

WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

PRESIDENT'S COLUMN

Evolution

The WFN has grown more financially stable and made credible contributions to the mission and the members

BY RAAD SHAKIR

Successful organizations evolve and grow. Harmonious and uninterrupted processes of sound administration and guidance accelerate this natural progression. The World Federation of Neurology (WFN) is 60 years old. It has been through periods of upheaval and difficulties, but over the years, the success in fulfilling its aims and goals is unquestionable. This is undoubtedly due to the dedication and vision of its leaders.

The constitution and bylaws of the WFN provide a wonderful document that has stood the test of time and is fully adaptable to all situations. It has been the backbone of our federation. It is



Prof. Shakir in front of a map showing where neurology trainees came from, displayed at the Groote Schuur Hospital in Cape Town, South Africa. This is one of the four WFN training centers in Africa.

clear that the trustees govern the WFN. All decisions are made by consensus, and this has been closely followed. This governance structure is a major reason

for sound and informed decisions.

If we look at the past decade or so, the WFN has been led by a variety of officers

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Jan Swasthya Sahyog (JSS) is in Ganiyari, Bialspur, in the Central Indian state of Chattisgarh. It serves a poor, rural, and neglected region.

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World Stroke Day Congress in Moscow

Three days of powerful presentations on stroke

BY PETER SANDERCOCK, MD, DM, FRCPE, FMEDSCI, FESO

More than 2,800 neurologists and other physicians involved in stroke care attended World Stroke Day Congress Oct. 25-27 in Moscow. Attendees were from Moscow and more than 60 regions of Russia and 10 other countries, mostly Eastern European. There also were representatives of stroke support groups.

The meeting was held in the iconic Ukraina Radisson Royal Hotel Conference Center in central Moscow. The conference was organized by Prof. Eugene Gusev, president of the

All-Russian Society of Neurologists, and Prof. Alla Guekht, secretary of the All-Russian Society of Neurologists and the World Stroke Organization, with the support of the Ministry of Health of the Russian Federation, the Russian Academy of Sciences, Moscow Healthcare Department, Pirogov Russian National Research Medical University, All-Russian Society of Neurologists, and the Moscow Research and Clinical Center For Neuropsychiatry.



PETER SANDERCOCK, MD, DM, FRCPE, FMEDSCI, FESO

In the spirit of international collaboration and scientific exchange of ideas and solutions to tackle the global burden of stroke, the conference was supported by representatives from major international stroke and neurological organizations: the World Federation of Neurology (WFN), European Academy of Neurology (EAN), American Academy of Neurology (AAN), European Stroke Organization (ESO), and the International League Against Epilepsy (ILAE).

The congress focused on the latest developments in stroke prevention, acute management, and restorative care after stroke, as well as on raising awareness about stroke and the need for better resources, sharing experiences in dealing with problems resulting from stroke, and providing relevant information to stroke survivors and their caregivers.

The congress book contained extended abstracts of all of the talks and was published in English and Russian. The participants of the congress received the book for free. As many doctors in

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FROM THE EDITORS

BY STEVEN L. LEWIS, MD, EDITOR,
AND WALTER STRUHAL, MD, CO-EDITOR

We are pleased to introduce the November/December 2017 issue of World Neurology. This final issue of the year opens with WFN President Professor Raad Shakir's column, highlighting the evolution of the WFN. This insightful column marks Dr. Shakir's final President's Column as he completes his remarkably successful presidency of the WFN.

Among the other diverse contributions in this issue are reports from several recent national and international conferences. Prof. Peter Sandercock reports on the events from the recent World Stroke Day Congress that took place in Moscow, and WFN Secretary-General Wolfgang Grisold reports on the 16th Meeting of the Mexican Academy of Neurology that took place in Veracruz, Mexico. Apropos



STEVEN L.
LEWIS, MD



WALTER
STRUHAL, MD

to the latter report, Professor J. Eduardo San-Esteban teaches us about the history of neurology in Mexico, a report based on a wonderful exhibit that Dr. San-Esteban curated for the many visitors to that very successful conference.

Regarding one of the many international neurologic educational activities that the WFN is pleased to be involved in, Prof. Grisold also reports on the Ninth Regional Teaching Course in Sub-Saharan

We would like to take this opportunity to thank Prof. Shakir, on behalf of neurologists worldwide, for his many and remarkable accomplishments in his pursuit of improving global neurology during his presidency of the WFN.

Africa that recently took place in Ouagadougou, Burkina Faso.

Prof. Mamta Bhushan provides a detailed report on the medical and neurological care taking care at an institution in India called Jan Swasthya Sahyog (JSS).

Finally, in this month's history column, Prof. Peter Koehler describes the history of the intriguing neurological phenomenon known as synesthesia.

We would like to take this opportunity to thank Prof. Shakir, on behalf of

neurologists worldwide, for his many and remarkable accomplishments in his pursuit of improving global neurology during his presidency of the WFN. In addition, we would like to add our sincere personal thanks for his support and confidence in providing us with the opportunity to be so involved in this important organization and to report on its activities, and the activities of neurologists around the globe, through this publication. •

MOSCOW

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the former Soviet Union know English poorly, these books are extremely valuable for them.

Education Sessions and Symposia

Day 1: The congress got off to a great start, with the program for the day including sessions on stroke in the young, rehabilitation after stroke, chronic cerebrovascular disease, clinical pharmacology and pharmacotherapy of stroke, current technologies in endovascular treatment of acute ischemic stroke, management of stroke — challenges and solutions, organization of stroke care, and a master class on multiple organ failure in severe stroke.

The WSO members on the faculty who gave talks on Day 1 were Geoff Donnan on "Thrombolysis, Modern State and Perspectives," Peter Sandercock on "Personalized Medicine: Can it Be Applied in Stroke and Can it Be Tested in Trials?" and Wolfgang Grisold (from WFN) on "Stroke and Cancer."

Main Scientific Sessions

Day 2: The scientific congress was formally opened by a Praesidium of

Representatives of all the key organizations in contributing to the congress, with welcoming words from Parliament of the Russian Federation, Russian Academy of Sciences, local organizers A. Guekht and E. Gusev, and W. Hacke (representing WSO). The ESO was represented by V. Caso, EAN by D. Leys, WFN by W. Grisold, and ILAE by E. Perucca.

It was followed by a series of expert talks from Russian colleagues, covering a wide variety of issues on current stroke care in the region. The afternoon sessions included updates on current standards in stroke diagnosis, the role of neuropsychiatry in stroke recovery, thrombolysis, and a masterclass in chromotherapy. There was an important session on cerebrovascular disease in ICD-11 with talks by S. Murasev and E. Salakhov (representatives of the Ministry of Health) on the "Role of the Russian Federation in International Program Against Brain Diseases," B. Norrvig (WSO) on "Stroke as a Brain Disease in ICD-11 – What Does it Mean?", R. Sacco (AAN) on "Stroke Prevention and Brain Health Support" and V. Caso (ESO) on "Gender Differences in People with Ischemic Stroke." There also was a key session on post-stroke epilepsy with

talks by A. Hauser and S. Moshe from the U.S., Prof. Guekht and E. Perucca (Italy).

Scientific Sessions

Day 3: The main plenary session was opened by Prof. Veronika Skvortsova, the Minister of Health, and was followed by the Award of Diploma of the Foreign Members of the Russian Academy of Sciences. This was followed by a series of talks on major stroke



Demonstration of innovative stroke rehab technology at Moscow Research and Clinical Center of Neuropsychiatry.

topics: "Intravenous Thrombolysis — Is it Still the Most Important and Specific Method of Acute Stroke Therapy?" W. Hacke; "Cognitive Impairment After Stroke Is a Heavy Burden for Patients, Their Families, and Society," M. Brainin; "Reperfusion Therapy and Ischemic Penumbra," S. Davis; "Arterial Hypertension and Stroke," E. Chazov, I. Chasova; "Approaches to Lowering Cardiovascular Disease Mortality in Russia," S. Boitsov; "Surgical Treatment of Stroke in Russia," V. Krylov; and "Spinal Cord Circulation Disorders," A. Skomoretz.

This session outlined the great progress that has been made in reducing the burden of stroke and vascular disease over the past decade, but also highlighted the priority actions for the future. Other interesting contributions of the day included sessions on stroke in childhood, ultrasound in diagnosis, "Eye as a Mirror of the Brain," by N. Bornstein and a session on post-stroke cognitive impairment.

Visit to Moscow Research and Clinical Center For Neuropsychiatry

Prof. Guekht arranged a fascinating and most enjoyable visit for the international faculty to her institution, at

which research fellows presented their work on various aspects of cognition, neuroimaging, neuropsychiatry, and rehabilitation. She invited her colleagues and collaborators to attend this meeting and present their institutions, so there was a possibility to get acquainted with the best University Hospitals/Clinical Centers in Moscow: the Clinical Medical Center of the Moscow University of Medicine & Dentistry, Buyanov Moscow City Hospital of the Healthcare Department of Moscow, and others.

This was an excellent opportunity for scientific exchange and discussion. The significant achievements in the Moscow medical system — modern equipment, new technologies, and well-trained doctors — were very impressive; the Buyanov Moscow City Hospital and the Moscow Research and Clinical Center of Neuropsychiatry were the perfect examples. The grounds of the center include new buildings as well as some beautiful historic ones that have been renovated and preserved as monuments to the long scientific heritage of the unit. •



Prof. Guekht, Prof. N. Bornstein, and Immediate Past President of WSO Prof. S. Davies discuss stroke rehabilitation.

Sandercock is Emeritus Professor of Medical Neurology at the University of Edinburgh, U.K.



WORLD FEDERATION OF NEUROLOGY

Editors-in-Chief
Steven L. Lewis (Editor)
Walter Struhal (Co-editor)

WFN London Office
Chester House
Fulham Green
81-83 Fulham High Street
London SW6 3JA

United Kingdom
Tel.: +44 (0)20 3542 1657/1658
Fax: +44 (0)20 3 542 1301
info@wfneurology.org

WFN OFFICERS

President Raad Shakir (United Kingdom)
First Vice President William Carroll (Australia)
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Editorial Correspondence: Send editorial correspondence to *World Neurology*, Dr. Lewis at steven_lewis@rush.edu or Dr. Struhal at walter.struhal@akh.linz.at.

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7171 W. 95th Street, Suite 300
Overland Park, KS 66212
Phone +1-913-344-1300
Fax: +1-913-344-1497

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PUBLISHING PARTNER

Ascend Integrated Media

President and CEO

Barbara Kay

Vice President of Content

Rhonda Wickham

Vice President of eMedia

Scott Rarden

Vice President of Sales

Donna Sanford

Project Manager

Amanda Nevala

Art Director

Brianna Vaughn

Editorial Offices

7171 W. 95th Street, Suite 300
Overland Park, KS 66212
+1-913-469-1110

EVOLUTION

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and trustees who have come from all regions of the world. It is important that various neurological associations are represented in the leadership. This is assured by the method of nomination and the electoral process we follow.

Over the last decade, the WFN has become more financially sound and able to fulfill its mission in promoting and funding neurological training, education, and research. It is important to say that our financial status has not been affected by the downturn in the world economy 10 years ago. Our financial advice and prudence meant that we continued to increase our assets throughout the past two decades. This has been enormously helped by successful World Congresses.

Neurology Training

It is clear that efforts should be targeted at low- and low-middle-income countries with limited resources and in many non-existing neurology training programs. The facts were made starkly clear by the publication of the *Neurology Atlas* in 2004. This joint publication of the WFN/WHO remains a major resource for the status of neurology globally. The second edition was published in 2017. It makes interesting reading to look at what has been achieved in over a decade. The differences are glaringly obvious. The status in Sub-Saharan Africa, parts of Latin America and Southeast Asia are dire, to say the least. This was immediately recognized by the WFN leadership during the presidency of Jun Kimura, and the process was started to rectify the situation as much as possible.

Following the success of the Sydney World Congress in 2005 and the establishment of the Task Force for Africa in December 2006, it became clear that a coherent program of training young neurologists in their own regions was the way forward. The decision by the trustees during Johan Aarli's presidency was to explore the establishment of WFN training centers in Africa as a start. An exploratory visit by Ragnar Stein (Norway) to Rabat and Cairo was positive.

The process of training Africans, by Africans, in Africa, took hold. The last of the quadrennial congresses was held in Bangkok in 2009. Following this, the WFN moved to biennial congresses, further improving the financial status. The foundation of regional organizations for Africa, Asia, and Latin America took hold.

I am confident that the trustees will forge ahead to evolve our activities for a better future for world neurology. I wish them all the best and will always be available for any task whenever required.

After 62 years in exile, the WHO has finally agreed to place cerebrovascular disease under the nervous system diseases section of ICD-11.

This was helped in no small measure by the success of congresses in the regions. The first was the congress in Marrakesh held in 2011 with the banner of "With Africa, For Africa." The trustees, during the presidency of Valdimir Hachinski, proceeded with the negotiations to establish the first WFN approved training center in Rabat, Morocco. The finances came through a grant from the Moroccan neurology society and the WFN.

Training Centers

The WFN continued with its plans to establish the African Academy of Neurology, and this was finally established during a special meeting in August 2015 in Dakar. This was a momentous event for African neurology. The establishment of three more training centers progressed further. Dakar and Cairo were visited and accredited; the last to be accredited is Cape Town.

Now, the WFN has four centers in Africa, two Francophone and two Anglophone. The fifth one is in Mexico City for Central and South America. The plans for a sixth center in Asia are in hand and should happen in 2018. If we think about Africa, the needs are enormous, as was shown in the second edition of the *Neurology Atlas* published jointly by the WHO and WFN in September 2017. The WFN is grateful for several funders who have come to partner with the WFN in financially supporting the training centers. As an example, the Societe Francaise de Neurologie (SFN) is supporting the centers in Rabat and Dakar, while the Association of British Neurologists is supporting the training in Cairo. Other societies and regional organizations have pledged financial support, which makes the WFN confident that as an example in Africa we can be assured of producing five trained neurologists a year in due course.

This is most beneficial evidence of the WFN training neurologists in the developing parts of the world. Although arranging teaching courses, traveling

fellowships, and bursaries to attend and present scientific work in international meetings are all important activities, I think that the training centers are the most practical and tangible way for young trainees to return to their home countries at the end of training. This will hopefully reduce brain drain to a minimum. Thus far, trained neurologists from our first center in Rabat have returned to their home countries, and the program is functioning exceptionally well. As can be imagined, the most important issue is the dedication of the trainers and the welcoming attitude of all the administrations of training centers. The WFN has seen this in abundance.

Moving Forward

This is my last president's column during my tenure, having served eight years as Secretary-Treasurer General and four years as President. The final year has seen two other pivotal events for neurology. The first is the classification of stroke as a disease of the nervous system following the WHO's change of opinion. After 62 years in exile, the WHO has finally agreed to place cerebrovascular disease under the nervous system diseases section of ICD-11. This will ensure that future statistics will clearly show that neurological diseases are the first cause of disability adjusted life years (DALYs) and the second commonest cause of mortality.

The benefits to neurological patients are enormous, as funding should follow, and governments will finally recognize that nervous system diseases are a funding priority. I am most grateful for the WFN trustees and my fellow members of the ICD-11 Topic Advisory Group for their advice and continued support.

The second event is the huge success of the largest World Neurology Congress in Kyoto. The final number of attendees exceeded 8,500, and the Japanese Society of Neurology has been an effective, wonderful host and partner. The scientific and financial reverberation will continue to enrich the WFN in various ways.

I wish the newly elected officers and trustee the best for their continued hard work with the other trustees to move the WFN further forward. With the election this year of Bill Carroll, Ryuji Kaji, and Riadh Gouider, I am confident that the trustees will forge ahead to evolve our activities for a better future for world neurology. I wish them all the best and will always be available for any task whenever required. •

Jan Swasthya Sahyog Diaries

The inspiring work and legacy of JSS

BY MAMTA BHUSHAN SINGH

Eight thousand neurologists descended upon Kyoto where we are attending the XXIII World Congress of Neurology, and where this article was written. If the best that humankind can be, do, and achieve has to be witnessed, Kyoto may be the correct place.

I am not making this statement lightly, but sharing my assessment of the city and its people after being here for a few days. There are very few places that inspire; Kyoto is certainly one of them.

Jan Swasthya Sahyog, or JSS, which I write about here, is also an inspirational place. Why did I think of JSS while I am in this world-class amalgamation of the ancient, traditional, and cutting-edge modern? Well, so is JSS! While JSS makes a serious attempt to make available to the local tribal Indian communities every effective modern treatment, there is an equally passionate commitment to

else. We would like to believe that what is striking them is disease; and in some ways, it is. Yet, what is striking them far more frequently and harder, I believe, is poverty. And apathy.

The local population that JSS serves is chronically malnourished. Life is hard, regular employment only available in certain seasons. Alcoholism adds another layer to the population's challenges. The favored spirits are derived locally from the Mahua tree. Men and women are equally afflicted. Families often tend to be large with many families having five or more children.

Under such circumstances, if disease strikes, the blow can be final. Diseases are rampant. Tuberculosis and diabetes may be major problems, but anemia, infections, infestations, deficiency syndromes, sickle cell disease, bites, stings, and every other disease one can think of, jostle for attention and resources.



Health worker, physiotherapist, and visiting neurologist visit the home of a stroke patient to check on her progress and provide some guidance on rehabilitation.

preserve all that is good, wholesome, and healthy in the traditions, practices, and environment of the region.

JSS is in Ganiyari, Bilaspur, in the central Indian state of Chhattisgarh. This is a remote, rural, neglected region, and JSS is carrying almost the entire burden of providing health care here.

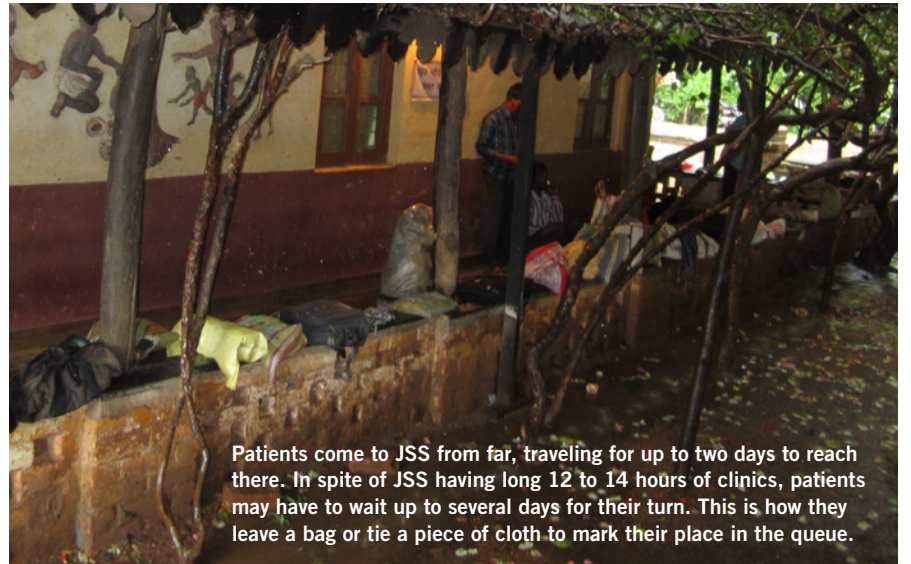
Being Struck

On the way from JSS to some of its outreach clinics is a forest called Achanakmar. For non-Hindi-speaking friends, this would roughly translate into "being struck, suddenly." I am not sure how many people in or around the forest have been "struck" by animals from this forest. In the gentler surrounds of Ganiyari, the tribal Baigas, Gonds, Abhuj Maria, and many others are being struck with far more regularity and finality by something

Health Care

If you look around for the available public health care for these indigenous people, you are not surprised. There is almost nothing. These people do not matter, and we are too busy and important to be bothered about them. So people continue to fall sick, suffer, and die. God forbid, they show a little spunk and try getting treatment in one of the private clinics or hospitals at the nearby Bilaspur or the slightly further Raipur. There is an extremely high likelihood of them then falling into an endless spiral of debt from which they might never recover.

Enter JSS. Each word in this name is meaningful. A few bold, committed, and extremely unusual doctors initiated the project more than a decade ago. Spend a few days at JSS and what impresses you is how rooted the idea is in the local



Patients come to JSS from far, traveling for up to two days to reach there. In spite of JSS having long 12 to 14 hours of clinics, patients may have to wait up to several days for their turn. This is how they leave a bag or tie a piece of cloth to mark their place in the queue.

community and how organically the community connects with it. Each one is an equal stakeholder. The founder doctors had the audacity to not only conceive such a project but have also dedicated their lives to bringing their vision to fruition. The community in its response surpasses my expectations. Every time I visit JSS, I wonder why we do not more often engage with the communities that we work in?

Miracles

JSS is not only a hospital. It is people working for themselves, facilitated by the guidance and mentoring of committed doctors. Attention is crucially being paid not only to the cure of disease but also to its prevention in the community. People are being educated and made aware of sickness and health. Treatments are being re-thought and re-designed in accordance with local needs and within the framework of available logistics. The role of the generalist, which has long lost any shine in the medical profession, is being explored, even celebrated.

One often gets to see miracles of the generalist at JSS. While I am there, a 60-year-old farmer walks in with recently appeared symptoms of difficulty in using

language. His brain imaging is urgently arranged from Bilaspur. The scanner looks far worse than the patient.

We discuss this patient around 4 p.m., and I am worried about where we are going to find a neurosurgeon. This seems to be a brain abscess, and surgery is needed both for confirmation of the infectious nature of the lesion as well as for treatment. There is not much time to fret over it, and I get busy with epilepsy patients. Later in the evening, I discover that the quiet, unassuming, soft-spoken person trained to be a pediatric surgeon has gone rogue and performed neurosurgery.

It is a success. I would consider this otherwise modest surgery life saving over here. I did not hear any applause anywhere or even much surprise. This is what everyone at JSS does quite regularly. They challenge themselves and break boundaries.

Over the last 10 years, I have traveled a lot and been to scores of Indian small towns and villages and met hundreds of health care professionals. Many of them come across as being very committed and caring. Yet, I have never seen a patient

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The health worker exchanges pleasantries with me as I go through patients who have been specially called to the epilepsy clinic at Bahmni. Bahmni has one of the outreach clinics that JSS runs in the region.

JSS

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being brought for a consultation not by his family but by a health worker. At JSS, I was surprised to see that this happens quite regularly.

I am told that 13-year-old Birju's parents have recently migrated to Allahabad in search of a livelihood. He and two of his siblings are staying with grandparents. The village health worker has brought Birju to the epilepsy clinic. Another young patient's parents are erratic in getting her to the epilepsy clinic. I am informed that they are Mahua addicts and often inebriated. The village health worker who has brought her knows all the details that I need and does not seem judgmental or annoyed. I feel guilty because I am feeling both of these emotions very intensely. I have so much to learn from these villagers.

People can be very poor. They can be so poor that they are unable to afford medicines that they desperately need to remain seizure-free and that cost as little as 100 rupees per month (~USD 1.20). I met a few patients who told me that they knew that their medicines should not be missed. Yet, every once in a while, they just do not have the money to refill their prescription. My long-held dream of setting up an "Epilepsy Drug Bank" reappears. When will I be able to get this done?

The guiding light and driving force at JSS is empathy and concern for the community. Cost of care is designed thoughtfully and not set in stone. Individual patient circumstances are kept in mind while handing over bills. Patients open up and talk. They do not appear overwhelmed, as they seem to be in the tall steel and glass structures called "hospitals" in big cities. I wonder why we do not have more JSSs. This health provision model works and has profound lessons especially for doctors, health planners, and governments. Are we ready to listen yet? •

What Is JSS?

The vision of Jan Swasthya Sahyog, found at <http://www.jssbilaspur.org/>: "To develop a low-cost and effective health program that provides both preventive and curative services in the tribal and rural areas of Bilaspur and surrounding areas of Chhattisgarh in central India. We strongly believe that access to health care should not be denied to anyone due to lack of money or due to discrimination on account of caste, sex, religion, and social class."

Even if I tried, I do not think I could better describe what JSS does. Visit the JSS FaceBook page to see some of their projects: <https://www.facebook.com/jssbilaspur/>. •



Regional Teaching Course in Sub-Saharan Africa

Highlights of the ninth neurology training course

BY WOLFGANG GRISOLD

This is a report from the Ninth Regional Teaching Course in Sub-Saharan Africa, organized by the European Academy of Neurology (EAN) and EAN Task Force, under the leadership of Prof. Schmutzhard and Eveline Sipido. The local organizer was Prof. Jean Kabore.

The Ninth Regional Teaching Course in Sub-Saharan Africa took place Nov. 8-11 in Ouagadougou, Burkina Faso. The EAN Regional Teaching Course was co-sponsored by the African Academy of Neurology, Le Burkin Faso Society of Neurology, the American Academy of Neurology (AAN), the International Brain Research Organization (IBRO), the International Parkinson and Movement Disorders Society, The World Stroke Organization, and the World Federation of Neurology.

The aim of this Regional Teaching

Course is fostering neurology training in Sub-Saharan Africa. The topics were determined by the faculty and also by residents of the last meeting that took place in 2016. The format of the course contained plenary lectures, new highlights, clinical grand rounds, and afternoon interactive case discussions with the faculty. An examination tested the knowledge of the participants. The success rate of the participants at this course was 85 percent.

Teaching Course Topics

On Day 1, the topic of stroke in Sub-Saharan Africa was discussed. The session was opened by Prof. Schmutzhard and Prof. Kabore. Also, the director of the faculty of medical sciences and the dean of the university participated. Reviews of basic principles of epidemiology, clinical presentations, and the state-of-art in diagnostic work-up and therapeutic management were



Three successful and knowledgeable residents: (left to right) Nomena Finiavana Rasaholiarison, Madagascar; Girma Diltata Muzie, Ethiopia; and Ratsitohara Santatra Razafindrassata, Madagascar.

discussed. Prof. Yomi Ogun, president of AFAN, gave an outline on diagnostic and therapeutic management in urban and rural Sub-Saharan Africa.

Following this, in the clinical grand rounds, patients were presented and discussed by the audience. The interactive clinical case discussions consisted of four groups (stroke, movement disorders, spinal cord, and muscle diseases) which were changed every day. Each day, every group had the opportunity to discuss these subtopics with the faculty.

On Day 2, the topic of **Movement Disorders and Dementia** in Sub-Saharan Africa was discussed. Following the talk on Epidemiology and Classification, the presenter from the AAN, Prof. Reilly, gave a talk on clinical presentations and diagnostic work-up. Prof. Rac Kalaria from Kenya/U.K. gave a comprehensive review on the clinical presentations, diagnostic work-up, and therapeutic



The faculty of the EAN teaching course in Burkina Faso.

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The large exhibition of the history of neurology in Mexico. The walk-through at the congress opening.

Mexican Academy of Neurology

Wide range of topics were addressed at the 16th meeting, ranging from dementia to stroke

BY WOLFGANG GRISOLD

The 16th meeting of the Academia Mexicana de Neurología took place Oct. 31 to Nov. 5, in the town of Veracruz, Mexico. Veracruz, also known as Mexico's door to the world, is a historic city and presently a critical seaport.

The congress is the Mexican Academy of Neurology's most important academic event of the year. This year's slogan was Building Bridges and Breaking Walls. The Academy invited many international experts to speak on scientific developments and new aspects of neurologic diseases. It is noteworthy that special sessions were dedicated to nursing in neurology. In the same manner, teaching sessions for non-neurologists were also held. This is a valuable step into multiprofessional education to improve care.

The WFN has close connections with Mexico, and the first WFN Teaching Center in the Americas will commence its work in January next year.

The congress opened with an impressive opening ceremony, followed by a tour through the history of neurology in Mexico. (See photo above and the related article by Dr. San-Esteban on page 7 of this issue.) Sessions were dedicated to brain tumors, dementia, epilepsy,

headache, neuroimmunology, neuromuscular disease, stroke, substance abuse, and several other important topics. The local and international faculty was large, and representatives included neurologists from Austria, Canada, Spain, Switzerland, and the U.S., Dr. Ralph Sacco, president of the American Academy of Neurology, reassured Mexico on the cooperation of the AAN.

Stroke

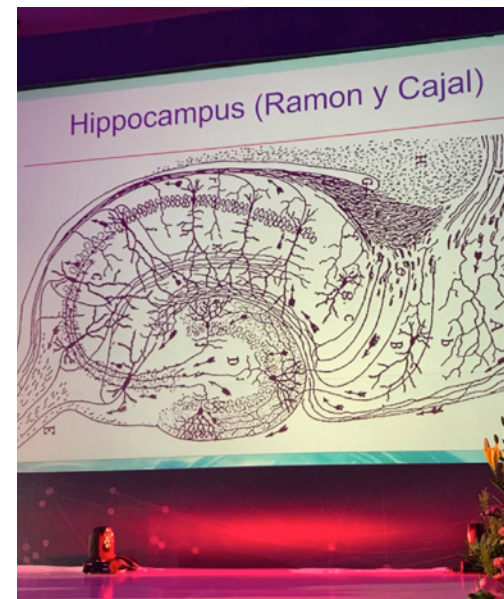
Among the many interesting and outstanding topics, the stroke sessions increased participants' knowledge toward the recent important developments in stroke management.

Several topics were directed toward autoimmune disease, and also the important topics of neoplastic disease and autoimmune encephalitis were discussed. Dr.

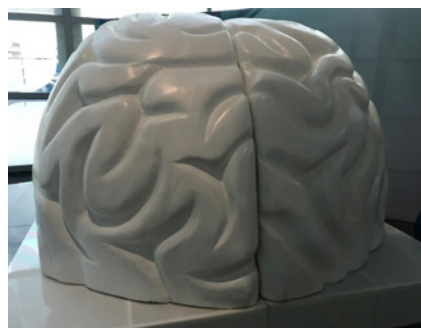
Dalmau from Barcelona held a fascinating talk on the current situation of autoimmune encephalitis and expected future developments.

Many of the health problems in neurology in Mexico and in the Americas were discussed in various talks. The huge population of Mexico and the large variety of health services, ranging from world-renowned institutions to the need for basic neurological care across the population, are challenges for the Mexican Society of Neurology.

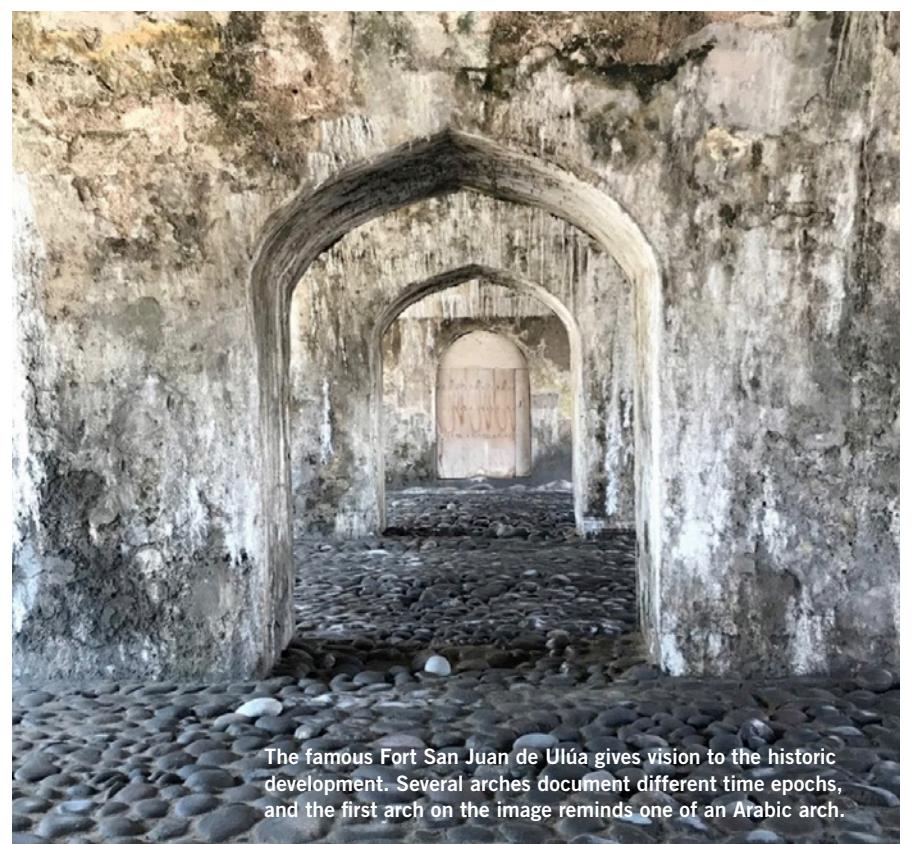
This high-quality program will contribute to the understanding of neurology in Mexico as well as in Central and South America. All efforts to decrease the treatment gap will continue to need to be made, and the WFN is privileged to contribute with the establishment of the WFN Teaching Center in Mexico. •



Picture of the hippocampus, based on the drawings of Ramon y Cajal.



Model of a brain in the exhibition hall.



The famous Fort San Juan de Ulúa gives vision to the historic development. Several arches document different time epochs, and the first arch on the image reminds one of an Arabic arch.



Opening Ceremony with a marine instrumental band.

The History of Mexican Neurology

From the early 1500 to present day, striking developments in Mexico's neurology

BY EDUARDO SAN-ESTEBAN, MD

Mexican neurology, considered as the dedication of our country to the study of nervous system function and disorders, and as the specific attention to persons with neurological clinical symptomatology, can be traced even before the Spaniards' conquest at the beginning of the 16th century.



EDUARDO SAN-ESTEBAN, MD

The Aztecs as well as the Mayans had a clear concept of the disease, well in accordance with their particular cosmogony and ideas about the underworld. They used specific words for the different types of disorders and a clear pharmacopea based on herbs and animal products.

There is a large "códice," the "Badiano códice," that contains all sort of medical herb treatments for different ailments, including, of course, neurological disease.

Shortly after Mexico City surrendered in 1521, the first hospital in the continent was founded by Cortez himself in 1524. This hospital is still giving medical attention. The University of Mexico was founded in 1551, the same year as the University of Peru. In 1567, the first hospital in the continent dedicated to the care of the demented, handicapped, and epileptics was established in Mexico City by Fray Bernardino Alvarez. The religious order created

by Alvarez built 12 more hospitals over the next century. Some of them were created just for epileptic and demented women, much as the Salpêtrière in Paris.

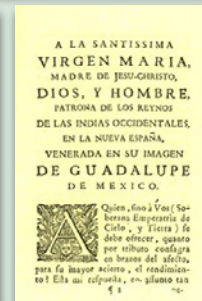
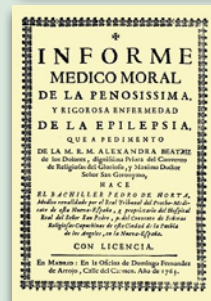
Publications

The first printing office in the new world was established in 1539, and in 1579, the first neuroanatomy text printed in America was published by Fray Agustín Farfán, very much in line with the Galenic and Vesalio anatomy.

In 1761, Pedro de Horta, a physician in the city of Puebla, 100 miles east of Mexico City, published the first complete report in the continent, dedicated to the epilepsies, as he studied a group of nuns. It is an extraordinary book containing the beliefs and knowledge of the topic at the middle of the 16th century.

During the 1800s, Mexican medicine became close to the European model, in particular with the French. Medical schools developed around the country and neurology was practiced within the frame of internal medicine. Most of the technical advances produced in Europe were available in Mexico shortly after. The country was occupied by the French army for several years and had an Austrian emperor around the same time.

Many physicians studied abroad, and later some of them attended the Charcot service in Paris. By the end of the century, brain surgery was performed for the treatment of tumors and Jacksonian epilepsies, and many papers were



(top) Providing assistance to an Aztec patient with a seizure.

(lower left) First book on epilepsy on the continent. 1763 Puebla, Mexico.

(lower right) Same book, written by Pedro de Horta.

published on matters such as vascular disease, neuropathy, epilepsy, headaches, cognitive impairment and, of course, neurosyphilis, a common and severe disease.

The 20th century started late for Mexico as the country was involved in a Social Revolution. Even so, after the first decades, there was an explosive development of medical services and facilities.

As neurological knowledge goes, Mexico had a large contribution from the Spanish scientists who emigrated

during and after the civil war in Spain. Several direct pupils of Ramon y Cajal and Pio del Rio Hortega established themselves in Mexico, founded institutions, and developed those that were already existing. The influence of the neurohistologists remains to this day.

During the 1960s, a group of Mexican neurologists arrived in the country after completing their education in different services, including Cleveland, London, Marseilles, Minneapolis, Montreal, New York, and San Francisco. They all founded neurology services. In 1964, the National Institute of Neurology and Neurosurgery was founded.

During the following decade, this group organized neurological services in child neurology as well as adult, developed the Mexican Board, founded the Mexican Academy of Neurology, and created the Mexican Chapter of the International League Against Epilepsy.

Several of the newly created services became centers of neurological education. As for today, we graduate some 65 neurologists every year. We have continuous education programs and host international meetings.

No doubt there is a lot to be done to provide neurological services to the whole of our population. We have a good history behind us and a large generation of young neurologists that will continue the job. •

Eduardo San-Esteban, MD, is with the Mexican Academy of Neurology at the Neurological Center of the American British Cowdray Medical Center in Mexico City, Mexico.

TEACHING

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management in dementia. There were also grand rounds and interactive case discussions.

On Day 3, the topic of **Spinal Cord Diseases** in Sub-Saharan Africa was discussed. This was an interactive session. Epidemiology and classification, clinical presentation, signs and symptoms, diagnostic work-up and therapeutic management were discussed. The following grand rounds were controversial, and many different opinions from the audience, faculty and investigators had to be discussed.

On Day 4, the course on **Neuromuscular Diseases** in Sub-Saharan Africa was given. It was clearly pointed out by Prof. Kabore that epidemiology in Africa is lacking in Africa, and the few available epidemiology studies come from North or South Africa. W. Grisold talked on the clinical presentations, signs, and symptoms of neuromuscular

disease, and Prof. J.M. Vallat from France gave a good overview in the diagnostic work-up, therapeutic management, and electrophysiological examples. Also, this course was followed by clinical grand rounds that showed the increased spectrum of discussed cases. The interaction between the faculty and the participants was very good.

A social program was used for interaction and networking. On Thursday, there was a joint reception, and on Friday, there was a final joint dinner. This dinner will be memorable, as all representatives from participating countries gave a short statement about their home countries and particularly medical services and neurological possibilities. These talks provided a view of the spectrum of the personalities of young neurologists in Sub-Saharan Africa.

The meeting closed on Saturday after the last interactive session with a farewell of the faculty and a farewell speech from all participating societies. •



The 75 participants came from 18 countries:

- Burkina Faso
- Congo Democratic Republic
- Ivory Coast
- Senegal
- Burundi
- Ethiopia
- Madagascar
- Sudan
- Cameroon
- Ghana
- Mozambique
- Tanzania
- Congo
- Guinea
- Niger
- Togo
- Brazzaville
- Nigeria
- Uganda

Early Studies in Synesthesia

The blind organ player of Maastricht

BY PETER J. KOEHLER

The study of synesthesia has a long history, possibly starting in the 17th century. A search in PubMed learns that the earliest entry is from 1947. During the first decades after that, psychologists seem to have been the main group interested in the subject. However, since the 1980s, basic neuroscientists as well as clinical neuroscientists have become interested, as is witnessed from the same source (428 hits since 1947, 419 since the 1980s).

Synesthesia is defined as “a condition in which stimulation of one sensory modality causes unusual experiences in a second, unstimulated modality.”¹ The most frequent types of synesthesia include letter-color synesthesia, but several other types are known, such as color-taste and sound-color synesthesia.

The phenomenon has been reported by famous synesthetes. In his 2007 review, John Pearce mentioned musicians Jean Sibelius, Nicolai Rimsky-Korsakow, Duke Ellington, Franz Liszt, Olivier Messiaen* and writer Vladimir Nabokov.² French pianist Hélène Grimaud first noticed it when she was working on the F sharp major prelude from the first book of Bach’s *Well-Tempered Clavier*:

“I perceived something that was very bright, between red and orange, very warm and vivid: an almost shapeless stain, rather like what you would see in the recording control room if the image of sound were projected on a screen.”³

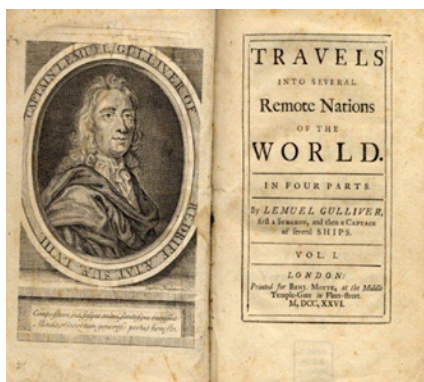


Figure 1. The title page of Jonathan Swift’s 1726 edition of *Gulliver’s Travels*.

Gulliver’s Travels and Robert Boyle

Descriptions of synesthesia can be found much earlier than 1947.⁴ In part 3, “A Voyage to Laputa” of Jonathan Swift’s *Gulliver’s Travels* (see Figure 1), the fictitious ship surgeon Lemuel Gulliver, visiting the Academy of Lagado (a parody of the Royal Society), learns about:

“a man born blind, who had several apprentices in his own condition. Their employment was to mix colors for painters, which their master taught them to distinguish by feeling and

smelling. It was indeed my misfortune to find them at that time not very perfect in their lessons, and the professor himself happened to be generally mistaken. The artist is much encouraged and esteemed by the whole Fraternity.”⁵ It has been argued that Swift’s ideas in this part of *Gulliver’s Travels* have been inspired by the work of contemporary scientists, including members of the Royal Society. In this case, Swift’s source seems to be Robert Boyle, the philosopher and chemist (well-known from his gas law: Pressure x Volume = constant!), fellow of the Royal Society, who published *Experiments and Considerations Touching Colors*. (See Figures 2 and 3.)⁶

In this book, he described all sorts of color experiments, and he became subject to Swift’s parody.

From the book, it is clear that Boyle was critical to the story that he had learned from his informant, the gentleman scientist and physician John Finch.

Boyle wrote:

“... Wherefore I confess, I propos’d divers Scruples, and particularly whether the Doctor had taken care to bind a Napkin or Hankerchief over his Eyes so carefully, as to be sure he could make no use of his Sight, though he had but Counterfeited the want of it, to which I added divers other Questions, to satisfy my Self, whether there were any Likelihood of Collusion or other Tricks. But I found that the Judicious Doctor having gone farr out of his way, purposely to satisfy Himself and his Learned Prince about this Wonder, had been very Watchfull and Circumspect to keep Himself from being Impos’d upon. And that he might not through any mistake in point of Memory mis-inform Me, he did me the Favour at my Request, to look out the Notes he had Written for his Own and his Princes Informing, the summ of which Memorials, as far as we shall mention them here, was this, That the Doctor having been inform’d at Utrecht, that there Lived one at some Miles distance from Maestricht [Utrecht and Maastricht, both cities in the Netherlands], who could distinguish Colours by the Touch, when he came to the last nam’d Town, he sent a Messenger for him, and having Examin’d him, was told upon Enquiry these Particulars.”

Boyle’s informant John Finch had studied at Padua, was a fellow of the Royal Society, and was professor of anatomy in Pisa, later becoming ambassador in Constantinople. He corresponded with his patron prince Leopoldo (de Medici, son of Cosimo II) of Tuscany, who was interested in technology and science. From another source, we learn that Finch indeed visited

the town of Maastricht for this purpose: “We spent many days at Mastricht, in talks, and in making many experiments with him [Vermaasen]; and really it is marvelous to see this man know by touch a pack of cards, play at piquet.” Finch paid a visit to the Netherlands not only to study the case in Maastricht, but also to learn more on “signor Bilzio,” the well-known Louis de Bils in Rotterdam, who seemed to have found a method to preserve bodies for dissection for a long period, using expensive materials and asking a huge amount of money (120.000 guilders) for the secret.^{7, 8}

Boyle continued:

“That the Man’s name was John Vermaasen, at that time about 33 years of age; that when he was but two years old, he had the small pox, which rendred him absolutely blind: That at this present he is an organist, and serves that office in a publick quire. That the doctor discoursing with him over night, the blind man affirm’d, that he could distinguish colours by the touch, but that he could not do it, unless he were fasting; any quantity of drink taking from him that exquisiteness of touch, which is requisite to so nice a sensation. That hereupon the doctor provided against the next morning seven pieces of ribbon, of these seven colours, black, white, red, blew, green, yellow, and gray, but as for mingled colours, this Vermaasen would not undertake to discern them, though if offer’d, he would tell that they were mix’d.”

Some later authors state that Vermaasen was not a real synesthete as he did not report “seeing” the colors.⁹ Larner, however, opined that he at least had characteristics of a synesthete. It was involuntary or automatic, consistent (at least over four or five trials), and generic or categorical. Moreover, synesthesia is not rare in blind people.⁴

Reports of synesthesia have been mentioned in Greek antiquity and later by Newton and by Goethe. John Locke wrote about “a studious blind man who bragged one day that he now understood scarlet one day that he now understood scarlet one day ... the sound of a trumpet” in his



Figure 2. Robert Boyle.
Figure 3. The title page of Robert Boyle’s book.



Essay Concerning Human Understanding (1690; “Of the names of simples ideas”; book III, chapter IV).

The Albino Synesthete

A better early example of synesthesia was Georg Tobias Ludwig Sachs (1786-1814), who wrote a dissertation on albinism (on himself and his sister) in 1812: *Historiae naturalis duorum leucaetiopum: Auctoris ipsius et sororis eius [A Natural History of Two Albinos, the Author and his Sister]*. It was translated into German and should be considered against the background of Goethe’s *Farbenlehre* (1810).⁹ Jewanski *et al.* consider it the “first convincing account of synesthesia” and translated several parts into English, including §. 158:

“Particularly those things which form a simple series; e.g., numbers, the days of the week, the time periods of history and of human life, the letters of the alphabet, intervals of the musical scale, and other such similar things, adopt those colors. These introduce themselves to the mind as if a series of visible objects in dark space, formless and noticeably of different colors. With some, the idea of the color is so dark that one can scarcely differentiate between the colors; with others, it

see SYNESTHESIA, page 9

ON FRENCH COMPOSER OLIVER MESSIAEN

“I see colors when I hear sounds,” Messiaen explained to the French critic Claude Samuel in 1988, “but I don’t see colors with my eyes. I see colors intellectually, in my head.” He found, he said, that if a particular sound complex was repeated an octave higher, the color he saw persisted, but grew paler. If the octave was lowered, the color darkened. Only if the sound complex was transposed into a different pitch did the color inside Messiaen’s head radically change.”

From Geoffrey Brown *How Olivier Messiaen Heard in Color*, 25/01/08 *Times newspaper*.

SYNESTHESIA

continued from page 8

is much more clear. Those individual members of such rows which show up outside of the row retain their own colors, but more weakly. In addition, others which refer back to no series have their own color; e.g., cities (even those never seen) and the timbres of musical instruments.”⁹

Examples of Sachs’ perceptions were: “In the alphabet, A and E are vermilion, A however is more cinnabar, E is more

inclined to rose; I is white; O orange; U black; Ue (ü) gray; C pale-ash-colored; D yellow; F dark gray; H is bluish ash-colored; K nearly dark green (uncertain); M and N white, S dark-blue; W brown.”

With respect to music, he noted that “The tones in the musical scale depend on the letter with which they are designated, and these relate also to the half-tones, which derive from them. Although the letters g and b actually do not carry a color trace, nevertheless the fifth tone (g) is recognized as green (uncertain) and the first quarter tone (b) is seen quite clearly by the ash gray color.”⁹

A few decades later, polymath Sir Francis Galton, Charles Darwin’s half-cousin, published a paper on “Visualized Numerals” in *Nature* (Jan. 15, 1880). He estimated it to occur in 3 percent of men and 6 percent of women. Today, it is indeed estimated to occur in about 4 percent of the adult population.

Letter-color synesthesia is the most common type. It is involuntary and reproducible. It may be inheritable and occurs in women more often than in men. It is often combined with eidetic memory, but like in the case of Russian neurologist/psychologist Alexander Luria’s

Shereshevsky in *Mind of a Mnemonist*, these mainly concern case reports. Although there has been much speculation on synesthesia, serious scientific research has also been done. The journal *Cortex* dedicated a special issue to synesthesia in 2006.

The American neurologist Ramachandran found an association between synesthesia and creativity, but a causal relationship could not be proven.¹⁰ There is at least an increased incidence of synesthesia among artists. The phenomenon has been linked to the fusiform gyrus.

In the introduction of a recent study in the *British Journal of Psychology*, it was stated that up to now, “synesthesia may be associated with differences in creativity, cognition, personality, and mental imagery, but these factors have not been examined simultaneously in a systematically recruited sample.”

The authors tried to replicate previous findings with more robust scientific methods, in particular with respect to unbiased recruitment of synesthetes, and indeed found differences between synesthetes and controls, but were more cautious with the interpretation.

“Enhanced abilities in some areas of creativity, personality, cognition, and mental imagery may have developed because of experiences across time and cannot be attributed directly to synesthesia without further evidence.”¹¹ As is concluded so often, further study is needed into this fascinating phenomenon. •

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MONTREAL NEUROLOGICAL INSTITUTE AND CANADIAN NEUROLOGICAL SOCIETY

Department Visit Program

The World Federation of Neurology (WFN) and the Montreal Neurological Institute (MNI), together with the Canadian Neurological Society (CNS), are pleased to invite two colleagues from Central and South America to visit the Neurology Department of the Montreal Neurological Institute of McGill University in Quebec, Canada.

The MNI was founded in 1934 by Dr. Wilder Penfield and has become the largest specialized neuroscience complex in Canada. Among its specialized clinics are those for movement disorders, epilepsy, multiple sclerosis, rare diseases, pain, brain tumors and amyotrophic lateral sclerosis.

Last year, it received more than 42,000 ambulatory patient visits, more than 28,000 diagnostic tests were carried out and brain surgeons performed some 1,800 procedures. Always at the forefront of innovation, the MNI was the gateway to Canada for technologies like encephalography (EEG), magnetic resonance imaging (MRI), positron emission tomography (PET), and computer-assisted tomography.

The CNS was established in 1948 and represented both neurologists and neurosurgeons. In 1965, the original CNS was dissolved, and two new societies were created to represent the two distinct groups, i.e., the Canadian Neurological Society (modern day CNS) and the Canadian Neurosurgical Society.

The mission of the CNS is to enhance the care of patients with diseases of the nervous system through education, advocacy, and improved methods of diagnosis, treatment, and rehabilitation.

The WFN was formed in Brussels in 1957 as an association of national neurological societies. Today, the WFN represents 120 professional societies in all regions of the world. The mission of the WFN is to foster quality neurology and brain health worldwide, a goal we seek to achieve by promoting global neurological education and training, with the emphasis placed firmly on under-resourced parts of the world.



PROJECT DESCRIPTION

The MNI and CNS would like to support the Central and South American initiative of the WFN by inviting two neurology trainees or junior faculty who are within five years of certification in neurology to visit the MNI for a duration of four weeks.

The purpose is to experience the Canadian neurological system in an international environment, meet new colleagues and foster future cooperation.

More information about the MNI can be found at <https://www.mcgill.ca/neuro/about>.

The visit will take place during Spring 2018.

DETAILS

The MNI will provide the following support:

- Travel expenses: Central or South

America — Montreal, Canada — Central or South America

- Accommodations for four weeks
- Living expenses (food and beverage) during the four weeks
- Costs of health insurance during the stay in Canada

CRITERIA FOR APPLICATION

- The applicant must be a resident of a country in Central or South America
- The applicant must be a neurology resident or junior neurology faculty within five years of completion of training
- Evaluation Committee: Two representatives of the Canadian Neurological Society (CNS), two representatives of the WFN Education Committee, and two representatives from the Pan American Federation of Neurological Societies (PAFNS) •

DEADLINE FOR APPLICATION

To apply, submit your CV, a supporting statement, and a letter of recommendation from the head of the department by Friday, Jan. 26, 2018, to Jade Roberts, WFN education coordinator, at jade@wfneurology.org.