

The 432 Presents:

1987 BC SCIENCE AND ENGINEERING AWARD WINNERS

The Discovery Foundation

The British Columbia Science and Engineering Awards were established in 1980 by the Science Council of British Columbia to increase public awareness of the achievements made by scientists and engineers in this province. A maximum of three gold medals is awarded each year. Nominations in four categories -- Natural Sciences, Health Sciences, Applied Science and Industrial Innovation -- were sent in from all over the province and beyond. They were judged by a blue-ribbon committee of scientists, engineers, business people and former award winners, chaired by Dr. Erich Vogt, Director of TRI-UMF.

The winners are:

Derek Barnes, Mark Churchland and Walter Schilling of MacMillan Bloedel, for the invention and development of Parallam parallel strand lumber.

Dr. Peter Hochachka, of the University of British Columbia's Zoology Department, for his contributions to our understand of how animals survive in conditions of low or absent oxygen.

Dr. Roy Nodwell, former head of the Physics Department at the University of British Columbia, for his contributions to "technology trans-

fer," the process of commercializing certain university research.

Dr. Peter W. Hochachka - Zoology

Few scientists have the imagination and determination to develop entirely new lines of research. Peter Hochachka has. He is recognized throughout the world for having discovered biochemical mechanisms used by animals to survive extreme environmental conditions.

Both in his campus laboratory and on location in Hawaii, the Amazon, Antarctica and elsewhere, Dr. Hochachka has developed and refined physiological and biochemical techniques. His studies of how certain animals protect their cells and tissues against hypoxia have enabled him to show that in low-oxygen situations, the cells of these animals radically decrease their energy needs. They can reduce their metabolic rate five to twenty fold.

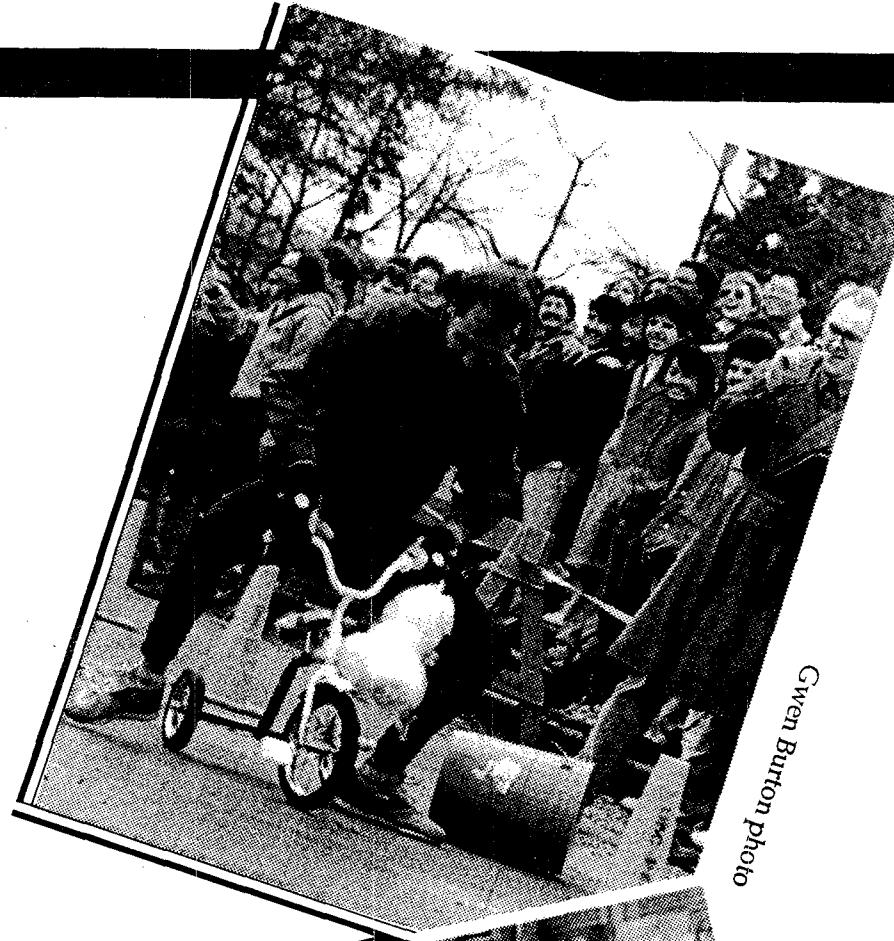
Not only has he opened up this new area of study, but he has generated intense scientific enthusiasm among his students and postdoctoral fellows. Moreover, Dr. Hochachka's work is widely acclaimed by medical researchers who encounter problems of hypoxia in human beings. He is in constant demand as a lecturer at medical conferences and symposia.

Dr. Hochachka has written five books, among them the widely acclaimed *Living Without Oxygen*, published in 1980 by Harvard University Press. He has over two hundred scientific papers to his credit.

Dr. Roy A. Nodwell

Universities are the foundation of the knowledge process. Sometimes, the new ideas that develop there form the bases for new products and systems. Getting them out of the university research laboratory and into commercial productions has become known as technology transfer. One of the first people in this province to recognize the importance of technology transfer was Dr. Roy Nodwell, Emeritus Professor of Physics at the University of British Columbia.

Dr. Nodwell has been widely acclaimed for his pioneering research in laser light scattering and light mixing. Thanks to his energy and enthusiasm, the plasma physics group he assembled within the university's Physics Department has made significant contributions to new knowledge. Perhaps even more important, he saw the commercial possibilities and encouraged his colleagues and students to transfer that and other technologies from their laboratories into the marketplace. It was thanks to Roy Nodwell that one group established Vortek Industries



Gwen Burton photo



Gwen Burton photo

Ltd. in Vancouver. That firm markets the world's brightest artificial light source, the Vortek lamp. Another commercially successful technology that grew out of research in Roy Nodwell's physics department was the "light pipe" and the rapidly expanding firm that makes it, TIR Systems Ltd. Today, Roy Nodwell is Chairman of the Board of both companies. Several other thriving technology-based companies can trace their origins to his early enthusiasm and support.



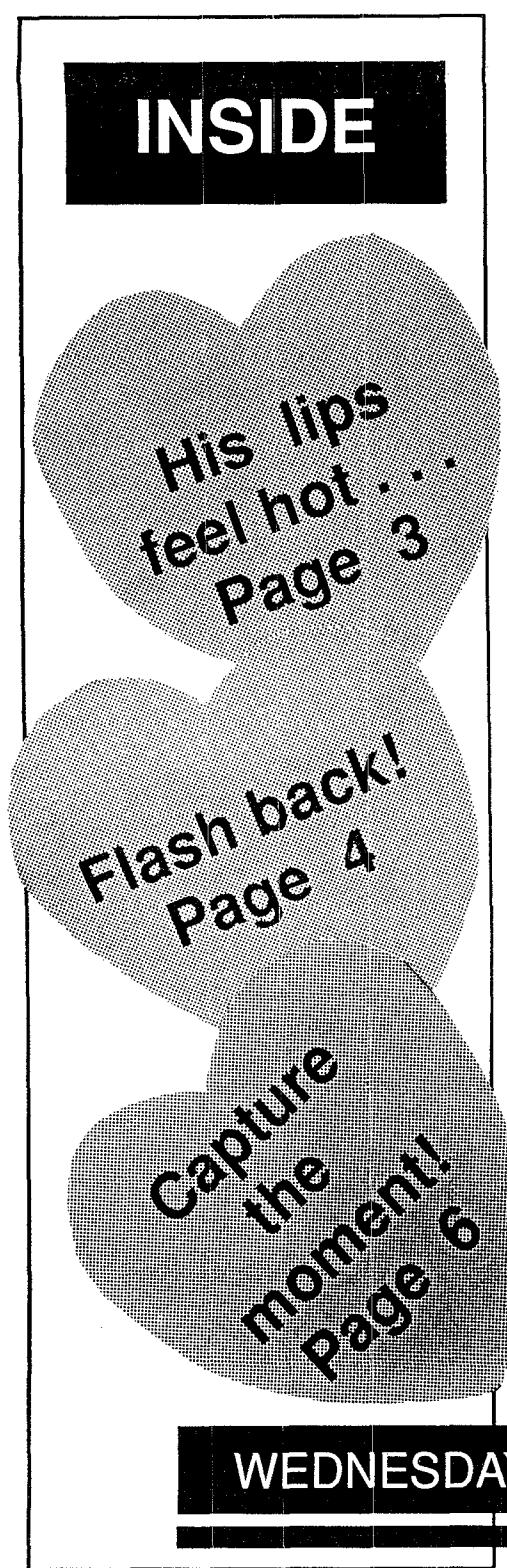
Up and Running!

The Biological Sciences Society (BioSoc) is up and running! Did you know that the Zoology and Botany undergraduate program will be eliminated next year - these two programs will be amalgamated into the Biology program under the option of "Animal Biology" and "Plant Biology". The Biology program will now have seven options! If you want to find out more about it or simply want to know when the first Beer Garden is then come to the weekly meetings Tuesdays 12:30 in Biosciences Bldg. 2449 or drop by the SUS (Science Undergrad Society) office and talk to Jean or phone Johan at 224-4053.

the 432

WEDNESDAY

February 10, 1988 Issue #10



by Kyle R. Kirkwood

Working on a project or just hammering away under an academic mentor's critical eye, you may just invent something.

An invention, as defined by the 1953-54 Public Servant Inventions Act, is "Any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture, or composition of matter."

The Canadian Patents and Development Limited (CPDL) acquires most of its technologies through government agencies such as the National Research Council or by special agreements with many universities and other institutions; in exchange for facilities, equipment, or financial aid provided by the federal government, either directly or indirectly.

The ownership of a patent is determined if the inventor made his discovery while acting as an employee or with data accumulated while acting as an employee. The use of federally granted facilities, equipment, or monies in whatever form also can negate the inventor's first rights to patent ownership.

It seems clear that you should collect the royalties, but the CPDL thinks otherwise. The CPDL's job is to protect, market, and exploit Crown-owned inventions and failure to report any invention, Crown-owned or otherwise can result in six months imprisonment and/or a \$500 fine.

The Public Servants Act is quite specific in stating that any Public Servant who invents something new must:

1) Inform the appropriate minister and fill out the appropriate paperwork.

2) File for patent in Canada, but not outside of Canada without ministerial permission.

3) Inform the patent office the inventor is a public servant and/or had any part or all of his research supported by the federal government.

In doing so, the CPDL protects the proprietary rights to a new technology by speeding up the paperwork. In less than 90 days, the CPDL can assess if an invention is unique by comparing patent record in Canada and around the world. By licensing and developing new technologies for commercial exploitation, the CPDL controls piracy and other illegal practices such as unauthorized spin-offs.

By claiming the rights to ownership, the CPDL also protects the inventor from theft of his technology and the inventor can look forward to 15% of the gross yearly payments made to the CPDL by licensees. If the Crown takes full possession of the patent, the inventor often receives an award for government service, which can total as much as \$5000.

HAPPY VALENTINE'S DAY



Gas Gun Explodes into New Scientific Frontiers

UBC Community Relations

UBC soon will be the first university in Canada to literally explode into new frontiers in material science with a new Dynamic High Pressure Facility.

The facility will be built around a gas gun - a hypervelocity projectile launcher which, when discharged at its target, produces a high-pressure shock wave inducing high compression and extreme temperature. It is one of the most effective devices known to test the durability of materials and minerals.

A potential user of the gas gun is the aerospace industry, which wants to use lighter materials for new airplanes, according to Dr. Andrew

Ng, a UBC physicist who will head the new facility.

"People always come up with new industrial materials, but the problem is how to test them," said Ng. "We're creating conditions not easily achieved by any other means."

The gas gun is approximately 18 feet long and works in two stages. First, gunpowder is discharged, firing a heavy piston down a tube filled with hydrogen or helium gas. The compressed gas produces a burst of energy which accelerates a small projectile down a barrel. The

projectile hits the target, which is mounted on a plate at the end of the barrel.

The gas gun can simulate temperatures and pressures from

deep within the centre of the earth, where temperatures reach 6,000 degrees centigrade and atmospheric pressure is nearly four million times that on the earth's surface.

And industries like Vortek, a UBC Spin-off company in Vancouver which the Guinness Book of World Records recognized for producing the world's brightest light, want to use it to develop stronger materials that will withstand extreme heat and pressure, making their products last longer.

The facility will be funded by the Natural Science and Engineering Research Council of Canada (NSERC) at nearly \$700,000 over three years.

by David Suzuki

Scientists work under tremendous pressure. The positions they achieve among their peers, as well as promotions, patents and prizes, depend on a high output of research.

That means long hours spent trying to stay at the cutting edge. And, for the student, there is little time to "waste" on history or the philosophy of science.

Scientists study nature by focusing on part of it. By measuring and controlling everything impinging on and coming from an isolated fragment, scientists gain their insights.

The picture they derive is fractured and far from complete. When applied, the manipulative powers

"It took several years until the significance of this discovery was generally understood, but when the Double Helix was published in 1953, only fools did not realize that genetics had virtually exploded.

"The speed of this development left no time for looking back or for regrets over the blood and tears that had been spilled in the process.

"Scientists discuss George Orwell's novels Animal Farm and 1984 and do not see that they themselves have created a universe which is equally frightening. No secret police force them to forget the past (as in 1984). They obliterate it themselves in the marketplace of science. They have come to believe that they have a beautiful past, or perhaps no past at all.

science itself makes this easier, Dr. Muller-Hill said. "Scientists observe and analyze objects. An object is a thing without rights. When a human being becomes an object, he is nothing but a slave. What interests the scientist is the answer to the question he asks the object, but not the object's own questions.

"In general, the scientist never analyzes the whole object but only a small part of it. Others dismember the object, and he receives only one part of it for his analysis.

"The answers that he expects from the part he analyzes may be numbers, DNA sequences or images. This process of objectivization of the whole world, and finally of oneself as part of science, seems the main inter-

Human Issues Overlooked In Scientific Hunt For Clues

gained over fragments known only under the microscope have unpredictable consequences. Thus, while the scientific and technological details of embryo transplantation or genetic engineering are straightforward, the social and environmental consequences of applying them are enormous.

Nevertheless, society, through politicians, is increasing the pressure on scientists to apply their incremental acquisitions of knowledge. Enormous rewards also accompany the successful exploitation of a new discovery.

In this kind of climate, it is easy to ignore regulations, ethical concerns, or environmental and social considerations. History is the only experience we have to guide our actions as science leads us into uncharted waters.

For biologists, Nazi Germany provided important lessons that might temper their rush to exploit new ideas uncritically. But, according to molecular biologist Benno Muller-Hill in his article Genetics After Auschwitz, there has been a systematic suppression and revision of the history of science under the Nazis.

Dr. Muller-Hill provides an explanation of how this came about: "Auschwitz had just reached its highest destructive potential when the paper appeared that showed

"The chapters of textbooks that deal with genetics and society contain only a few sentences about Na-



tional Socialism."

If history is not remembered, could the scientific community be involved in horrors like those of Nazi Germany again? Of course, although undoubtedly in a different manifestation. Scientists are, above all else, human beings, with all of the foibles, idiosyncrasies and diversity found in any other group of people.

Ambition, driving curiosity, desire for power, financial security, fear -- there are many reasons why people do what they do. And in the current scramble to capitalize on the enormous potential of genetic engineering, organ transplants and finding a cure for acquired immune deficiency syndrome, individual scientists have not been above cutting corners or compromising on ethical standards.

In part, the very methodology of

est and pleasure of the scientist's brain. There is little place for other things in the scientist's mind."

But, it is often countered, weren't the people who carried out the atrocities in Nazi Germany second-rate intellectuals, mediocre but ambitious opportunists? Dr. Muller-Hill disagrees: "It was not in the interest of the Nazi elite that the sciences be dominated by a mob of liars and charlatans. The Nazis needed functioning science and technology to assist their wars of robbery and destruction."

But could there be a repetition of what was done by the Nazis? "The killing of deficient newborn babies between 1939 and 1945 has simply become anachronistic. Most geneticists sincerely believe that here they have created new values.

"They do not see that they appeal to the forces of the market that state that cost-efficiency considerations make it advisable, for both parents and state, to destroy the cost-inefficient embryo."

Dr. Muller-Hill's ideas are not pleasant and he has encountered naked hostility from his scientific peers. But unless we hear him out and dig out the bad as well as the good in science's history, we will ensure that scientists continue to do terrible things for what seem to be the highest reasons, just as their fellow scientists did in the past.

LETTERS

Dear Editor:

It has come to my attention that the 432 has, albeit unwittingly I hope, become a pawn of that most secretive of evil orders, the Illuminati. Worse still it has fallen to the most profligate of Illuminati sub-orders, that of the Black Hand.

I do not propose that the editors, or even the staff of the 432 are mere quislings. The emulous Hand is capable of much that is misdirecting. Take for instance the training of magpies to repeat the phrase "Here kitty, here Kitty-Kitty." Then clipping the bird's flight feathers and releasing them in the lion's cage at the Stanley Park Zoo. Evil, pure and simple.

In this age of enlightenment, when we can send a man (or woman) to the moon, or build a better cup of decaffeinated coffee you would think that somebody could invent an ink that does not smudge. Yet, each and every issue of the 432 leaves my hands covered in black.

It occurs to me that my black hands may be the work of the Black Hand therefore I submit for your approval my hypothesis.

Hypothesis: The Black Hand has covertly, or through some duplicity replaced the 432's normal ink supply with an hallucinogenic, mind altering narcotic that induces the belief that they do not exist.

Proof: I can't quite remember, but as soon as the pink elephants come back with my pizza and my research notes, I'm sure it will all come back to me.

Sincerely yours,
Dr. Daved Strangeways

P.S. I have purposely misspelled my name to throw the Black Hand off the track.

1988 SCIENCE ELECTIONS

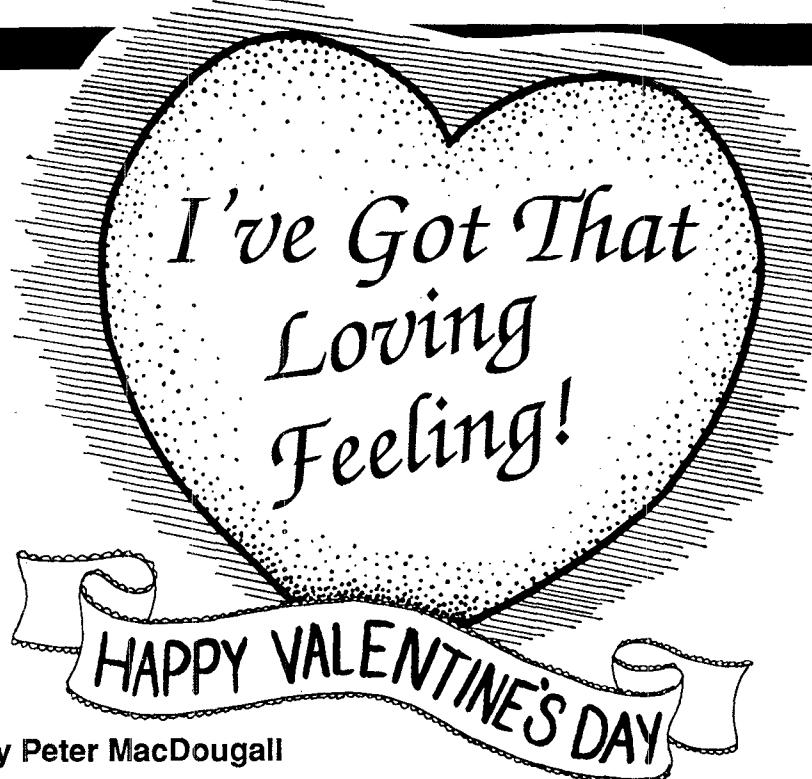
If you're interested in being on the Science Undergraduate Society council for the 1988/1989 term, come to Scarfe 9 and pick up a nomination form.

The following positions are open:

President
1st Vice
2nd Vice
AMS Rep.
Treasurer
Secretary
Sports Coordinator
Public Relations
Publications Coordinator
Social Coordinator

Nominations close on February 17, 1988.

Elections will be held from March 2-4, 1988.



by Peter MacDougall

Ah! How it feels to fall in love!

His heart pounds faster and harder. His throat is dry. His lips feel hot. He is sweating; his face, neck, and chest are flushed. His hands are shaking. He is about to kiss a girl.

Adrenaline is the main biochemical mediator of these symptoms, and just one of the many hormones floating in the chemical soup of the mammalian body.

Generally, hormones are defined as any substance which is produced by one cell, travels to another cell and modifies the target cell by changing the rate of specific chemical processes in that cell.

Therefore, the system of hormones does not act strictly as an alternate communications pathway to the nervous system as once was thought, but rather make up the effectors of the commands carried by the nerves. For example, whereas the nervous system is like a telephone/computer network in a big business, the hormonal system is like the people at the end of the telephone lines. For this reason, hormones are some of the most powerful substances produced by living organisms and govern all aspects of human experience. In any situation, hormones are controlling your state and response.

Hormones can be classified as direct-acting, or tropic: those that immediately affect their targets once produced and those that form the other half of the feedback loop and regulate hormone production. Adrenocorticotrophic hormone is a tropic hormone that stimulates the adrenal cortex to secrete cortisol, a direct-acting hormone. Hormones can also be classified by their chemical structure: there are peptide hormones such as insulin, steroid hormones such as the sex hormones, and those made of modified simple molecules such as thyroxin.

Hormones function to keep the biochemical systems of the body in perfect balance, not only in the normal maintenance of health but in response to any stimulus, mental or physical. For example, insulin and glucagon in tandem maintain the amount of sugar in the blood at an appropriate level. Adrenaline and cortisol and other hormones mediate the change from a resting state to an excited state which includes raising the blood sugar level.

Since hormones so powerfully affect the state of the body, they are carefully controlled. The hormone levels in a living organism are maintained by a complex feedback system of tropic hormone producers, direct hormone producers, hormone receptors, and hormone degradation enzymes. The rate of hormone production is controlled by the amount of hormone (and the by-products of its signal) floating in the body. If hormone concentrations are not maintained at the right levels, it can lead to disease.

Hormone receptors and degradation enzymes are as important as the hormones themselves. Without receptors, the hormone signal cannot be transduced into a cell and the cell will not react. Without hormone degradation

enzymes, quick changes in cellular action and quick responses are not possible.

Not all of the effects of hormones are immediate. Physical desire for the opposite sex (or the same sex, depending on your leaning), "feeling horny", to be blunt, is the culmination of years and years of changing hormone levels. The presence or absence of testosterone and testosterone receptors in the fetus defines the sex of a person. Gonadotropin-releasing hormone (Gn-RH) signals the onset of sexual maturation. Gonadotropin hormones (triggered by Gn-RH) from the hypophysis in the brain start puberty by increasing the production of sex hormones and growth hormone. The sex hormones are responsible for virility, fertility, secondary sex characteristics (which signal sexual readiness), and many other physical and behavioural changes (such as the start of mating rituals-like going to the movies as couples, alone). Pheromones released from the body act as subtle signals to other people and are thought to influence sex hormone production in the recipients. Finally, adrenaline is responsible for the excited feeling of falling in love.

If you feel depressed, it's probably due to hormones too. High levels of cortisol have been associated with stress, depression, shyness, and loss of libido. Mood and hormone levels are closely associated, probably in a reciprocal relationship: not only do hormones affect mood but mood affects hormone levels. The neurotransmitters of the brain are localized hormones and the opiates (pain-blockers) of the brain are responsible for "runner's high" and their decrease before menstruation in women may be in part responsible for pre-menstrual depression.

With genetic analysis and recombination, human insulin and growth hormone are being produced commercially; other hormones are soon to follow. Hormone therapy may become more feasible for some diseases, including mental illness. Most mental diseases have distinct chemical profiles and there is a definite link between behaviour and hormones. Diseases like Alzheimers, AIDS, Cancer, Heart Disease, and Depression are possible candidates for hormone therapy.

Hormones are the accelerators and brakes of cellular activity, and the fact they regulate gene activity makes them very useful. Unfortunately, hormone effects and interactions can be so complex that even the best known hormones are not completely understood.

Possibly some group might put together and market, the love potion of the 21st century: a cocktail of pheromones, adrenaline, cortisol, sex hormones for contraception or fertility, oxytocin to promote affectionate cuddling, and alcohol to decrease inhibitions. For just when you wanted to get out of the blues and fall in love.



The 432

February 10, 1988

Vol. 1, Issue #10

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The 432 is published bi-weekly by the Science Undergraduate Society of UBC. The submission deadline for the next issue is Thursday, February 18, 1988 (4:30pm). The paper is distributed on the following Wednesday. Departmental news, letters, creative works, short essays and announcements are welcome.

Subscriptions are encouraged. Twelve issues: \$7. Make money order or certified cheque payable to the 'SUS'.

ADVERTISING:

1/2 page \$140
1/4 page \$75
1/8 page \$40
1/16 page \$25

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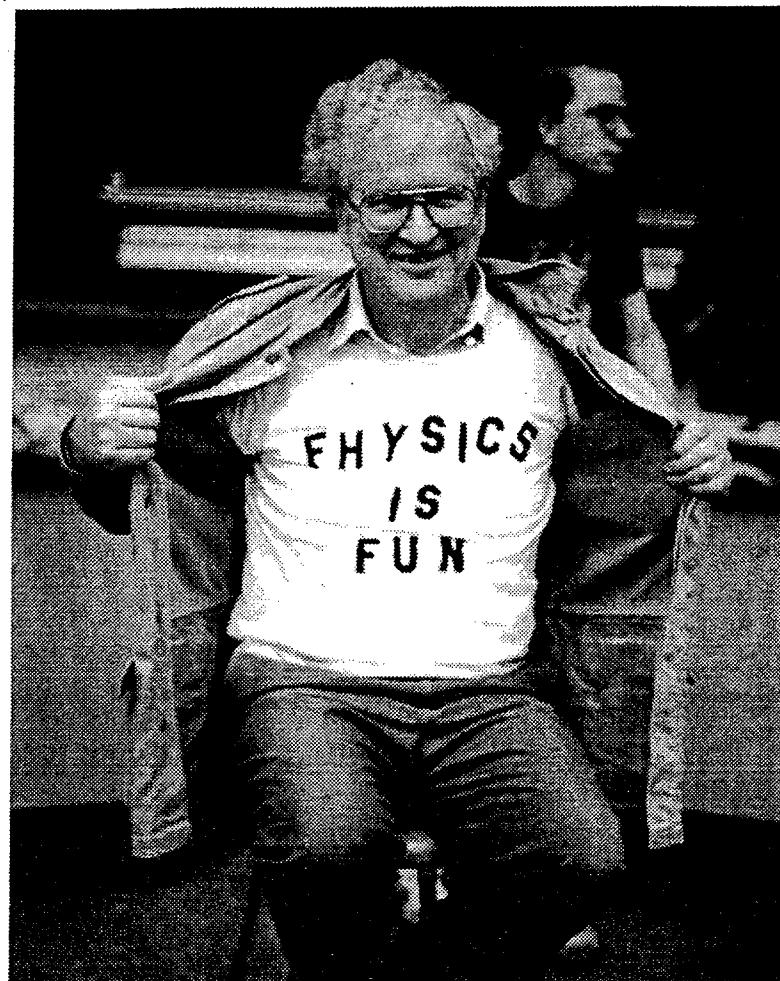
A Week to Remember!

by Todd Ablett - SUS President

Science Week is over and thanks to many of you it was a major success. Starting the week off, the Departmental displays that were held on Monday and Tuesday in the Sub-Concourse were very well done and very well received. The Blood Donor Clinic on Wednesday to Friday was one of the most successful clinics ever held at UBC while the Car Rally and the Paper Airplane Contest were enjoyed by everyone who attended. The Dance on Friday night with Wall Street was a blast for everyone and the best event of the week was perhaps the first annual Science Tricycle Race which raised \$1100 for Children's Hospital.

In the last few weeks, there have been several new departmental clubs forming such as a Biochemistry and the Biological Sciences Society (BIOSOC). By joining, it is one of the best ways to get involved.

Many of you are coming out to the various events and are getting involved in your departmental clubs, I offer you my sincere compliments. To those of you who did so much in making Science Week a success, it was a job well done.



Barry Shanko photo



Gwen Burton photo

A lot of Heart!

by Sara Fisher

Blood Drive Coordinator

The blood drive (Jan. 27 - Jan. 29) during Science Week was a huge success! A total of 770 people attended the clinic and 652 pints of blood were collected. It was a first for a U.B.C. blood drive to be held on a Friday and 238 people gave blood during the day.

The Science Undergraduate Society, co-sponsors of the blood drive with the Red Cross, would like to thank everyone who donated blood. In addition, many thanks to all students who helped organize this successful clinic.

I would also like to thank the Arts Club Theatre, Fiasco Restaurant and Jerry's Cove Pub for their prize donations.

The inter-faculty challenge results are as follows:

FACULTY/DEPARTMENT NAME	% DONATING
AGRICULTURE	8.0
SCIENCE	6.0
FINE ARTS	5.0
PHYSICAL EDUCATION	4.5
FORESTRY	4.3
HUMAN NUTRITION	3.8
MUSIC	3.4
ARTS	3.4
ENGINEERS	3.3
DENTISTRY	3.1

If you gave blood during Science Week, come to Scarfe 9 and check to see if you're a WINNER. In total, 147 draw prizes were given away! Until next year, keep on giving!

The Road not TakenResults of the 1988 CS³ Car Rally:

Placing	Team#	Team	Points	Time	Km
1	5	Trevor/John/Tory/Marina	233	2:31	106
2	1	Bill/Lori/Margaret	194	2:53	110
3	14	Frank/John	198	3:30	134
4	10	Celia/Karen/Cara/Noula	163	2:46	117
5	6	Brent/Mike	166	3:07	110
6	9	Philip/Brad	156	3:22	120
7	11	Shaun/Gord/Kevin/Lawell	151	3:52	121
8	2	Sanjay/Thor/Scott	146	3:48	148
9	8	Andrew/Pat/Grant/Tracey	144	4:30	240
10	13	Vince/Les/Anna/Hai/Kyle	124	3:16	149
11	3	Lance/Cathy	108	3:41	144
12	15	David/Derek/Julie/Judy	95	3:29	130
13	4	Jonathan/Michael	91	4:09	195

In the end, 2 teams never completed the rally.

Team 9 won the special prize for having the best facsimile of a reptile: two dragon head slippers with matching sunglasses.

Team 10, where are you? Pick up your prize!

Most made it through the rally except for one team that was last seen heading for Seattle. (We've yet to hear from them!!)

BACK!



Grant Withers photo



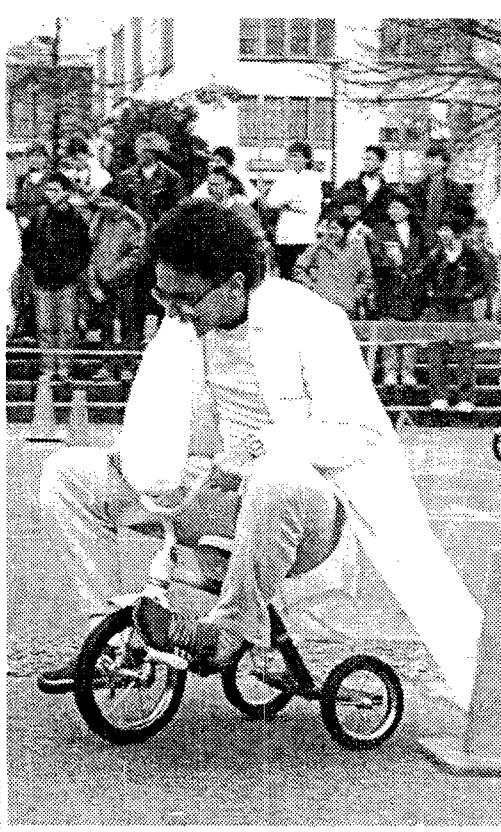
Grant Withers photo

ZWOOP!

by Julie Memory & Linda Lo

This year's Chemistry Magic Show was a smashing success. Literally, banana bits and lettuce went flying as several professors and grad students destroyed these harmless fruits and veggies while demonstrating the 'magic' side of chemistry. Yes, the truly sadistic sides of some shone through - ha, ha, ha, let's blow it up again! - we could do what to Los Angeles? A certain lab instructor even set the bench on fire! All in all, this was a very popular event, as those turned away at the door will proclaim.

Our thanks to the many participants: Dr. Oruig, Dr. Thompson, Dr. Merring, Dr. Cullen, Dana Zendrowski, Maureen Lee, Allan Adams, Andrew Clase, the 'Mad Scientist', Tim from Dr. Fryzick's group and also to everyone whose names we've forgotten!



Eric Walker photo

FACULTIES SHOW ALL!

by Rose Lai

Science Week Coordinator

The Departmental Display saw the largest participation in science history. The following departments participated:

Department	Faculty Sponsor
Astronomy	Dr. David Vogt
Biochemistry	Dr. Heather Kirk
Botany	Dr. IEP Taylor
Chemistry	Dr. A. Storr
Computer Sc.	Dr. JM Varah
Geology	Dr. Joe Nagel
Microbiology	Dr. Ramey
Oceanography	Dr. SE Calvert
Pharmacology	Dr. Katherine Pang
Physics	Dr. D. Williams
Physiology	Dr. John Ledsome
Psychology	Dr. Coren/Dr. B. Gorzalka
Zoology	Dr. Bob Carveth

Thanks to all the departments who made this event a success. Many thanks also to Todd Ablett and Stella Wong (Tricycle Race), Claudio de los Rios (Dance), Martin Lampa/Sara Fisher (Blood Drive Clinic), CS³ (Car Rally), Physsoc (Paper Airplane Contest), Michael Glenister (Movie Night) and Julie Memory (Chemistry Magic Show). To anyone I've missed, thank you also. Until next year, SCIENCE WEEK 89!

The Beat goes on...

by Claudio de los Rios, 2nd vice

On Friday, January 29th, approximately 400 students realized what science week was...a blast! "The band Wallstreet was great!" "The drinks were great!" "I wish I could remember, besides, you were there...I did what?"???

Over 10 kegs of beer were drained by an all-too-thirsty group of science students who also seemed to do away with 21 bottles of liquor cleverly concealed as highballs and shooters and not to mention the bizarre cocktails created by the bar crew. Ump teen cases of cider were emptied - now you can see how vicious rumors get started about people's behavior while "under the influence."

On the following Monday, I heard the disbelief regarding the prices of the liquor. "What do you mean fifty cents for beer. Did you really sell shooters and highballs for \$1.50?" The answer of course was yes. But don't despair because the Last Class Bash, which will feature among other things, LOW LOW PRICES!!! On THURSDAY MARCH 31, the LAST CLASS BASH happens in the Sub Partyroom. Mark it on your calendar.

CAPTURE
THE MOMENT!

THE
1988
PHOTO
CONTEST!

"CAPTURE THE MOMENT!"

The First Annual Science Photo Contest

SUBMISSION DEADLINE:

Thursday, March 10. (6:00pm)
TO: SCARFE 9 in the contest box

CATEGORIES:

1. OPEN - It must be titled: "Untitled" is not a title.
2. MY OBSESSION
3. IT CAME FROM UBC
4. IN BETWEEN

SIZE AND TEXTURE:

1. 5" x 7" to 11" x 14"
2. Black/White or Color; original prints only.

JUDGING:

1. Originality
2. Impact
3. Technical Quality
4. Good Taste

CONTEST RULES

1. The contest is open to all UBC students.
2. Each photo entered must include on the back:
-Your name, phone #
-Category number
-A title for the Open Category
3. A photo may not be submitted in more than one category.
4. Entries submitted may not have been previously submitted to other contests.
5. Winners of each category will be published in the final issue (March 23) of The 432 newspaper.
6. Submissions will be returned on April 30th.
7. The decision of the judges is final.

The prizes available will be announced in the next issue.
Photos deemed worth will be exhibited.

**Lens &
Shutter**



Eric Walker photo

**Lens &
Shutter**

Caddy Revisited...

by Joe Wu

Recently, the monster of Cadboro Bay, affectionately known as "Caddy" raised its head out of the waters to meet the wave of public interest. However, no one bothered to find out about its origins or appearance.

The creature, whose real name is "Cadborosaurus", had its beginnings in the Native American legends: "Cadboro, a beautiful legendary Indian maiden, was so lovely that the gods decreed she should remain untouched by man. A young and restless Indian brave named Saurus defied the gods and wooed her. The angry god of air and water took his revenge by turning himself into an eagle and carried off Cadboro. He punished her by turning her into a stone - reputedly, Gonzales Hill. Saurus was transformed into a sea-serpent and was banished to the depths of the ocean for a billion years."

Therefore, it is unlikely that anyone would see the creature since a billion years could not have passed so soon. However, if it is glimpsed, this is what the observer would see. "The animal was serpentine and had a body at least forty feet long. The head was like that of a camel or horse and there was a mane."

Anyway, good luck to all monster hunters out there who are trying to gain fame by capturing this creature of legend...

Source: Canada's Monsters by Betty Sanders Garner.



MIND AND

World conference for the Future of Human Civilization Hannover West Germany: May 21-27, 1988.

Topics:

- 1) Our New Understanding of Nature and of our Position in Nature.
- 2) The Dialog Between Eastern and Western Philosophy.
- 3) The Transformation of symbols in Human Society and Their Relationship to Nature.

Student competition: Full-time students can win free airfare to Germany, free accommodation, conference participation and a special welcome by the conference organizers. Competition is based on a short text (from 5 to 10 pages in length) on "The Future of Human Civilization" and "How to Promote Scientific and/or Cultural Events". All participants will receive an audio-cassette and a certificate of participation. All entries must be received in Germany by March 1.

For more information contact:

The Goethe Institute
944 W. 8th Ave
732-3966

NATURE

by Derek K. Miller

"Don't inhale. Someone might get squashed." If you've ever been to the Science Office in Scarfe 9, you will know the minimal volume it occupies. As I type this, there are twelve people here. Encased in this 3 x 5 metre room are three filing cabinets, two desks, seven chairs, six message boards, a computer, an entire wall of Science Sales products, all Science Sports records, materials for the 432, a coat rack, 48 ceiling tiles, and five tricycles. Needless to say, it's a tad crowded.

It is interesting to note that the Science Undergraduate Society, with 3500 members, is the second largest and one of the most active societies on campus. It has to its name this one microscopic room. Applied Scien-

ces (aka. Engineering), which has 1700 students, has offices for EVERY department and their own building (The Cheeze Factory). They deserve and take good advantage of that space. However, can it really be considered fair for a faculty with twice as many students to have a small fraction of the space?

What this article amounts to is a plea for office space, storage space, any kind of space whatsoever. Anyone in any department (or faculty, for that matter) who has any extra space for the SUS to use, please let us know. The office number is 228-4235, and if you haven't figured it out by now, we're in the Scarfe Education Building, room 9. Please lose some weight before you drop in.



Across

1. Very busy by way of Ontario commuting? (2,3,2)
5. Knock part of the brain with speed (5)
8. The fool split two by many to return (5)
9. Gold seasoning omen (7)
10. Notorious among noted and most saintless with us (8)
11. Damage a hard limb (4)
13. Not day, after day (5)
15. The lord may recline on the back, for example (5)
18. Could be on one's toes to be a fastener (4)
19. Losing money from a tired hen (2,3,3)
22. Drinkable marijuana is possible (7)
23. Support a black breed (5)
24. Not a clean weapon (5)
25. Doesn't like differential equation exams (7)

Down

1. A number in one negative raised idea (7)
2. If the new way is for a criminal (5)
3. Appraise the time zone of one significant other (8)
4. Can't see through a round, soft article from an eastern province (6)
5. Irritate the right snake (4)
6. Ape a church leader? (7)
7. An aspiration to be armed strangely (5)
12. Help a bat to the letters (8)
14. Shiny, highly noted use of hearing (7)
16. Unceasingly without a tail (7)
17. Certainly in action (6)
18. A country-two ways a friend (5)
20. Looks at an article among some Russians (5)
21. An instrument of two loves interspersed with existence (4)

A Fourth Crystal Form

by Peter MacDougall

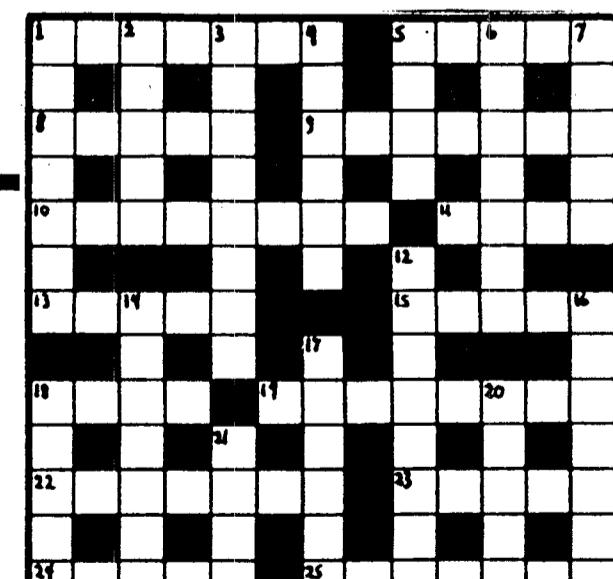
Aside from true crystals, liquid crystals and cybotactic liquids, there is a fourth crystal form that was not included in the earlier article on crystals for the sake of brevity. The fourth crystal form is unusual and only one substance forms this type of crystal, dilithium.

Originally, dilithium was only thought of as a valuable gemstone. Upon traditional examination, dilithium appears like any other true crystal. However, it actually consists of a 4-dimensional lattice of molecules. It is the fact that the molecules in dilithium crystal propagate not only in the three dimensions of space but also along the single dimension of time, that give dilithium its unique properties. Dilithium is denser than any other known substance, capable of absorbing and modulating greater amounts of energy than any other crystal, is capable of focussing high energy matter and anti-matter particle streams, and is virtually indestructible.

At first, physicists were stumped by the fact that many of the properties of dilithium crystals exceeded the limits imposed by the natural laws of physics on other crystals. However, now it is well understood that the unique properties of dilithium crystals arise from the fact that each position in the 3D spatial lattice of the crystal is occupied by several particles, each particle occupying a different temporal point with respect to the present. Some particles are in the past, others in the future, all propagating through time at the same rate so that they never actually occupy the exact same coordinates. These extra particles, as part of the lattice yet separated in time, account for the increased density of dilithium, its near indestructibility and so on.

Dilithium's ability to modulate energy and to act as a conduit for high energy anti-matter particles makes it possibly one of the most useful energy transducers in the world today. Its potential use in producing large amounts of clean, cheap energy make it highly prized in research and industry and, therefore, its mining and processing are heavily guarded trade secrets.

Nobody is going to tell the Klingons of course!



Notices

Padel Pusher Stick?

I'll come to your home to give estimates and administrate necessary treatment. Approximately 1/2 the shop rates. Experienced. Call Philippe at 731-2636. Evenings and weekends.

SPRING GRADUATES

In order to graduate this spring, you must apply before February 15th.

Pick up the proper forms at the Registrar's Office if you have not received your packages in the mail.

PRE-MEDICAL SOCIETY (IRC-C30)

Thursday, February 11: Field trip to the UBC Hospitals (12:30-2:20pm). Sign up as soon as possible.

Thursday, February 25: Special Event: Medical Ethics. Meet at Wood #2, 12:30-2:20.

U.B.C. PHYSICS SOCIETY JOURNAL

CALL FOR SUBMISSIONS

(Deadline: April 22, 1988)

FORMAT:

*All submissions must be typed, double spaced, on letter sized paper (8.5 X 11) one side only.

*Diagrams, graphs, pictures, artwork, etc. must be submitted on separate sheets of paper and not within the material itself. Each diagram, graph, etc. must be appropriately labelled and referred to within the written copy.

*Every submission will have an abstract briefly explaining the content of the essay, be it a thesis, article, science update, etc.

*Maximum length of article is approximately 10 pages.

SPECIAL NOTE:

Please inform the editorial staff if your article can be accessed by computer: MTS, Macintosh, and IBM/IBM compatibles. This year we will try to have it typeset on the in-house publishing system owned by the AMS. It is a great timesaver if we can directly copy your material if it is on one of the aforementioned systems.

SUBMIT TO:

The UBC Physics Society
Dept. of Physics
6224 Agriculture Rd.
Vancouver, B.C.
Canada, V6T 2A6

Attn: Ernest von Rosen

Teaching Excellence Award Term Nominations Now Open

The Academics Committee of the Science Undergraduate Society is now accepting nominations for the Teaching Excellence Award. Each science student may nominate "one" professor in the Faculty of Science. If you believe your professor is clear,

helpful, and effective, and that he or she deserves the recognition, it is up to you to submit a nomination. Nomination forms can be picked up at any Science Departmental Office or at Scarfe 9, and must be returned to Scarfe 9 by Feb. 12, 1988.



SCIENCE Sports Coordinator
An Olympic Torch Runner!

SEMINARS

Tuesday, February 9

Dr. Patty P. Pang: *Molecular Characterization Seed Specific Genes in Arabidopsis thaliana*. Biological Sciences. Room 2000, 4:00pm.

Wednesday, February 10

Dr. Yousry A. El-Kassaby: *The Effect of Domestication Upon the Genetic Diversity of Forest Tree Species*. MacMillan Building. Room 166, 12:30.

Thursday, February 11

Dr. W.J. Livermore: *High Pressure Physics*. Hennings Building. Room 201, 4:00pm.

Dr. John Sedivy: *An Inducible Amherst Suppressor Mammalian Host Cell System*. IRC. Lecture Hall #3, 4:00pm.

Monday, February 15

Dr. A. Underhill: *Interpretation of Wolf Rayet Spectra*. Geophysics and Astronomy Building. Room 260, 4:00pm.

Tuesday, February 16

Dr. P.A.M. Broda: *Utilization of Lignocellulose: What Contribution can Biotechnology Make?* IRC. Lecture Hall #1, 9:30am.

Dr. James Kutney: *Studies in Biotechnology - Avenues to Clinically Important Anti-Cancer Drugs*. Biological Sciences. Room 2000, 12:30pm.

Dr. Terry B. McMahon: *Probing the Structure, Energetics and Reaction Dynamics of Gaseous Ions*. Chemistry Building. Room 250, 1:00pm.

Dr. David U. Holden: *Analysis and Applications of Heat Shock Genes from Ustilago Maydis*. Biological Sciences. Room 2000, 4:00pm.

Dr. J. Smit: *Biofouling Marine Caulobacters: A Sticking Situation*. Biological Sciences Building. Room 1465, 3:30pm.

Wednesday, February 17

Mr. B.G. Dunsworth: *Forest Regeneration Research and Outlook at MacMillan Bloedel, Ltd.* MacMillan Building. Room 166, 12:30pm.

Dr. Barry L. Marrs: *Regulation of Synthesis of a Bacterial Photosynthetic Apparatus*. IRC. Lecture Hall #4, 4:00pm.

Thursday, February 18

Dr. P.A.M. Broda: *Utilization of Lignocellulose: What Contribution can Biotechnology Make?* Wesbrook. Room 201, 9:30am.

Dr. Terry P. Snutch: *The Use of Xenopus Oocytes to Probe Synaptic Communication*. IRC. Lecture Hall #3, 4:00pm.

Tuesday, February 23

Dr. P.A.M. Broda: *Utilization of Lignocellulose: What contribution can biotechnology make?* IRC. Lecture Hall #1, 9:30am.

Dr. Harold A. Mooney: *Maintenance of Diversity in an Annual Grassland*. Biological Sciences. Room 2000, 12:30pm.

Dr. G.G.S. Dutton: *Bacterial Antigens and Bacterial Viruses*. Chemistry Building. Room 250, 1:00pm.

Dr. S. Pond: *British Columbia Fjord Studies*. Biological Sciences Building. Room 1465, 3:30pm.

I.N. STIEN by Ken Otter

HEY GUYS, I GOT 100% ON MY
"SUPER ADVANCED CALCULUS 2000" EXAM



A CASE OF JUSTIFIABLE HOMICIDE