

lab lines



Newsletter of the Laboratory Technicians of Victoria

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EDITOR: Svetlana Marchouba

President's report Term 1 2008

I trust you have all, by now recovered from the start of the year, as we all know it can be tedious especially for those of us who are dealing with curriculum changes on a grand scale.

The last several months have been difficult, especially for your committee, and I would like to thank all those who have worked so hard in overcoming the problems that we have faced.

We have now established an identity completely independent on STAV and will continue to represent our profession in the manner it deserves.

During this time we have adopted a constitution and incorporated. We have a new bank account and are still actively following up the return of our assets.

We have also confirmed the copyright on all our publication and have applied for trademark registration of the names LABCON and LABLINES

As in previous years all members must renew their membership and those who are new to the profession or who are returning after an extended absence will need to apply for membership and these forms can be obtained from our website at www.ltav.org.au

Membership fees are due by the 30th of April and tax invoices will be sent by the treasurer. Wherever possible these will be sent electronically so it is important that on your renewal of membership or application in the case of new members you should make sure that we have a current email address to send these to you. It is pleasing to note that in many cases schools are prepared to pay this membership fee.

It is of course in our employers interests to do this as the cost of LABCON is to be considerably lower for members.

LABCON will (tentatively) be at the same venue and will be held in mid November this year.

I am also pleased to tell you that the long awaited, revised chemistry manual will be available soon and is presently in the process of final proof reading. This is planned to be available in hard copy as previously but also in the form of a CD. The CD version will be in colour.

Now, more than ever before it is important that we all promote LTAV (inc) as being what it is, the same vibrant and active professional body that it has been since 1980 and that we encourage all members of our profession to be active members.

Geoff Gleadall
President, LTAV(inc)
Formerly known as LTB-STAV

VISIT OUR WEBSITE:
www.ltav.org.au

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Editorial:

Welcome to the first edition of LabLines this year. I believe it is going to be vey exciting and challenging year for many of us.

I would like to ask all of you to share your knowledge and expertise with others. Think about writing an article for LabLines or just tell us about something that made you happy at work....If you feel that you can make the contribution, please contact me:

Svetlana Marchouba,
 Camberwell Grammar School
 Ph: 9835 1777
 sm@cgs.vic.edu.au

LTAV WEBSITE

www.ltav.org.au

Have you had a look at your website?

LTAV has a new website to match its new name! The information hub of the Association, with up to date details of regions and news; events and happenings.

This is where you can download application forms, past copies of Lablines, research documents (eg Technical Staff in Schools Policy document)

Discover links to other websites

Subscribe to the list-serv

The LTAV website complements Lablines and the list-serv to give us a comprehensive set of resources.

The LTAV website was built over the end-of-year break to give technicians access to all that we have with STAV. As you can see , it is a 'Work In Progress' - the first term break will see another SURGE in development.

Please add your suggestions and ideas – only a click away via the Contact button, or email me – Anne Edwards at aedwards@korowa.vic.edu.au

Can you add your expertise? The website team is currently looking for skilled techs to help build the more complex interactive pages, so if you have experience in 'cold fusion' etc please email me.

The Winner of 2007 Scholarship for Labcon was Lana Thomas from Copperfield College

THANK YOU LTAV

By Lana Thomas

I would like to take this opportunity to thank LTAV committee for granting me scholarship to attend Labcon 2007 on Thursday.

I have been attending Labcon for the past 6 years. I enjoy attending the workshops that are relevant to my profession. They broaden my knowledge as Sir Francis Bacon said “knowledge is power” and at times force me to think outside the square!

I also enjoy meeting colleagues and friends and discuss day to day issues that face us in our profession.

One of the workshops that I attended was presented by Margot Finn – Our Planet Living - Reducing your ecological footprint

She explained how ‘Global Warming’ is changing our climate which in turn threatening the survival of many plants and animals.

Ecological footprint is a tool that measures how much nature we have, who uses it and how much we use. You can measure your own footprint by going online to www.epa.vic.gov.au/ecologicalfootprint/default.asp

Thank you again LTAV and I wish you all the best.

Lana Thomas
Copperfield College
Sydenham Campus.



Displays and Mornig Tea at Labcon 2007

**Susannah Larrat Award was presented to
Barbara Anderson at the Labcon 2007 Dinner.**



Barb started working in schools in 1978 when she joined Exhibition High and then moved on to Fitzroy HS before joining Rosanna East High School in 1988. The process of amalgamation with Banyule HS in the early 1990s took a lot of time and effort but eventually she had the labs at Viewbank set up as she wished. The tool bench which she demonstrated to a region meeting and about which she spoke at Labcon was a sight to behold.

When Barb entered the profession it was as a well-trained technician having completed 25 units (as required for school technicians) of a Diploma of Applied Science at Swinburne. This covered a diverse range of subjects from the basics of Chemistry, Physics, Biology on to Engineering and Workshop Practice, Technical Drawing, Building Construction, Electronics, Plastic Welding, Metallurgy and Microscopy. Further courses such as maintenance of microscopes at Latrobe Uni added to her breadth of knowledge.

At Exhibition High Barbara worked with a range of disadvantaged students and received wide community recognition for this work which culminated in her being offered a two year Post Graduate course in Community Development, an opportunity not often offered to people without a bachelor degree.

This wealth of knowledge in laboratory skills was also shared at Labcon where Barb presented units on 'Preserving Specimens', 'Repairing Science Equipment' as well as about the previously mentioned tool bench.

We in the Nillumbik/Banyule Region have been the very thankful beneficiaries of Barbara's extensive knowledge and experience. She has always been ready to provide advice whenever asked and has acted as mentor for new technicians. We will also miss her as a person who is prepared to lend a shoulder or a hand as required to those of us who have had need of them.

Margaret Le Gry

TREASURER'S NOTES 29/2/08 :

In a small country town north of Warragul we now have an LTAV financial office! Brian and Dianne Davey are now empty nesters in a big homestead with room to spare. Our two children still have their bedrooms available for occasional visits leaving two other rooms now set up as study/offices. I have just purchased a new Dell, the first time I have ever had my own computer. How exciting! I have now installed MYOB the financial program by which LTAV will now be organized. There is now an LTAV in tray and one draw of my filing cabinet available. We are in the process of networking for the internet and soon I will design the **Tax Invoice** for membership, that I intend to email as a tree / cost and time saving effort. So it is really important that your email address is clearly written on your registration form for all this to work well!

I have discussed with our bank, Warragul CBA, the possibility of members directly depositing their membership fee into our account.
This can be done by directly depositing at any CBA branch with a **reference** to your full name.
The other option is Net banking and again it will be essential that your full name is provided as a **reference**. Either option will make life easier for me as compared to depositing hundreds of cheques!

Our account details are:
BSB: 063 532
ACCOUNT: 10401068

I will be emailing **Tax Invoices** as soon as organized and then following payment I will email a **Receipt** for your records.
You are very welcome to pay upfront if you can and then I will email you a **Tax Invoice/Receipt**. Remember if your school won't pay for your LTAV membership then you can claim it as an expense on your Tax.

Without naming names I would like to offer thanks to our members who:

- have the expertise to set up websites, list servers and edit and write our publications
- have offered to cover the cost in the interim of essential things required for our I Incorporation and other expenses.
- to all the help that comes via our list serve. There is a wonderful wealth of experience out there available at your fingertips.
- are members of the LTAV Committee, volunteering their time working well as a team
- are retired but still involved with the LTAV Committee

Finally, a big thank you to Marg Scarlett and her team at Professional Conference Services who oversee the organization of LABCON and will do so again this year.

And to Brighton Grammar School for allowing us to use one of their Science rooms for our Committee meetings. Their support of LTAV in this way is much appreciated.

And to Peter Mees our solicitor, who has been essential for sorting out legal issues with STAV. Hopefully all will soon be sorted and behind us and then we can focus on LTAV, an association organized by Laboratory Technicians for Laboratory Technicians.

Regards
Dianne Davey

**IMPORTANT NOTICE
LTAV(inc) formerly LTB-STAV
2008 REGISTRATION**

Please note that 2008 registration fees are now due by 30h April 2008. If you have already sent in your renewal form an invoice will be sent to you soon. This will be sent by e-mail if we have a valid address for you, or by post to your school address if we do not. Unless your \$40 registration fee is paid by the end of April this will be the last edition of Lablines that you will receive. If you have not sent your renewal form please do so ASAP. One can be downloaded from the website

<http://www.ltav.org.au>

and returned by e-mail to rhuntley@optusnet.com.au or by post to

LTAV Registration Officer
PO Box 1333
Warragul Vic 3820

Laboratory technicians who were not formerly registered with LTB-STAV, or who were last registered before 2004 when the current database was setup, will need to fill in the application for membership form as well as the renewal form.

Beverly Huntley
2008 Registration Officer
LTAV(inc)

ELECTRICAL SAFETY OF SCIENTIFIC EQUIPMENT

By Peter Henderson

Phentron © 2008

All school electrical equipment (ie anything that can be plugged into mains power), must be tested & tagged to AS3760 (more information about AS3760 can be found on my web site www.phentron.com/downloads). Over the last 8 years, I have seen 5 items of science equipment which have passed AS3760, but still could be lethal if used!!

Jacobs Ladder (& other high voltage & spark generating equipment)

The high voltage in these units can be from 100 to over 15,000 volts!!!!

Current design (& current Australian standards) of these instruments will keep the current of the output voltage below dangerous levels and the equipment will also incorporate physical protection – so the user can not accidentally touch the high voltage.

Unfortunately, many old spark generating instruments have high voltage terminals that can be touched by the operator, and their electronics can not keep the current below lethal levels!

van de Graaff generator

The high voltage in van de Graaff units is generated by static electricity and is designed so that people can touch the high voltage.

Note: this static electricity can damage other electronic devices – keep other equipment at least 1 metre away and do not let charged objects (eg students) discharge through other electronic equipment.

WARNING - take extreme care with people who have medical implants eg pace makers, cochlear implants, etc. My personal opinion is that any adult or student with a medical implant, should not operate or be charged with a van de Graaff generator.

Electrophoresis

Electrophoresis instruments often use 100 – 500 volts across the test solution or gel plates, etc. Modern tank design will not let the operator open or touch the tank contents when the high voltage is applied, also the HV leads & sockets do not have exposed metal parts.

*NEVER use standard banana plug test leads – always use the recommended safety leads.

*NEVER use open vessels where the liquid can be touched – use tanks specifically made for electrophoresis.

Variacs & Rheostats (ie 0 – 300 volt ac auto transformers which run on 240 volts ac)

WARNING - ALWAYS consider the output of these devices to be at mains voltage and never use them as an alternative for a low voltage power supply.

Note: if its power lead (or the power point) is wrongly wired, its output could be 240 V ac above ground potential – even when it is set to zero volts output!!

“Home made” equipment

Many schools have equipment that have been made by a teacher or equipment that has been modified to do different functions from its original design – it is most important that this equipment is assessed by a qualified instrument engineer to confirm that it meets current Aust. design regulations.

Old equipment

Any instrument that is more than 10 years old, should also be assessed to ensure that it conforms to current Aust. design regulations.

Where to get your equipment tested

Companies doing AS3760 testing & general electricians are not normally qualified/experienced to assess the operational safety of scientific instruments. Your first choice should be the manufacturer or sales company from where the equipment was purchased, if you do not know who sells a particular instrument try searching the internet. Next, try the Yellow Pages "Scientific Instruments" & look for companies specialising in scientific instrument repairs.

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Contact: Peter Henderson, mobile: 0408 305 325
(Grad. Dip. Digital Control, Dip. App. Science (Chem.))

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☺ If we couldn't laugh at ourselves, that would be the end of everything -- Niels Bohr

.....

☺ On the heater lies a tile.

The teacher asks: "Why does the tile warmer at the side that lies at the far side of the heater?".

The student stammers : "Eh, maybe because of the heat conduction and so?"

Teacher: "No, because I just turned it around."

.....

☺ Mathematics is made of 40 percent formulas, 40 percent proofs and 40 percent imagination.

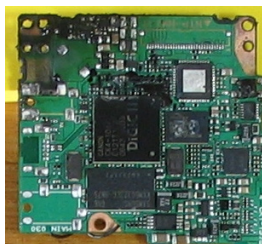
.....

☺ What's the difference between a mathematician and a physicist?

A: A mathematician thinks that two points are enough to define a strait line while a physicist wants more data.

DO NOT ZAP YOUR LAPTOP

When using apparatuses, such as Van de Graaff or Rumkorff Coil, the spark discharges occur. Electromagnetic energy is radiated from the spark gap. This radiated energy might be picked up by any nearby electrical leads, across which extra-high voltages can be induced. These voltages can destroy electronic apparatus such as a laptop computer, digital balance or digital camera because the long supply lead can act as a pick-up aerial. Keep your electronic equipment well away from a Van de Graaff!!



Electronic Board from the digital camera damaged by Van de Graaff spark

Ref: SSERC Bulletin

HANDY HINTS

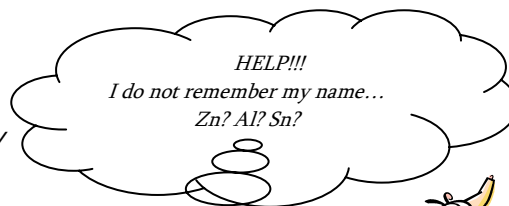
If your metal samples have been mixed by your students.

We had Aluminium, Tin and Zinc strips mixed and separated them by the following method.

Wash all the strips and give a light rub with steel wool, rinse and dry. Lay the strips flat, put a drop of 2M Sodium Hydroxide on each strip - the Aluminium will react almost instantly

Rinse and dry. Lay out the remaining strips and put a drop of 0.1M Copper Sulphate on each - the Zinc goes black instantly, separate these immediately. The Tin will go black but it takes a little while. Rinse clean and dry.

Judy Hasse



When the detergent froths up in the dishwasher, open it and rub a moist bar of soap all over the inside of the door. This will deactivate the detergent froth when you start the machine if you put enough soap in there. i.e soap and detergent don't mix they have a neutralising effect on each other.

Janet Thomas

PASCO Experiments - Exploring Temperature

This is the first in what will be a regular feature. Each edition we'll bring you hints, experiments and more for your PASCO gear. This one is a range of suggested introductory activities using temperature sensors to get your teachers and students started using PASCO electronic measure. Are there things you'd like to see here? Please contact us - we welcome your input.

Teacher & Tech Hints:

1. PASCO's Temperature Sensor has a stainless-steel probe and was designed for use in water or mildly acidic solutions. Teflon® sleeves (part no. CI-6549) are available from PASCO to protect the probe when used in solutions that may damage the steel. Refer to the Quick-Start card packaged with the sensor for more information. Temperature range is -35 C to +135 C at a resolution of 0.0025 C
2. Remind senior students that they may wish to calibrate the sensor for better accuracy. Calibration instructions are also provided on the sensor's Quick-Start card. Factory calibration will be more than adequate for junior and middle school students.

Student Background:

It may be difficult to imagine, but the atoms and molecules that make up all matter are constantly in motion. This is true even for matter in the solid state! Because they are constantly moving, atoms and molecules possess kinetic energy. Temperature is a measure of the average kinetic energy of all the moving particles that make up a substance. Whenever a substance becomes warmer, its atoms and molecules move faster, and therefore have more kinetic energy. The opposite is true when a substance cools down -- its atoms and molecules slow down and as a result have less kinetic energy.

Hypothesise:

As you conduct the suggested experiments, predict how the temperature will change -- Up? Down? By how much?

Equipment:

For each lab group: Temperature Sensor, computer interface, additional equipment as suggested for specific investigations

Suggestions for Investigations:

1. Evaporative cooling: Dip the Temperature Sensor into rubbing alcohol, acetone, or other solvent. Click Start, and then wave the Temperature Sensor quickly through the air. What will happen to the temperature as each liquid evaporates?
2. Thermal energy in solids: Compare the temperature of a coin before and after being struck with a hammer. Or apply a heat source to one end of a metal rod and monitor the temperature at various distances along the length of the metal.
3. Friction and thermal energy: Test the temperature of various surfaces before and after being scrubbed with sandpaper. Does the grain of sandpaper used make a difference in how the temperature changes?
4. Physiology study: Use the Temperature Sensor to map the temperature across various body parts: for example, neck - shoulder - elbow - wrist - hand.
5. Sense-ability: A classic demonstration of how we sense relative hotness / coolness asks the volunteer to hold one hand inside a beaker containing very warm water while holding the other hand in a beaker of ice water. After 30-60 seconds, move both hands into a beaker containing room-temperature water. What do you predict you will feel? Use the Temperature Sensor to monitor how long it takes the temperature of each hand to change throughout the experiment. Use caution - do not burn or freeze your skin!
6. Exothermic and endothermic reactions: Predict how the temperature will change when you drop Alka-Seltzer into water. Can you predict how one tablet will differ from two or three? Or try testing other common chemical reactions like vinegar and baking soda.
7. Thermal energy in the environment: What is the temperature of puddles after a rainstorm? How about the soil at different depths? How does a brick wall in the sun differ from a wooden door? How much cooler is the air in the shade versus the sun?
8. Does color matter? Compare the temperature inside a white car versus a black car. Or compare the temperature of a dark-colored surface and a light-colored surface after exposure to sunlight

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Hello all from the UK.

By Dale Carroll

Hello all from the UK.

I hope that everything has settled down, I was concerned when I heard of the situation that existed at the end of last year.

Just dropping a note to let you know that everything is going well over here in the UK. Uppingham School where I am working is located in the midlands area (between Leicester and Peterborough) and is basically a school town. The school own about half of the buildings around the town with classrooms and particularly boarding houses all over town. The school itself has about 770 students (almost all boarders), we have 4 full time techs and 2 tech aids/cleaners. The science labs are very dated, built in 1957, and the chemical storage still as it was back then.

Generally the work is very similar to in Australia, each school (or even department) have their own system for prac requests. We have a rule that pracs are in on Friday for all of the following week, others have 2 or 3 days notice. Technicians here have the same problem with appropriate recognition for the work they do as we have in Australia, not highly valued.

My working time here is almost over, I finish at Easter, and then we will be traveling around Europe and other parts of the UK till we return in July. It has certainly been a worthwhile experience and would encourage others to do the same if the situation arises.

Uppingham itself is situated in a great area of England, it is very central and has a number of old traditional towns nearby. Within a 5 minute drive in any direction you are in the countryside. Some of the roads/laneways make for interesting driving with 2 meter high hedges on both sides of the road which is about 1 and a 1/2 cars wide and of course bends every 50 meters. The weather has been kind to us so we have been able to travel around England on our weekends off (I work 2 out of 3 Sat mornings) and the term/mid term breaks.

I have only been accessing this email address periodically, if you would like to contact me while I am over here use the following address djcarroll@live.co.uk

What's on

LTAV LabCon

Victoria's Lab Technicians' Conference

13 – 14 November 2008

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CONASTA 57 6-9 July 2008

Griffith University, Queensland

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$$\Delta T \uparrow E$$

It is important that the water in one of the beakers is boiling hot, and in the another beaker is icy cold.



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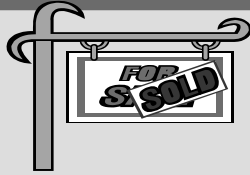
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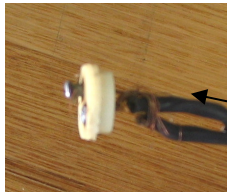
Please contact the editor, Svetlana Marchouba on sm@cgs.vic.edu.au

DO IT YOURSELF

Please send in your ideas.



A common problem with the Hodson lightboxes are breakages of the wires connected to the light globes/banana plugs.



Bare wires touching will cause a short circuit.

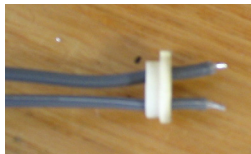
It is quite easy to fix:

1. Remove the light globe from its holder.
2. Remove white insulator disk with the cutters. **But keep the 2 metal "rivets" from the end of each wire.** Heat the "rivets" with a soldering iron until they are easily removed from the old wires.

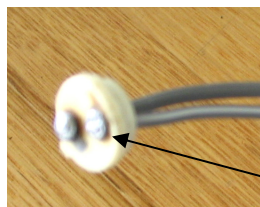


"rivets"

3. Replace the wire with the new one. The speaker cable works very well.
4. Put the wires through the openings in the insulator disk.



5. Solder the new wires into the "rivets"



"rivets"

6. Pull the wire back into place.
7. Connect the light globe.
8. Replace the banana plugs.
9. Your Light Box is as good as new.



LTAV Publications

Three laboratory reference manuals and a conference CD-ROM are available from LTAV. Interstate lab staff, Victorian lab staff on leave and Science teachers etc should use this form for annual subscription to *Lab Lines* (4 editions) and the Conference booklet.

- ... **Biology Reference Manual:** \$16.50 (incl. GST)**. This handbook contains information on biological techniques, reagents, stains and culture media commonly used in secondary schools.
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I,.....
(name and occupation)

of, employed at
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....., desire to become a
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In the event of my admission as a member, I agree to be bound by the rules of the Association for the time being in force. I also agree to provide the information included in the Association's then current Renewal form to the Association's Registrations officer by 30 April each year.

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REGISTRATION/RENEWAL FORM

Technicians employed or formerly employed in Victorian educational institutions are eligible for membership of LTAV. Current registered members receive Lablines and LABCON registration details.

Information provided is confidential and will only be used by LTAV Committee and Regional Representatives.

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Please feel free to contact any member of your committee with any queries or concerns. Members are welcome at committee meetings. Contact The Secretary for more information.

LTAV Committee Meeting Dates 2008.

Committee will meet at Brighton Grammar School from 6:30 – 9:30 p.m. on the following dates:

March 17th ; May 19th; July 28th; September 15th; October 27th; December 9th (tentative)

All members are most welcome to attend.