Deficiency Syndrome (AIDS). Intense medical research and progress over the last ten years have not conquered something as minute and apparently insignificant as a virus. The increase in fatal pneumonia and gastrointestinal tract infections (conditions formerly observed only in cancer patients and transplant recipients whose immune systems had been suppressed) led epidemiologist to isolate the Human Immunodeficiency Virus (HIV)—the cause of AIDS."

"HIV alone is not the killer. HIV is composed of two envelopes of protein encompassing two molecules of RNA. In addition, two or more molecules of reverse transcriptase are inside the envelopes. The protein envelopes are in turn enclosed by a lipid bilayer studded with glycoproteins."

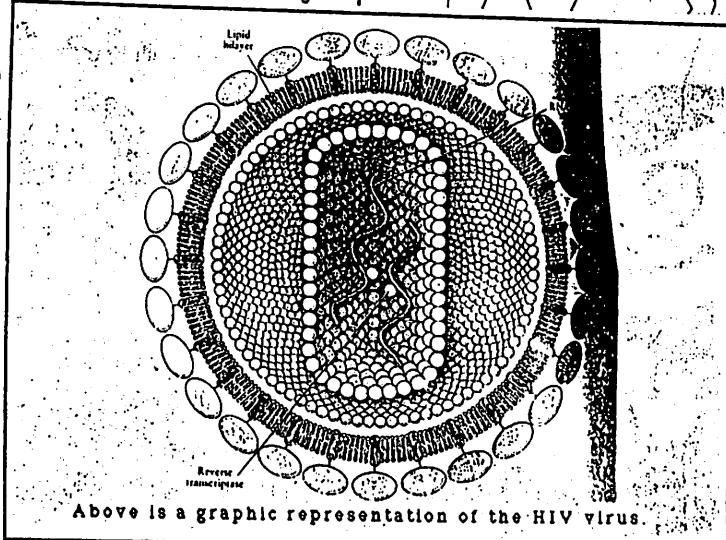
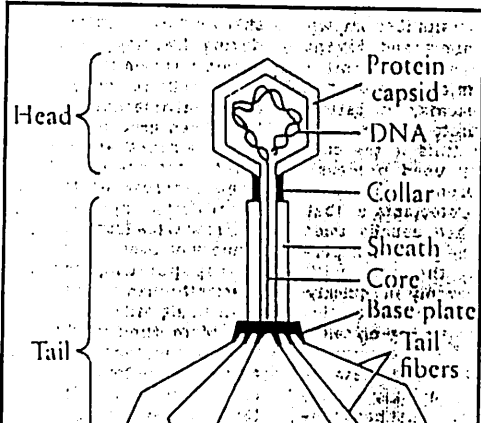
"The glycoproteins are a perfect three-dimensional match to the T4 molecules which characterize the T cells within the immune system. T cells promote response by recognizing antigens (foreignies) and utilizing stimulating the function of cytotoxic

and B lymphocytes. Cytotoxic T cells attack and kill cells infected by antigens, and form memory cells that will recognize antigens of that type that may invade in the future. B lymphocytes form antibodies to destroy and immobilize the antigens."

"This perfect match between the glycoproteins and the T4 molecule enables the virus to enter the host cell through receptor-mediated endocytosis. Once within, the HIV RNA is released, and an enzyme and reverse transcriptase catalyzes the transcription of complementary DNA (complementary DNA is DNA that is copied from RNA), which is then incorporated into the DNA of the host cell. The host cell replicates the changed DNA to produce more of the viral genetic material, thereby forming more viruses. The host cell is destroyed by this process, leaving the infected victim with few functional T4 cells. The diseased individual cannot mount an effective defense against invading microorganism, nor can the individual combat present or forming

antibodies remain in the bloodstream and are the basis for the detection of the HIV virus. The body infected with the virus cannot defend itself against pneumonia, parasitic gastrointestinal infections, Kaposi's sarcoma and other cancers. In the later stages of AIDS the central nervous system is affected, leading to atrophy of the brain and Heart failure and symptoms similar to Multiple Sclerosis are also associated with AIDS. Yes Billy—you have a question?"

"Well," answers the professor, "AIDS has been considered an epidemic since 1982, claiming one million of eighteen million American lives." Beyond cold statistics, AIDS has taken the lives of such important contributors to our society as Howard Ashman, lyricist for Walt Disney's *The Little Mermaid* and *Beauty and the Beast*, fashion model and jewelry designer Tina Chow, Michael Bennett, choreographer and director of *A Chorus Line* Billy—you have a question? and *Dreamgirls* ballet dancer Rudolf Nureyev, and actress Amanda Blake.



Above is a graphic representation of the HIV virus.

Taylor S. Fielding
4525 S. 1600 W.
Roy, UT 84067-3002

J.D. Andrade, Director,
Center for Integrated Science Education
2480 MEB
University of Utah
Salt Lake City, UT 84112

Dear J.D. Andrade:

Enclosed in this package are two articles that I wrote for my school newspaper, *The Round Table*. I learned about the Science Journalism Awards at a journalism conference at the U of U.

I would like to have the two articles entered in the Environment and Biosphere category of the 1992-93 High School/Middle School Science Journalism Awards.

Here is the information stated as required in the flyer I recieved:

Taylor S. Fielding
4525 South 1600 West
Roy, UT 84067-3002
Age: 16 D.O.B.: 05/24/76
Junior, Roy High School

The Round Table
Editor: Johanna Wead
Advisor: Terry Sheffield
2150 West 4800 South
Roy, UT 84067
(801) 774-4922

Thank you for considering my entries and for offering this award. Live long and Prosper.

Sincerely,


Taylor S. Fielding

Enclosures
/tsf

the Round Table

Vol. XXVII No. 3

Serving the Roy High community since 1965

Nov. 25, 1992

Nov. 25, 1992

The Round Table

News

7

Antelope Island bison receive annual checkup

by Taylor S. Fielding

The sixth annual bison round-up was held the first two weeks of November—from Monday, November 2nd to Wednesday, the 11th. This year, the round-up was given a new twist—the general public were allowed on the island for the duration of the round-up. This is the first time the public had been allowed on the island in ten years.

The round-up is divided into two parts: the actual rounding up of the bison and the processing—where the bison are run through the system of corrals and chutes on the island.

The rounding up involves four helicopters, seven state vehicles and horsemen. The helicopters push the bison into a field by White Rock Bay, on the north end of the island. The helicopters are then joined by the seven trucks which force the bison up to the gates and into the holding pens.

The second part of the round up is the processing. The herd is divided into several groups, continually getting smaller. A group of five or so animals is run into the cones (three triangle shaped corrals, then down a runway and into the tub (a large round metal chamber with a swinging

door). The door swings around and the bison go into a chute that is only wide enough for one animal at a time. There are four slide gates that divide the group up into single animals. At the end of the chute with slide gates, there is a hydraulic catcher that closes around the bison and keeps them still.

The examination of each individual bison begins once they are in the squeeze chute. The bison are checked for their age, cows are checked for pregnancy, blood samples are taken, injections (inoculations) are given, and a microchip is put into their ears. The microchip is the presence of technology in the round up. The rangers scan the chip and the animal's entire life history and immunization records comes up on a computer screen. New information is then added to the data base—increasing its accuracy.

The bison will be run through this gauntlet twice to determine if any of them are carriers of the brucellosis disease—a disease that causes bison and cows to abort their calves in the third trimester. Any herd of animals that has the brucellosis disease cannot be sold or transported. Before 1991, the herd on Antelope Island was brucellosis-free.



One of the 630 bison invites a states parks ranger to come down to have a goring time.

March 29, 1993

Dr. Joseph D. Andrade
Professor and Chair
Department of Bioengineering
CISE Director
2480 Merrill Engineering Building
University of Utah
Salt Lake City, Utah 84112

Encl.: (1) Photocopy of an article by Abbie Klein
(2) Photocopy of school newspaper masthead

Dear Dr. Andrade:

Enclosed please find an entry for the first annual Science Journalism Award.

Prize category: Life sciences

Name: Abbie A. Klein

Age: 11

Grade: 6

Address of student: P. O. 2022, Cedar City, Utah 84721

Name and Address of publisher: Krista Dykstra, Teacher, TLC School
P. O. Box 1527, Cedar City, Utah
84721

The undersigned grant CISE permission to reproduce the enclosed article in brochures, reports, or other printed materials related to science journalism, science education and science literacy.

Abbie Klein

Abbie A. Klein
Student

Krista Dykstra

Krista Dykstra
Teacher/Publisher

The Slug Invasion Times Spring

By Abbie Ann Klein

Have you ever gone outside early on a spring morning and seen a narrow silver path? You are seeing the footprints of a slug. A slug leaves a slimy trail as it travels. These creatures are often thought of as slippery or slimy, but are actually very interesting to read about and study.

For example, the slug seems a slimy useless pest to gardeners because it eats fruit and vegetables. Amazingly, early French and German settlers were known to eat sautéed slugs. They soaked them in vinegar to remove their slime, and then sautéed the delicacy in butter!

One lucky slug is the mascot of the University of California in Santa Cruz. It is a yellow banana slug. As the basketball players from the University shoot, they hear, "Slime Em!" from the crowd.

In fact, recently, many scientists have been studying slugs to get ideas about how to make computers more efficient and quick. As simple as a slug's brain may seem, it can learn quickly and think about several things at once. Imagine if a computer was programmed somewhat similar to a slug's brain, it could solve problems millions of times faster than computers do today!

So, the next time you are out on a spring morning, and you see a narrow silver trail across your path; view it with some respect; because you are seeing the footprints of a slug.

434 W. Gentile
Layton, UT 84041
January 12, 1993

J.D. Andrade
Director, Center for Integrated Science Education
2480 MEB
University of Utah
Salt Lake City, UT 84112

Dear J.D. Andrade,

I am sending this newspaper article as an entry for the science journalism awards for 1992-93. It is for

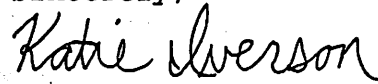
the category entitled Environment and Biosphere. It was written by myself,

Katie Iverson
434 W. Gentile
Layton, UT 84041
Age 18
12th grade

The newspaper it was published in is Layton High's Centurion. I am also the Editor-in-Chief of the newspaper so my address is the same as above. I am including the article as it was published in our newspaper.

As the author and editor of this article, I give the Center for Integrated Science Education permission to reproduce the story for publication in other things pertaining to science.

Sincerely,



Katie Iverson
Editor-in-Chief
Layton High Centurion



THE CENTURION

LAYTON HIGH SCHOOL

VOL. XXVII No. 2

440 LANCER LANE

LAYTON, UTAH 84041

DECEMBER 22, 1992

Burn plant sparks controversy



ALL THAT RUBBISH WILL GO UP IN FLAMES: The smell of garbage at the burn plant located near Hill Air Force Base is worse than that taste of soggy Cheerios in the mornings.

by Katie Iverson

Editor-in-Chief

Controversy stemming from health risks caused by the Davis County burn plant should be a serious concern for Layton High students.

The plant, located east of Hill Air Force Base off Highway 193, burns all residential garbage from Davis County, except a small portion from bountiful, plant engineer John Watson said. This amounts to approximately 400 tons of garbage daily.

In 1986 the county issued a 40 million dollar bond to build the plant. Taxpayers pay for this through a 7-8 dollar monthly collection fee for their garbage.

Energy released from burning garbage is used to run the plant and excess energy is sold to Hill Air Force Base to be used for electricity.

The purpose of the plant is to reduce the amount of waste sent to the landfill. "For every ten trucks of refuse that comes in, one truck of ash is taken out," Watson said.

According to Watson the ash taken to the landfill is inert, meaning it lacks active chemicals which are potentially dangerous to the environment.

On the other hand, Cindy King, volunteer Environmental Health Committee Technical for the Utah Chapter of the Sierra Club said, "The ash can only be inert if there are no heavy metals or organic chlorides, both of which the Davis County burn plant has. Therefore, the ash they put into the landfill cannot be inert."

King describes heavy metals as lead, cadmium, mercury, and arsenic. The combination of heavy metals

released from the plant increases general toxicity in the environment, King said.

King also argues that the ash contains organic chlorides which can have dangerous health effects. "You need to be worrying about the organic chlorides. They can get into the drinking water source and then they increase in toxicity as they move up the food chain causing birth defects, deformities, and miscarriages. Organic chlorides can be passed on to unborn children through DNA and cause mutations in future generations."

"Basically, we don't put out anything you need to be worried about."
-plant engineer John Watson

Health concerns include not only the ash, but also the emissions. According to Watson, state emissions regulations are very strict. "The state has a no smoke standard which means that no smoke can be released. What you see coming from the stacks in the winter is only white condensate like in cold weather when you breathe," Watson said.

"Basically, we don't put out anything you need to be worried about. That's one of the big misnomers. You think you're burning a bunch of garbage, here's got to be a bunch of yuck put out in the air, but it's just not like that," Watson stated.

However, King suggests that harmful substances are being released, which are not seen, in the form of smoke, and emissions in the air can have effects as far away as the Great Lakes region.

Canada, and Mexico.

Students ought to be concerned about what effects the plant might have on their health. "The direct effects on students and people in the community... will be increased rates of respiratory illnesses. These include the common cold or flu which may last only 1-2 days normally, but will now last 4-5 days. These also include asthma and an increase in hospital stays for respiratory illnesses," King claimed.

Dr. Jay R. Yates, M.D., however, is not overly concerned that the plant allegedly causes respiratory problems. "What's released up [at the burn plant] is insignificant compared to what is being released from our cars and wood stoves," he said.

As an option to burn plants, King proposes recycling. "If we could get people to recycle, it would increase the economic value which is defined as health costs, productivity, job security, and rate of salary."

However, Watson claims recycling efforts are ineffective in Utah making the burn plant more helpful in cutting back on garbage in landfills.

"I would say a burn plant is in fact a recycling plant. It's different than if you take your plastic milk jugs and newspapers some place and recycle them back and use them again as plastic or paper, but we take in materials and turn them into steam. You don't hear a lot about recycling, especially not so much here in Davis County because of this facility, but if you go down to Salt Lake there are so many things that are being stockpiled because there is not enough need for everything that is being turned back in for use," Watson defended.

April 1, 1993

J.D. Andrade
Director, Center for Integrated Science Education
2480 MEB
University of Utah
Salt Lake City, UT 84112

To whom it may concern:

I am excited to be entering the Science Journalism Awards for 1992-1993 sponsored by the Center for Integrated Science. I am entering in the category of Physical Science and related Technologies with a news-editorial. The following is the personal information requested about myself.

Ryan Michael Hoglund
3059 W. 14700 S.
Bluffdale, UT 84065
age 17
Senior

I write for the Bingham High School *Prospector*. The following is the name and address of our Editor-in-Chief.

Marcie Marie O'Donnell
2270 West 13510 South
Riverton, Utah 84065

I am grateful for the time and effort the institutions such and the CISE contribute to making our state outstanding and for encouraging the youth to reach for excellence.

Sincerely,

Ryan Michael Hoglund

The PROSPECTOR

Virtual Reality or Virtual Destruction

by Ryan Høglund
Editorial Editor

In an operating room, a surgeon stands over the perfect computer-generated replica of a cancer-ridden young man. Instead of wearing the usual scrubs, this surgeon has donned a pair of stereoscopic head-mounted viewers, or "goggles," and position-sensing gloves. He slips an electronic scalpel into the simulated patient, and actually feels the resistance of muscles and bone as he removes a malignant tumor. The doctor then receives a full critique on his performance from the computer. He then "travels" inside the electronic cadaver to locate any diseased tissue left behind.

This scenario isn't a new Nintendo game or a computer junkie's fantasy, but an actual technique to be used within the next decade for training and research in the medical field. "Virtual Reality," as its called, is the newest and by far the most incredible thing to happen to man's 20th century best friend (sorry Lassie).

So, what is Virtual Reality? VR is basically a technique for creating computer simulated worlds in which the user can function as if in the "real" world. It does this with the help of position-sensing clothing that covers the sense organs. Sense organs are the things that connect you with the outside world—your eyes, ears, and skin are the dominant senses that provide you with a perception of the outside world. When you cover these sense organs with position-sensing clothing, the clothing provides the outside stimulus that would be experienced in your alternate reality, and you then have the ability to simulate the experience of being in that alternate world.

Entering this "cyberspace" currently requires some complex and expensive hardware: a helmet, or "goggles," with tiny liquid crystal display screens in front of each eye, that are continuously updated with computer-generated

imagery; and gloves or full "data suit," threaded with fiber-optic cables that transmit to the computer the body's every move. At the moment, VPL Research of Redwood City, California, the principal supplier of VR headsets and data gloves, sells the headsets for a hefty \$10,000 to \$49,000 each and gloves for \$8,800. Since the VPL system uses two powerful silicon graphics computers, one for each eye, the total system can cost \$250,000 and beyond. A race is currently on to cut the prices of these key items drastically to reach the mass market.

Virtual Reality is not just expanding horizons in the field of medicine (as in the scenario described earlier), but also revolutionizing such areas as science, space, architecture, engineering, education, and entertainment.

Scientists are today using VR models of molecules to test the effectiveness of medications against disease causing intruders. In one case, a large enzyme that contributes to cancer can be inactivated by blocking its so-called "active site," where it does the damage, with a small molecule that fits the site perfectly. Agouron Pharmaceuticals of La Jolla, California are now testing the first anti-cancer drug developed this way.

NASA has recently used VR to explore inaccessible reaches of space. Using data sent back by Voyager II, the Jet Propulsion Laboratory simulated flyovers of Miranda, one of Uranus's moons. NASA is hoping to also use VR to explore the surface of Mars by using a camera equipped robot; an astronaut, either in a space station or on Earth, would "walk around" and explore the planets surface.

Architects are using VR to tour a building before it's even built. Architects can also subject these structures to such situations as earthquakes and fires to make the necessary safety adjustments.

Engineers using VR can exert the same amount of force on a

bridge as a freight train would, to test its strength with no danger to human or machine. VR can also be used by aerospace engineers to test airplane prototypes without leaving the ground.

The applications of VR to education are "virtually" endless. Imagine, in Biology class, taking a nature walk through an Amazon rain forest for a "hands on" study of the delicate life-cycles of the plants and animals living there, without leaving the classroom; or in Chemistry class, students travel deep inside the core of a nuclear reactor. William Bricken from the University of Washington is currently designing a VR program for algebra in which the students would become part of their equations—gives new meaning to the expression "Math is fun."

Virtual Reality could completely transform the nature of entertainment. VR arcades are already popping up in Europe and the US with adventure-combat games and a host of others. It may not be a long step from VR games to full-fledged theaters. VPL Research has formed a joint venture with MCA to build a series of test theaters around the world in two years or so.

Like all "great" technological advances, VR has its downfalls. The US military is already using VR to train field soldiers, pilots, and artillery personnel to destroy the "enemy" quicker and deliver missiles and bombs with a deadlier accuracy. The greatest risk VR poses on tomorrow's society is the "escapist danger"—if the "real" world is not going in the direction you desire, it is a temptation to stay in a fantasy world that you can manipulate to fit your criterion. Critics fear that these technologies will increase people's isolation, taking them further into the electronic cocoon spun by video parlors and TV. "People will become socially immature," warns Thomas Furness of the University of Washington. He does, however, go on to offer a ray-of-hope by stating that "the best thing about VR is that it will kill TV."

April 1, 1993

J.D. Andrade
Director, Center for Integrated Science Education
2480 MEB
University of Utah
Salt Lake City, UT 84112

To whom it may concern: *4*

I am excited to be entering the Science Journalism Awards for 1992-1993 sponsored by the by the Center for Integrated Science. I am entering in the category of Health ad Medicine with a news story. The following is the personal information requested about myself.

Brenda Binkerd
13484 South 2290 West
Riverton, UT 84065
age 17
Senior

I write for the Bingham High School *Prospector*. The following is the name and address of our Editor-in-Chief.

Marcie Marie O'Donnell
2270 West 13510 South
Riverton, Utah 84065

I am grateful for the time and effort the institutions such and the CISE contribute to making our state outstanding and for encouraging the youth to reach for excellence.

Sincerely,



Brenda Binkerd

Dangers of Doing It

continued from page 1

others follows.

Because teens tend to have several partners if they are sexually active, it is common for them to be infected with more than one disease. This can also lead to complications when treating.

Probably the greatest barrier to treatment is embarrassment. Young adults may be secretive about about their sexual activity and they are rarely in the habit of consulting a doctor on a regular basis. Graduate of Yale Medical School and medical director of the Manhattan Beach Women's Health Center, Dr. Louise H. Connolly stated, "...they feel they have a sexually transmitted disease and they may feel dirty. So it's fear and shame together. It cuts them off from asking people for support."

Prevention problems are very similar. Many of them stem from ill education. Teenagers are the least likely group to practice safe sex because they act spontaneously and do not plan for protection. Janice Voorhies, an English teacher at BHS, says, "Frequently, teenagers will not protect themselves because that would be admitting that they planned to participate in some sort of sexual activity that may contradict their ethical code."

Still, in the effort to avoid contracting AIDS or an unwanted pregnancy, more teenagers are using contraception than ever before. However, this sense of security can turn harmful. Condoms often are not effective against genital warts because the warts remain exposed during sex. Warts can also pass AIDS. Birth control pills can actually increase the

risk of cervical cancer which is believed to be connected with Chlamydia. This killed approximately six thousand women in 1990.

Sixteen year old, Meta Jones of Washington D.C. is concerned that too many of her friends have fallen to misconceptions about STD's. She says, "They say, 'We're young. This isn't going to happen to us.' Many men also believe that women are much more likely to contract diseases, a falsehood that leads them to ignore symptoms. And, of course, teens often think that it is someone else's problem."

Patty Vurpillat was an eighteen year old in love. She didn't sleep around, but after she was married she found out that she had an STD and possibly cervical cancer. Patty comments, "It's always in the back of your mind: I'm thinking, 'Could something really be messing up my reproductive system?' I'm going to turn twenty this week. And I feel like I'm going to turn forty."

Herpes

- **Facts:** A viral infection, highly contagious, affecting about 30 million Americans. No cure.

- **Symptoms:** recurring red patches, clusters of white blisters on the genitals or other parts of the body.

- **Effects:** Pain, itching, swelling, and burning. Can endanger a fetus if contracted by mother.

- **Treatment:** There is no cure, but doctors can treat outbreaks with antiviral drugs.

Gonorrhea

- **Facts:** bacterial infection, affecting 1.4 million Americans/year. 60 percent of women and 10 percent of men experience no symptoms.

- **Symptoms:** when occurring, burning sensation while urinating, pelvic pain, green or yellow discharge, genital swelling and tenderness.

Dangers of Doing It

Brenda Binkerd
Front Page Editor

For the last decade, there has been an enormous amount of publicity concerning the acquired immune deficiency syndrome. There has been huge funding and awareness projects to slow its damage while scientists search for a cure. Unfortunately, other serious sexually transmitted diseases that affect millions are taking the back seat, especially with teens. In fact, teenagers account for only 1% of AIDS cases in the U.S.

Experts say that ignorance of how STD's are spread is the main reason 15-17 year olds have a higher risk of

getting many of these diseases than any other age group. Nearly half of 20 million sexually transmitted disease patients are under age 25.

Among adults, AIDS is not the most common STD either. In fact it falls behind Herpes, Gonorrhea, Human papilloma virus (HPV), and Syphilis.

Treating STD patients has not been easy or extremely successful for several reasons. Again, lack of education is a problem. If an individual does not know the symptoms of a disease, it is not likely that s/he will recognize it.

Often, symptoms are not obvious or do not exist at all. Many STD's result in similar discomforts and detection may be confused.

Doctors say that adolescents frequently stop taking medication when the symptoms begin to disappear. Re-occurrence and further infection of

continued on page 2

- **Effects:** can cause infertility, arthritis, heart complications, ectopic pregnancy, miscarriage, still birth.

- **Treatment:** Oral antibiotics

Genital Warts

- **Facts:** caused by the Human papilloma virus, tiny warts that grow on the genitals and anus, in the urinary tract, and sometimes in the throat. One million cases a year, in

the United States.

- **Symptoms:** In 80 percent of the cases there are no symptoms, though itching may occur.

- **Effects:** presence of some strains of genital warts has been linked to cancer of the cervix or the penis. Vaginal warts can also interfere with delivery of a child.

- **Treatment:** Acid, electric needles, lasers that burn or freeze.

PROSPECTOR
The

the Round Table

Vol. XXVII No. 2

Serving the Roy High community since 1965

Oct. 30, 1992

Oct. 30, 1992

The Round Table

News

7

Drought threatens summer water recreation

by Taylor S. Fielding

This year has been another dry one for Northern Utah. There could be tremendous effects on recreation in Northern Utah if the mountains do not receive at least normal snowfall this winter.

One major problem is not enough water to go around among agriculture, people, and wildlife. This scenario occurred this year with the Provo and Little Bear Rivers. People were diverting so much water for agricultural use that

without compromise, there would have been no water left for the fish.

Jerry Wiechman, a fisheries biologist for the Division of Wildlife Resources said that the drought causes a number of problems.

"When there is a drought, the small fish have to go into the deeper holes where the larger fish are. There is little cover in the deep holes, but the little fish must go there to survive. Those fish are in turn eaten by bigger fish, so there is an increase in a loss of

fish due to predation," said Wiechman.

The drought sometimes causes problems with spawning, also. Cut throat trout, a spring spawning fish is usually unaffected. Brown trout and brook trout, which spawn in the fall, however sometimes will have trouble because of low water.

The drought also affects boating, another type of recreation that is popular in Utah.

At Willard Bay State Park this year, only 20% of the

seasonal slips were rented out. Park officials also report a rise in prop damage and damage to boats caused by low water hazards. Many people are hitting rocks and sandbars that are normally deep enough in the bay that they do not cause a problem.

"It was bad this year and next year's prognosis is not very good," said Brian House, a Willard Bay ranger, "if there is real low water, we could see boating end in July."

The snowfall needs to be 200 to 300% of normal this

winter because if Pineview and Causey don't fill up, then Willard doesn't get any water.

The ice fishing this year could be pretty bad because the marinas are way down. There is even the possibility that the marinas could be dry by the end of next summer.

There are only "self-enforced" boat launching planned for the next year. Which basically means that if you can't get your boat in the water, then you will have to go somewhere else.

ANNOUNCING

The Second Utah Bioluminescence Contest

Deadline: July 19, 1993

Bioluminescence:

Bioluminescence is light generated by animals and plants. Certain parts of Utah may have bioluminescent worms, mushrooms, and fireflies. Most encyclopedias have an article titled Bioluminescence -- the article in Encyclopedia Britannica is especially complete.

The Center for Integrated Science Education (CISE) at the University of Utah is studying bioluminescence in the State of Utah. You can help -- especially if you live in rural areas, have access to public lands away from artificial lights, and if you're not afraid of the dark!

The best time to observe bioluminescent worms and mushrooms is at night (a dark night with no moon) and after a rain. The best time to observe fireflies is usually at dusk, around 8 to 9 pm. We know there are fireflies and glowworms (firefly larvae) in certain parts of Utah. There should also be bioluminescent earthworms. Bioluminescent mushrooms may exist -- we just don't know. There could also be bioluminescent centipedes, millipedes, or snails.

Prizes:

First Prize is	\$100
Second Prize is	\$50

We reserve the right to award only those prizes which meet the quality and completeness expectations of the judges.

Caution:

Be Careful. Wandering at night can be dangerous. DO NOT search alone. Know the area you are investigating -- explore it in the day -- mark your path and mark the specimens you may want to study. Come back at night with a flashlight and a friend -- walk carefully. When you're at the place you want to study, turn off the light and let your eyes adapt to the dark for a minute or two (It takes 15 to 20 minutes for you to become fully dark adapted). Be sure you are not seeing reflections from moonlight, car headlights, street lights, etc. Have a piece of dark cloth with you, which your friend can hold up to eliminate the effect of nearby lights.

Earthworms usually don't bioluminesce unless they are disturbed -- you'll need to gently poke them and disturb them. Mushrooms should bioluminesce without touching or disturbance - - so should glowworms. Many mushrooms are toxic -- so don't use your hands to touch or poke them. Use a stick or wear gloves. Fireflies often need a few quick flashes from a flashlight; the firefly then "responds" by flashing back.

Do not hurt, damage, or collect any of the organisms. Simply draw, describe, and photograph them.

DO NOT search on private land without permission of the owner. Observations made on public lands (National Forest; State, City and County Parks or Forests; etc.) are preferred.

Entry Materials:

Your entry should include the following information:

1. Your complete name, address, and phone number, and a signed statement saying that we may use your information in a scientific publication.
2. A map of Utah showing where your observations were made.
3. A local map showing more exactly where your observations were made.
4. Photographs of the locations and the organisms (optional).
5. A complete description of the organism and of the bioluminescence observed, including sketches and measurements.
6. The dates, time of day, temperature, and weather at the time of your observations.
7. All other information you feel might be useful.

Your entry must be neat and legible -- preferably typed. DO NOT include any specimens.

Make as many observations as you can, in as many areas as you can, between now and July 15, 1993. *Have your entry to us by July 19, 1993.* Mail to:

The Utah Bioluminescence Project
Center for Integrated Science Education
2480 MEB
University of Utah
Salt Lake City, UT 84112

Judging:

Your entries will be studied the week of July 22-July 27 and judged by:

Dr. J. Andrade
Dr. S. Winters, and
Ms. Mara Lisonbee

of the Center for Integrated Science Education at the University of Utah. You will then be informed. Prize winners are expected to show the judges exactly where their observations were made.

More Information:

Everyone is eligible, including visitors to Utah. Team projects are fine -- just indicate all the team members. The team leader should prepare and sign the entry.

For more information, see your local library. Articles on bioluminescence have appeared in National Geographic Magazine. There usually are articles on Bioluminescence, Earthworms, Mushrooms or Fungi, Glowworms, and Fireflies (which are beetles) in most encyclopedias.

Good Luck!

Firefly Find Helps Children See Science in New Light

By Anne Wilson

THE SALT LAKE TRIBUNE

Seven-year-old Michael J. Seeley may have trouble saying "bioluminescence," but he is still something of an expert on the phenomenon.

Michael's unusual find of a firefly near his home in Roosevelt earned him first place and a \$100 prize in the Utah Bioluminescence Contest.

The discovery debunks claims by some science textbooks that fireflies don't exist west of the Rocky Mountains. But Michael's entry, which included a written report and three firefly sketches, also drew praise for its detail.

The contest was sponsored by the University of Utah's Center for Integrated Science Education, which intends to change attitudes about how science is taught.

"In general, science has been treated as a whole array of facts that kids need to learn and memorize," said Joseph D. Andrade, U. professor of bioengineering. "It's not. It's a way of looking at the world and learning."

Bioluminescence, the phenomenon of living organisms producing light through a chemical reaction, was chosen for the center's first contest because it's "very unusual and intrinsically interesting," Mr. Andrade said.

Michael, a second-grader at East Elementary School in Roosevelt, found the firefly at his grandmother's house.

"I looked over at this flower



Michael Seeley

and it was sitting on it, just blinking," he said.

When it comes to science, Michael is no novice. Last year, for a school district science project, Michael and his father ran an electric light bulb with a makeshift generator powered by water running through a rubber hose.

Since winning the contest, Michael has learned about something else — budgeting. His mother, Jennifer, said Michael wanted to spend the entire \$100 on a Nintendo Game Boy.

But at his parents' urging, Michael decided to save some of his money, give some to his church and spend the rest on his own fishing rod and reel.

**The
Utah Bioluminescence Project
and CONTEST
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Prizes:

First Prize is	\$300
Second Prize is	\$100
Third Prizes are	\$25 each
(up to 5 third prizes may be awarded).	

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Do not hurt, damage, or collect any of the organisms.

If you are a winner, we'll contact you to show us where you made your most interesting observations.

DO NOT search on private land without permission of the owner. Observations made on public lands (National Forest; State, City & County Parks or Forests; etc.) are preferred.

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Mr. J. Tobler

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Good luck!

JDA 5/20/91

I, Michael J. Seeley, give my permission for the University of Utah to use any of the above information for any research they do. Because of my interest and involvement in this project, I am also willing to give any further help that might be necessary.

Michael J. Seeley
Michael J. Seeley



CSE
2

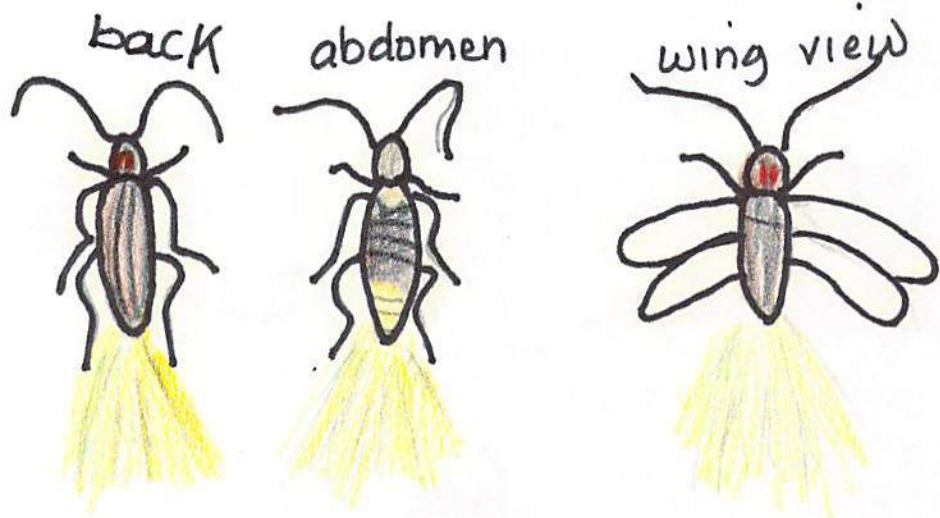
UTAH BIOLUMINESCENCE CONTEST

Michael Seeley
701 South 200 East (12-6)
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801-722-2301
(Carole Ebright)

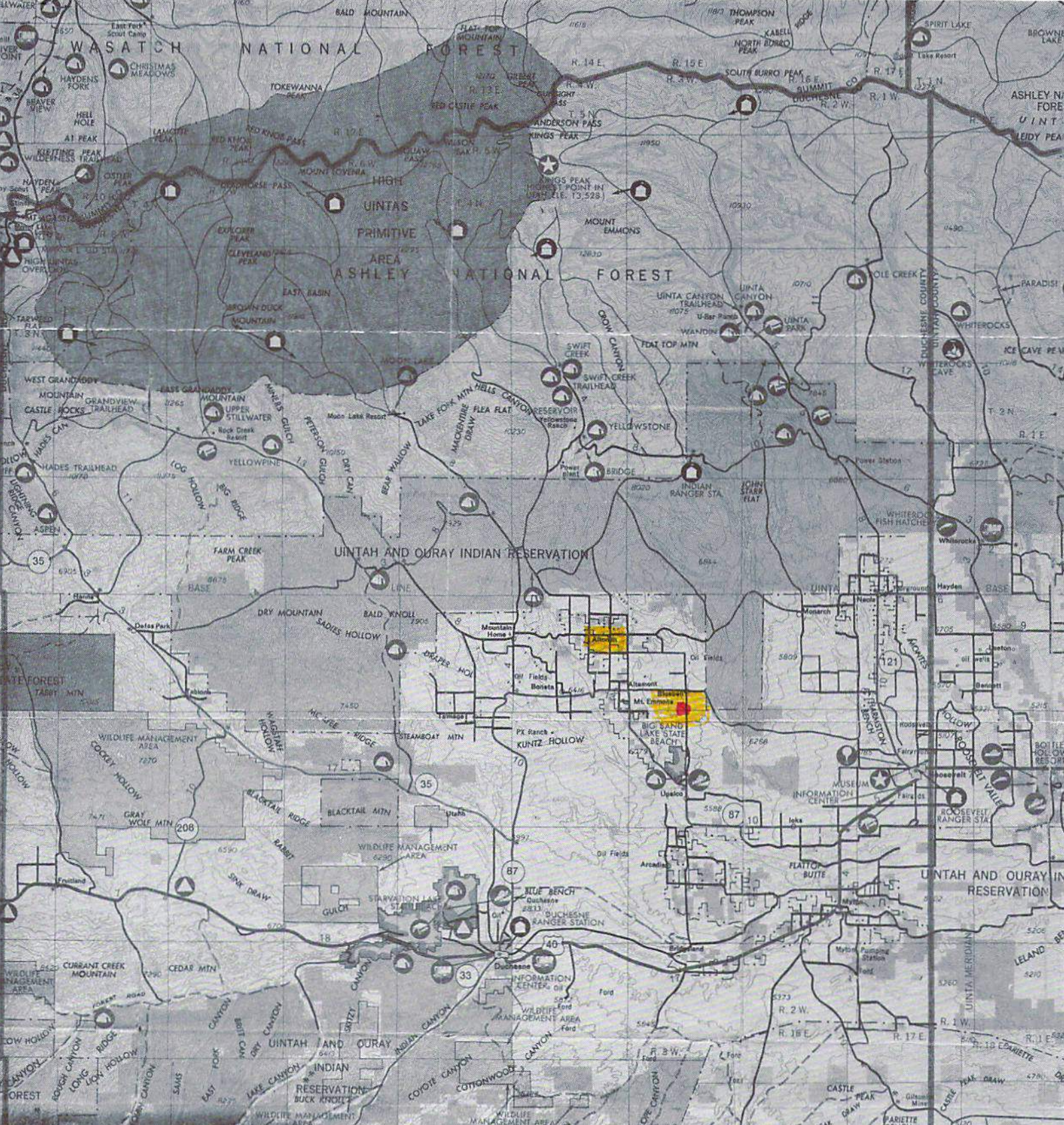
Michael spotted the firefly on July 18, 1991 at approximately 9:45 p.m. It was a partly-cloudy evening. The temperature was 60 - 65 degrees. The firefly landed on a peony plant that was next to his grandmother's home in Bluebell, Duchesne County, Utah. We have been searching for about a month now. Also looking under rocks near a pond for glowworms, but until this evening had been unsuccessful. Since our discovery we have talked with quite a few people who live in this area. Apparently fireflies are quite common and have been seen in the early months of the summer for many years. Michael's father remembers seeing them as he grew up in the Bluebell.

The light that the firefly produced was very bright. In fact, at first, Michael thought it was a Christmas bulb. Michael describes it as having a pale green tint to it. It flickered very rapidly as it sat on the bush. Michael caught it and put it in a jar. We brought it back to Roosevelt in a jar filled with leaves and flowers from the peony plant. Vibrations, as the jar moved, seemed to initiate the illuminations. Also, any vibration or disturbance at home would cause the firefly to light up.

Describing the firefly is the most difficult. We tried to measure as accurately as we could. It is about 18 mm in length and 5 mm in width. When not in flight, he kind of looks like a small beetle. There is some red coloring on the head. His legs and antennae seem abnormally long for the size of his body. His abdomen looks striped (brown and tan). At the end of his body there is a small area that is almost a yellow color. Overall coloring is brown. And he seems to have two sets of wings. (Please see illustrations)

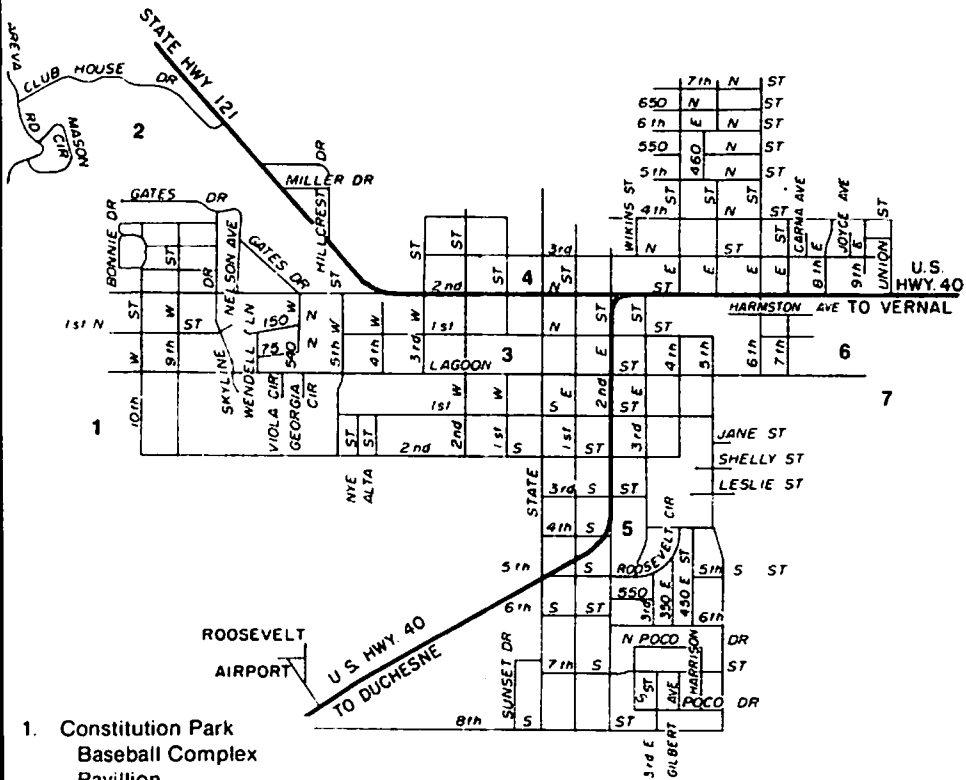


yellow area indicates known sightings of fireflies ● indicates where we found ours

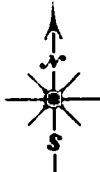


RECREATION SYMBOL LEGEND

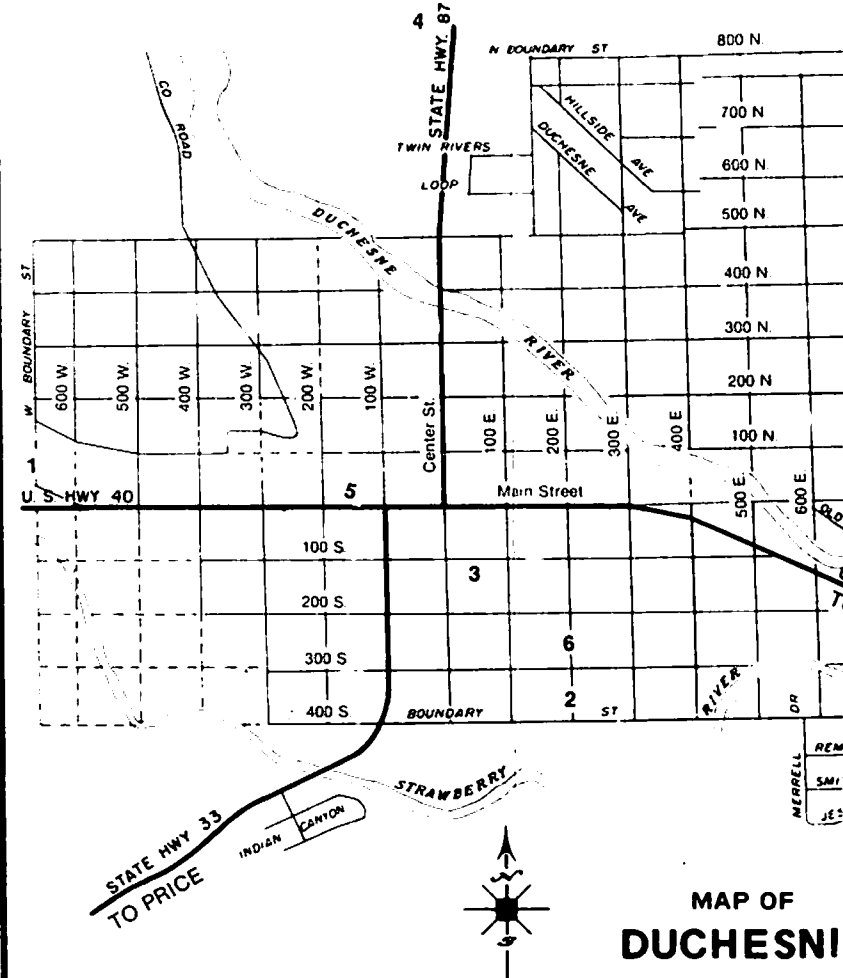
MAP OF ROOSEVELT



1. Constitution Park
Baseball Complex
Pavillion
2. Golf Course
3. Roosevelt City Park
Swimming Pool
Library
4. City Building
5. Teddy Roosevelt Monument
6. Utah State University
7. Uintah Basin Area Vocational Center



- 1 STARVATION STATE PARK — 3 MILES
- 2 FAIR GROUNDS
- 3 COURT HOUSE
- 4 TO HIGH Uintahs
- 5 Wallace Park
Swimming Pool
Bowling Center
Little League
Playground
Picnic Tables
Soon to be - Museum
Sister Duchesne Plaque
- 6 Roy Park
Softball Complex
Picnic Gazebo
B-B-Q Grills
Playground



MAP OF DUCHESNE