History Corner at FENS Forum 2018

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1. History Online Projects

All History Online Projects funded by the FENS History of Neuroscience Committee can be found on www.fens.org/Outreach/History/History-Online-Projects/Awarded-Projects/

A Brain Museum Tour of Europe

Richard E. Brown (Department of Psychology and Neuroscience
Dalhousie University, Canada)

Europe has a rich history of neuroscience, but where can the history of European neuroscience be found? The historical artifacts, documents and discoveries of European neuroscience exist in many museums, but these are often forgotten or neglected within Europe and relatively unknown outside of Europe. The purpose of this project is to present a tour of the brain museums of Europe on a WEBSITE, showing the museums with materials relevant to the history of neuroscience in each country. The history of neuroscience relies of objects from the past and this website describes the collections related to brain research in European museums. Using this website will enable students and researchers to locate historical objects in museums and plan visits to these museums for teaching and research. The presentation will consist of a short lecture on the project, a poster presentation and a website which meeting participants can browse for information. The Website contains information on 31 brain museums in 18 countries, with more being added as we find them. It is a work in progress and we keep adding new museums. If you are planning a trip to one of the European cities with a brain museum, this website will guide you to the location and the exhibitions on view. Enjoy your tour of Brain Museums in Europe! This project is sponsored by the FENS History of Neuroscience Committee. If you know of brain museums not presented here, please contact history@fens.org.

A Virtual Museum of Irish Brain Science

Roche, RAP & Ward, CM. (Maynooth University and Neuroscience, Ireland)

Aims: Compared to other European countries, Ireland is extremely poor at highlighting and communicating its scientific heritage, in general and in relation to the neurosciences, and Ireland's brain science archives consists of a very modest collection of three major collections (Royal College of Physicians, Royal College of Surgeons, National Archives). This project aims to create a Virtual Museum or digital archive website to collate and present these materials.

Methods: By collating relevant materials and documents of interest from the various collections in Ireland, we will establish a website housing a virtual “Museum of Mental Life”, of which brain science and neuroscience will form the backbone.

Results: Despite its size, Ireland possesses some noteworthy historical objects – e.g. in the Royal College of Physicians in Ireland (RCPI) archive, and in the Royal College of Surgeons in Ireland (RCSI) collection. There are also further items of interest in anatomy collections and medical departments within the different universities; a survey of these items is ongoing. The website will also contain biographies of key Irish (or Irish-based) figures in the history of brain science, specifically George Berkeley, Gordon Holmes, and George Boole, among others.
Conclusions: this project will result in the creation of a virtual Museum of Mental Life, of which brain science/neuroscience will form the core. This website will act as an archival resource housing and/or linking to the contents of the various brain science collections in Ireland, while also flagging the contributions of key figures in the history of Irish brain science."

Broca's brains: An example of the importance of brain museums for modern neuroscience.

Richard E. Brown (Department of Psychology and Neuroscience,
Dalhousie University, Canada)

The Musée Dupuytren was established in 1835 as an anatomy museum at the University of Paris. It contains a collection of specimens dating from the 17th century, as well as wax anatomical models, and the brains of two aphasic patients, preserved in alcohol by Paul Broca, after whom "Broca's area" is named. These brains are of great importance in the history of research on the localization of brain function. I was able to see these brains during my visit to the museum, the contents of which are in storage in the sub-basement of the library of the Sorbonne. I used the information from this visit in my "History of Neuroscience" class where the importance of these historical exhibits in "Brain Museums" such as the Musée Dupuytren became clear. Broca saved the brains of his two patients, Leborgne and Lelong, in alcohol and these brains have been re-analyzed three times; first by CT scans [1,2] and then by MRI [3]. The results of these re-analyses using modern techniques on museum specimens show the value of Brain Museum exhibits for neuroscience today. Other cases of modern analyses of museum specimens [4] and the use of slides of historical collections such as those of Sherrington and Le Gros Clark [https://history.medsci.ox.ac.uk/slides/)] in teaching anatomy [5] show the value of maintaining such brain museum collections for education and scientific research. The European Brain Museum project
[http://www.fens.org/Outreach/History/EBM/] aims to make information about such materials in European museums accessible to students, researchers and the general public.

COSE DA PAZZI E CERUSICI DEI NERVI - Notes for a history of neuroscience in Campania

Clelia Sedda, Giacomo Grassi (Associazione culturali Error Academy Errori Associati)

An introduction to historic institutions and neuroscientists, especially in the neurological field, in Campania.
The contribution of this region remains little known although the city was an European capital in the Enlightenment period, which had a great influence in history of medicine and in neuroscience, with discoveries as the cerebrospinal fluid by Domenico Cotugno.
Through a series of portraits of different neuroscientists (Domenico Cotugno, Biagio Gioacchino Miraglia, Leonardo Bianchi and many others), monuments and documents, we want to create a visual record able to show the contribution of this particular Italian region to the development of neuroscience.
We will also include places of historical and scientific relevance: the first hospital for admission of patients affected by mental disorders of Nocera and Aversa, where worked Biagio Gioacchino Miraglia and Leonardo Bianchi; the “Ospedale degli incurabili” in Naples where worked Domenico Cotugno and “il museo delle arti sanitarie” with materials of Domenico Cotugno and the the first electrotherapy machine for mental and nervous disorders; the “MUSA - Museo Universitario delle Scienze e delle Arti” in Naples with phrenological skulls of Miraglia, the anatomical wax models regarding neuroanatomy of the 19th century.

Discovery of the first neurotranmitter receptor

Changeux Jean-Pierre Institut Pasteur & College de France Paris France

An history of the birth of the concept of pharmacological receptor and its significance in the case of neurotransmission;
- the pioneers in the attempt to identify the acetylcholine nicotinic receptor with a brief biography of them: John Newport Langley, Eduardo de Robertis, Nachmansohn and others;
- the techniques or models applied and the reasons for the failures;
- our contribution at Institut Pasteur Paris France and relationship with competing laboratories (Miledi UCL, Karlin Columbia) and others;
- importance for the Neuroscience in Europe.

Discovering the History of Spanish Neuroscience (2015)

Juan A. De Carlos[1], Carmen Agustín Pavón[2], Rafael Luján[3], and Fernando de Castro[1]
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[2]: Facultad de Biología, Univ. de Valencia, Valencia (Spain)
[3]: Facultad de Medicina, Univ. de Castilla-La Mancha/UCLM, Albacete (Spain)

The present communication is to inform about the progress and current status of the project entitled “Discovering the History of Spanish Neuroscience”, granted by FENS History Funding in 2015. The original aims of the proposal were to: 1-organise an itinerant poster exhibition on the History of Spanish Neuroscience; 2-thoroughly revise individual pages of Wikipedia on Spanish neuroscientists (and related webpages and links); 3-generate an on-line platform on the History of Neuroscience at Spain. Besides these, in the current work we inform about some other actions performed (or in course) in the subject during the last years. Besides these original objectives, we also show some other related actions accomplished under the grant.

European Innovations in Sensory Neuroprostheses

Rathbun, Daniel L. (Institute for Ophthalmic Research, Univ. Tuebingen)

Sensory restoration through neuroprostheses has a long and rich history. Encompassing primarily hearing and sight, but also extending into proprioception, balance, and autonomic control, the foundational contributions as well as recent innovations of Europe to sensory neuroprostheses will be described.
A detailed database tracing the progression of visual prosthetics development over the last 70 years is freely available online:
http://www.eye-tuebingen.de/zrenner/retimplantlist/
This database will be expanded to highlight all European contributions to bionic vision, and a complementary database will be developed for other sensory neuroprostheses – primarily focusing on the very successful cochlear implants.
Recent European contributions to bionic vision include Retina Implant, I-See, InAuKa, EPIRET, and SubRet in Germany; CORTIVIS and VISNE in Spain; Pixium in France; OptiVip in Belgium; the vOICe in the Netherlands as well as contributions from Austria, Italy, Switzerland, and England. European contributions to cochlear implants include Med-El in Austria; and Neurelec in France.
I will also give a historical overview of the first descriptions of the effects of electrical stimulation on the nervous system by such luminaries as Eduard Hitzig, Gustav Fritsch, Alessandro Volta, Benjamin Wilson, Charles Le Roy, Fedor Krause, Ottfrid Foerster, Guillaume-Benjamin-Amand Duchenne de Boulogne, Rudolf Brenner, Ingeborg Hochmair, Erwin Hochmair, and many others.

Friedrich Sanides: A unifying framework of cortical organization with ontogenetic, phylogenetic and functional ramifications

Alexandros Goulas (Institute of Computational Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg University)

The work of Friedrich Sanides belongs to the last wave of classical German neuroanatomy. It does not only constitute a closure in the temporal sense, but a closure that entails a unification of prior observations and insights within the field of neuroanatomy. Here, Sanides' unifying view of the cerebral cortex of mammals will be presented. The framework is centered around the following key concepts: i) Gradation principle ii) Duality of the cerebral cortex iii) Externopyramidization iv) Gradations as reflections of the ontogeny and phylogeny of the cerebral cortex.
The above principles constitute a framework wherein contemporary transcriptional, connectional and functional data can be understood, and such explanatory power will be highlighted with concrete examples. The framework of Sanides' will also be compared with the work of AA Abbie and the more contemporary work of DN Pandya. This comparison will highlight similarities and differences that pinpoint Sanides' insights as variations of prior theories, but also underlie the uniqueness of his framework. In all, Sanides' framework is relevant for contemporary neuroscience and constitutes an exemplary case of how we can transition from observations on the cerebral cortex to unifying principles of cortical organization.

Heinrich Obersteiner and the Foundation of Neuroscience at 19th C. Vienna

Sonia Horn (University of Vienna)

In 1882 the psychiatrist and neurologist Heinrich Obersteiner, established the „Institute of Anatomy and Physiology of the Central Nervous System („Institut für Anatomie und Physiologie des zentralen Nervensystems"") as a private sponsored institution at the Medical Faculty of the University of Vienna. The aim of this institution was to produce knowledge about the structure and function of the central nervous system. Since the beginning, the intense collaboration between the institute that carried out basic research and the clinic of Neurology was characteristic for this institution. In order to spread the gained knowledge Heinrich Obersteiner published annual proceedings about the results of research that was carried out at his institute. With this the institute and Obersteiner himself gained international reputation. Therefore several students from various countries came to Vienna in order to work and study with him and his team. Remarkably also Japanese students and young doctors got involved in the research activities and transferred this knowledge and the methodological approaches to Japan.
The poster will give a short overview of the history of Obersteiner's contribution to the development of Neuroscience in Vienna.

Neuroscience Giants

Valeria Lavín Gutiérrez (Universidad Nacional a Distancia, Spain)

Regardless of the apparent short life of Modern Neuroscience, the uninterrupted progress of this discipline makes the period of over the last 100 years a repository of

landmarks and key discoveries, that endow us with a solid source of knowledge into how the brain works.
This poster announces a journey trough those milestones and key neuroscientific discoveries, and the minds behind them, that are the core of the field. This journey will take place in the frame of the present, analizing current news within the field, that will be linked, making an effort of mind, with the roots of our founding ancestry. Ultimately, it is a commemoration to the known expression popularized by Isaac Newton “If I have seen further it is by standing on the shoulders of Giants"", wich at the end it’s about understanding and making progress, by reminding and using the experience and legacy of our liders, who allow us to amplify the human experience by extending our perspective beyond our time, and in the end are the ones that made it possible.
Thanks to this way of operating, by looking back, we can efectively follow the chain of science and contribute with what it’s possible in this determined moment of time.

Olga Vinogradova (1929-2001): role of the hippocampus in selection and registration of information

Samokhina E.I. (Institute of Theoretical and Experimental Biophysics
Russian Academy of Sciences)

Olga Vinogradova is an author of the concept of the mode of operation of the hippocampus and related structures in the selection of novel information in the orienting reflex.
Olga Vinogradova was born 1929 in Moscow. She started her career in neuroscience in 1952 working with Luria and Sokolov on the investigation of orienting reaction in humans. She applied methods for the investigation of the orienting response (OR) in young children with defects of hearing and sight. In 1962 she headed the Laboratory of Systemic Organisation of Neurons, Institute of Biological Physics Russian Academy of Sciences. She started to work with animals using the methods of OR investigation while recording the neuronal activity of various brain structures. Olga Vinogradova was among the first who recorded single units from the hippocampus of in unanesthetized waking rabbits while testing their behavioral responses to natural stimuli. After finding that the hippocampal (CA3) neuronal effects closely reproduces all of the characteristic features of the OR, she commenced a systematic investigation of the neuronal activity of all anatomical subdivisions of the hippocampus and related structures. By 1975 she proposed the famous hypothesis that hippocampal function is a novelity detector, while the medial system plays the role of global pacemaker and, lastly, the whole limbic system works an entire single, unitary machine, a synchronous ""cycle of a wheel"" corresponds to the oscillatory theta-rhythmic process of reticulo-hippocampal-cortical interplay during fixation of new information. This idea has fundamental significance for understanding the double interconnected function of the hippocampus.

Orbeli's Phenomenon

Ghulikyan L.A., Ayvazyan N.M.

Leon (Levon) Orbeli was an outstanding physiologist, scientist, methodologist, scientific successor of I.P.Pavlov. He was also a founder of huge scientific school. Orbeli and his school have developed new directions in physiology.
He not only kept the physiology as a science in the time of the 1st and 2nd World Wars, the Great Patriotic War, but also made an incredible contribution to its development as a fundamental science. His achievements have been a turning point in physiology as a science all over the world.
Orbeli was the first in the USSR to organize the Laboratory of Developmental Physiology. The laboratory studied age-related changes of metabolism in animals and children. His research concerning the impact on the human body of high and low barometric pressure found practical applications in military medicine and in the organization of the conditions of military service. Orbeli's investigation of physiological processes in high stratosphere is accepted as base of space physiology in USSR.
Using discoveries in basic science, teams of scientists, led by Academician Orbeli could develop applied research.
In addition to the data presented about Levon Orbeli, as a brilliant scientist, we have the history of his life, told by his relatives and friends. Also, there is more detailed information about his research activities. It's possible to describe the achievements of Leon Orbeli endlessly. So we would like to have an opportunity to represent the whole genius of the outstanding physiologist. We can also describe all his awards and the accompanying stories of those events.

Platon Kostyuk - founder of Ukrainian school of neuroscientists

Lukyanetz E.A., Gorbachenko V.A. (Bogomoletz Institute of Physiology, Kyiv, Ukraine)

Platon Kostyuk - a prominent neuroscientists, the founder of the national school of neuroscientists in Ukraine, who has made substantial contributions to the development of European and world neuroscience. P. Kostyuk was a vice-president of the IUPS and one of the founders of journal "Neuroscience" which is under the editorial direction of IBRO. P. Kostyuk is widely recognized for the development of intracellular perfusion technique, discovery of voltage gated calcium permeability of membrane, and characterization of ionic conductances in excitable cells. He was the first to prove directly the presence of calcium channels in neuronal cell membranes. Under his supervision, two types of calcium currents were discovered: high- and low-voltage activated. P. Kostyuk fostered generations of students, many of whom became successful scientists and leaders, and spread his legacy throughout the world.
The huge contribution of P. Kostyuk and his collaborators was in the discovery of the role of calcium ion homeostasis in nerve cells and in the studies of disorders in

certain forms of brain pathologies-ischemia / hypoxia, neuropathies caused by diabetes, epilepsy, Alzheimer's disease, etc. Kostyuk investigated how processes occur in an operating neuron at the molecular level and showed that the most important role in normal and pathological processes is played by calcium ions.
For outstanding achievements in the development of neurophysiological science, a significant contribution to the training of highly qualified scientific personnel, active public activities, P. Kostyuk was awarded with numerous national and international awards and got the overall recognition of the international scientific community.

Stars and thorns of the Ukrainian neuroscientist Oleksandr Chernyakhivsky

Chaikovsky Yu, Korsak A, Likhodiievskyi V, Zabila A, Olefir S.
(Bogomolets National Medical University)

The current project aims at commemorating and honoring the Ukrainian scholar, intellectual and a gifted person professor O.H. Chernyakhivsky, whose persecution by the Soviet authorities has made his name, scientific and creative activities sunk into oblivion for many years.
We used historical method.
Professor Chernyakhivsky is an eminent Ukrainian neurohistologist who implemented silver impregnation technique in Ukraine and developed Ukrainian histological terminology. He is the author of a number of fundamental research on microscopic structure, reactive changes in and embryogenesis of the nervous system..
In the early XXth century professor Chernyakhivsky established close relations with the leading Spanish and German schools of science. Prolific creative and research activities of Chernyakhivsky were overshadowed by the “thorns” of Soviet reality which manifested in political repressions of the early XXth century. Chernyakhivsky was arrested, purged as the Ukrainian nationalist and ordered out of Kiev. Nevertheless professor found strength and courage to proceed with his pedagogical and scientific activities afterwards. Unfortunately mentioning of this scholar’s contribution and even his name have been very scare up to the period of rehabilitation in the year 1989.
Nowadays memory of professor Chernyakhivsky and his contribution to the development of neuroscience in Ukraine is restored, the work on restoration of his tomb is underway and preparation for International Symposium to commemorate professor Oleksandr Chernyakhivsky is in progress.
Thus awareness of neuromorphologists of the historical facts, ways of thinking, and experience of the former generations allows to guide and enrich the practical activities of today."

The legacy of Russian School of Neurophysiology

Lilya Andrianova (Medical School, University of Exeter, UK)

Over the course of 19th and 20th centuries the field of neuroscience has made substantial progress, with the help of improved methodologies and techniques. However, despite the progress made, some classic neurophysiologists remain relevant, with respect to their ideas and theories about the functioning of the brain still being discussed. The 19th century saw a multitude of great physiologists and early neurophysiologists, including those who lived and worked in the Russian Empire. The Soviet Revolution of 1917 changed the ethos of science in Russia, closing the country off from the rest of Europe, thus strongly hindering the exchange of scientific thought and progress.

This project aims to provide an online resource outlining the most prominent scientists in the field of physiology and the nervous system in the pre-Soviet and early Soviet era. The website developed during this project can act as a foundation for developing a compilation of biographies of important historical figures in neuroscience and summaries of their work, with original manuscripts translated into English, where possible. A special feature is included, a comparison of knowledge transfer in the pre- and post-Revolution eras, as well as the personal perspectives of contemporary scientists on science communication and collaborations with non-Soviet countries. The poster presented at FENS History Corner is a preview for the online resource, that aims to open to the public in 2019.

The Magnus-Rademaker Neurocinematography Film Collection: European pioneers of the study of body posture and reflexes

Younts TJ* and Kros L (Department of Neuroscience, Physiology and Pharmacology, University College London, United Kingdom and Department of Neuroscience Erasmus Medical Center, Netherlands)

Our FENS European Neuroscience History Project focuses on two distinguished European neuroscientists, German Rudolf Magnus (1873-1927) and Dutch Gijsbertus Rademaker (1887-1957), and their contributions to basic and clinical neuroscience research. Their seminal research findings deal with the physiology of body posture and reflex muscle contractions. In the pre-World War II era, cinematography was a staple neuroscience laboratory research tool. The Magnus-Rademaker scientific film collection (1909-1940) documents observations of and experiments carried out on animals and patients with damage to their spinal cord, brainstem, or cerebellum. Through the lens of neurocinematography, expert interviews, and library/museum site visits, we are compiling various historical materials including biographies, films, and stills. The pioneering research conducted by Magnus and Rademaker established a fundamental understanding of which brain regions are responsible for maintaining body posture and reflexes. This work revealed critical insights into the etiology of

certain movement disorders such as ataxia and motion sickness. In addition, we provide some historical insight into how the use of animals in biomedical neuroscientific research in Europe has evolved over time, in particular for animal ethics, safety, and regulations.

The pioneers of neuroscience in Poland: Waclaw Blazey Orlowsky and Maximillian Rose

Krystyna Makowska, Slawomir Gonkowski (Department of Clinical Physiology, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn)

Poland in the 19th century was under foreign partition, and the polish intelligentsia was terrorized by governments of partitioning countries. Despite this Poles participated in the development of the science, more than once making discoveries on a global scale. Unfortunately, accomplishments of Polish scientists often remain unknown or forgotten. This work shows two pioneers of neuroscience in Poland: Waclaw Blazej Orlowsky and Maximillian Rose.
Waclaw Orlowsky was born in 1868. His the most important discovery in the field of neuroscience came in 1892, when he (as a young student of medicine) gave lectures entitled “Changes in neuronal cells during rabies”, in which inclusion bodies in the central nervous system characteristic for rabies have been described. Informations about discovery were sent to Pasteur Institute in Paris, but they were ignored. After 11 years (in 1903) the same bodies have been described by Adelchi Negri and named with his name. After graduation Orlowsky dealt with bacteriology and promoted the anti-rabies vaccination in Poland. He died in 1949.
Maximillian Rose - neurologists and psychiatrist - was born in 1883. He dealt with cytoarchitecture and anatomy of the brain, discovered new method of selective staining of the brain cells and introduced original classification of cerebral cortex areas. Rose was the pioneer of researches on biochemical activity of brain cortex. He was famous for post-mortem examination of the brain of marshal Pilsudski. Rose died suddenly in 1937 during the lecture for medical students.

2. FENS Member Societies

A curious Berlin perspective
(German Neuroscience Society)

Jochen Müller, Helmut Kettenmann (Cellular Neurosciences, Max Delbrueck Center for Molecular Medicine in the Helmholtz Association, Germany)

In 1810 the University of Berlin was founded. Famous scientists came into town and started to work here. Soon, Berlin became a research metropolis for cell biology. The time also marks the period during which the microscope had its breakthrough as an

instrument of science. The reason: the scientific view of nature and of the causes of diseases prevailed. However, apart from scientific breakthroughs also misfortunes happened. And even though the scientists had proper optical instruments, their view sometimes was romanticized by incorrect assessments or wishful thinking. In our poster we present a selection of famous Berlin neuroscientists together with their instruments and some of the curiosities that happened along the way to a modern view of nature.

British Neuroscience Association: fifty years young and ever stronger
(British Neuroscience Association)

Dr. Emil C. Toescu (Medical School and Liberal Arts and Natural Sciences, University of Birmingham)

Although a young discipline, Neuroscience represents a rapidly expanding field of research. The term was allegedly first used in the early 1960s, a decade that saw the origins of various neuroscience societies such as the International Brain Research Organisation (IBRO, 1961), the European Brain and Behaviour Society (1968) and the American Society for Neuroscience (1969).

The beginnings of the British Neuroscience Association (BNA) date back to a group of young, dynamic biochemists and physiologists who were interested in applying the tools and concepts of their disciplines to the functioning of the brain. They started by meeting informally in a London pub (1965).In 1968 a more formal organisation was set up: the Brain Research Association (BRA). This poster will present an overview of these origins and will place them in their contemporary context.

From that initial movement, the BNA grew and became the most important voice across the BritishNeuroscience community. Amongst its objectives are the encouragement of neuroscience research, support and training for young scientists, and the promotion of public engagement and communication activities. More recently, the BNA's 'Festival of Neuroscience' has become a major international celebration of neuroscience, bringing together multiple organisations, charities, researchers and members of the public. Our strategic goals to "Inform, Connect, and Influence" succinctly encapsulate the priorities for future development of the BNA.

Consolidating Brain Chemistry in Europe: Reflections on Four Decades of the European Society for Neurochemistry
(European Society for Neurochemistry (ESN))

1 – School of Biomedical Sciences, University of Leeds, Leeds, UK; 2 - Institute of Evolutionary Physiology and Biochemistry, RAS, Saint Petersburg, Russia; 3 - Carl-Ludwig-Institute for Physiology, Leipzig, Germany; 4 - Institute of Chemistry, University of Tartu, Estonia.

The European Society for Neurochemistry (ESN) was founded in the mid-1970s at a time when Europe was a divided continent and neurochemistry a rapidly growing discipline. The guiding principles on which ESN was built were: being open to members from all European countries, East and West, and aiming to bridge basic and clinical neurochemistry. Accordingly, the inaugural meeting of the Society was held at the University of Bath, U.K. in September 1976 hosted by Herman Bachelard and George Lunt and receiving some 350 participants. Dietmar Biesold (Leipzig) was elected as the first ESN President. The second meeting held in Gottingen in 1978, organized by Volker Neuhoff, was both a scientific and financial success and subsequent meetings then alternated between East and West Europe. The 8th Meeting of the Society was held in Leipzig in 1990 and organized by Biesold and Volker Bigl at a historic time with the imminent reunification of Germany. Over four decades ESN has promoted excellence in research through its neurochemistry initiatives and by supporting promising young neurochemists with travel and lectureship awards. Since its foundation, ESN has held 22 conferences in 20 different locations, most recently in Paris in August 2017 to celebrate its 40th Anniversary, alongside 50 years of the International Society for Neurochemistry (ISN) and 60 years of Journal of Neurochemistry. This presentation will highlight the origins, development and people of ESN over the decades against a backdrop of huge changes in political climate and neurochemical advances in that time.

French Traditions in Microscopic Neuroanatomy
(Société des Neurosciences)

Giuseppe GANGAROSSA[1], Jean-Gaël BARBARA[2].
[1:] Université Paris Diderot - Université Sorbonne Paris Cité, Unité Biologie Fonctionnelle et Adaptative, CNRS UMR 8251, Paris.
[2:] Université Pierre-et-Marie-Curie, Laboratoire Neuroscience Paris Seine, CNRS UMR 8246 and Laboratoire de Philosophie et d'Histoire des Sciences, SPHERE, CNRS UMR7219, Paris.

The French Neuroscience Society presents a new collective work on French traditions in microscopic neuroanatomy. In the 19th century, several research paths were developed in France, mainly in Paris, which led to the introduction of microscopy in the medical study of the human body. The first path was that of independent physicians with a passion for the microscope, as Alfred Donné (1801-1878), followed by a second generation of physicians, physiologists or anatomists, who soon realised the interest of using microscopy in their specialties (anatomopathology, experimental pathology, anatomy or physiology). In the context of Claude Bernard's physiology, the study of the "anatomical details" of the brain became a prerequisite to understand and explore its functions. Here, we present a collective work aimed at illustrating the most prominent case histories of French microscopic anatomical studies which show a similar trend to closely combine anatomy and physiology at the Collège de France, the Salpêtrière hospital or in

several French universities. The aim of this work is not to demonstrate a "national style", rather to analyse the special characteristics of French studies in this field which have anticipated, during and through the 20th century, the interdisciplinarity between neuroanatomy and neurophysiology. Indeed, such interdisciplinarity has ensured a better understanding of the brain, as it progressively evolved converging in the neuroscience movement, thus becoming a conditio sine qua non to unravel the mechanisms of brain functions.

Galectin 1 expression profile in CNS
(Hungarian Neuroscience Society)

Yaqub Mir, Adam Legradi, Karoly Gulya (Department of cell biology and molecular medicine)

The first described and most characterized member of galectin family is Galectin-1 (Gal-1). Microglia organizes the immune functions in the CNS. They have pro and anti-inflammatory phenotype depending on the expressed cytokine profile. The extracellularly added or astrocyte expressed gal-1 is promoting the anti-inflammatory phenotype of microglial cells. In this study, we examined the expression of Gal-1 in microglia cells in different in vitro condition. Firstly we examined the galectin-1 expression in primary mixed neuronal cultures derived from newborn rat brain with double immunofluorescence labeling. Gal-1 is expressed on all cell types located in the mixed neuronal cultures, but the signal intensity was higher on microglial cells. According to our Western blot results, the gal-1 expression is increased depending on the culturing time and the neither the immunomodulatory (LPS, Rosuvastatin Aspirin), nor the neuromodulatory (Capsaicin, Triflouroprezine) affect the gal-1 expression. To closely examine this, we used microglia-enriched cultures derived from mixed neuronal cultures with short (30 min) or a long time (3 hours) shaking. According to our results, the Gal-1 expression is mostly connected to the old strongly attached amoeboid form fragmented microglial population which derived from the mixed cultures after 3 hours shaking. The form of these cells can be quite similar to the gitter microglia. Gitter microglia cells have an anti-inflammatory phenotype, and according to our results, one of the factors, which is responsible for these inflammatory inhibiting phenotype can be Gal-1.

Historical Contribution of Irish Neuroscientists and Physicians to Cannabinoid Research and Cannabis as Medicine
(Neuroscience Ireland)

Neuroscience Ireland in collaboration with Eilís Dowd[1], David P. Finn[1], Eric J. Downer[2], Michelle Roche[3] & Ethan Russo[4].
[1:] Pharmacology, National University of Ireland Galway, Ireland.
[2:] Physiology, Trinity College Dublin, Ireland.

[3:] Physiology, National University of Ireland Galway, Ireland.
[4:] International Cannabis and Cannabinoids Institute, Prague, Czech Republic.

Aims: This presentation is designed to highlight how the contributions of 19th century Irish physicians and scientists in the investigation of cannabis therapeutics holds great relevance today as their historical observations have consistently been borne out by modern research.
Methods: The authors' files were mined for citations on cannabis and their references were systematically investigated for additional data. These were supplemented with history of medicine texts and cross-referenced via PubMed to current investigations on those subject areas.
Results: Medical usage of cannabis spans more than 1000 years, dating to the Anglo-Saxon era. 19th century Irish physicians and scientists were at the forefront of investigation of "Indian hemp" catalyzed by the efforts of William O'Shaughnessy, an Irish physician in India, who examined cannabis in rheumatic diseases, tetanus, cholera and epilepsy in 1838. He examined traditional Indian knowledge and pursued animal experimentation before pursuing human trials, and then sharing his successes with colleagues in Ireland and England. This spurred rapid adoption of cannabis and further experimentation by Michael Donovan for neuropathic pain, Dominic Corrigan for chorea and trigeminal neuralgia, Fleetwood Churchill for uterine hemorrhage, Richard Greene for preventative treatment of migraine, and Edward Birch for opium addiction. When these prior observations are scrutinized in light of contemporary knowledge of the endocannabinoid system, the claims of clinical success are not only confirmed, but perfectly plausible.
Conclusions: Today, this venerable Irish tradition of clinical cannabis research is perpetuated by modern researchers who will continue to benefit by mining the historical evidence.

History of the European Sleep Research Society
(ESRS)

Luppi Pierre-Hervé and Lino Nobili

The First European Congress of Sleep Research was held in Basel, Switzerland, October 3 – 6, 1972. Over 300 researchers, professors, students and other persons from all over Europe but also from the Americas and the Near and the Far East attended our Congress. The founding of the European Sleep Research Society (ESRS) was made during the meeting. The main purpose of the newly formed Society, according to the by-laws, was "... to promote research on sleep and related areas, to improve the care for patients with sleep disorders and to facilitate the dissemination of information regarding sleep
research"". Ad hoc committees were appointed
by the Board in 1997/98. A close cooperation between the National Sleep Societies and the ESRS was recognized as mutually interesting for both sides to enhance the visibility of sleep science at the level of the European Union.

The ESRS bylaws state "The society coordinate the activities of the National European Sleep Societies, and represent basic and clinical sleep research as well as sleep medicine in Europe."To promote excellence and to attract young researchers, the ESRS awards different prizes and grants. The European Sleep Science Award has been created by the European Sleep Research Society to recognize members who have made an outstanding contribution to the field of sleep research. The recipient shall, during their career, have contributed to discoveries that significantly advanced the field. The award is presented every two years at the Society's scientific meeting.

J. E. Purkinje and his place in the history of neuroscience
(Czech Neuroscience Society)

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Johann Evangelist Purkinje (in Czech Jan Evangelista Purkyně, 1787 – 1869) is undoubtedly a central character of Czech origin in the history of medical sciences. He was first educated as a Piarist monk and served as school teacher.. In his early twenties he decided to leave the order and entered philosophical and medical studies at the Charles University in Prague. Later, as a professor of physiology, he devoted his research into numerous areas of physiology and anatomy. His most known findings span across fields of sensory systems (Purkinje images in eye, Purkinje shift in color brightness, Purkinje law of vertigo), neuroanatomy (Purkinje cells in cerebellum), heart and blood physiology (Purkinje fibers, concept of plasma and protoplasm). Purkinje was an enthusiastic self-examinator and several of his findings e.g. on vertigo or his descriptions of effects of opium, belladonna, digitalis and camphor he achieved by experimentation on himself, bringing him several times to life-threatening situations.
For his open and ingenious mind combined with passion for natural sciences, J.E. Purkinje is a great historical icon of a scientist and teacher. Both his scientific career and personal biography provide a strong inspiration for everyone who seeks to understand mechanisms in medicine and nature in general.

Main discoveries from Spanish Neuroscience: a history of sucess… and still in progress
(Spanish Neuroscience Society)

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There is a general assumption that talking about History is talking about dead people, including Science and scientists. In the last years and in parallel to FENS and other societies for Neuroscience World-wide, the Spanish Society for Neuroscience has demonstrated an increasing interest for the History of Neuroscience sourcing from our country, not in vane, our modern concept of Neuroscience started with the titanic work of our compatriot Santiago Ramón y Cajal (1852-1934) on the fine structure of the nervous system. Significant growing recognition has also received the contributions of his major direct disciples and collaborators (Francisco Tello, Nicolás Achúcarro, Pío del Río-Hortega, Fernando de Castro, Rafael Lorente de Nó), collectively known as the Spanish Neurological School or, more colloquially, Cajal School. The relevance of these contributions has been recognised by the UNESCO (on December 1st, 2017 UNESCO has included the archives of them as part of the Human Heritage, MoW Program). In the present work, we summarise the main discoveries of all these gigantic scientists that still remain valid for current XXIst century neuroscientists, as well as we also add more recent figures of Spanish neuroscientists significantly contributing in modern times to the progress of Neuroscience by developing new concepts.

Neuroscience in Ukraine: from history to modern times

(Ukrainian Society for Neuroscience)

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The development of neuroscience in Ukraine has had several milestones.
The first world-renowned name is Volodymyr Betz (1834-1894) who discovered giant cortical pyramidal neurons, described cytoarchitectonic differences of the motor and sensory cortical areas and created the basis for histological identification of neocortical functional areas. He was a brilliant anatomist and histologist. His technique of making brain anatomy preparations was awarded by a medal at Vienna World Exposition in 1873.
The second name is Volodymyr Pravdich-Neminsky (1879-1952) who was the first who recorded brain electrical activity from the intact skull. Today we call this brain activity as the electroencephalogram.
Further development of neuroscience in Ukraine was related to Bogomoletz Institute of Physiology and neurophysiological research headed by Platon Kostyuk (1924-2010). The first ever intracellular dialysis was the main breakthrough of his research. He and his scholars investigated a role of calcium signaling in cell functioning. All of these discoveries created a basis for successful research in a field of molecular and cellular neuroscience.
Today Ukrainian Society for Neuroscience includes more than 150 scientists from different institutions of Ukraine. Bogomoletz Institute of Physiology is still a leading Ukrainian institution performing research in a field of neuroscience. Alumni of the Institute now work in numerous research institutions around the world. The Institute

is one of the leaders in publishing of high-impact scientific papers. The acting Institute director, academician Oleg Krishtal, is the President of USN and one of the most cited Ukrainian researchers.