CMBES/SCGB

CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY

# NEWSLETTER

LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMÉDICAL

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Knowledge • Exchange • Networking

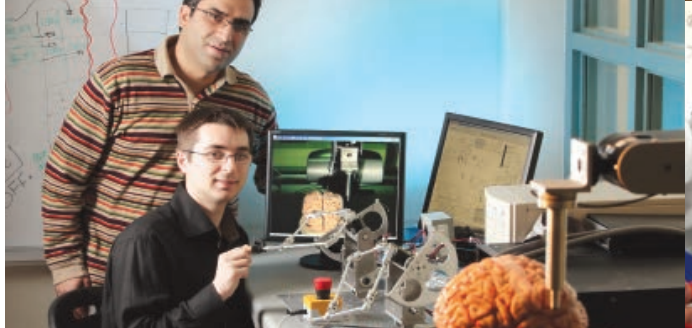
50

1965 • Years • 2015

## Join us in Beautiful Calgary for CMBEC39!

## In This Issue:





# A Word from the President

***Greetings Biomedical Engineering Community,***

Spring is here already, which means the CMBEC/CCGB conference will be upon us soon. This is our pinnacle event for the society each year, where colleagues from across the country gather to share their new research and learn from fellow engineers and technologists working in healthcare. Our industry partners will also be present to demonstrate their latest medical technology or services.

Our Annual General Meeting will also occur at the conference on the last morning, which is an opportunity to hear what our Executive and their Committees have accomplished this past year to further the mission of the society. We will also honour some of our esteemed colleagues with awards handed out during the social banquet.

So please ensure you join us for another great conference.

Cheers,

Martin Poulin, P.Eng,
President

***Salutations Communauté du Génie biomédical,***

Le printemps est déjà là , ce qui signifie que notre conférence CMBEC / CCGB débute bientôt. Ceci constitue notre événement le plus important de l'année où des collègues de partout au pays se réunissent pour partager leurs nouvelles recherches et échanger sur les pratiques avec d'autres ingénieurs et techniciens travaillant dans le domaine des soins de santé. Nos partenaires de l'industrie seront également présents pour présenter leur dernière technologie ou services.

Notre assemblée générale annuelle aura également lieu lors du matin du dernier jour de la conférence, ce sera l'occasion d'entendre ce que notre exécutif et leurs comités ont accompli cette année pour faire avancer la mission de la société. Nous allons également honorer certains de nos collègues estimés avec des prix remis lors du banquet.

Au plaisir de vous rencontrer pour une autre grande conférence.

Cordialement,

Martin

CMBES/SCGB

**TALK TO US!**

**We Want To Hear From You!**

**Comments? Questions? Information? Ideas for the next Newsletter?**

**Contact Us!**
**Phone: 613-728-1759**
**Email: secretariat@cmbes.ca**

# The AAMI Forum on Supportability

*A message from the CMBES Vice President, Mike Capuano*

The AAMI Forum on Supportability found agreement that patient safety is the most important factor related to Supportability. Last November in Arlington I asked, 'Is it not important enough to address supportability from within the FDA Postmarket Requirements for Medical Devices?' Now that the FDA has issued a call for comments on the issue (as per Docket No. FDA-2016-N-0436), we have an amazing opportunity to respond and have ourselves heard. This process, although happening in the United States, affects the industry in Canada as well. The docket calls for comments on "third-party refurbishing, reconditioning, rebuilding, remarketing, remanufacturing, and servicing of medical devices." One can surmise that recent activities and publications on supportability likely didn't help to calm the issue among OEMs. It may be an intentional reaction to some of the recent awareness around medical device supportability (especially from the AAMI task force and forum). We can also conclude that a certain level of problem reporting from the user community may have also ignited this process. From a high level, and from the CE perspective, this may be an opportunity to support, reinforce, or provide the platform that the CE community has been seeking recently. The bigger picture includes cost of equipment maintenance to healthcare and how in-healthcare service programs affect patient safety. My personal perspective is that in-healthcare medical device support is crucial to keeping patients safe from malfunctioning medical devices.

AAMI's Task Force on Supportability has done a lot to formulate a strategy that accounts for manufacturer input and involvement. My hope is that we are addressing it soon enough to matter considering the recent call for comments from the FDA. If responses on behalf of OEMs, CE, or third party communities are not applied carefully or are insufficient, the outcome could have a negative impact on these programs. An open meeting with the FDA later this year could be a critical turning point on this issue. I strongly advise that stakeholders, especially from the CE community (be it in-house or third party), participates fully.

Success would mean having fewer issues when trying to obtain vital supports to service medical equipment. It seems that the support we need from OEMs is heading towards being the exception and not the rule. Let's hope it doesn't get there. For OEMs, success from our perspective means they will have increased confidence that CE professionals in the field are sufficiently trained and equipped to service their products. This will allow healthcare institutions to maintain the highest level of patient safety and cost-effectiveness CE can bring to the bedside.

Organizations such as AAMI, ACCE, and CMBES aim to respond collectively to Docket No. FDA-2016-N-0436. You can issue your own response by going to:

https://www.federalregister.gov/articles/2016/03/04/2016-04700/refurbishing-reconditioning-rebuilding-remarketing-remanufacturing-and-servicing-of-medical-devices

The CMBES would also like to here from you. Send your comments to me (capuamik@hhsc.ca) or to the secretariat at secretariat@cmbes.ca.


Contact us at: secretariat@cmbes.ca

# Supportability of Medical Devices

*Mike Capuano, CMBES Vice President*

At last year's World Congress, a session was conducted to appraise the current situation related to the serviceability and supports for in-house and third party repair entities. These include information and service documentation from vendors, technical training, systems access, and various barriers to obtaining the supports needed to service medical devices in-house. Myself, co-presenter Jean Ngoie, and an invited panel of experts presided over the summit (see photo).


AAMI's Forum on Supportability - Nov 2015

A white paper summarizing many of the perspectives from that meeting is still in development and is expected to be released prior to CMBEC39. The session was dubbed, 'World Summit' on the supportability of medical devices because it had the perfect timing to acquire viewpoints, not only from here in Canada but from around the world. From this came a notable realization: issues related to supportability in the United States are indeed exacerbated in other countries including Canada and especially third world countries.

> "it had the perfect timing to acquire viewpoints, not only from here in Canada but from around the world."

The matter is complex and, to some degree, polarized between the industry and field servicers (e.g. biomed/CE community). Over the last 2 to 3 years there has been an increase in awareness of the issue coming from individuals and organizations that have stakes in it. In addition to the CMBES tackling this last year at WC2015, AAMI (Association for the Advancement of Medical Instrumentation) has also made a commitment to address the issue. AAMI's TMC (Technology Management Council) struck a task force (Supportability Task Force) dedicated to bring manufacturers and users (Biomed/CE) together to fashion out a framework of collaboration. Activities include a survey launched early last year and a 'Supportability Forum' which I attended in early November. The Forum brought manufacturer and Biomed representatives together (see photo) to highlight the barriers, impacts, and perspectives from both sides. Articles and features on the topic continue to be published in their journal (BIT) and AAMI News, some of which include comments and input from myself.

**AAMI Supportability Survey Results:**

https://www.dropbox.com/s/qar0td-t9anl5p6u/AAMI%20Supportability%20Survey%20Results.pdf?dl=0

The issue can clearly be referred to as the 'elephant in the room' especially when trying to obtain the supports we need as part of the equipment acquisition process. As you know, over the last several years, it has become imperative that hospital procurement strategies cover off support for in-house services. I call these 'brute force' tactics because they need to be in place for almost every vendor we deal with these days. Of course we know there are companies that do a good job at supporting in-house services. We're hoping their perspective spreads to others not quite onboard with providing excellent unhindered support for in-house biomedical programs.


WC2015 Summit on the Supportability of Medical Devices - June 2015

# Clinical Engineering in Winnipeg Breaks into the C-Suite

*Written by Kyle Eckhardt on behalf of The Winnipeg Regional Health Authority Clinical Engineering Program*

With much pride and sadness that the Clinical Engineering Department in Winnipeg, past, present and future, says farewell to our long time Director, Mr. Petr Kresta. Petr is moving onwards, upwards and on to larger pastures as a Chief Operating Officer.

There have been numerous articles in professional magazines about how to engage the C-suite and build a bridge to enhance the Clinical Engineering profile within the organization, but what does it take for one to actually break the realm? In thanking Petr for his service, a seasoned Chief Operating Officer described some of the traits that have made, and will continue to make Petr successful. He was described as a gentleman with the utmost integrity, a trusted, visionary, motivated and inspirational leader, a strategist with long-term vision and regarded by all across the organization as a colleague and friend. For those of us saying farewell, these are but a few traits from a long list of exceptional qualities.

Petr moved to Winnipeg over twenty years ago as Director of the Clinical Engineering depart at one hospital. As he moves on, CE proudly works with all seven hospitals in Winnipeg, longterm care centres, community care programs, rural health and nursing centres and the fire and paramedic services. Some of us have left our jobs and some our homes to work and learn from Petr in Winnipeg ; others have been able to return home to Winnipeg to be closer to our families. To recognize Petr's exceptional service to the Clinical Engineering and Diagnostic Imaging programs, the Winnipeg Health Region and the community, he was given an original linocut print from local artist Miriam Rudolph titled "My Winnipeg IV". Festivities also included food, beverages and a special musical performance by the informal CE choir, *Engchanting.*™

The Clinical Engineering Program in Winnipeg is forever grateful for the time and energy Petr devoted to building our Program into the well respected and sought after brand that it is today. His day to day presence and smile will be deeply missed, but we still know where to find him, just in case! We can't imagine someone more deserving and capable for this new challenge. Good Luck Petr K!!!

# Invitation to CMBES39 Calgary to Discuss the Main Roles and Responsibilities of a Clinical Engineer in Healthcare Facilities

*Gnahoua Zoabli, P.Eng., M. Eng., Ph.D. – Chief of Biomedical Engineering department, Asset management, CISSS des Laurentides, St-Jérôme, Québec, www.zoabli.com*

I was recently invited by students of the biomedical engineering program at Polytechnique Montreal to a networking activity. During the communication, I asked them to share their comprehension of what will be their main roles as a clinical engineer in healthcare facilities. Obviously, there were many answers including most of the time 'frankly, I don't know.' Since they are undergraduate and graduate students, and still learning their profession, we kind of expect this. In general, even for an experienced clinical engineer, his or her roles are not clear as to the) roles and responsibilities in a healthcare facility, mainly from the point of view of other medical and clinical professionals. Everyone knows exactly the role of a nurse, medical doctor or pharmacist, but clinical engineer remains a mystery even after more than 50 years of practice in Canada. During the last three years, I have started working on a white paper on clinical engineering practice in healthcare. I will present preliminary results at CMBES39 Calgary. I have found yet 14 professional tasks that I will present to you at CMBES39 Calgary.

1. Health Canada compliance verification and analysis;
2. Medical devices risk category verification and analysis;
3. CSA safety standards compliance analysis;
4. Regular visits with clinical and medical managers of different healthcare departments to plan their technological needs;
5. Analysis of the clinical relevance of a new medical technology (Technology Assessment);

**"During the last three years, I have started working on a white paper on clinical engineering practice in healthcare."**

6. Planning for the layout of care areas;
7. Management of radiation protection;
8. Management of electromagnetic interferences;
9. Quality control of post-acquisition clinical and technological training program;
10. Final acceptance of medical devices, before closing an acquisition project;
11. Formal declaration of technological or clinic obsolescence for a medical device;
12. Investigations and recommendations following an incident or an accident;
13. Management of alerts and risks related to medical devices.
14. Development of specifications and requirements for acquisition or RFP

If you are a biomedical engineer who still fails to practice these thirteen acts and know other acts not yet listed, it is high time you contribute to increasing awareness of this profession. I need input from each CMBES member as a clinical engineering professional, student or teacher to complete a white paper for CMBES40 Winnipeg. If you have already worked on clinical engineering practices, and want to be a co-author of this document, let me know. We can work together on making it as clear as possible for our profession. See you at CMBES39 to start the discussion.

# Biomedical Engineering at the Heart of the KW Region

*By Sara Salari, Manager, Biomedical Engineering*

Grand River Hospital (GRH) is a 630-bed hospital serving Waterloo Region, Ontario, Canada and surrounding communities, primarily through its Kitchener-Waterloo (KW) and Freeport campuses, both located in Kitchener. The hospital has 15 specialized programs and services: surgery, children's program, childbirth, medical imaging, mental health and addictions, medicine, stroke, complex continuing care, rehabilitation, cancer, critical care, renal, emergency, pharmacy and lab. The hospital also provides renal dialysis and cancer satellite programs in Guelph, Palmerston, Fergus and Mt Forest Centre in Guelph, along with the Hazelglen Outreach Mental Health service in Kitchener. For further information about GRH please see http://www.grhosp.on.ca.

Our Biomedical team comprises of nine Biomedical Engineering Technologists and Engineers, who serve Grand River Hospital and St. Mary General Hospital. The GRH team supports various medical equipment covering diagnostic, treatment/therapeutic, life support and monitoring equipment. We are also responsible for laboratory equipment and some DI equipment, such as ultrasound.

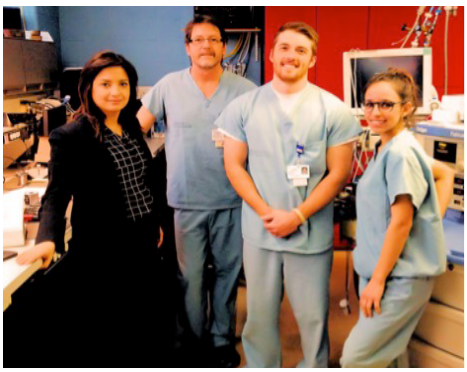
In our line of work we deal with a constantly changing landscape. The changes are intended to reflect the evolution of the health care landscape and technology. One of the major changes for our department last year was the integration of our IT and Biomedical Engineering departments. At GRH our top strength is our IT/Biomed team working together closely and the effort that we make in serving the needs of the patient by ensuring that clinicians have the tools they need, is selected well, used correctly and maintained safely and effectively.

There are currently organizational initiatives at GRH that will have impacts on our department such as enhancing research and innovation activities with University of Waterloo, and with other research partners. Our goal is to implement innovations and support medical equipment related research that will improve the care and services we deliver. Another initiative is the replacement of the sunsetted McKesson Horizon platform. In order for us to pursue this greater integration between medical devices and information systems, our department must enhance its expertise in information systems across the board, from the technologist to the manager.

The field of Biomedical engineering has come a long way since Leonardo Da Vinci (1452-1519) illustrated his revolutionary pictures of the skeleton and its musculature and studied the mechanics of the flight of birds. The introduction of electronic patient records, complex and extremely powerful electromedical equipment and devices, and minimally invasive technologies are just the beginning of the modern era. The future holds new possibilities of providing telemedicine and e-health services, new ways of home self-care, and new ways of heath care for elderly persons. The pace of progress is accelerating and tremendous challenges lie ahead for biomedical engineers and technologists working at GRH. In order to keep up with the fast pace changing environment, the Biomedical Engineering department needs to obtain strong skills in IT, and work toward a strategy for tying resources to support the changing environment and our community.

Ross Mullen (Manager, Information Technology & Telecommunications), Sara Salari (Manager, Biomedical Engineering), Nathan Lee (IS Business Relationship Manager& Applications), Adrian Johnson (Director, IS & Biomedical Engineering & Health Records)

GRH currently holds CMBES corporate membership. Our perspective on CMBES corporate membership is ongoing interaction with peers, for learning best practices and sharing knowledge. We are always looking for opportunities to enhance our services at GRH and the community at large.



Biomedical Engineering Team: Sara Salari, Andrew Cook, Mark Solc, Celine Mota

# Effects of Mercury on the Environment Through Illegal Mining in Ghana

*John Zienaa, Clinical Engineering Dept, Ghana Health Service HQ, Accra*

Illegal mining often referred to in Ghana as 'galamsey' probably originated from towns with heavy deposit naturally of the precious metal in Ghana. Towns such as Obuasi, Tarkwa, Prestea, Konongo, Dunkwa Offin all have had gold mining history. 'Galamseyers' are local artisanal gold miners and were found to be scavenging the tailings of ore after gold has been extracted from it and left open in the environment. In the francophone countries surrounding Ghana, similar local artisanal gold miners are called orpailleurs.

> "Due to illegal mining some rivers providing fresh water source are heavily polluted or are fast drying up because they are diverted to refine gold."

Gold mining in Ghana has been dated back to 1873 starting probably from Bogoso in the Western Region and modernized by 1876-1882 in Tarkwa, extending in the 1900s to Obuasi. Gold can now be found virtually in many geographical locations in Ghana, from the South to the North, East to West.

The emerging gold discoveries in Ghana has led to the proliferation of illegal mining; attracting all manner of people ranging from the poor, the influential, the rich, the politician, traditional leaders and foreigners to engage in this and illegal mining activities. This has been compounded by the prevailing difficult economic situation and so the consequences are often over looked.

**Environmental Degradation and Live Human Threat**

There are reports about how the environment is being damaged and degraded through the activities of illegal mining. For example, report has stated that the devastating effect of illegal mining is not only affecting the surface soil which is seen as being destroyed but there is more to it like pollution of water bodies as well. Due to illegal mining some rivers providing fresh water source are heavily polluted or are fast drying up because they are diverted to refine gold. Arable farm lands are destroyed and even some farmers are consciously selling their farms to illegal miners for paltry amount of money. These lands are usually not reclaimed and even if reclaimed the appropriate reclamation procedures might not be adhered to.

John Zienaa, Clinical Engineering Dept, Ghana Health Service HQ, Accra

Apart from the negative effects on the environment, people are losing their lives or being maimed sometime with high morbidity. For example one report put it that on November 12, 2009 collapsed occurred in an illegal, privately owned mine in Dompoase, Ashanti Region, Ghana and at least 18 workers were killed, including 13 women, who worked as porters for the miners and officials have described the disaster as the worst mine collapse in Ghanaian history.

**Mercury Effects on the Environment and the Impact on Human Lives and the Ecosystem**

Mercury is a shiny, fast-moving liquid form and a very toxic

*Continued on next page >*

# Effects of Mercury on the Environment Through Illegal Mining in Ghana

*John Zienaa, Clinical Engineering Dept, Ghana Health Service HQ, Accra*

*< Continued from previous page*

element. The symbol of mercury is represented by Hg. This symbol comes from a Greek word, hydrargyrum, which means "liquid silver" — giving meaning to its shiny surface. Mercury is also sometimes known as quicksilver for its mobility.

Mercury is highly toxic to human health. A very important factor in the impacts of mercury to the environment is its ability to build up in organisms and up along the food chain. It can enter the body through an open wound or by inhaling or ingesting it. It can then cause damage to nerves and organs such as the liver and the kidneys. Mercury also poses a particular threat to the development of the child in utero and early in life (World Health Organization).

> **"It is revealed that 11% of the human-generated sources of mercury come from gold production."**

### Why the use of Mercury in Illegal Mining?

In alluvial, colluvial or elluvial placer deposits, mercury is used for the extraction of secondary gold by gravity methods. Due to its intrinsic properties mercury can easily be used to separate gold from other materials. "Mercury readily forms alloys with other metals called amalgams (...) Mercury is amalgamated with gold to facilitate the recovery of gold from its ores." wrote Anne Marie Helmenstine.

### Sources of Exposure to Mercury

According to the World Health Organization, most of the mercury in the environment results from human activity, particularly from coal-fired power stations, residential heating systems and waste incinerators. Mercury is also present as a result of mining for mercury, gold (where mercury is used to form an amalgam before being burnt off), and other metals, such as copper, zinc and silver, as well as from refining operations.

### The Use of Mercury as a Problem

There are usually four stages in the small-scale gold production process, namely amalgamation, separation of amalgamation, removal of excess mercury, and burning of the remaining amalgam, which is coupled with the release of mercury in the environment.

It is revealed that 11% of the human-generated sources of mercury come from gold production. And about 50% of the total comes from natural sources, such as volcanic activity. It ultimately settles in the sediment of lakes, rivers or bays where it is transformed into methylmercury, absorbed by phytoplankton, ingested by zooplankton and fish, and accumulates especially in long-lived predatory species, such as shark and swordfish. In the food chain it ends on our dining tables and in our 'pure and mineral water plastic sachets and bottles.

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# A Tribute to Tony Easty, PhD

*Sonia Pinkney, Centre for Global eHealth Innovation*

Tony Easty, PhD. retired in 2015 from his positions as:

- Senior Scientist, UHN
- Lead, HumanEra, UHN
- Associate Professor, Institute of Biomaterials & Biomedical Engineering, University of Toronto (Tony continues as an Adjunct Professor)
- Baxter Chair in Health Technology

Tony retired as the Sr. Director of Medical Engineering at UHN in 2010 to focus on his research interests.

We all knew the day would come when Tony Easty would retire, but now that it has, it is a reality we would rather not have to face.

There is no way to adequately summarize Tony's contribution and leadership in the field of health technology management and research. He is so much more than an impressive list of accomplishments and well-deserved awards. Throughout his career, Tony affected so many people and forever changed the way we think. For this reason, this tribute gives voice to some of the many people touched by him both professionally and personally:

**1. Tony mentored and taught numerous health technology students and professionals to develop our future leaders**

"I know of no other person who has been so selfless of his time to help aspiring clinical engineers with their careers. He's launched so many over his own career, and for that we owe him a debt of gratitude. Tony's sharing of his unmatched intellect, experience, and thoughtfulness has made him a role model like no other. It's something that we should all aspire to become, but will unlikely ever match."

*~ Joseph Cafazzo, PhD, Sr. Director, University Health Network (UHN)*

""The real privilege of having Tony as my mentor was being able to learn from his example; he was gracious and kind in all his interactions and navigated complex decisions with an unfailing integrity. It was the best education I could have asked for and a gift I will use for the rest of my life."

*~ Mark Fan, Human Factors Engineer, UHN*

**2. Tony led with and through others by creating a collaborative environment that facilitated risk taking and learning**

"Tony always saw the larger implications of a topic and through his thoughtful discussion I always left our meetings with a new perspective and exciting avenues to explore. I learned so much from Tony and will be forever grateful for his support, guidance, and encouragement."

*~ Chris Colvin, Clinical Engineer, Massachusetts General Hospital*

"Tony has countless professional accomplishments, so it is interesting to note that his most significant ongoing impact is in maximizing the potential of others. I found myself involved in projects and positions of increasing responsibility and impact over the course of working with Tony, as he would promote networking and teamwork in facilitating personal and professional growth opportunities."

*~ Dave Gretzinger, Dir Med Eng, UHN and Mt Sinai Hospital*

**3. Tony worked tirelessly to advance the clinical engineering profession nationally and internationally while simultaneously building lasting friendships**

"One definition of "Fighter" is the one who finds his cause and explores every possible way to achieve it. The one who sees no geographic borders to expand and also makes it somebody else's cause. Tony is not only a "Fighter" but a true friend."

*~ Saide Jorge Calil, PhD, Prof, University of Campinas, Brazil*

"Tony has traveled the world promoting best practices in Clinical Engineering, and I had the pleasure to join him on a trip to Malaysia in 1997. Although we spent an exciting two weeks travelling all over the country, including the Malaysian cities of Sarawak and Sabah on the island of Borneo, and met with many biomedical engineers to talk about the Canadian Standards of Practice for Clinical Engineering, perhaps the most memorable aspect of the trip was our shared enjoyment of the rich complexity of Malaysian cuisine."

*~ Bill Gentles, PhD, VP, BT Medical Technology Consulting*

# A Tribute to Tony Easty, PhD

*Sonia Pinkney, designation*

"Through his leadership at CMBES, AAMI, CESO & Quandary Club, Tony's ethical & professional approach has left a lasting legacy to biomedical engineering and its role as a valued professional in the health system. In his role as a professor at the University of Toronto Tony brought a new generation of clinical engineers to the medical field. Thank you Tony for your trailblazing!

*~ Adam Majewski, Service Leader, UHN*

**4. Tony fundamentally changed healthcare safety by expanding the role of clinical engineering to include human factors**

"Tony has transformed the field of clinical engineering by applying Human Factors to ensure technically sound products while also solving more persistent problems requiring the adaptation of technology to human nature. He leaves behind a lasting legacy, and healthcare institutions in Canada and worldwide are infinitely richer for his contributions."

*~ Patricia Trbovich, PhD, Assistant Prof, University of Toronto*

"Tony gave me an office, a computer, an internet connection and a team to be part of. I will be forever grateful."

*~ Kim Vicente, PhD, Author of the best selling book*

*"The Human Factor: Revolutionizing the Way We Live with Technology"*

Tony Easty started his career at UHN in 1978 as the Manager of Medical Engineering. He was the first Canadian to become certified as a Clinical Engineer.

Tony Easty with his HumanEra team. In 2015 this team won the AAMI & Becton Dickinson Patient Safety Award for applying human factors methods to healthcare.
Back row L to R: Yuval Bitan, Mark Fan, Sonia Pinkney, Andrea Cassano-Piché, Brent Bily.
Front row L to R: Chris Colvin, Caterina Masino, Tony Easty, Rachel Gilbert, Melissa Kozak, Patricia Trbovich.

As these quotes illustrate, Tony had a unique relationship with each of us that went beyond his being a preeminent leader in clinical engineering (and a vast array of related fields). These relationships will no doubt continue post retirement as will the influence he had on us all to continually improve healthcare systems. He will indeed be missed but remembered often; for it is thanks to Tony's pioneering work that makes medical environments – for both today and tomorrow – safer for all of us.

Tony Easty received the inaugural Excellence in Clinical Engineering Leadership Award from the American College of Clinical Engineering (ACCE) for his many professional contributions, including co-developing the Canadian Clinical Engineering Standard of Practice and volunteering in many senior positions (e.g., President, Committee Chairs, Board Member) at CMBES, ACCE, and AAMI.

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# CMBES - 50 Years of History

## How Things Change over the Years – The CMBES Newsletter

*By Tidi Gaamangwe on behalf of The CMBES 50th Anniversary Commemorative Journal Task Force*

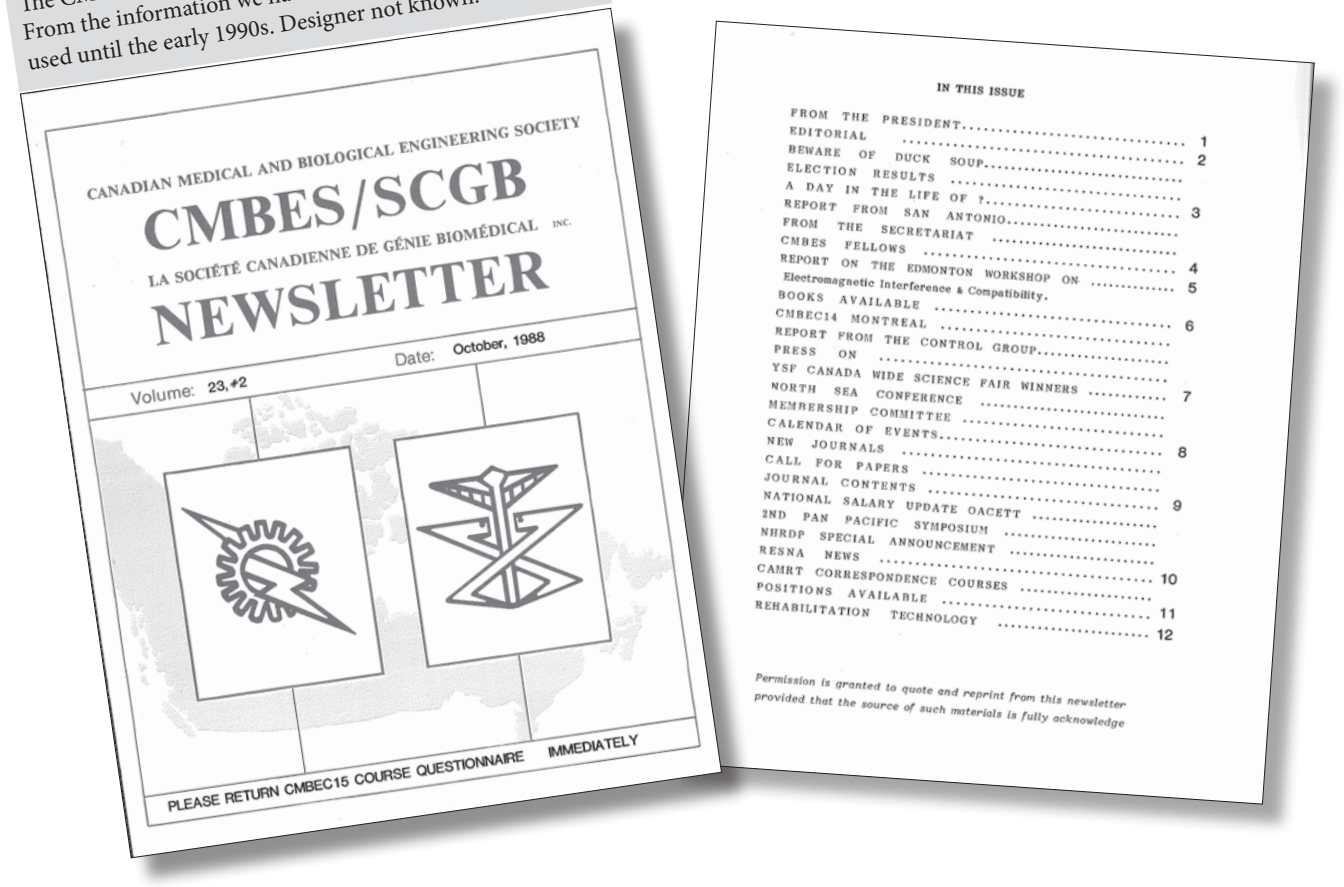
This section of the newsletter provides snippets from some of the previous CMBES newsletters over the years. In addition, we thought it appropriate to share with you the very first CMBES Executive.

**The First CMBES Executive**

President: J.A. Hopps-- NRC
Vice president: Dr. J.H. Milsum-- McGill University
Secretary: W. Delbridge --Health and Welfare Canada
Treasurer: Dr. F.A. Roberge-- University of Montreal
Membership Chairman: D.W. Lywood --Queen's University

We hope the following newsletter snippets provide a window into how things have developed over the years. Enjoy!

The CMBES Newsletter retro-look (Vol 23 No 2 1988)
From the information we have, it appears this cover was used until the early 1990s. Designer not known.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LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMÉDICAL INC.

NEWSLETTER

Volume: 23, #2 Date: October, 1988

PLEASE RETURN CMBEC15 COURSE QUESTIONNAIRE IMMEDIATELY

IN THIS ISSUE

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# CMBES - 50 Years of History

The President's Message (Vol 23 No 2, Oct 1988)

**FROM THE PRESIDENT**

It has become a tradition for the CMBES President to address the Society's members in each issue of the newsletter. I believe this to be a valuable tradition and, as the new President, intend to carry it on. I will try to use it as a vehicle to keep you informed about your society's activities and in particular to tell you what your Executive is up to. Thus, I hope to keep you up to date about what we have done, are in the process of doing and what we hope to do.

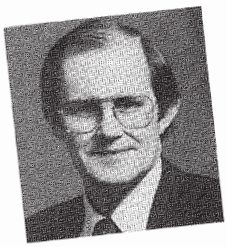
First, let me say that I am extremely pleased with the new Executive of the Society. The members are enthusiastic and represent a wide range of the Society's members (both in terms of geography and professional interests). I am very optimistic that the next two years will be successful for the Society.

Feedback Please !

I believe that it is very important for our Society to address the concerns and interests of Canadian biomedical engineering. It is easy for members of the Executive to become too concerned with their particular bailiwick. We will try our best to prevent this from happening but feedback from you will always be necessary. To this end, I invite anyone who wishes to make suggestions for improving the Society, has complaints (or complements) about our policies and activities to communicate them to me or someone else on the Executive. Addresses and phone numbers for the Executive are listed elsewhere in this newsletter. I can be reached by phone at: 514-398-6737
or by BITNET at: ROB%BMEUCL@MEDCOR.MCGILL.CA.

Biomedical engineering is diverse and the country is large so please help us keep up-to-date.

Congratulations to John Smith



The CMBES executive wishes to express its congratulations to John Smith who has been awarded the Engineering Gold Medal by the Association of Professional Engineering of Ontario. This was awarded for his accomplishments in the field of biomedical engineering highlighted by:

(1) The re-design of an ultrasonic probe to assist in the localization of blood vessels in the newborn.

(2) Design and development of a system for the detection of abnormal electrical pathways in the heart during cardiovascular surgery.

(3) Design of an infant compartment for a neonatal transport incubator.

(4) Design of a computer-based indirect calorimeter systems for the study of energy metabolism in infants.

The award was clearly very well deserved and we should be proud to have John as a member of our society. Well done!

On a final note, the nominating committee (society members Mario Ramirez, Tony Easty and Bill Gentles) tells me that they originally submitted John's name to be considered for an award in the category of the Engineering Excellence. The APEO was so impressed with the submission that they requested additional information and decided to award him the gold medal. Perhaps the message here is that we tend to underestimate our colleagues achievements and should be more aggressive in nominating them.

Annual Meeting

THE FINAL FIGURES ARE NOT YET IN BUT IT APPEARS THAT CMBEC 14 IN MONTREAL WILL SHOW A NICE PROFIT TO COMPLEMENT WHAT I THOUGHT WAS AN EXCELLENT SCIENTIFIC PROGRAM. ON BEHALF OF THE SOCIETY I WISH TO EXTEND OUR APPRECIATION TO ROBERT LEBLANC AND HIS ORGANIZING COMMITTEE.

The Montréal meeting was the fifth meeting since the Society decided to meet annually rather than biannually. In assessing, your Executive came to the following conclusions:

(1) The meeting themselves are very successful from a professional and scientific viewpoint. Both the numbers and quality of the presentations continue to grow. In particular, the quality of the student presentations is extremely high.

(2) Profits from the annual meeting are now an essential component of the society's budget.

(3) Organizing the meetings is a major effort whose success depends upon the efforts of the local organizing committee. Each meeting has been organized as a separate event with little continuity from one meeting to another.

In view of this, the Executive has decided on the following inititatives:

(1) The CMBES Secretariat will assume responsibility for more of the administrative matters concerning the meetings. This will reduce the load on the local organizing committee, improve continuity from meeting to meeting, and permit economies of scale. Thus it will be possible to print conference announcements in larger quantities, mail annoucements at fixed times, and centralize most of the banking. This will require additional full time help in the secretariat but should be self-financing from conference profits.

(2) The CMBES Executive will endeavor to improve the continuity between meetings by interacting with conference organizers and attempting to set up ongoing programs for courses and displays.

We will try to phase these changes in starting with the next meeting in Toronto. Plans for this meeting are progressing well. The organizing committee headed by Alf Dolan and Hans Kunov have things well in hand and I anticipate an excellent meeting next summer.

We are happy to annouce that Winnipeg, Manitoba will host our 1990 Meeting. Monte Raber will Chair the Committee for our "25th Anniversary Year Conference". We haven't met in Winnipeg since 1972 so look forward to being there again. Thanks to Monte and our Winnipeg members for taking this on.

Final Notes: I realize my letter has been lengthy but your society is active and you should know what is going on.

Robert E. Kearney, President

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# CMBES - 50 Years of History

Celebrating 25th Anniversary (Vol 25 No 1, Feb 1990)

NEWSLETTER - CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY •

## A Quarter Century of CMBES

Just imagine the changes that have occurred in technology in just those 25 short years! Vacuum tubes still abounded back then, although transistors were beginning to compete with them. Integrated circuits were a rarity. The nearest device to an integrated circuit that I recall was that of two transistors in one package! Then came the technology explosion.

Medical electronics took off as the power of the integrated circuit was exploited and the age of the computer came into being.

We have come a long way from the cardiac monitors I cut my teeth on, containing a hybrid of tubes and trasistors weighing a ton. Now they have the power of a microcomputer, can predict and diagnose medical problems, communicate with other "intelligent" devices and are inevitably under some form of software control (they can still weigh a ton).

The inherent safety of devices has improved drastically as manufacturing techniques and reliability improved due to the development of safety standards.

Medical equipment safety standards in many countries have been written and rewritten, adopted, dropped and latterly, in the case of CSA, harmonized with those of Europe. Who would have thought, 25 years ago, that the world would be so close to having a common set of rules for the safety of medical devices.

Twenty-five years is indeed a landmark in the CMBES history, but where do we go from here? More members are what we need if the CMBES is to see another 25 years pass. Perhaps each one of us members should give an anniversary present to the Society by canvassing a friend or colleague to join the Society. In fact, I challenge you all to do just that!

It doesn't take a mathematical genius, an engineer, a technologist, or a technician to calculate that the Society could have double its membership in no time if the challenge is taken up.

Make it a New Year's resolution to promote the Society in all corners of the profession!

Happy New Year. - Derek Uttley

## Safety Sentinels or Blocks to Progress?

**By Monte B. Raber, P. Eng.**
**Consultant, Standards and Regulations**

Manitoba has been going through a painful pioneering effort because of well-intentioned roadblocks in the safety standards and provincial regulations which have delayed progress. I have had some involvement in resolving the issues and would like to describe the problem so it can be recognized and (hopefully) avoided in the future.

**Background:** Some years ago there was a realization of wide-spread problems with medical gas systems. "CSA Standard Z305.1 - Nonflammable Medical Gas Piping Systems" was published in 1984. Manitoba, like other provinces, adopted this standard into its provincial regulations, and so requires inspection and certification of piping systems by a certified testing agency. In 1987 Souris District Hospital installed an oxygen concentrator supplied by a new local firm (Rimer Alco North America) as a primary supply of oxygen. Since the CSA standard did not cover oxygen concentrators, The Provincial Authority - The Manitoba Department of Labour - gave permission for the concentrator trial. This should have made everyone happy - the hospital saved a lot of money using the concentrator, the new company started to sell concentrators and prepared to grow.

**Problem:** But! Provincial regulations according to Z305.1 require the system be certified because the Z305.1 standard does not contain any rules for concentrators. Even with special allowance from the Department of Labour, the installation could not be certified because the certifying agency had no rules to go by! CSA was asked for new rules, but new rules take time. Z305.1 is now under revision and will recognize concentrators some way in the next (1990) publication.

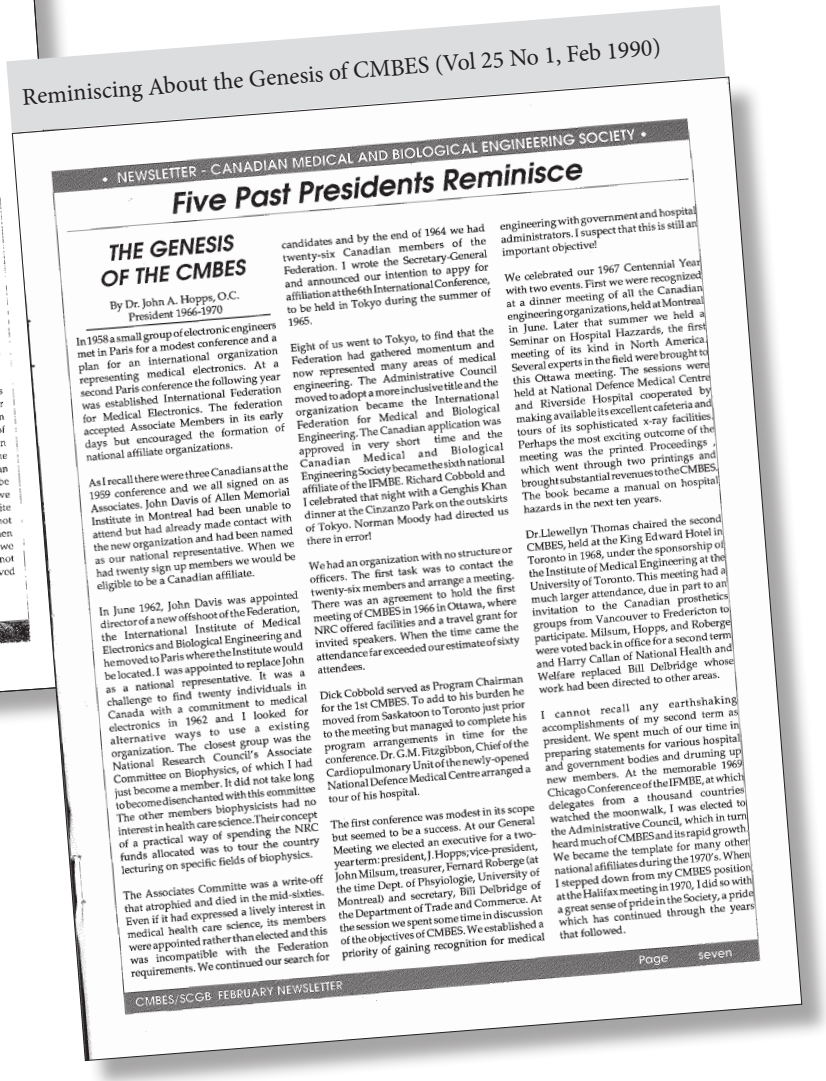
This year, in response to the demand from hospitals, the Department of Labour developed Installation Guidelines for Oxygen Concentrators in Manitoba. When these guidelines are adopted as law, the certifying agencies will be able to use them as a standard and so inspect and certify the installations. While the problem surfaced in Manitoba, the same situation exists in other provinces; each province must write its own guidelines (or use Manitoba's) if it wants to allow concentrators.

**Reasons:** The reasons for the problem are simple, but pervasive. The provincial authorities believe that they should utilize provincial regulations except when absolutely necessary. So they defer to national standards, and only act when a situation forces them to solve a problem. National standards cannot react immediately to each new situation, delays are inevitable.

**Solution:** The cure for the problem (in as much as it can be cured) lies in better drafting or safety standards. We must learn to write standards from the viewpoint of performance requirements, not design specifications. We must always include the rationale for requirements so that they can be applied appropriately, and not be applied where not appropriate. And, we must learn to look ahead and write standards so that they are flexible and not restricted of new design approaches. When we include certification requirements we must leave room for new designs so as not to stifle progress. How this is to be achieved is still a large question.



Reminiscing About the Genesis of CMBES (Vol 25 No 1, Feb 1990)



• NEWSLETTER - CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY •

## Five Past Presidents Reminisce

### THE GENESIS OF THE CMBES

By Dr. John A. Hopps, O.C.
President 1966-1970

In 1958 a small group of electronic engineers met in Paris for a modest conference and a plan for an international organization representing medical electronics. At a second Paris conference the following year was established International Federation for Medical Electronics. The federation accepted Associate Members in its early days but encouraged the formation of national affiliate organizations.

As I recall there were three Canadians at the 1959 conference and we all signed on as Associates. John Davis of Allen Memorial Institute in Montreal had been unable to attend but had already made contact with the new organization and had been named as our national representative. When we had twenty sign up members we would be eligible to be a Canadian affiliate.

In June 1962, John Davis was appointed director of a new offshoot of the Federation, the International Institute of Medical Electronics and Biological Engineering and he moved to Paris where the Institute would be located. I was appointed to replace John as a national representative. It was a challenge to find twenty individuals in Canada with a commitment to medical electronics in 1962 and I looked for alternative ways to use a existing organization. The closest group was the National Research Council's Associate Committee on Biophysics, of which I had just become a member. It did not take long to become disenchanted with this committee The other members biophysicists had no interest in health care science. Their concept of a practical way of spending the NRC funds allocated was to tour the country lecturing on specific fields of biophysics.

The Associates Committe was a write-off that atrophied and died in the mid-sixties. Even if it had expressed a lively interest in medical health care science, its members were appointed rather than elected and this was incompatible with the Federation requirements. We continued our search for candidates and by the end of 1964 we had twenty-six Canadian members of the Federation. I wrote the Secretary-General and announced our intention to appy for affiliation at the 6th International Conference, to be held in Tokyo during the summer of 1965.

Eight of us went to Tokyo, to find that the Federation had gathered momentum and now represented many areas of medical engineering. The Administrative Council moved to adopt a more inclusive title and the organization became the International Federation for Medical and Biological Engineering. The Canadian application was approved in very short time and the Canadian Medical and Biological Engineering Society became the sixth national affiliate of the IFMBE. Richard Cobbold and I celebrated that night with a Genghis Khan dinner at the Cinzanzo Park on the outskirts of Tokyo. Norman Moody had directed us there in error!

We had an organization with no structure or officers. The first task was to contact the twenty-six members and arrange a meeting. There was an agreement to hold the first meeting of CMBES in 1966 in Ottawa, where NRC offered facilities and a travel grant for invited speakers. When the time came the attendance far exceeded our estimate of sixty attendees.

Dick Cobbold served as Program Chairman for the 1st CMBES. To add to his burden he moved from Saskatoon to Toronto just prior to the meeting but managed to complete his program arrangements in time for the conference. Dr. G.M. Fitzgibbon, Chief of the Cardiopulmonary Unit of the newly-opened National Defence Medical Centre arranged a tour of his hospital.

The first conference was modest in its scope but seemed to be a success. At our General Meeting we elected an executive for a two-year term: president, J. Hopps; vice-president, John Milsum, treasurer, Fernard Roberge (at the time Dept. of Physiologie, University of Montreal) and secretary, Bill Delbridge of the Department of Trade and Commerce. At the session we spent some time in discussion of the objectives of CMBES. We established a priority of gaining recognition for medical engineering with government and hospital administrators. I suspect that this is still an important objective!

We celebrated our 1967 Centennial Year with two events. First we were recognized at a dinner meeting of all the Canadian engineering organizations, held at Montreal in June. Later that summer we held a Seminar on Hospital Hazzards, the first meeting of its kind in North America. Several experts in the field were brought to this Ottawa meeting. The sessions were held at National Defence Medical Centre and Riverside Hospital cooperated by making available its excellent cafeteria and tours of its sophisticated x-ray facilities. Perhaps the most exciting outcome of the meeting was the printed Proceedings which went through two printings and brought substantial revenues to the CMBES. The book became a manual on hospital hazards in the next ten years.

Dr. Llewellyn Thomas chaired the second CMBES, held at the King Edward Hotel in Toronto in 1968, under the sponsorship of the Institute of Medical Engineering at the University of Toronto. This meeting had a much larger attendance, due in part to an invitation to the Canadian prosthetics groups from Vancouver to Fredericton to participate. Milsum, Hopps, and Roberge were voted back in office for a second term and Harry Callan of National Health and Welfare replaced Bill Delbridge whose work had been directed to other areas.

I cannot recall any earthshaking accomplishments of my second term as president. We spent much of our time in preparing statements for various hospital and government bodies and druming up new members. At the memorable 1969 Chicago Conference of the IFMBE, at which delegates from a thousand countries watched the moonwalk, I was elected to the Administrative Council, which in turn heard much of CMBES and its rapid growth. We became the template for many other national afiliates during the 1970's. When I stepped down from my CMBES position at the Halifax meeting in 1970, I did so with a great sense of pride in the Society, a pride which has continued through the years that followed.

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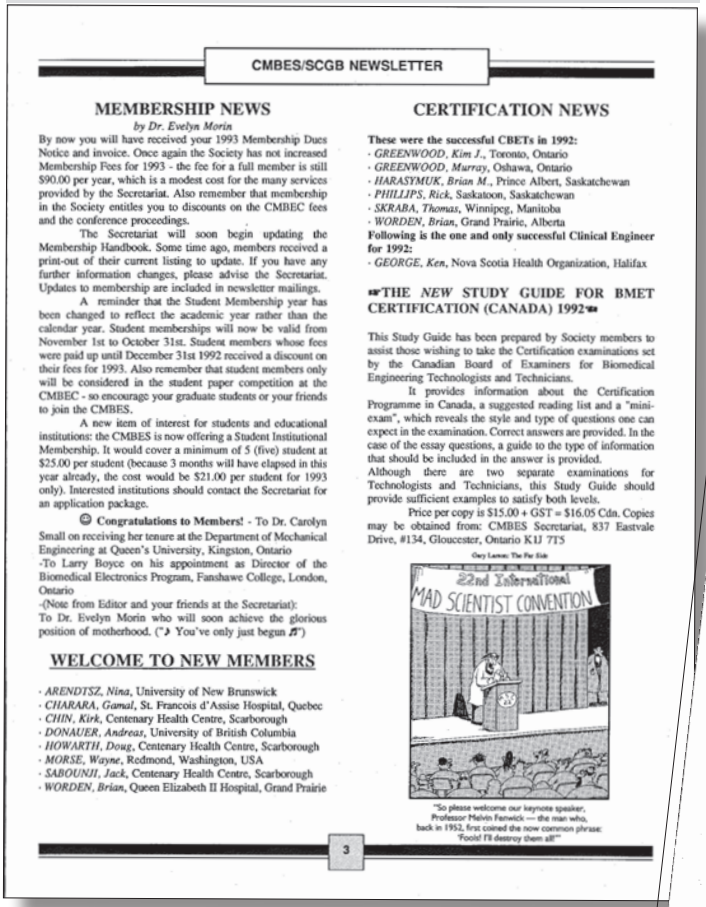
# CMBES - 50 Years of History

Certification News (Vol 28 No 1, Mar 1993). It appears the new look as depicted on the 1994 issue started in 1993.



CMBES/SCGB NEWSLETTER

## MEMBERSHIP NEWS

*by Dr. Evelyn Morin*

By now you will have received your 1993 Membership Dues Notice and invoice. Once again the Society has not increased Membership Fees for 1993 - the fee for a full member is still $90.00 per year, which is a modest cost for the many services provided by the Secretariat. Also remember that membership in the Society entitles you to discounts on the CMBEC fees and the conference proceedings.

The Secretariat will soon begin updating the Membership Handbook. Some time ago, members received a print-out of their current listing to update. If you have any further information changes, please advise the Secretariat. Updates to membership are included in newsletter mailings.

A reminder that the Student Membership year has been changed to reflect the academic year rather than the calendar year. Student memberships will now be valid from November 1st to October 31st. Student members whose fees were paid up until December 31st 1992 received a discount on their fees for 1993. Also remember that student members only will be considered in the student paper competition at the CMBEC - so encourage your graduate students or your friends to join the CMBES.

A new item of interest for students and educational institutions: the CMBES is now offering a Student Institutional Membership. It would cover a minimum of 5 (five) student at $25.00 per student (because 3 months will have elapsed in this year already, the cost would be $21.00 per student for 1993 only). Interested institutions should contact the Secretariat for an application package.

☺ **Congratulations to Members!** - To Dr. Carolyn Small on receiving her tenure at the Department of Mechanical Engineering at Queen's University, Kingston, Ontario

-To Larry Boyce on his appointment as Director of the Biomedical Electronics Program, Fanshawe College, London, Ontario

-(Nose from Editor and your friends at the Secretariat):

To Dr. Evelyn Morin who will soon achieve the glorious position of motherhood. (♪ You've only just begun ♬)

## WELCOME TO NEW MEMBERS

- *ARENDTSZ, Nina*, University of New Brunswick
- *CHARARA, Gamal*, St. Francois d'Assise Hospital, Quebec
- *CHIN, Kirk*, Centenary Health Centre, Scarborough
- *DONAUER, Andreas*, University of British Columbia
- *HOWARTH, Doug*, Centenary Health Centre, Scarborough
- *MORSE, Wayne*, Redmond, Washington, USA
- *SABOUNJI, Jack*, Centenary Health Centre, Scarborough
- *WORDEN, Brian*, Queen Elizabeth II Hospital, Grand Prairie

## CERTIFICATION NEWS

**These were the successful CBETs in 1992:**

- *GREENWOOD, Kim J.*, Toronto, Ontario
- *GREENWOOD, Murray*, Oshawa, Ontario
- *HARASYMUK, Brian M.*, Prince Albert, Saskatchewan
- *PHILLIPS, Rick*, Saskatoon, Saskatchewan
- *SKRABA, Thomas*, Winnipeg, Manitoba
- *WORDEN, Brian*, Grand Prairie, Alberta

**Following is the one and only successful Clinical Engineer for 1992:**

- *GEORGE, Ken*, Nova Scotia Health Organization, Halifax

**☎THE *NEW* STUDY GUIDE FOR BMET CERTIFICATION (CANADA) 1992☎**

This Study Guide has been prepared by Society members to assist those wishing to take the Certification examinations set by the Canadian Board of Examiners for Biomedical Engineering Technologists and Technicians.

It provides information about the Certification Programme in Canada, a suggested reading list and a "mini-exam", which reveals the style and type of questions one can expect in the examination. Correct answers are provided. In the case of the essay questions, a guide to the type of information that should be included in the answer is provided.

Although there are two separate examinations for Technologists and Technicians, this Study Guide should provide sufficient examples to satisfy both levels.

Price per copy is $15.00 + GST = $16.05 Cdn. Copies may be obtained from: CMBES Secretariat, 837 Eastvale Drive, #134, Gloucester, Ontario K1J 7T5




"So please welcome our keynote speaker, Professor Melvin Fenwick — the man who, back in 1952, first coined the now common phrase: "Fools! I'll destroy them all!"

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The President's Message (Vol 29 No 1, Jan 1994)

CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY

Newsletter

LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMÉDICAL INC.

Volume 29, No. 1
JANUARY 1994

CONTENTS



**PRESIDENT'S MESSAGE**

*Tony Easty*

Dear CMBES Member:

Let me start by offering best wishes to all members of our Society for 1994. At a time when many of us are feeling the effects of reduced funding, it is all the more important for us not to lose sight of the role that Biomedical Engineers and Technologists can play in providing high quality, cost-effective healthcare. Here in Canada, we are fortunate to have one of the finest healthcare systems in the world. If we wish to maintain it, and keep alive the guiding principles of the Canada Health Act, then we all must ask ourselves how we can help solve the current healthcare crisis.

I believe that we are exceptionally well placed to facilitate constructive change in the system. If we see our role as simply managers of medical technology, looking to incorporate more and more devices into healthcare regardless of efficacy, then we will rightly be sidelined in the future. If, on the other hand, we look to the future needs of our population, and help to assess the true efficacy of medical devices we will be a central part of an exciting period of change. Whether we work in hospitals, universities, or industry, the challenge is the same. How can we better design, build and apply medical technology to improve the health of us all.

The results of the vote on the proposed annual fees increase are in. One-third of our eligible members responded, and of those responses, 76% were in favour of the proposal. Under the bylaws of our Society, this proposal is carried. Accordingly, our Secretariat have been mailing out renewal notices at the new rates. The Executive recognizes that a hike in fees is only marginally more popular than death and taxes, but when you consider that this is the first increase in nine years, and you compare our fees and benefits with other Societies, I hope you will agree that CMBES membership is still excellent value.

At the Executive meeting in Toronto last December, we agreed to appoint a Society member as Editor of our Newsletter. At present, this role is being filled by our Publications Chair, but we recognize that the Newsletter leaves very little time for other publication work, and we would like to see our Society expand its publication efforts. Our present Publications Chair, Brian Graham, steps down at these elections, and has agreed to take on the role of Newsletter Editor. This position is appointed by the Executive. Many thanks to Brian for agreeing to continue this task for us. Brian and the Secretariat have turned our Newsletter into a very high quality document. We can look forward to seeing it evolve further in the next while. When our new Publications Chair is elected, she or he will have the challenge of building our publications activities in other areas.

May, and warmer temperatures, will soon be with us, so plan to attend our 20th CMBEC in Vancouver this May 1-5. The Conference Committee are doing their best to plan a stimulating, successful Conference, so please add your support by submitting an abstract, attending some courses, or participating in the sessions. This is the one time in the year when we all get together. Don't miss out on this chance to catch up with old friends and learn about all the interesting work that is in progress across Canada.

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# CMBES - 50 Years of History

Clinical Engineering in Evolution (Vol 30 No 2, Aug 1995)

CMBES/SCGB NEWSLETTER

**Ph.D. THESIS ABSTRACT**

MECHANICAL AND HISTOLOGICAL CHARACTERISTICS OF RHEUMATOID WRIST TENDONS AND LIGAMENTS

Student: Martine J. Breault-Janicki

Supervisor: Dr. Carolyn Small, Queen's University

Replacement arthroplasty for reconstruction of deformed and painful wrist joints due to rheumatoid arthritis has had a high incidence of migration, dislocation, and fracture. I believe that these failures are associated with the insufficiency and maybe the degraded mechanical properties of the rheumatoid tendons and ligaments. Such a hypothesis has not been investigated in the literature. An experimental study was undertaken to characterize the mechanical behaviour of rheumatoid wrist extensor tendons and ligaments in order to comment on the adequacy of the rheumatoid tissues in reconstructive surgery.

An experimental protocol was developed to characterize the tissues including mechanical tensile testing via standard viscoelastic tests and histological evaluation via microscopy. Material properties of non-rheumatoid and rheumatoid tissues from twenty-one patients undergoing wrist arthrodesis were measured, compared, and correlated. Results of the mechanical tests showed that rheumatoid tendons demonstrate decreased properties in terms of stiffness, ability to sustain load upon relaxation, and strength when compared to equivalent non-rheumatoid tendons. Histological slides of rheumatoid tissues showed increased signs of inflammation: invasion of inflammatory cells with neovascularization, fibrin deposition, and edema. The differences in mechanical and histological properties between non-rheumatoid and rheumatoid tissues were found to be statistically significant.

Two additional series of experiments were performed to determine a suitable method to measure the physical parameters of the specimens and determine the preservation method which would the least affect tissue properties. The Vernier calliper was selected to measure gauge length and cross-sectional area of tendons, while freezing at -20°C was chosen to preserve tissue until testing time.

The present research work is a first step in characterizing rheumatoid tendons and ligaments. Histological examination of tissues showed that rheumatoid arthritis invades the tissues surrounding the wrist joint, and affects the structure of the tendons and ligaments. The mechanical properties of the tissues have been altered in such a way that the tendons and ligaments may be less effective in stabilizing the wrist, and are less able to secure a wrist implant. The second step in characterizing rheumatoid tissues could pertain to a biochemical analysis. A better understanding of rheumatoid tissue behaviour will lead to an improved management of wrist instability and deformities. Future work may lie in the development of a bio-inert material to be used in reconstructive surgery with current wrist implants, and the design of a wrist arthroplasty which promotes bony integration while maintaining soft tissue integrity.

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**CLINICAL ENGINEERING - A PROFESSION IN EVOLUTION**

*Hans Kunov, Walter Zingg, Alf Dolan*
*Institute of Biomedical Engineering, University of Toronto*

In one of the last NEWSLETTERS Bob Scott wrote a thought-provoking and realistic assessment of the current situation. While in general agreeing with Bob, we would like to propose a different and more optimistic outlook.

A review of the recent history is the basis of Bob's assessment. This approach is important, and nobody can do it better than Bob Scott who has been closely associated with Clinical Engineering since its beginnings in Canada. However, the historical approach has its limitations. It can explain the reasons why we are at this particular point in the development of Clinical Engineering as a Profession. To pause and think along these lines is useful; we should do it more often!

Health Care Delivery Systems are in the middle of some sort of a revolution, and the future by and large is uncertain. Predictions are difficult because so many factors are changing simultaneously, but certain trends are beginning to be recognizable.

Michael B. Dector, the former Deputy Minister of Health of the Province of Ontario has written a book entitled "Healing Medicare, Managing Health System Change The Canadian Way." (McGilligan Books, Toronto, 1994). The contributions of the intelligent use of new technologies is clearly recognized throughout the book, particularly the potential value of information and telecommunication technology to achieve the objective of restructuring health work: "Maximize the portion of health work allotted to providing patient care, and minimize all other work by health workers" (Page 98).

On page 99 Dector writes: "Any health organization should fully investigate the potential of information and telecommunication technology to assist them in re-engineering the process providing health care. It is time to get risk being left behind. Many corporations created the position of Chief Information underscore the importance of this expert lead their investments in technology."

Ice Storm – Kingston (Vol 33 No 1, Feb 1998)

CMBES/SCGB

the manufacturer's fitness for use specifications, and perform the manufacturer's recommended preventive maintenance. Servicers do not significantly change a finished device's performance or safety specifications, or intended use." The FDA currently includes ISOs, shared services, out-sourced contracts, and in-house biomedical/clinical engineering departments within the scope of "servicers". For the first time, a regulatory agency proposes to consider regulating the service activities of in-house biomedical/clinical engineering departments within hospitals. More information on this topic may be obtained from the FDA website (URL:www.fda.gov/cdrh/fr.fr1223af.html). **Comments on the proposed rule making will be accepted until March 23, 1998.**

**Ice Storm 1998:** *Kingston General Hospital Clinical Engineering Perspective*

***by Mike Henderson***

On January 11, 1998 I drove through a maze of broken tree branches, downed power lines and police barricade to finally arrive at KGH to the roar of our two backup power generators. Power to the hospital is supplied from two separate sources both of which had been compromised at about 3:30 am. Emergency generators switched on immediately without problem, as had been anticipated after years of testing. Power was restored to the hospital about seven and a half hours later and has remained stable since.

Monitoring equipment, lab equipment, operating room power, elevators, hall lighting and the patient care systems remained functional with the odd computer monitor requiring plug movement to a red emergency backup power plug. Only one general purpose radiology room was connected to the generator, so emergency CAT scanning was out of the question. There was some concern about this until we learned that the Hotel Dieu Hospital had power and could provide this service for the city.

To our Lab's and Maintenance Department's surprise, some specimen and reagent refrigerators and freezers, thought to be connected to emergency power in the labs, were not functional and extension cords had to be pressed into service.

To our knowledge, only one clinical equipment failure might be related to the power outage and subsequent surges as the power came back on. A Lifepak 7 defibrillator switching power supply transformer failed at around the time of the power outage. This is a relatively unusual part to fail on these units and since the unit is constantly plugged in in charge mode, a surge causing failure seems possible. The other equipment casualty was the car roof of one out Clinical Engineering technologists. Her car was the victim of a large falling branch in the hospital parking lot.

Throughout the senior management meetings that occurred during and after the storm to review status and conduct planning, Clinical Engineering sat at the table and provided input regarding medical equipment issues. At one point it was uncertain how long the power would be out and concern was raised about what would happen in an extended power outage if either of the generators failed. Fortunately, an inventory of battery operated devices and expected battery life under load had been produced in the past to enable rapid location of appropriate equipment for short time monitoring.

Areas of the Kingston General Hospital and the Hotel Dieu Hospital and an out of use section of Kingston Psychiatric Hospital, and Providence Continuing Care Centre were pressed into service as shelters for some staff who could not get back and forth to work and for community members with medical problems who were without power.

The hardest hit community members were the elderly and those on home treatment, power dependent systems such as, IV pumps, hemo and peritoneal dialysis, ventilators, and oxygen concentrators. Community health workers often could not even get to the homes of their patients/clients due to impassable roads and walkways. These individuals were accommodated mainly at the Hotel Dieu Hospital until their power could be restored.

There were two memorable sights that I will never forget that typify the extent of the help that our community received from the outside. I was returning from Trenton Hospital driving along the 401 on Sunday January 11th at nine PM. Stretching ahead of me almost the whole distance from Trenton to Belleville (approx. 20 km) was a convoy of Detroit-Eddison cherry picker trucks that had come all the way from the mid USA to help Eastern Ontario and Western Quebec with our problem. The other image occurred on Saturday night, January 18th on Princess Street Kingston. All of the out of town power utility vehicles staged an impromptu farewell parade, on the main street of Kingston, that filled the whole of the downtown with blaring horns and people spontaneously shaking hands and embracing the linemen who had left their comfortable homes to help us out in our time of need.

In summary, the hospital emergency power functioned well with only minor glitches. We learned some valuable information regarding equipment that needed connection into the emergency power system. We had only one minor storm related equipment failure. Being without power at home for five days, taught me that emergency planning should extend to the home as well as the workplace.

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# NEWSLETTER

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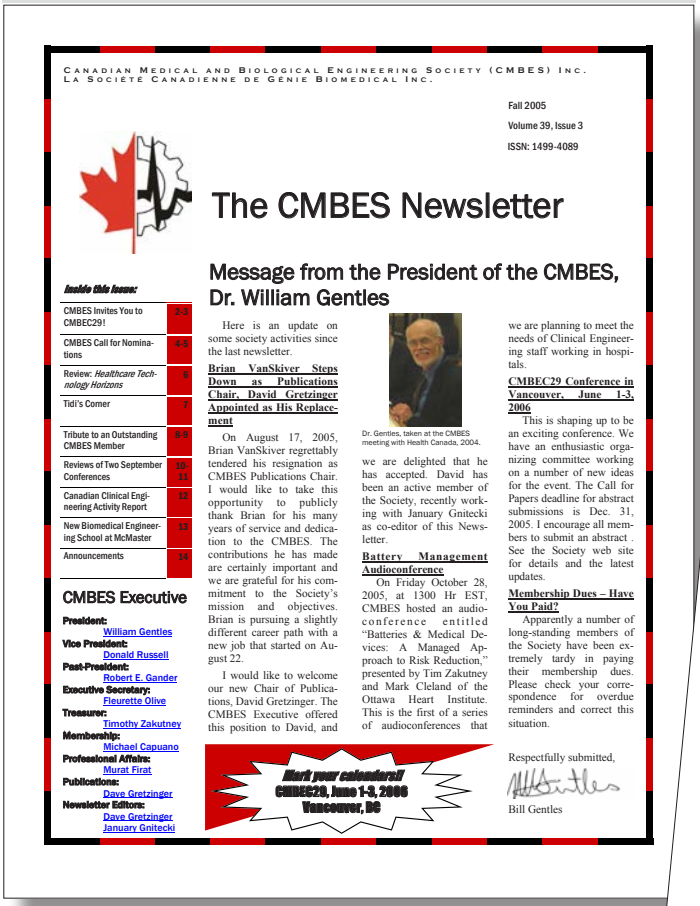
## CMBES - 50 Years of History

New Look (Vol 39 Iss 3, Oct 2005)
This look was used until early 2015.



CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY (CMBES) INC.
LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMEDICAL INC.

Fall 2005
Volume 39, Issue 3
ISSN: 1499-4089

The CMBES Newsletter

Inside this issue:



### CMBES Executive



### Message from the President of the CMBES, Dr. William Gentles

Here is an update on some society activities since the last newsletter.

**Brian VanSkiver Steps Down as Publications Chair, David Gretzinger Appointed as His Replacement**

On August 17, 2005, Brian VanSkiver regrettably tendered his resignation as CMBES Publications Chair. I would like to take this opportunity to publicly thank Brian for his many years of service and dedication to the CMBES. The contributions he has made are certainly important and we are grateful for his commitment to the Society's mission and objectives. Brian is pursuing a slightly different career path with a new job that started on August 22.

I would like to welcome our new Chair of Publications, David Gretzinger. The CMBES Executive offered this position to David, and we are delighted that he has accepted. David has been an active member of the Society, recently working with January Gnitecki as co-editor of this Newsletter.



Dr. Gentles, taken at the CMBES meeting with Health Canada, 2004.

**Battery Management Audioconference**

On Friday October 28, 2005, at 1300 Hr EST, CMBES hosted an audioconference entitled "Batteries & Medical Devices: A Managed Approach to Risk Reduction," presented by Tim Zakutney and Mark Cleland of the Ottawa Heart Institute. This is the first of a series of audioconferences that we are planning to meet the needs of Clinical Engineering staff working in hospitals.

**CMBEC29 Conference in Vancouver, June 1-3, 2006**

This is shaping up to be an exciting conference. We have an enthusiastic organizing committee working on a number of new ideas for the event. The Call for Papers deadline for abstract submissions is Dec. 31, 2005. I encourage all members to submit an abstract . See the Society web site for details and the latest updates.

**Membership Dues – Have You Paid?**

Apparently a number of long-standing members of the Society have been extremely tardy in paying their membership dues. Please check your correspondence for overdue reminders and correct this situation.

Respectfully submitted,

Bill Gentles

**Mark your calendars!**
**CMBEC29, June 1-3, 2006**
**Vancouver, BC**

Cover (Vol 42 Iss 1, Jun 2009)

CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY (CMBES) INC.
LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMEDICAL INC.

Spring 2009
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The CMBES Newsletter

Inside this Issue:



### CMBES Executive



### Message from the President of CMBES, Dr. Donald Russell

I hope you are enjoying this first edition of our revigorated newsletter. The past few months have brought a number of changes to our Society. For over a year now we have been working with The Willow Group who provide support services for the Society. We have seen a number of changes in that time including the redesign and launch of a new, more effective website, an improvement in our Conference planning and organizing efforts as well as many other changes, both major and minor to the way we operate. While these efforts have not been without their challenges, I firmly believe that we are in the process of moving the operations of the Society into a more effective and efficient realm.



**The Willow Group**

The Willow Group is a company located in Ottawa who bring considerable experience to the table with their many years of working with Societies similar to ours. Since I live in Ottawa I have had the pleasure of visiting them many times and I have been impressed with their offices and operation. Their suggestions and input have given the Executive much to think about as we strive to move the Society forward. During the upcoming Conference in Calgary we will be meeting to discuss some of these issues. We welcome any and all input as we review our first year of operation with The Willow Group and look forward to the possibilities that next year will offer.

**CMBEC 32 in Calgary**

I am very much looking forward to the CMBEC32 Conference in Calgary, Alberta. Hopefully I will meet (or will have met) many old and new members there. The conference program looks very exciting and I would like to take this opportunity to thank all of the members of the Conference organizing committee for their hard work and dedication.

**Conference Planning**

One of the bylaw changes made at last years AGM was the introduction of a new long range Conference Planning Committee. In its first year of operation we have seen significant improvements in our planning and we have already signed the hotel contract for CMBEC 33 next year in Vancouver. (Before CMBEC 32 has even started!)

**Involvement**

Those of us serving on the Executive or in many of the other roles in the organization receive many rewards for the time we devote to the Society. There is always more to do and the CMBES will benefit from everyone who gets involved. I encourage you to participate either formally or informally whether you are a student member just joining the society or a senor member with many years (decades for many of us) of experience. If there are services or other expectations of the CMBES that you believe would be of benefit please put your ideas forward (and if possible devote some time to bring them to reality.)

# CMBES - 50 Years of History

Knowledge • Exchange • Networking
50
1965 • Years • 2015

Cover (Vol 44 Iss 1, Feb 2011)

CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY
SOCIÉTÉ CANADIENNE DE GÉNIE BIOMÉDICAL

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The CMBES Newsletter

Message from the President of the CMBES, Murat Firat, MSc.

Inside this issue:



CMBES Executive

President: Murat Firat
Vice President: Adrian Chan
Past-President: Dr. Donald Russel
Executive Secretary: Pamela Wilson
Treasurer: Martin Poulin
Membership: Dennis Len
Professional Affairs: Mike Capuano
Awards: Tim J Zakutney, MHSc, PEng, CCE
Publications: Dr. Gnahoua Zoabli
Long Term Conference Planning: Sarah Kelso
Newsletter Editors: Dr. Gnahoua Zoabli, Pamela Wilson

**Shaping CMBES's Strategic Directions**

As announced earlier at CMBEC33 in Vancouver, CMBES Executive Committee members have started working on the "Strategic Plan 2011." We are refreshing our Society's "vision and mission," and shaping new strategic directions to navigate CMBES through this rough and challenging financial climate. The plan has not been finalized yet, and I'm not in a position to report the details, but I believe it would be safe to hint that we are heading towards some of the most exciting times of our Society. Believing that our strength lies within our members, we will be investing our energy in creating an environment of participation, collaboration and communication.

I beg and encourage each of you to participate. I do thank the Executive Committee members and Dr. Bill Gentles for their efforts and time that they have been putting in CMBES Strategic Plan 2011. Details to be reported at CMBEC34....

**CMBEC33 Vancouver (2010)**

I'm having difficulty finding words to describe CMBEC33: the amazing Continuing Education program, the colourful exhibit area, the excellent scientific and clinical engineering sessions, and last but not least, the perfect banquet in the mesmerising Vancouver Aquarium...

High-quality event topped up with high- quantity networking opportunities with colleagues... CMBEC33 in Vancouver has taken its place in the CMBES history as one of the best conferences (again!). Congratulations to Martin Forbes, the Organizing Committee, volunteers, Pamela Wilson and the Willow Group for doing an excellent job!

**CMBEC34/FICCDAT – Toronto (2011)**

Canadian Medical Biological Engineering Conference will be held, for the second time, as a joint conference within the Festival of Conferences on Caregiving, Disabilities, Aging and Technology (FICCDAT). Those who participated in CMBEC30 would remember how successful the first FICCDAT was, so expect nothing less this year. Many thanks to Dave Gretzinger and the Organizing Committee of CMBEC34; they have put together a fabulous program to look forward to. For details, please check out the second page.

**CMBES and APIBQ Sign a Memorandum of Understanding**

As I hinted above, we are sailing towards exciting times. I'm proud to report on one of the many ideas and actions that have come to life recently: Last week CMBES and APIBQ (Association des physiciens et ingénieurs biomédicaux du Québec) signed a memorandum of understanding (MoU) to formalize the affiliation of both societies. The highlight of the MoU for the members of each society is a generous reciprocal 50% membership discount. We believe both CMBES and APIBQ members will benefit from this exciting collaboration. Both societies will enjoy the collective energy produced by this momentum. Special thanks to Gnahoua Zoabli who spearheaded this initiative. Please check out the copy of the MoU published at the website.

**CMBES35 – Halifax 2012**

Another hint for another upcoming exciting event: CMBES and ACCES joint conference in Halifax. Thanks to Sarah Kelso, Long-Term Conference Planning Chair. The planning is already underway. More details will be announced in June at the Toronto Conference. I hope to see you all there.

Respectfully submitted.

New Look (Vol 48 Iss 1, Dec 2015)

CMBES/SCGB
CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY
NEWSLETTER
LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMÉDICAL

VOLUME N°48 ISSUE N°1 ISSN: 1499 - 4089 DECEMBER 2015

Knowledge • Exchange • Networking
50
1965 • Years • 2015

Join us in Beautiful Calgary for CMBEC39!

In This Issue :



More information about the history of the Society will be covered in the 50th Anniversary Commemorative Journal, to be published in the fall. Historical article contributions are welcome from all members.

For any inquiries, please contact the Secretariat.

# CMBEC39, Calgary, Alberta, May 27-29, 2016

*By Kelly Kobe, CMBEC39 Organizing Committee Chair*

May is a great time to visit Calgary, Alberta and explore this uniquely cosmopolitan and energetic city, surrounded by breathtaking landscapes in every direction. Whatever part of Calgary's cultural scene you are looking to experience – nature, history, art, food – you'll find it here!

We are looking forward to welcoming you to Calgary and hope you will have an opportunity to explore it!

## Canadian Medical & Biological Engineering Society

# 2017 Conference

Fort Garry Hotel | Winnipeg, Manitoba | May 23-26, 2017

# Save the Date!

## JOIN US IN WINNIPEG

This will be the premier event for biomedical engineering professionals in Canada. This conference offers a national forum for information exchange among researchers and practitioners working in the medical technology industry and biomedical engineering.

The Program Committee invites engineers, physicians, scientists, students, technicians and technologists to submit papers for this important event.

Scientific and technical contributions are welcome in, but not limited to, the following areas:

- **Biomaterials**
- **Biomechanics**
- **Biomedical Image Processing Biosignal Acquisition and Processing Biophotonics**
- **Clinical Engineering Ethics and Regulations Health Informatics**
- **Medical Devices: Development, Evaluation and Commercialization**
- **Neuroengineering**
- **Physiological Systems/Modeling**
- **Rehabilitation and Assistive Devices Engineering Robotics**
- **Sensors and Instrumentation Software Usability Testing Telehealth**
- **Tissue and Cellular Engineering**

## CALL FOR VOLUNTEERS

### Planning Committee

Help show colleagues from across the world how great Winnipeg can be. The planning committee is looking for individuals interested in helping with identifying conference sessions, planning and coordination of events, getting the word out, local arrangements, etc.

### Event Staff

During the event the conference will need people to help with registration, meeting speakers, coordinating presentations, facility navigation, awards and gifts, etc.

## Questions? Interested?

**Please contact CMBES directly**

**secretariat@cmbes.ca**

**CMBES/SCGB**