

Toronto Section Life Member Newsletter



Dear Life Member,

This is our second newsletter to you in 2006, and is being distributed via email and will also be mailed to all LMs without internet.

On with the Program



A tour of the Greater Toronto Airport has been arranged. Highlights include an overview presentation by Don Alarie - the Director of Engineering at Toronto Pearson, a ride on the Automated People Mover (LINK Train)



and a tour of the Cogeneration plant (117 MW gas fired, twin generator) which supplies all of the power, heating, and cooling to the airport.



- **Date:** Thursday October 19
- **Time:** 1:00 PM – 4:00 PM
- **Location:** Sheraton Airport Hotel, Boardroom 351, and the Cogeneration plant.
- **Transportation.** Pacific Western Bus leaves York Mills Subway station at 12:00 noon and returns by 5:30 PM.
 - 4023 Yonge St.,)North York, ON **York Mills Rd. & Yonge St.** (Upper level of York Mills Subway)
- Transport around the airport site will be via the APM LINK train and the Pacific Western Bus (from the APM Victoria Rd. stop to the Cogen plant and back to the APM stop). You can meet the tour at the Sheraton at 1:00 PM if you want to arrange your own

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transport to/from the airport – for example using another Airport Express Bus from the Royal York Hotel or Kipling TTC station.

- **Agenda:**
- **Light lunch (Sheraton 1:00 PM)**
 - Light lunch will be available in the Boardroom
 - This is intended to be an informal get-together to meet your LM executive and fellow LMs, but also to start informal discussion on a number of planned activities for the year.
- **Presentation (Sheraton 1 hr.)**
 - Introductions
 - Overview of development at Pearson – what we’re doing, where we are in the process, where we’re headed
 - Background to Cogen, Cogen Plant development – procurement, design and construction, operation and maintenance
 - Energy Management at Pearson
- **APM/LINK Train ride and technology (15 mins.)**
- **Cogen Plan Tour (1 hr.)**
 - We are fortunate the plant is shutdown during this week – otherwise the noise makes a tour almost impossible.
 - Key components: how they work, how efficient they are etc.
 - Plenty of time for questions and discussion.
- **Hosts Don Alarie, [416 776 3591](mailto:416.776.3591). don.alarie@gtaa.com and John Souther, Cogen Plant Manager.**
- **Confirm:** Please confirm your attendance with Pat using email (Patrick_Finnigan@ieee.org) or phone: 416-434-9353.
- **Note:** Tour is limited to 25, first-come, first served via your confirmation note. Hardhats are

required (we will have only a few extra).

Find out more about the GTAA at: <http://www.gtaa.com>

and more about the co-generation facility at:

<http://www.powerauthority.on.ca/Page.asp?PageID=924&ContentID=959>

Location:	Mississauga, Ontario
Nameplate Capacity:	117 MW
OPA Contracted Capacity:	90 MW
Developer:	Greater Toronto Airports Authority
Technology:	Natural-gas fired, combined cycle cogeneration
Turbines:	Two GE LM6000PD combustion turbines One Demag Delaval ST4-CE300-L steam turbine
Commercial Operation:	February 1, 2006

The IESO Tour

The Spring LM tour to the Independent Electricity System Operator was quite successful.

In case you missed the update in the IEEE Toronto Annual Connections Newsletter here is a summary:

The IESO tour was well attended (18) and Darren Finkbeiner from IESO gave us a comprehensive overview of electricity management in Ontario, and

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the responsibilities of IESO. We had a nice mix of IEEE LMs as well as from other IEEE affinity groups, and industry. The highlight of the presentation was a detailed (45+ minute) description of the 3-story wall-sized display and "pods" of operators who predict and manage the economic aspects (i.e. selling price/MWh), as well as the System group who drills down into problem areas with supply and transmission. IESO also provided all tour members with a rather fascinating electrical memento (multi-colour LED pen) which most of us have not yet figured out how is actually activated.



A small group was able to meet over lunch, kindly sponsored by the Section where we discussed future possible events, as well as better ways to communicate among the LM community – for example more localized events in the centre of town as well as the east and west end of the GTA where LMs are “clustered”, meetings at a variety of times to see which is best attended.



Engineering in Medicine and Biology Section Inaugurated



Your LM chair had the great pleasure of attending the extremely well organized inaugural event for the EMBS Chapter. The speakers gave a comprehensive overview of the exciting medical devices research and commercialization here in Toronto:

- University of Toronto Banting and Best Department of Medical Research – BBDMR (Dr. C. Ross Ethier)
- MEDEC (Stephen Dibert)
- Health Technology Exchange (Dr. Morris Milner)
- Ryerson University and Uof T (Dr. Anastasios Venetsanopoulos)

Congratulations to: Benjamin Mak (Chair), Brian Courtney, Kristina McConville, Charudutt Shah (Vice-Chairs), and Stephen Davies for working hard to found the chapter, and for making this an enjoyable and memorable event.

Two more EMBS events have been scheduled already. For information on joining EMBS, contact Benjamin Mak bmak@ieee.org.

The Internet

The IEEE Toronto LM “Blog” site is for you to share all of the exciting things you have been up to, and also to share exciting technical sites etc. you have found on the internet (and elsewhere) which you think are of interest to other LMs. The blog is also a place to put out queries for info from your fellow LMs or just to say hello and re-connect with old colleagues.

Please add your ideas and comments at:

<http://ieeetorlm.blogspot.com>

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If you have any difficulty posting items to the site, contact Patrick_Finnigan@ieee.org or call 416-434-9353.

Are you aligned?

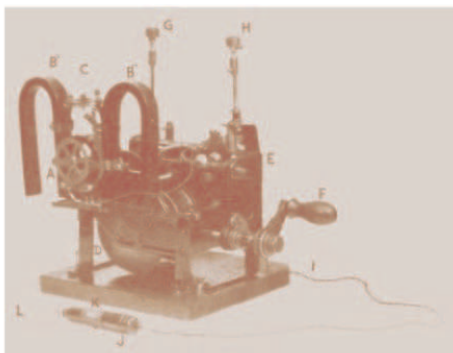
Of course as LMs you know of the great work of the IEEE Toronto technical sections, and can follow their upcoming events at: <http://toronto.ieee.ca>.

Member's pages are linked from the left side menu. All LM newsletters are posted on our LM pages for future reference. Check there for the on-line community where you can view and join discussions on a wide range of technical topics and also life member activities.

Proposed IEEE Milestone – the Jack Hopps Defibrillator /Pacemaker

An initial proposal for this milestone was submitted and approved by the IEEE History Committee.

To date only a limited amount of research has been completed to form the final proposal.



Hyman's Artificial Pacemaker (1930s)

We have had excellent cooperation from several LMs as well as members and friends of the new Engineering in Medicine and Biology section in running down leads to complete the final application. IEEE Milestones need to honour truly significant world-wide achievements in electrical engineering.

If you are interested in doing research on this package, please contact Pat Finnigan..

Please Renew Your IEEE Membership

It is important to renew your IEEE membership annually, either on the web site:

<http://www.ieee.org/portal/pages/membership/renewal/index.html>

or by phone:

1-800-678-4333

Please remember to do it!

Here are the number of LMs by region in all of IEEE (including our Region 7):

Region	Life Member	Life Senior	Life Fellow	Total
1	3,168	1,299	526	4,993
2	2,260	1,072	322	3,654
3	2,102	1,032	221	3,355
4	1,150	541	124	1,815
5	1,321	645	158	2,124
6	3,809	1,583	499	5,891
7	495	214	84	793
8	456	245	147	848
9	96	65	9	170
10	271	181	148	600
Grand Total	15,128	6,877	2,238	24,243

IEEE has an LM newsletter, you can catch up on a lot of LMs "War Stories" etc.at:

<http://www.ieee.org/portal/pages/committee/lmc/lmnewsletter.html>

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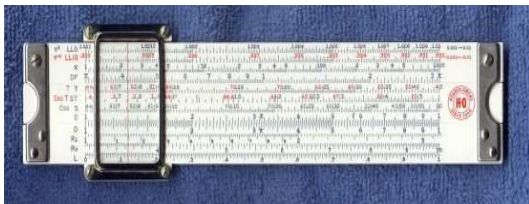
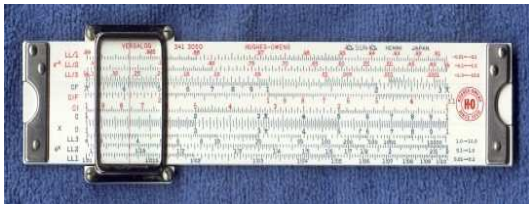
Just for Fun

Continuing the tradition from magazines like IEEE Spectrum and various newspapers, a “Tools & Toys” and “On Your Own Time” column will be a regular feature of the newsletter. Your contributions to these columns are welcome. Please send via email to: Patrick.Finnigan@ieee.org or mail to:

Patrick Finnigan, c/o IEEE LM Newsletter, 8 Bellemeade Lane, Toronto ON M2H 1Y9.

Tools & Toys

As an IEEE LM it is almost impossible to believe you didn't do your engineering calculations using either a slide rule or desk calculator. Were you lucky enough to have kept yours?



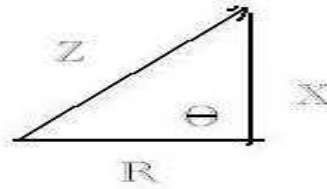
Hugh Owens Pocket Versatrig Model 1778 (1967 vintage) Front and Back

Do you remember what kind of calculations you did regularly with these? Maybe this is a chance you've been waiting to dust it off for a trip down memory lane.

EEs do a lot of calculations with phasors:

$$Z \angle \theta = R + jX$$

As you recall this is just the triangle relationship for a vector Z and its scalar components R and X.



Here is the “simple” way to get R and X, given Z and θ on your slide rule.

Set one of the C indexes (at the C scale ends) to Z on the D scale. Set the hairline to $\sin \theta$ ($\theta < 45^\circ$) or $\cos \theta$ ($\theta > 45^\circ$). Read X ($\theta < 45^\circ$) or R ($\theta > 45^\circ$) on D under the hairline. Move the slide until θ is under the hairline on the T (Tangent) scale. Read R ($\theta < 45^\circ$) or X ($\theta > 45^\circ$) on the D scale under the index (endpoint mark) on C. This solves

$$Z \angle \theta = Z \sin \theta / \tan \theta + j Z \sin \theta \quad (\theta < 45^\circ)$$

$$Z \angle \theta = Z \cos \theta + j Z \cos \theta / \tan \theta \quad (\theta > 45^\circ)$$

Try this example:

$$1.2 \angle 70^\circ = 0.410 + j 1.128$$

Is it all coming back now? If you know any other favourite ways to use the slide rule (yes you can add and subtract on them too if you really want to) please drop a line to the editor.

-- LM Calculator

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On Your Own Time – Enjoying Tea



Some of us spent many years drinking coffee (still do), but missed-out somehow on the relaxing taste of a good “cuppa” tea. If you want to get “wound down” rather than “wound up” try some of the wonderful varieties of tea.

Green, black, white, red – the vast array of tea varieties were new to me. With the sudden upsurge of interest in high-quality loose-leaf teas, where does a newcomer begin? How about starting with the one plant that produces every tea in the world?

The *Camellia sinensis* is an evergreen native of China. It takes a variety of forms, growing 15 to 20 meters tall, with leaves ranging from smooth and shiny to fuzzy and white-haired. The plant gives rise to more than 3,000 varieties of tea worldwide, which can be roughly classified into six basic categories: *white*, *green*, *oolong*, *black* (the Chinese call these red teas), *pu-erh*, and *flavored*. Some specialists would add another category, *blends*. And then there are countless *herbal infusions*, informally referred to as “tea” but entirely unrelated to “real” tea made from *Camellia sinensis* leaves.

These new varieties are now available in most supermarkets for you to try.

Having tried a “masala chai” from a well-known Indian producer, it is now very hard to go back to the standard “orange pekoe” black tea.

Good quality water and proper brewing time are essential for a flavorful cup of tea:

- Start with a preheated pot or cup (simply fill your teapot or cup with very hot water and let it stand for a moment).
- Use fresh cold water. In areas with poor tap water, use bottled or filtered water. Never use water from the hot water tap. Let the tap water run for a few seconds until it is quite cold; this ensures that the water is aerated (full of oxygen) to release the full flavor of the tea leaves.
- Bring water to a rolling boil. Don't let it boil too long, as it will boil away the flavor releasing oxygen and result in a flat tasting cup of tea. Pour boiling water on tea leaves or tea bag.
- Brew 3 to 5 minutes (for green teas, water should be a bit cooler and only steep for one to three minutes).

Milk, sugar, lemon, honey? Or just plain – it's a matter of personal taste after that.

Find out more about tea varieties you can enjoy at:

<http://www.starchefs.com/features/tea/html/ty pes.shtml> or

http://ca.askmen.com/fashion/wine_dine_100/119_wine_dine.html

-- LM Tea Drinker

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On Your Own Time – Making Music



Many of our LMs are experienced musicians but for those of you who never had the time or inclination to take up playing (or maybe tried in childhood but never since) – it is never too late!

Having enjoyed *listening* to music over the years, it came as some surprise that my better half decided after 40 years to take up the piano, not playing since childhood. She diligently persevered, taking lessons, practicing etc. until her efforts sounded quite pleasing indeed.

Still, however, there was no interest on my part. Finally, it came as a realization that you can rent musical instruments at a reasonable cost. This means that if you just can't master it, loose interest etc., you are not really out the rather significant cost of even used instruments.

Where to start?

- Choose your favorite instrument – mine was the cello since it has such a wide range a mellow sound
- Find a local company that rents them and take one out on a 3 month trial. (Some will put the cost of rental against purchasing the instrument if you decide on that later)

- Find a good instructor! (music stores will recommend them, or search the internet, or “ask around”). You probably can't learn on your own.
- Practice, practice – as long as you feel like you are getting better. Set aside time, find a comfortable place, close the door, and just enjoy it.

How wonderful it is to hear the resonant singing of the strings now under my control (or let's say *almost* under my complete control). Unlike a piano where you press a key and get the right note, on the cello you need to put your finger *just* in the right place, and draw the bow in *just* the right way.

As technology-oriented folks, there is also a wealth of subtle things to learn about how instruments (all kinds) actually produce these exciting sounds. For example, it was news to me that the real “heart” of cello is the “Sound Post” which connects the front and back faces (as well as the shape and material of the faces and sides themselves and the varnish on them) that makes the rich sound. Correct positioning of this sound post makes all the difference between deep resonant sound and the body acting as a simple acoustic amplifier for the strings. Also *very* important is the bow: how you hold it, and how and where you press it against the strings. In fact electrical engineers have contributed greatly using frequency analysis to understanding better how musical instruments work. It is a very complex subject when you dig into it.

Playing an instrument, however far you are along in the “learning curve” will give you a much deeper appreciation for the music you hear, as well as providing you with a tremendous sense of accomplishment.

--- LM Amateur Musician

Information Update

Please take time to update your contact information for our mailing lists and for email contact, and send it back to your acting chair via email or post. Thanks!

Name:

Address:

e-mail address:

Home Phone:

Business Phone:

Comments and any requests for assistance:

Member No.

Direct mail to:

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