

# NEUROIMAGE

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DECEMBER, 2013

## AFTER 40 YEARS ... CT BOLDY LOOKS TO THE HORIZON

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# HAPPY BIRTHDAY CT

## DENIS MELANÇON

During this year's Denis Melançon Lecture, we took the opportunity to celebrate the 40<sup>th</sup> Anniversary of the first CT Scanner. And like any birthday celebration there was cake, enjoyed by all at the Symposium. Pictured here helping me cut the cake, is Dr. William Feindel who was the director of the Montreal Neurological Institute and Hospital when the first CT Scan arrived at the Neuro in 1973.

此致 Greetings Herzliche Gruesse Amicalement  
 Cordialmente nuqneH Bäst Hälsningar O Genki De  
 Alsalam alaykum Saudações Namaste Respetos  
 Saluti affettuosi 敬意



"It isn't all over; everything has not been invented;  
 the human adventure is just beginning."  
 ~ Gene Roddenberry,  
 Creator of the universe that is Star Trek

*Denis Melançon*

Science fiction or science fact? The cover for this issue of Neuro Image was inspired by the 2013 Neill Blomkamp film "Elysium". In 2154, two classes of people exist: the very wealthy, who live on a luxurious space station called Elysium, and the poor who live on an overpopulated, devastated Earth. While residents on Earth are policed by ruthless robots, Elysium's citizens live in comfort and regularly use bed-sized medical devices called Med-Bays (see above) to keep them free of disease and injury. The science fiction's take on current social and economic ills was accentuated with some sleek enviable home design, especially the Med-Bays; who wouldn't want one those at their disposal. What more will Computed Tomography achieve and discover, let alone brain imaging in general. ... Only Dr. Melançon knows.

~ Jean-Paul Acco

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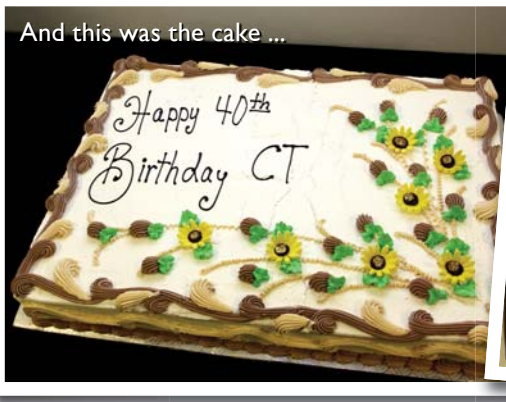
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& The Department of Radiology  
 MUHC / MNH



Dr. Feindel was invited to help cut the cake ...



And this was the cake ...



That we served to everyone; but of course Dr. Feindel got the first

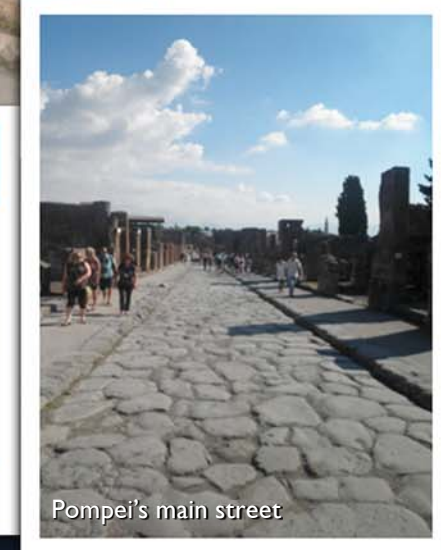
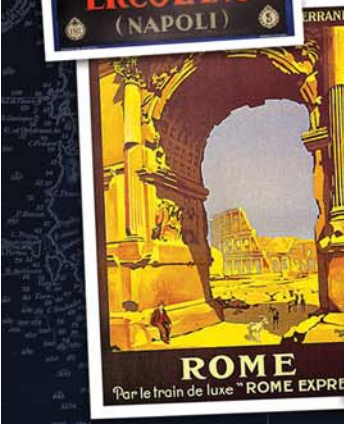
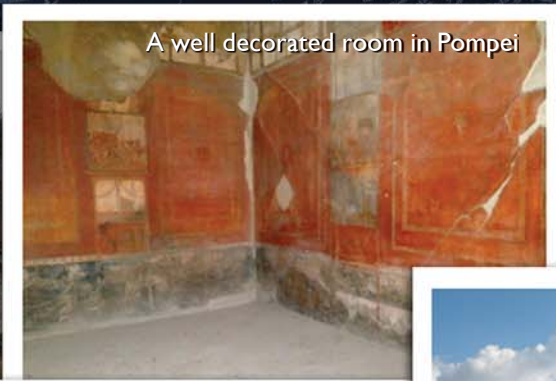
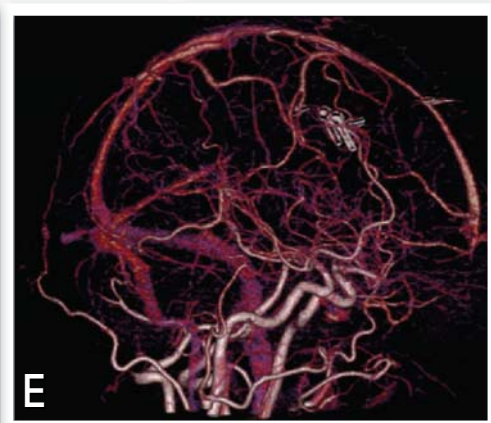
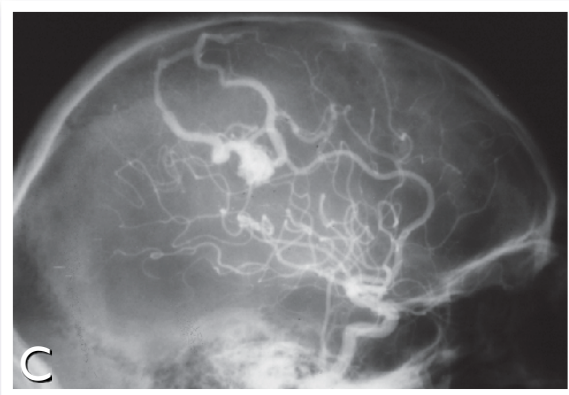
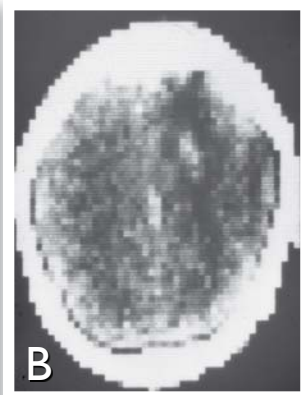
# MY VOYAGE INTO THE PAST

DENIS MELANÇON



Last September 14 to the 26<sup>th</sup>, I was on a cruise sailing the Adriatic sea, from Venice Italy, and back to Rome Italy. A few pictures were taken along the way. First stop was a one day stay in Venice, then up to Slovenia where we visited *Ljubljana, a very sympathetic old city*. Then down to Ravenna Italy, a visit to its mosaics, across the sea to Croatia, Split, Salona and Trogir, and Dubrovnik, then Montenegro, *Kotor* and Budva, wonderful paysage. Down to La Veillette, Malta, mostly military aspect. Up to Catania and Mount Etna, Sicilia, Further up to Naples, and a visit to Pompei. Finally up to Civitavecchia, from where we reached the airport Fiumicino to return home.

In early October 1973, 40 years ago, the first Head scanner was inaugurated at the MNI. It was manufactured by EMI from UK, and the first installed in Canada. The scanner had a small aperture, only for head scanning. The first patient was a young man with a right frontal bleed (a). The first scan is on a 64 by 64 matrix, large pixels make appearance of brain fuzzy, But a nodular hyperdensity is appreciated in the right frontal lobe suggesting haemorrhage. (b) Angiography confirmed the bleed was from an AVM (c), which was clipped successfully by Dr Feindel (d). Scanners improved from then on with better resolution of the brain. The patient of 1973 was scanned more recently, on the Aquilon Toshiba scanner (e) Patient on table with Dr Feindel at his side, scan at level of surgery (f)





# THE 2013 DENIS MELANÇON LECTURE SPINAL ARTERIOVENOUS FISTULAS

ROBERT A. WILLINSKY

Spinal vascular arteriovenous shunts are a heterogeneous group of congenital malformations and acquired fistulas. Several classification schemes have been proposed. We prefer to group them by location: extradural, dural, intradural and complex (multiple compartments). The intradural shunts are the true spinal cord arteriovenous malformations (SCAVMs). These can be grouped into intramedullary and perimedullary. This classification is based on an understanding of the arterial supply and venous drainage of the fistula. Spinal dural arteriovenous fistulas (SDAVFs) are supplied via radiculomeningeal arteries and the venous drainage is into the perimedullary venous plexus. SCAVMs are fed by anterior spinal (radiculo-medullary) and/or posterior spinal (radiculo-pial) arteries and drain into the intrinsic medullary and/or extrinsic, perimedullary venous system. These SCAVMs may have a nidus or may consist only of a single fistula. Those with a nidus are referred to as intramedullary and those with a single fistula are called perimedullary. The intramedullary SCAVMs always have supply from the radiculo-medullary arteries and often have additional supply from the radiculo-pial arteries. The perimedullary SCAVMs are either on the surface of the cord or subpial just deep to the cord surface. The perimedullary fistulas derive their blood supply from the radiculo-medullary and the radiculo-pial arteries. Extradural arteriovenous fistula (EAVF) derives their blood supply from segmental arteries and the venous drainage is into epidural and/or paraspinal veins.

**DENIS MELANÇON NEUROLOGY CONFERENCE**  
OCTOBER 17, 2013

## SPINAL CORD

8:00 - 12:00 Presentations by Residents and Fellows  
12:00 - 12:45 Lunch  
12:45 - 1:45 Reception  
1:45 - 1:55 Welcome  
Teresa Mack, Administrative Director  
Neuroscience Institute  
McGill University Health Centre  
Benoit Gallix, Chairman  
Department of Radiology, McGill University  
Introduction  
Maria Cortes, Radiologist  
Montreal Neurological Institute and Hospital  
1:55 - 2:05 Genetics of Charli malformation with syringomyelia: from dogs to humans  
Zohar Klibi, Professor  
CNS Center, Justice Research Center  
2:05 - 2:15 Recovery of walking after spinal cord injury  
Serge Houldreau, Professor of Neurology  
University of Montreal  
2:15 - 2:25 Childhood Spasticity: pathophysiology, treatment & long-term functional outcome  
Jean-Pierre Farmer, Surgeon-in-Chief  
The Montreal Children's Hospital  
2:25 - 2:40 Imaging the spinal cord lesions  
Manon Béland, Radiologist  
Hopital Ste-Justine  
2:40 - 3:00 Inflammatory and Demyelinating Diseases of the Spinal Cord  
Paul Giacobini, Neurologist  
Montreal Neurological Institute and Hospital  
3:00 - 3:25 Coffee Break

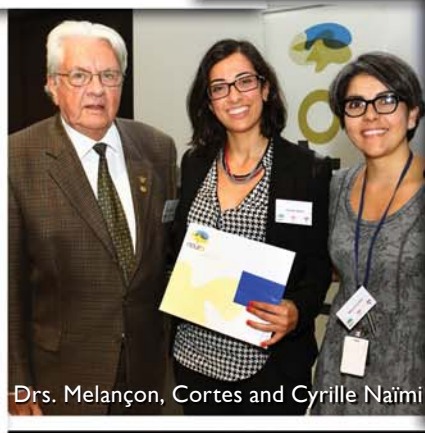
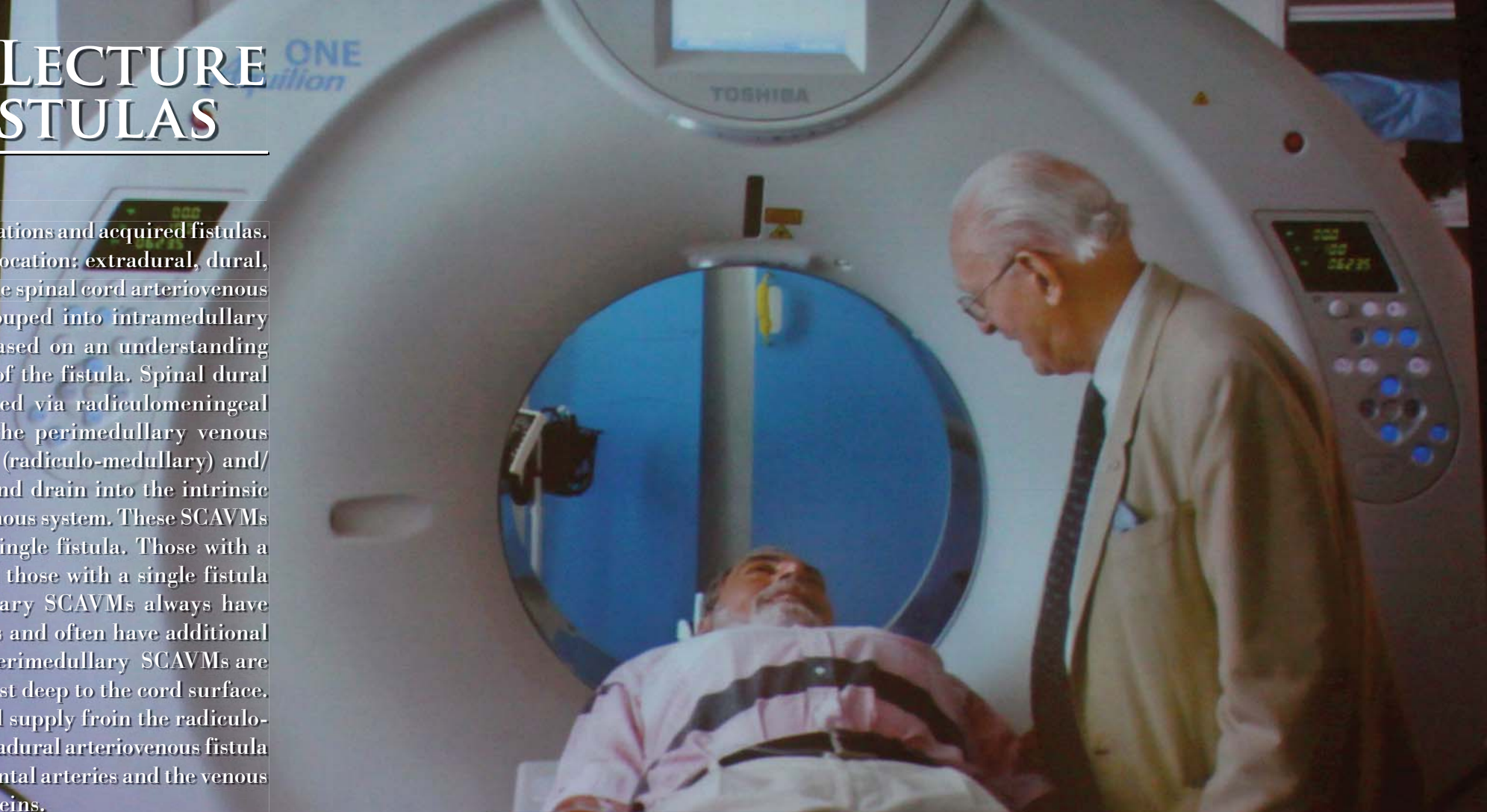
3:25 - 3:50 Spinal Cord Monitoring  
Bernard Rosenblatt, Neurologist  
Montreal Children's Hospital  
3:50 - 4:15 Spinal Cord Stimulator indications, techniques and results  
Line JACQUES, Neurosurgeon  
Montreal Neurological Institute and Hospital  
4:15 - 4:40 Tumors affecting the spinal cord, view of a neurosurgeon  
Benoit Gallix, Neurosurgeon  
Montreal Neurological Institute and Hospital  
4:40 - 5:40 DENIS MELANÇON LECTURE  
Introduction  
Donatella Tampieri, Director  
Diagnostic and Interventional Neurophysiology  
Montreal Neurological Institute and Hospital  
Spinal Arteriovenous Fistulas: Vascular Anatomy, Pathology and Treatment Strategies  
Robert A. Willinsky  
Professor of Medical Imaging  
The Toronto Western Hospital,  
University Health Network,  
Toronto, Canada  
Closing Remarks: Awarding of Prizes?  
Donatella Tampieri  
Neurologist

Registration is free and required. For more information and to register: [www.neuroevents.mcgill.ca](http://www.neuroevents.mcgill.ca)

Jeannie Timmins Amphitheatre  
Montreal Neurological Institute and Hospital  
3801 University Street

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All of the photos presented here are courtesy of photographer Gary Rush [www.PhotoGary.ca](http://www.PhotoGary.ca)

# SEMAINE DE LA RADIOLOGIE RADIOLOGY WEEK RADIOLOGY WEEK 2013



Dr. Melançon giving a small seminar on the subject of brain anatomy with some of the staff during Radiology Week.



CATHERINE THERRIEN, T.I.M. AND CHRISTINE LAVERTU, T.I.M.

*It was a pleasure to accept Dr. Melançon's invitation to write this article that highlights the events surrounding Radiology Week that occurred from November 4th to 8th, 2013.*

Several activities were developed to celebrate this week. The initial objective was an awareness campaign for the various groups of health professionals at the Neuro and our patients, about the important role of medical imaging technologist in the process of diagnosis and treatment. In this context, the patient waiting room was transformed by the introduction of an exhibition that presented on one side, the neurological application of different methods in medical imaging; and on the other side, the history of radiology. This project was directed by Christine Lavertu who has expertise in the fields of art history, literature and museology.

Along with the aim of raising public awareness, the open house gave us the opportunity to share our passion for the profession. Our technologists François Larrosée and Catherine Therrien guided visitors through the different examination rooms, describing the operation of each room's equipment and the type of imagery it produces.



Moreover, another goal of this week was to provide training directly related to radiology. Dr. Melançon's lesson in brain anatomy was met with great enthusiasm by the technicians and nurses that attended. (See photo on next page) It was a privilege for everyone present to benefit from the wealth of his knowledge and generosity. Two conferences

Group photo of the Neuroradiology staff/ team on the steps leading down to the foyer of the Jeanne-Timmins Amphitheatre

on radiation protection were given by Gilbert Gagnon, distinguished technologist emeritus in medical imaging and radiation safety consultant. One was for the patient's protection, and the other for the protection of X-ray workers. And finally, there was some training in intravenous methods for a newly adopted catheter here at the Neuro. This training was an initiative aimed at maintaining the patient's comfort and well-being; and the optimization of the final image provided by the CT-Scan examination.

All in all, Radiology Week promoted teamwork within our department; this was celebrated by a lunch that gathered all the employees of Neuroradiology, and also concluded this rewarding week. The Neuro's medical imaging team of more than 40 people (physicians, technologists, nurses, administrative and clerical staff, and patient attendants) and each of their contributions deserve our recognition.

*We sincerely thank all our colleagues for their support and involvement in the achievement of this event.*



The Exhibit in the Radiology's waiting room

