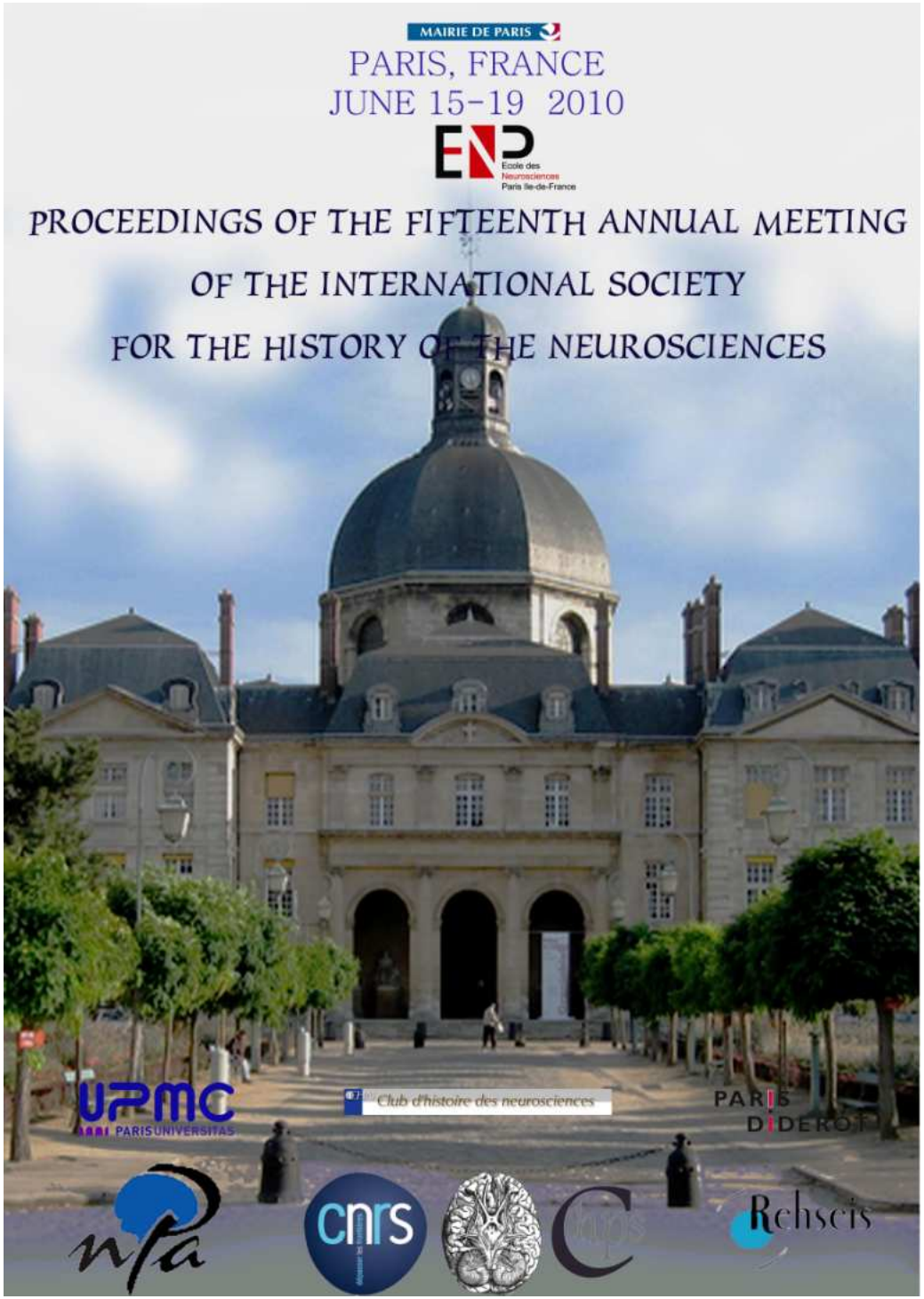
MAIRIE DE PARIS
PARIS, FRANCE
JUNE 15-19 2010
ENP
Ecole des Neurosciences Paris Ile-de-France
PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING
OF THE INTERNATIONAL SOCIETY
FOR THE HISTORY OF THE NEUROSCIENCES
UPMC
PARIS UNIVERSITAS
Club d'histoire des neurosciences
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PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING

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PARIS JUNE 15–19 2010

PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING

OF THE INTERNATIONAL SOCIETY FOR THE HISTORY OF THE NEUROSCIENCES

PARIS JUNE 15–19 2010

Marjorie Lorch & Jean-Gaël Barbara

UNIVERSITE PIERRE ET MARIE CURIE

PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING

OF THE INTERNATIONAL SOCIETY FOR THE HISTORY OF THE NEUROSCIENCES

PARIS JUNE 15–19 2010

Edited by Marjorie Lorch and Jean-Gaël Barbara

Published by the International Society for the History of the Neurosciences

Copies of this publication may be obtained from the Treasurer of ISHN via the ISHN website www.ishn.org

Cover photograph: Salpêtrière Hospital, Emmanuel Broussole ©

The editors wish to thank Chantal Barbara for helpful suggestions and the careful reading of the Proceedings, and François Clarac, Sherry Ginn, Peter Koehler, Malcolm Macmillan, Stanley Finger, Paul Foley and Jacques Poirier for their generous help.

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WELCOME TO *PARIS*

Welcome to the Fifteenth Annual Meeting of the International Society for the History the Neurosciences. We are happy to be the guests of the Ecole normale supérieure founded during the French Revolution on Enlightenment principles. It provides a wonderful venue for historical reflection, especially on the contribution of French scientists, clinicians and historians to our discipline. Our local hosts are: Club d'histoire des neurosciences, Comité Histoire Philosophie Science, Laboratoire de neurobiologie des processus adaptatifs, Université Pierre et Marie Curie, Laboratoire SPHERE, Ville de Paris, Ecole des Neurosciences de Paris.

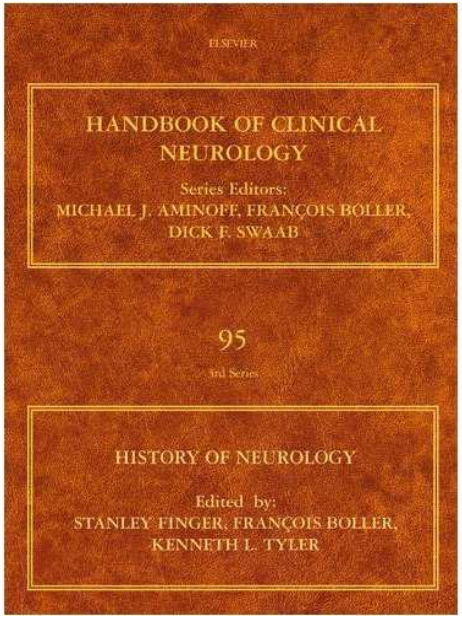
This volume contains the proceedings of the meetings held in Ecole normale supérieure, rue d'Ulm, Paris, France from June 15th to June 19th, 2010. The Program Committee responsible for refereeing the papers and posters, and for selecting those that appear here, comprised Marjorie Lorch (Chair), Sherry Ginn, Paul Foley, Peter Koehler, Frank Stahnisch, Marco Piccolino, François Clarac, Jacques Poirier, Jean-Gaël Barbara, Claude Debru, Pierre Buser, Michel Meulders.

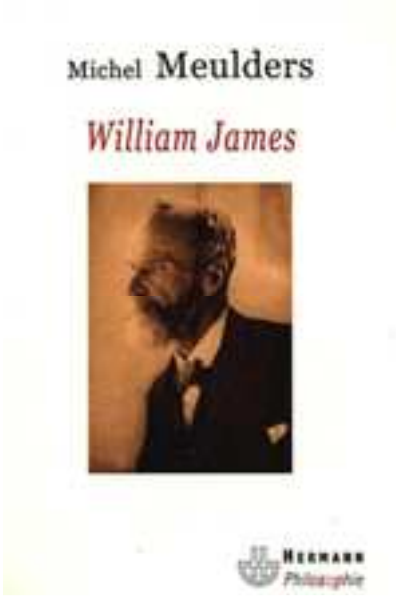
The Local Arrangements Committee, which was responsible for accommodation, registration, entertainment, and the financial arrangements consisted of Jean-Gaël Barbara (Chair), Marjorie Lorch, Claude Debru, Pierre Buser, Yves Agid, André Calas, François Clarac, Jacques Poirier, Monique Rogard, Jean-Claude Lecas, Marie-Véronique Clin, and Françoise Tchang.

We are grateful for the hospitality of the Ecole normale supérieure. We wish to thank a number of sponsors for their generous support: Laboratoire de neurobiologie des processus adaptatifs, Laboratoire SPHERE, Ville de Paris and Ecole des Neurosciences de Paris.

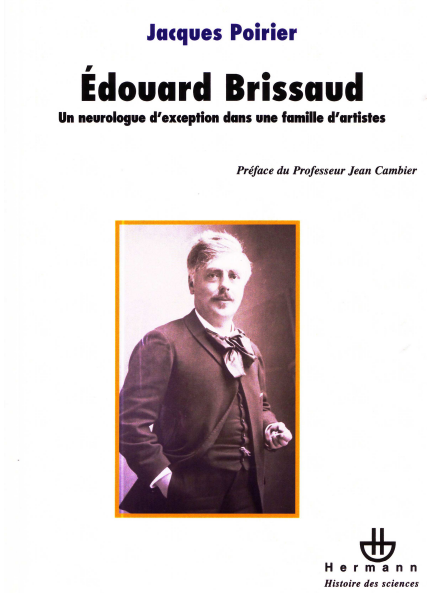
Marjorie Lorch
Professor of Neurolinguistics
School of Social Sciences, History and Philosophy
Birkbeck College, University of London
June 2010

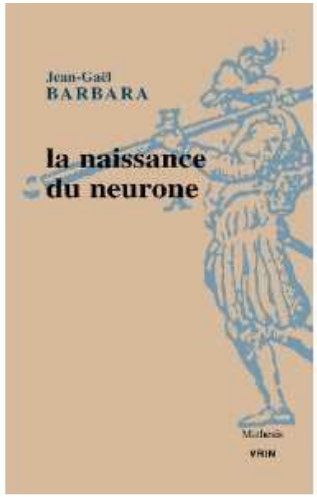
New Books


ELSEVIER
HANDBOOK OF CLINICAL NEUROLOGY
Series Editors:
MICHAEL J. AMINOFF, FRANÇOIS BOLLER, DICK F. SWAAB
95
3rd Series
HISTORY OF NEUROLOGY
Edited by:
STANLEY FINGER, FRANÇOIS BOLLER, KENNETH L. TYLER


Michel Meulders
William James
Hermann
Philosophie


Visions des sciences
Le Paradigme Neuronal
De la Physiologie expérimentale à la cognition
Jean-Gaël Barbara
Préface du Professeur Pierre Buser
Hermann


Jacques Poirier
Édouard Brissaud
Un neurologue d'exception dans une famille d'artistes
Préface du Professeur Jean Cambier
Hermann
Histoire des sciences


Jean-Gaël
BARBARA
la naissance du neurone
VRIN

I S H N
P A R I S
PROGRAM
AT A GLANCE

TUESDAY JUNE 15TH
SALLE JULES FERRY, ENS, 29 RUE D' ULM

9:00	**REGISTRATION**
10:00	**OPENING SESSION**
	GREETINGS FROM THE PRESIDENT Marjorie Lorch, *President ISHN*
10:15	**GREETINGS FROM THE LOCAL ORGANISING COMMITTEE**
10:30	Pierre Buser, *Académie des sciences* ; Nicole Le Douarin, *Académie des sciences*
	Étienne-Émile Baulieu, *Académie des sciences*
1:00 pm	**BOARD MEETING OF ISHN**, Salle Pasteur *(MEMBERS ONLY)*
2:00	**SESSION ON HISTORIOGRAPHY**
	Stephen Casper, Delia Gavrus, Fabio De Sio, Max Stadler, Stanley Finger
4:00	**POSTER SESSION**
	FREE EVENING

WEDNESDAY JUNE 16TH
SALLE DUSSANE, ENS, 45 RUE D' ULM

9:30	**FRENCH NEUROSCIENTISTS AND THEIR RECEPTION**
	Lorenzo Lorusso, François Clarac, Alla Vein
10:50	**BIOGRAPHICAL STUDIES**
	Frank Stahnisch, Moshe Feinsod, Laurence Garey, George York
12:10	**EDITORIAL BOARD MEETING FOR JHN**, salle Pasteur *(MEMBERS ONLY)*
2:00 pm	**BRAIN INFLAMMATION STUDIES**
	Yuri Zagvazdin, Anouk Uiterwijk and Peter Koehler
3:00	**ANATOMICAL STUDIES**
	J. Wayne Lazar, Helmut Gröger, Bastiaan C. ter Meulen
4:20	**PRESIDENTIAL ADDRESS** Marjorie Lorch
5:10	**ANNUAL GENERAL BUSINESS MEETING OF THE ISHN**
	FREE EVENING

THURSDAY JUNE 17TH
SALLE DUSSANE, ENS, 45 RUE D'ULM

10:00	**LANGUAGE DISORDERS**
	Paul Eling, Howard Kushner, Paula Hellal and Marjorie Lorch, Nicholas Wade
11:40	**NEUROSCIENCES IN AUSTRALIA**
	Malcolm Macmillan, Catherine Storey, John S. McKenzie and Richard Kirsner
2:00 pm	**PHILOSOPHICAL ASPECTS**
	Laura Bossi, Chris Smith, Rémy Lestienne
	Cesira Batini, Paul Foley, Josephine Papst
4:20	**BRAIN DISEASES**
	Ellen Dwyer, Stephanie Brosius, Thomas Bosley and Henry S. Schutta
6:30	**FILM SESSION**
	Bernd Holdorff, Edward Reynolds, Lorenzo Lorusso, Bruno Lucci

FRIDAY JUNE 18TH
SALLE DUSSANE, ENS, 45 RUE D'ULM

10:00	**MOVEMENT DISORDERS**
	Peter Koehler, Thomas Bak, André Parent, Allan Smith, Jean Massion
11:40-12:40	**NEUROPATHOLOGY**
	Jeffrey Greenstein, Henry Schutta, Axel Karenberg
2:00 pm	**SOCIAL AFTERNOON**
	Musée de l'Ecole de Médecine, Musée Dupuytren, Charcot Library
	Session on 20th century Paris Neuroscience
	Michel Fardeau, Shlomit Ritz Finkelstein, Baptiste Moutaud, François Boller
	ORGAN CONCERT IN THE SALPETRIERE CHAPEL Bernard Lechevallier
8:00 pm	**BANQUET À LA MAISON DE L'AMÉRIQUE LATINE (Hôtel de Varengeville)**
	ANNOUNCEMENT OF THE ISHN AWARDS

SATURDAY JUNE 19TH
SALLE JULES FERRY, ENS, 29 RUE D'ULM

10:00	**VISION STUDIES**
	Ulf Norsell, Gül Russell, Karen Buckle
11:20	**PSYCHOPATHOLOGY**
	Matthias Sohr, Louis Charland
1:30 pm	**LITERATURE**
	Sherry Ginn, Luis-Carlos Álvaro
2:30	**EASTERN NEUROSCIENCE**
	Robert Doty, Merab Tsagareli, Boleslav Lichterman, Merab Tsagareli, Robert Doty, Shivadatta Prabhu

CLOSING REMARKS
PRESIDENT FOR 2009-10 MARJORIE LORCH HANDS OVER TO FRANK STAHNISCH, PRESIDENT FOR 2010-11

MEETING CLOSES

Desperately Seeking Charcot


The house at 11, Rue de la Tour des Dames.

I love a good mystery, especially one that sends me inwards and outwards on twisting paths of discovery. This one started last November (2008) when I wrote about a house on the Rue de la Tour des Dames that I found interesting and attractive, but for which I had little information. One reader suggested that it had belonged to Dr Charcot, a famous name which immediately caught my attention, but which I found impossible to confirm. Later, I was contacted by the Head of the CLEISS agency, currently housed in the building, who invited me to take a tour around the inside of the structure. Would a visit to the house clear up the mystery? What is the history of this house and did a Charcot live here? From this point on, the story becomes a tale of two Charcots, both called Jean and both Doctors. Jean-Martin, the father, is arguably better known today than his son, Jean-Baptiste, certainly in the field of medicine. Was this his house? The information I had confirmed a home in Neuilly and a residence on the Boulevard Saint Germain, but no mention of a dwelling in the Rue de la Tour des Dames. However, a quick check of the bible of Paris history, Hillairet's 'Dictionnaire historique des rues de Paris' confirms that this house 'fut habité après son marriage par le docteur Charcot' (was lived in after his marriage by the Doctor Charcot). But which Doctor Charcot?

Jean-Yves Hocquet met me at the entrance to the house one lunchtime and very kindly gave me a tour around the property. The portes cochères lead through to a garden and stables, today converted into a car park and additional offices, with the rear of the house featuring an attractive veranda. The Flemish theme seen in the brick and gables of the exterior is continued inside, with dark, mahogony wood prevailing on staircases and window frames. All the original rooms are today used as offices, but the original features, marble fireplaces and painted ceilings, are still visible behind the desks, computers and photocopiers. It's an interesting 19th century dwelling, but with little exceptional on display.

Mr Hocquet also confirmed a Charcot connection at the property, but could not give me any dates, and there was no traces of the Charcot name anywhere to be seen inside the house. It was fascinating to see inside a private building when many of my observations are necessarily limited to the exterior only, but sometimes the guts tell us little more than the skeleton has already revealed, and that was the case here. It was time to find another way to solve the mystery.

With books and websites there is always a concern about the reliability of the information. Are the writers merely passing on erroneous details from other writers? The only place that could truly offer an answer to my question was the Archives de Paris, a building which stores two centuries of documents on individuals, buildings and taxation. It is also a fascinating place to spend an afternoon, pouring over heavy, official documents from previous centuries, trying to make sense of the often tiny, dense tiny text inscribed on the pages. I first find a trace of the building in a taxation document from the 1850s. It was seemingly built and owned by the Comte Leblanc de Chateauvillard, who himself lived at 60, Rue St Lazare which bordered the property to the rear. Apparently it was not always a salubrious building. A note in the document reads "Cette maison construite en 1833 est très mal tenue. Il n'y a point de concierge et les locataires démanagent la plupart du temps sans payer leur loyer" (This building built in 1833 is in a very poor state. There is no housekeeper and the tenants move out most of the time without paying their rent). By the 1876 survey though the situation was more stable. It was now in the hands of the Cléry family who lived in the house themselves, and a housekeeper is listed in the document. A much later document though, this time from the mid-twentieth century, gives me the answer I was

looking for. One of the Cléry offspring, Marguerite, who would later inherit the house, changed her name to Charcot. But which Charcot had she married?

As the bells of the nearby Trinité church chime in the year 1907, the Cléry family in their home in the Rue de la Tour des Dames are busily preparing a forthcoming marriage. On the 24th of the month, their daughter Marguerite will be marrying a Charcot; Jean-Baptiste, the famous Antarctic explorer! Although she will not be his first wife, it is still an honour to form an attachment with such an illustrious family. After the wedding, Jean-Baptiste will join the clan, bringing his lovely daughter Marion with him to this house.

Jean-Baptiste Charcot was a happy man that year, but it was difficult for him to keep his feet on dry land in a big city. In June he learned that one of his fellow sailors on his most recent expedition was planning a new voyage of his own to Australia in a boat he'd named the Jean-Baptiste Charcot. Sitting at a writing desk in his new home Charcot quickly wrote a letter of thanks and encouragement to his friend. "Non seulement je vous autorise à donner mon nom à votre bateau mais je vous remercie très vivement d'y avoir songé" (Not only do I give you permission to use my name for your boat but I also thank you heartily for having thought about doing so). The letter was full of nuggets of advice to the younger man, and it was clear that Jean-Baptiste himself was itching to set sail again.

Jean-Baptiste Charcot was a man who constantly needed projects in his life and who lived as much for the sea as for his new family. His wandering soul had already cost him one wife, Jeanne Hugo the Granddaughter of Victor who filed for divorce on the grounds of desertion during his first polar expedition. Jeanne had previously been the wife of his friend, Léon Daudet, with Charcot marrying her a year after she had divorced him. Daudet didn't take this news well at first, and they fought a duel outside a theatre after a rather heated discussion.

Charcot's divorce reported in the New York Times in 1905, showing how well-known he had become. It is interesting to read also that he was believed to be missing, something that surely would have been convenient for his wife Jeanne.

Comfortably installed with his lovely new wife, pregnant now with their first child, Charcot could afford a smile as he looked back on these difficult times. Jeanne was also the name of his elder sister, and after returning from his heroic and successful voyage of discovery to the Antarctic, he was obliged to move in with her. She had also recently experienced disappointment in love, suffering a divorce of her own. Her husband had been the powerful press baron Alfred Edwards, but she would be just a chapter in the life of this man who was to marry five times.

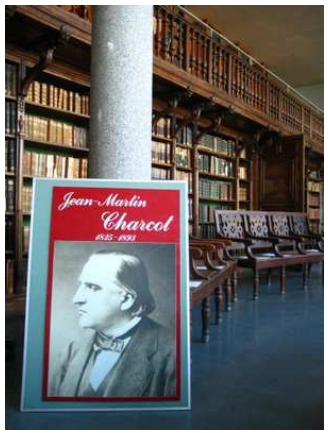
With Marguerite, Jean-Baptiste knew it would be different. She accepted him as he was and was keen to accompany him as much as she could. After their first child, Monique, was born on the 8th of December of the same year, Charcot began preparing for his second voyage to the Antarctic. The first aboard the 'Français' between 1903 and 1905 had been a huge success and had brought Charcot fame, perhaps now enabling him to finally escape from the shadow of his father, the world-renowned neurologist Jean-Martin. The second trip would be on his own boat, a ship he'd named the 'Pourquoi Pas'. Nobody really remembered where this name had come from. Had it been used dismissively by his father when he had announced that he wanted to be an explorer and not a doctor? In any case, he had become a doctor like his father wanted, but he had not forgotten his dreams, and the name of this boat was the proof of that. The death of his father had been a tragic event, but it had also cut the chains holding him back and had provided him with 400,000 gold Francs to set sail in his new direction. What he knew was that he would make the Charcot name his own. As a child at school he had always been concerned that "qu'étant le fils de papa, on ne me prenne pour un fils à papa" (as the boy of my daddy that they would also see me as a daddy's boy). To escape from this shadow he excelled in all he did, going as far as playing in a French national rugby final. As long as his father lived he followed loyally in his path, but now he would really create his own destiny.

On the 19th November 1908, both Jean-Baptiste and Marguerite had left their home in Paris and were about to leave Le Havre on the Pourquoi Pas. The two daughters of Jean-Baptiste would stay in the family home with the Clérys and Marguerite, known now to everybody as Meg, would accompany her husband as far as Puntas Arenas in Chile, in an official role as painter and observer.

Meg would be back in Paris in early 1909, but Jean-Baptiste did not return until the following year. It had been another successful mission, but Jean-Baptiste came back much weakened after having suffered from scurvy. In 1911 though there was another happy event, the birth of their second and Jean-Baptiste's third child; another girl, Martine, named surely after her Grandfather.

After this period it would seem that the Cléry-Charcots lived in a variety of places but not often in Paris. There was still the Charcot family home in Neuilly on the outskirts of Paris, and his role in the French navy meant that he was often in Saint Malo and Cherbourg. In the First World War he was based in the UK and was awarded a Distinguished Service Cross by the British Government after commanding a Q-Boat for them. The family also later bought another house, a wooden holiday retreat in Aix Les Bains.

In 1931, Meg finally inherited the house in the Rue de la Tour des Dames, but it is not clear whether they lived there or not. By 1936, Charcot was planning his last trip, this time north to Iceland. He was 69 now, and as he explained, "Le Pourquoi Pas, il est vieux, moi aussi et surtout, tout le monde s'en fout" (The Pourquoi Pas is old and so am I, and above all, nobody cares anymore). It was an ordinary, unexceptional project, but it seemed fated to go wrong. Charcot had previously said to a young sailor that "si c'était pas pour ma famille, j'aimerais mieux crever en mer" (if it wasn't for my family I'd rather die at sea). On the 16th of September, the Pourquoi Pas was caught in a violent tempest and quickly sunk. There was just one survivor amongst the crew, and the last thing he remembered of Charcot was seeing him set free the caged seagull which had been the ship's mascot. Charcot's body was recovered and he was given a state funeral back in Paris then buried in the Montmartre Cemetery. He now lays alongside his father Jean-Martin and mother Augustine, his loving, loyal second wife Meg, his daughter Marion and their youngest daughter Martine.



Later, I stand in front of the Charcot mausoleum in the Cimitière de Montmartre. My only company here is a couple of chattering magpies, and all is silence apart from a distant hum of traffic and the breaths of wind passing through the fresh, green leaves of a plane tree. It is a rather austere monument, perhaps not what may be expected for two national heroes, but understandable when we consider that they are in fact invited guests in the tomb of another family. The Laurent-Richard name is more prominent than that of the Charcots, emphasing that Jean-Martin, the father, had married into a clan more powerful and wealthy than his own.

Both Charcot men had died as celebrated figures, and both today lay side by side in this peaceful location. I have previously written about Jean-Baptiste, the son, and his path to this final resting place, but I have written little so far about his father. Jean-Baptiste had struggled throughout his life to make the Charcot name his own, but what exactly was the weighty heritage of this exceptional father, and what traces of this man remain in the city today? This end point seemed like a good a place as any to begin. Jean-Martin Charcot was born in 1825 in the family home at 27 Rue Bleue in the 9th Arrondissement, not far from where his son was later to live. His father owned a carriage-building business in the Rue du Faubourg Poissonerie and

he was baptised in the Notre Dame de Bonne Nouvelle church. Although his father was little more than a member of the petit bourgeoisie with four sons to support, he nevertheless had sufficient means to send his eldest, Jean-Martin, to the exclusive Pension Sabatier school situated at 9 Rue Richer, a few steps from his home. Here Jean-Martin would learn the classical subjects that would enable him to enter medical school.

Art or medicine? Charcot hesitated

Charcot though hesitated for a long time between an artistic and medical career. As he was later to say, "si j'ai eu des médecins parmi mes ancêtres, j'ai eu aussi quelques peintres. Entre les deux, mon cœur balance" (If I had doctors in my family, I also had some painters. My heart is torn between the two). In 1843, though Charcot had made a decision and began his medical training at the school in the Rue de l'Ecole de Médicine, a building which still stands today as the Université Rene Descartes. He was a good student but not brilliant, and his medical career was slow to take off. After spending several years bumbling around the lower levels of his profession, it was not until 1862 that he would become the holder of a post at the Salpêtrière hospital.

It is at this point that the life of Charcot becomes exceptional. Firmly installed at the Salpêtrière and already specialising in avant-garde studies on neurolgical issues, he now began organising what would become his famous Tuesday morning lectures. His personal life changed too, and in 1864 he married a rich widow, Augustine Victoire Durvis (Laurent) with whom he would have two children. Her finances meant that he would now have the necessary means to support his ambition.

Two places in Paris become important in his life from this period until his death; the Parisot division of the Hopital Salpêtrière and the family home, the Hôtel de Varengeville on the Boulevard St Germain. Charcot ran an entire section at the hospital (the newly created School of Neurology) and had a large room in which he would give his lectures. Almost anybody could attend these sessions, and the atmosphere of these extraordinary events was captured by the artist André Brouillet in his painting "Un Leçon Clinique à la Salpêtrière" in 1887. The walls of this room were covered with photos and paintings of women in trances or suffering from hysteria, mostly for reasons connected to religion. Charcot though was later to be the first person to show that hysteria did not only affect women.

These buildings were sadly demolished in the 1970s, but there are still traces of Charcot in the hospital. A lecture theatre was built in place of Charcot's rooms, and above this stands a library of neurological and psychological texts which has also become a kind of shrine to the Doctor. The library he had built up at his home is now situated here, as are his desks, tables and chairs. It is open to the public, but it is rather strange to see these artefacts housed in 1970s concrete.

In 1884, he moved his family to the Hôtel de Varengeville on the Boulevard Saint Germain. This illustrious eighteenth century rococco palace was a place he could now show off his art collections and intellect, and each Tuesday evening he invited a selection of artists, writers, politicians and statesman for dinner. The most famous visitor of all was perhaps Sigmund Freud who was extremely impressed by the man and his "magic castle". Freud was later to confess to his wife in a letter that he had been so nervous before his first visit that he took a little cocaine beforehand 'to loosen (his) tongue'.

By all accounts, Charcot was a charming and persuasive man, but also a domineering and despotic figure. His lectures were almost theatre, with Charcot controlling them like a showman (probably to the detriment of the medicine) whilst his dinners were apparently impressive and stimulating. What was it like to grow up in this environment though? Charcot senior had little pressure on his shoulders when growing up, but his son would have to live with a crushing weight. We can understand Jean-Baptiste's careful steps in his father's footprints in his early years, pursuing the same studies through fear of this dominant figure and the comments of the many illustrious visitors to his home. It is to his credit though that he managed such a radical change in his life after the release of his father's death, and that he succeeded in ensuring that there would always be two Jean Charcots.

Adam Roberts

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adam@invisibleparis.net

A celebration of the parts of Paris
that would be refused entry
to the ville musée
if they tried
to get in
today.

Additional Notes:
Marguerite (*Meg*) *Cléry-Charcot* sold the house to the Caisse *Régionale de Secours Mutuels Agricoles de l'Ile de France* in 1939 for 760,000 Francs. It was at this point, one hundred years after it had been built, that it was transformed into offices.
Jean-Baptiste Charcot outlived his first daughter *Marion* who died in 1927 aged only 32.
Marguerite (*Meg*) *Cléry-Charcot* died in 1960 aged 86. She had been made *Chevalier de la Legion d'Honneur* after her husband's death. A member of the *Charcot* family still lives in the house in Neuilly, and still uses the house in Aix Les Bains. The house in Aix Les Bains is also apparently available for holiday rentals, although no mention is made of the *Charcot* connection!

P A R I S
PROGRAM
I S H N

TUESDAY JUNE 15TH
SALLE JULES FERRY, ENS, 29 RUE D' ULM

9:00-10:00 am **REGISTRATION**

10:00 **OPENING SESSION**
Chair: Jean Mariani, CNRS, Université Pierre et Marie Curie

GREETINGS FROM THE PRESIDENT
Marjorie Lorch, *President ISHN*

10:15 **GREETINGS FROM THE LOCAL ORGANISING COMMITTEE**
Jean-Gaël Barbara, *CNRS, Université Pierre et Marie Curie*
Claude Debru, *ENS, Chair of the Philosophy Department*
David Rabouin, *Chair of the Laboratory Science Philosophie Epistémologie Université Paris Diderot*

10:30 Pierre Buser, *Académie des sciences*
French neurosciences past and present

11:00 Nicole Le Douarin, *Académie des sciences*
A chapter in the history of Vertebrate Embryology: the role of the neural crest in chordate evolution

11:30 Étienne-Émile Baulieu, *Académie des sciences*
Can an endocrinologist become a "neuroscientist"?

12:00 **LUNCH** ***(registration required)***

1:00 pm **BOARD MEETING OF ISHN**, Salle Pasteur *(MEMBERS ONLY)*

2:00-4:00 pm **SESSION ON HISTORIOGRAPHY**
Chair: Claude Debru, ENS

2:00 Stephen Casper, *Clarkson University, Potsdam, NY, USA*
Whither Neuroscience? What the Recent History of "Contagious Shooting" (1982-2006) says about the Value of the History of the Neurosciences

2:20 Delia Gavrus, *University of Toronto, Canada*
It *is* Brain Surgery: Neurosurgeons in Popular Imagination, 1900-1950

2:40 Fabio De Sio, *Wellcome Trust Centre for the History of Medicine, London, UK*
Conceptual Nervous Systems. Modeling connections between behaviours and brains in Britain (1950s-1960s)

3:00 **COFFEE BREAK**

3:20 Max Stadler, *Max-Planck-Institute for the History of Science, Berlin, Germany*
Metaphysics / Biophysics: Framing 'neuroscience', ca. 1950

3:40 Stanley Finger, *Washington University, Saint Louis, MO, USA*
The Enlightened Men of the American Philosophical Society and the First Experiments on "Eel" Electricity from a Center of Learning (1773)

4:00 **POSTER SESSION**

During the Poster Session, poster authors will present 5 minutes' summaries of their work and answer questions from the audience. Posters will continue to be on view during coffee breaks throughout the conference.

6:00 **SESSION ENDS**

FREE EVENING

WEDNESDAY JUNE 16TH

SALLE DUSSANE, ENS, 45 RUE D'ULM

9:30–10:30 **FRENCH NEUROSCIENTISTS AND THEIR RECEPTION**
Chair: Jean-Gaël Barbara, CNRS, Université Pierre et Marie Curie

9:30 Lorenzo Lorusso, *Neurology Department Chiari – Brescia, Italy*
Vincenzo Neri's archive group (Lorenzo Lorusso, Karianne Fiorini, Mirco Santi, Paolo Simoni, Chiara Tartarini, Simone Venturini, Giulio Bursi, Alessandro Porro, Paolo Cherchi Usai, Virgilio Tosi)
Joseph Babinski's Italian pupil

9:50 François Clarac, *P3M, CNRS, Marseille,* Jean Massion, *Lambesc, France*
Allan Smith, *Physiology Department, University of Montréal, Canada*
The pioneering concepts of motor synergy developed by Duchenne, Charcot and Babinski, three neurologists of La Salpêtrière hospital

10:10 **COFFEE BREAK**

10:30 Alla Vein, *Leiden University Medical Center, Leiden, The Netherlands*
The French Impact on Russian Neurosciences

10:50–12:10 **BIOGRAPHICAL STUDIES**
Chair: Sherry Ginn, Rowan-Cabarrus Community College, Concord, NC

10:50 Frank Stahnisch, *Hotchkiss Brain Institute, University of Calgary, Canada*
From cutting-edge brain surgery to the creation of paralympic sports: considerations regarding the influence of exile on the German-British neurosurgeon Sir Ludwig Guttmann (1899-1980)

11:10 Moshe Feinsod, *The Technion – Israel Institute of Technology, Haifa, Israel*
Neuroscience in the flying ambulance
the neurological heritage of Dominique-Jean Larrey

11:30 Laurence Garey, *University of Lausanne, Switzerland*
The life and works of Korbinian Brodmann

11:50 George York, *Fiddletown Institute, Fiddletown, CA, USA*
Hughlings Jackson's Unfinished Masterpiece

12:10 **LUNCH** ***(registration required)***

12:10 **EDITORIAL BOARD MEETING FOR JHN**, salle Pasteur *(MEMBERS ONLY)*

2:00–3:00 pm **BRAIN INFLAMMATION STUDIES**
Chair: André Parent, *Département de Psychiatrie et de Neuroscience Université Laval, Québec, Canada*

2:00 Yuri Zagvazdin, Nathalie Garbani, *Nova Southeastern University, Fort Lauderdale, FL, USA*
American contribution to the discovery of tuberculous meningitis at the Parisian Hospital for Sick Children. William Wood Gerhard demands justice from Louis Benoit Guersant

2:20 Anouk Uiterwijk and Peter Koehler, *Atrium Medical Centre, Heerlen, The Netherlands*
History of treatment of bacterial meningitis

2:40 **COFFEE BREAK**

3:00–4:00 **ANATOMICAL STUDIES**
Chair: Moshe Feinsod, The Technion – Israel Institute of Technology, Haifa

3:00 J. Wayne Lazar, *New York, NY, USA*
Acceptance of the Neuron Theory by clinical neurologists of the late 19th century

3:20 Helmut Gröger, *Institut für Geschichte der Medizin der Medizinischen Universität, Wien, Austria*
Fundamental discoveries of brainstem research in the early 20th century in Vienna

3:40 Bastiaan C. ter Meulen, *Saint Lucas Andreas Hospital, Amsterdam, The Netherlands*
and Tavy van Woerkom, *Department of Neurology and Neurophysiology, Den Haag, The Netherlands*
The curious case of Private Schneider: a classic in neurophenomenology

4:00 **COFFEE BREAK**

4:20 **PRESIDENTIAL ADDRESS**
Marjorie Lorch, *Birkbeck, University of London*

5:10 **ANNUAL GENERAL BUSINESS MEETING OF THE ISHN**
Elections of office holders: President, Secretary and Member-at-Large.
Presentation by Frank Stahnisch on the ISHN 2011 meeting in Canada
All registered attendees invited to attend.

6:10 pm **SESSION ENDS**
FREE EVENING

THURSDAY JUNE 17TH

SALLE D USSANE, ENS, 45 RUE D'ULM

10:00–11:00 **LANGUAGE DISORDERS**
Chair: Stanley Finger, Washington Universit, St. Louis, MO, USA

10:00 Paul Eling, *Radboud University Nijmegen, Donders Institute for Brain, Cognition and Behaviour, The Netherlands*
Lichtheim's goldens hot

10:20 Howard Kushner, *Rollins School of Public Health, Emory University, Atlanta, GA, USA*
Blaming the Patient: Neuropsychiatry faces Tourette Syndrome 1825-2010

10:40 **COFFEE BREAK**

11:00 Paula Hellal and Marjorie Lorch, *Birkbeck, University of London, UK*
Child language impairment and the idioglossia debate of the 1890s

11:20 Nicholas Wade, *School of Psychology, University of Dundee, UK*
Javal and the recording of eye movements during reading

11:40–12:40 **NEUROSCIENCES IN AUSTRALIA**
Chair: Paul Foley, Prince of Wales Medical Research Institute, Sydney, Australia

11:40 Malcolm Macmillan, *University of Melbourne, Australia*
Korbinian Brodmann's eclipse of Alfred Walter Campbell

12:00 Catherine Storey, *Royal North Shore Hospital, Sydney, Australia*
The Kanematsu Institute and ghosts of neuroscience past: Sydney

12:20 John S. McKenzie, *The University of Melbourne, Australia* and Richard Kirsner, *Bundura, Australia*
How electro-neurophysiology came to the University of Melbourne

12:40 **LUNCH** ***(registration required)***

2:00–4:20 pm **PHILOSOPHICAL ASPECTS**
Chair: Frank Stahnisch, Hotchkiss Brain Institute, University of Calgary

2:00 Laura Bossi, *Paris*
Charles Bonnet's philosophical palingenesis: a biological theory of resurrection

2:20 Chris Smith, *Aston University, Birmingham, UK*
Henri Bergson and the neuroscience of memory

2:40 **COFFEE BREAK**

3:00 Rémy Lestienne, *CNRS, Paris*
Roger Sperry and the concept of emergence in neuroscience

3:20 Cesira Batini, Ginette Horcholle-Bossavit
Suzanne Tyč-Dumont, *ESPCI, CNRS, Paris*
Old hypothesis and new tools: Alfred Fessard's approach to the problem of consciousness

3:40 Paul Foley, *Prince of Wales Medical Research Institute, Sydney, Australia*
Where the wild things are: The brainstem in inter-War models of human consciousness

4:00 Josephine Papst, *Centre of transdisciplinary cognitive and state-system sciences, Graz, Austria*
Re-reading René Descartes' scientific medicine and neuroscience: On the relevance of the perceivable changes of the body

4:20 **BRAIN DISEASES**
Chair: Peter Koehler, Atrium Medical Centre, Heerlen, The Netherlands

4:20 Ellen Dwyer, *Department of History, Indiana University, Bloomington, IN, USA*
Epilepsy Research after World War II

4:40 Stephanie Brosius, *Birmingham, AL, USA*
A History of von Recklinghausen's Neurofibromatosis Type-1

5:00 Thomas Bosley, *King Saud University, Riyadh, Saudi Arabia*,
and Henry S. Schutta, *Albert Einstein Medical Center, Philadelphia, PA, USA*
Horizontal Gaze Palsy and Progressive Scoliosis
A Short History of a New Disease

5:20-6:30 **LIGHT DINNER**

6:30 **FILM SESSION**
Chair: Lorenzo Lorusso, Neurology Department Chiari – Brescia, Italy

Bernd Holdorff, *Neurological service Schlossparkklinik Berlin, Germany*
Max Nonne and "War Neurosis"

Edward Reynolds, D. Healy and A. Lees, *Departments of Neurology, King's College and University College, London*
A film of patients with movement disorders made in Queen Square in the mid-1920's by Samuel Alexander Kinnier Wilson

Lorenzo Lorusso, *Neurology Department Chiari – Brescia, Italy*
Bruno Lucci, *Pordenone*, Loredana Boito, *UILDM Centre, Fontanafredda-Pordenone*, and Fabrizio Capitani, *Donizetti's Music Library, Bergamo, Italy*
Gaetano Donizetti's neurobiological illness

FRIDAY JUNE 18TH

SALLE DUSSANE, ENS, 45 RUE D'ULM

10:00-11:40 am **MOVEMENT DISORDERS**
Chair: George York, Fiddletown Institute, California

10:00 Peter Koehler, *Atrium Medical Centre, Heerlen, The Netherlands*, and A.G. Munts, *Haarlem, The Netherlands*
Psychogenic and organic attributions in the history of dystonia

10:20 Thomas Bak, *Human Cognitive Neuroscience, University of Edinburgh, UK*
The relationship between motor and cognitive symptoms in Motor Neuron Disease and Atypical Parkinsonian Syndromes

10:40 **COFFEE BREAK**

11:00 André Parent, *Département de Psychiatrie et de Neurosciences, Université Laval, Québec, Canada*
Substantia nigra and Parkinson's disease: a brief history of their long and intimate relationship

11:20 Allan Smith, *Physiology Department, University of Montréal, Canada*
Jean Massion, *Lambesc, France*, and François Clarac, *CNRS, Marseille, France*
Asynergy, a movement coordination deficit of cerebellar origin: was Babinski more perceptive than his contemporaries?

11:40-12:40 **NEUROPATHOLOGY**
Chair: Alla Vein, *Leiden University Medical Center, The Netherlands*

11:40 Jeffrey Greenstein, *Multiple Sclerosis Research Institute, Philadelphia, PA, USA*
Elie Metchnikoff's neglected recognition of the role of macrophages in Alzheimer's Disease

12:00 Henry Schutta, *Albert Einstein Medical Center, Philadelphia, PA, USA*
British contributions to the understanding of stroke in the first half of the 19th century

12:20 Axel Karenberg, *Institute for the History of Medicine and Medical Ethics University of Cologne, Germany*
Stroke at the Paris Hospitals: The emergence of anatomico-clinical concepts after 1810

12:40 **LUNCH** ***(registration required)***

2:00 pm **SOCIAL AFTERNOON**

PLEASE LOOK AT THE "SOCIAL AFTERNOON INFORMATION PAGE"

PARALLEL VISITS TO THE MUSÉE DE L'ECOLE DE MÉDECINE & MUSÉE DUPUYTREN
(registration required)

2:00 – 3:00 **Musée de l'Ecole de Médecine** (Ancienne Ecole de médecine, station Odéon, itinerary: RER B: from Luxembourg to Saint-Michel

2:00 – 3:00 **Musée Dupuytren** (Cloître des Cordeliers, métro Odéon)

PARALLEL EVENTS: VISIT TO THE CHARCOT LIBRARY (3:00 pm – 6:00) WITH LECTURES ON 20TH CENTURY PARIS NEUROSCIENCE
(registration required)

3:00 – 6:00 **Visit to the Charcot Library** (Hôpital de la Salpêtrière, from Odéon: Bus 63: Odéon to Gare d'Austerlitz)

3:00 – 6:00 **Session on 20th century Paris Neuroscience**
(Amphithéâtre Charcot)
Chair: François Clarac, CNRS, Marseille, France

Michel Fardeau, *Salpêtrière Hospital*
Jules Dejerine

Shlomit Ritz Finkelstein, *Emory University, Atlanta, USA*
Rethinking Coprolalia

Baptiste Moutaud, *Université Paris Descartes, Paris*
A neuroscientific tool to join the interests: A short history of the Deep Brain stimulation

François Boller, *National Institute of Mental Health, Rockville, Maryland, USA*
Some aspects of Neurosciences in Paris outside the Salpêtrière: Henry Hécaen and Sainte Anne

ORGAN CONCERT IN THE SALPÊTRIÈRE CHAPEL
Bernard Lechevallier, *INSERM, Paris*

8:00 pm **BANQUET À LA MAISON DE L'AMÉRIQUE LATINE (Hôtel de Varengeville)**
Home of Jean-Martin Charcot and South America embassies
(registration required)

ANNOUNCEMENT OF THE ISHN AWARDS
Sherry Ginn, Chair of Awards Committee

SATURDAY JUNE 19TH

SALLE JULES FERRY, ENS, 29 RUE D'ULM

10:00 **VISION STUDIES**
Chair: Chris Smith, Aston University, Birmingham, UK

10:00 Ulf Norsell, *Gothenburg University, Sweden*
Electroretinography, an early and enduring electrophysiological application

10:20 Gül Russell, *Texas A&M University System Health Science Center, College Station, TX, USA*
Central and Peripheral Vision in Ibn al-Haytham's Optics: Some Key Experiments

10:40 **COFFEE BREAK**

11:00 Karen Buckle, *Wellcome Trust Centre for the History of Medicine London, UK*
Vision in 18th century Europe: Looking through the eyes of the oculist 'the Chevalier' John Taylor

11:20 **PSYCHOPATHOLOGY**
Chair: Malcolm Macmillan, University of Melbourne, Australia

11:20 Matthias Sohr, *Institut d'histoire de la médecine et de la santé publique, Lausanne University, Switzerland*
Georges de Morsier (1894-1982) and neurological research on hallucinations in the 1930s

11:40 Louis Charland, *Departments of Philosophy and Psychiatry & Faculty of Health Sciences, University of Western Ontario, Canada*
Neuroscientific Foundations of Affective Psychopathology: Rediscovering Alexander Crichton (1763-1856)

12:00 **LUNCH** ***(registration required)***

1:30–2:30 pm **LITERATURE**
Chair: Marjorie Lorch, Birkbeck, University of London

1:30 Sherry Ginn, *Rowan-Cabarrus Community College, Concord, NC, USA*
Science, Pseudoscience, and Science Fiction: The Evolution of Victor Frankenstein's Attempts to Give his Creature Life

1:50 Luis-Carlos Álvaro, *Department of Neurology Basurto Hospital, Bilbao, Spain*
"The dispossessed": neurology and medical care in Spain in late 19th century through Benito Pérez Galdós

2:10 **COFFEE BREAK**

2:30 **EASTERN NEUROSCIENCE**
Chair: Boleslav Lichterman, Moscow

2:30 Robert Doty, *University of Rochester School of Medicine Rochester, NY*, USA
Merab Tsagareli, *Beritashvili Institute of Physiology, Republic of Georgia*
Beritashvili and interhemispheric mnemonic transfer

2:50 Boleslav Lichterman, *Institute for the History of Medicine, Russian Academy of Medical Sciences, Moscow, Russia*
Soviet Neuro(patho)logy (1917-1991)

3:10 Merab Tsagareli, *Beritashvili Institute of Physiology, Republic of Georgia*
Robert Doty, *University of Rochester School of Medicine Rochester, NY, USA*
Ivane Beritashvili, versatile neuroscience despite the adversities of the 20th century

3:30 Shivadatta Prabhu, *Institut des Neurosciences, Grenoble, France*
History of neurosciences in ancient India: From concepts of states of consciousness to neuroanatomy and therapeutics

CLOSING REMARKS

PRESIDENT FOR 2009-10 MARJORIE LORCH HANDS OVER TO FRANK STAHNISCH, PRESIDENT FOR 2010-11

MEETING CLOSES

LIST OF POSTERS

Maison de l'Amérique Latine

Sultana Banulescu, *City University of New York, Graduate Center, New-York, NY, USA*
Italian Neurologists and Psychiatrists in World War I

Craig Bentti, Harry Whitaker, *Northern Michigan University, Marquetti, MI, USA*
Early Satires of Phrenology

William Biu Lo, Harold Ellis, *Department of Neurosurgery, University Hospital, Coventry, UK and Department of Anatomy, King's and St Thomas' School of Biomedical Sciences, London, UK*
The Circle Before Willis – A Historical Account of the Intracranial Anastomosis

Elsa Bonnard, *Lyon*
The introduction of the computer in French neuroscience (1960-1980)

Jean-Philippe Ernst, *Institute for History, Aachen University Medical School, Aachen, Germany*
Axel Karenberg, *University of Cologne, Germany*
Anorexia nervosa: Its history and recent paradigm shift towards neurobiology

Jorge L. Juncos, *Emory University School of Medicine, Department of Neurology, Atlanta, GA, USA*
Shlomit Ritz Finkelstein, *Emory University, Atlanta, GA, USA*
Treating refractory Tourette Syndrome with Deep Brain Stimulation

Jean Hainaut, *Paris*
CPZ, 1955, Flashback

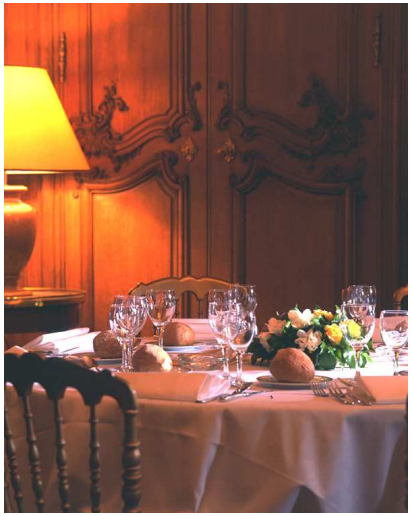
Lorenzo Lorusso, *Neurology Department, Chiari*, Antonia Francesca Franchini, *History of Medicine Department, University of Milan*, Bruno Falconi, *History of Medicine Department, University of Brescia, Italy*
Caricatures on French neurologists in the 19th and 20th centuries

Georg Petroianu, *Department of Cellular Biology & Pharmacology*
Florida International University, Miami, FL, USA
Neurotoxicity of organophosphorus compounds

Ana Cecilia Rodríguez de Romo, *Department of the History and Philosophy of Medicine, National Autonomous University of Mexico, Mexico*
Medicine and reasoning: The diagnostic process in neurology

Zoë D. Théodoridou, Lazaros C. Triarhou, *University of Macedonia, Thessaloniki, Greece*
Early views of Christfried Jakob on the cerebral cortex: Challenging the supremacy of the frontal lobe

Hendrik Voss, *Bezirkskrankenhaus Augsburg, Germany*
The 19th century concept of 'brain fever': Its appearance, its disappearance, its remainders



JOBS

ÉVÉNEMENTS

- 31 mai 2010
  ENP/ED3C
  Larry Abbott - "Suppressing and Controlling Chaotic Activity in Neural Networks"
- 31 mai 2010
  ENP/ED3C
  Zoltan Nusser "High-resolution localization reveals unique cell-surface distribution of ion channels"

tous les événements

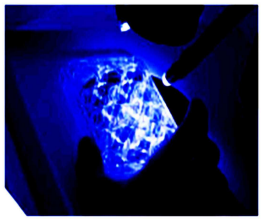
LETTRE DE L'ENP

- avril 2010

toutes les lettres

PUBLICATIONS

Un réseau de recherche en neurosciences



L'École des neurosciences de Paris Île-de-France est un réseau thématique de recherche avancée (RTRA) crée en 2007, qui regroupe la majorité des équipes d'excellence dans le domaine des neurosciences en Île-de-France.

L'ENP est une fondation de coopération scientifique portée par cinq établissements fondateurs : le Commissariat à l'énergie atomique (CEA), le Centre national de la recherche scientifique (CNRS), l'Institut national de la santé et de la recherche médicale (Inserm), l'Université Paris-Sud-11 et l'Université Pierre et Marie Curie (UPMC). Depuis 2009, l'Université Paris Descartes est partenaire de la fondation.

Elle est administrée par un conseil d'administration comprenant des représentants des fondateurs et de la société civile. Les instances exécutives de l'ENP comprennent un comité de direction, un directeur et un secrétaire général.

Textes légaux

SOCIAL AFTERNOON
INFORMATION

How to reach the Musée de l'Ecole de Médecine & Musée Dupuytren? (see maps on following pages)

From Ecole normale supérieure :

Walk to Luxembourg RER B station
Take a train to Saint-Michel
Walk to Ecole de médecine

How to reach the Charcot Library and Charcot amphitheater? (see maps on following pages)

From l'Ecole de médecine :

Take metro (10) from *Odéon* to *Austerlitz*
Walk to Salpêtrière hospital's entrance
Walk to Charcot building
Charcot amphitheater (1st Floor) Charcot Library (2nd Floor)

CYBERCAFE "LUXEMBOURG MICRO"
81, BOULEVARD SAINT MICHEL
75005 PARIS

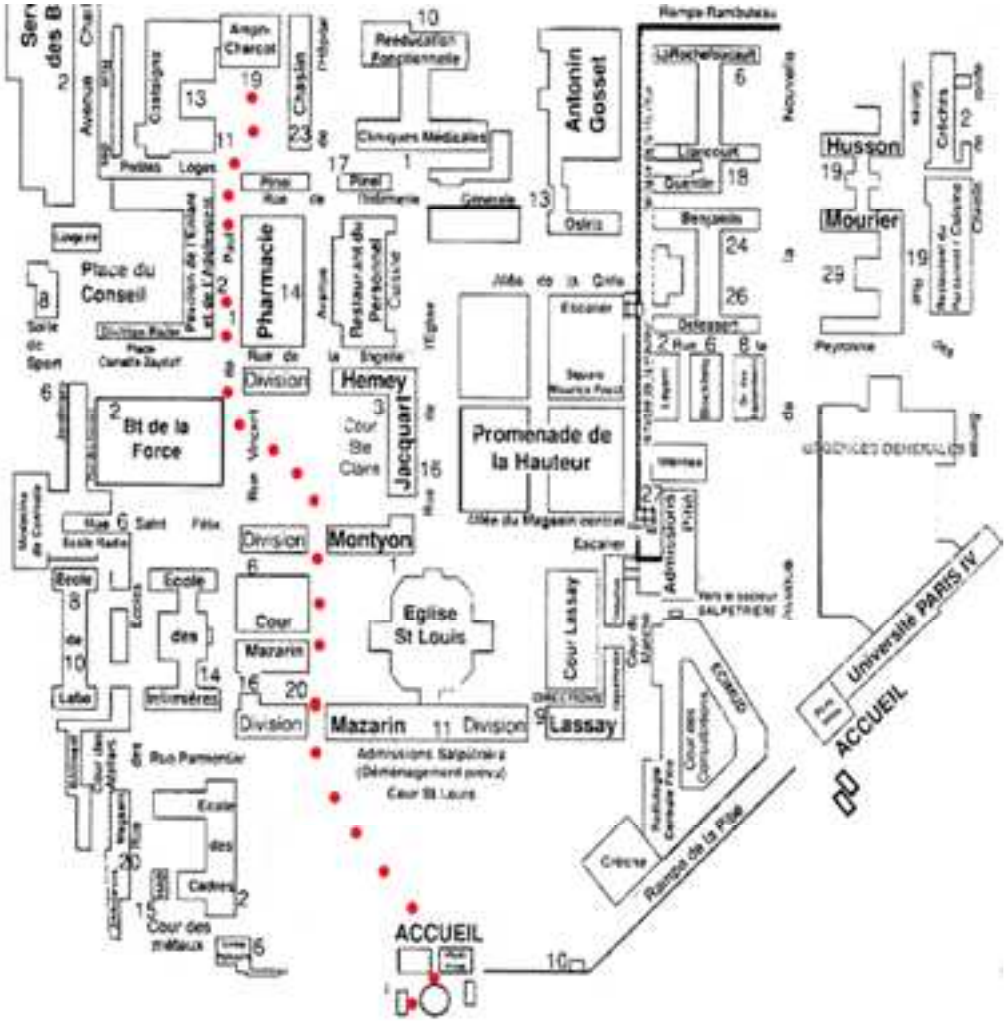
Maps

ENS ⇨ RER Luxembourg

RER Saint-Michel ⇨ Odéon

Austerlitz train station ⇨ Salpêtrière Hospital

Salpêtrière ⇨ Maison de l'Amérique



Salpêtrière Hospital

Le Musée Dupuytren

The Musée Dupuytren is a museum of anatomical items illustrating diseases and malformations. It is located at 15, rue de l'Ecole de Médecine, Les Cordeliers (Paris). The museum was established in 1835 by Mathieu Orfila as the Museum of Pathological Anatomy of the Medicine Faculty of the University of Paris, with the bequest of Baron Guillaume Dupuytren, anatomist and celebrated professor of surgery. The museum was installed in the old refectory of the Cordeliers Convent, gathering collections from throughout the faculty. Its first catalogue was compiled between 1836 and 1842, and listed about a thousand specimens. By the late 1870s the museum contained over six thousand pieces.

The museum began a slow decline, however, from later 1800s despite continued acquisition of new collections, and its upkeep became problematic. In 1937, Gustave Roussy ordered the museum shut, with many items subsequently lost or destroyed. However in 1967 Jacques Delarue (1901-1971) brought the museum back to life with a general refurbishment. Today it still retains a superb collection, including specimens dating from the 17th century, as well as wax anatomical models, books, and photographs.

Among many other notable items, the museum contains brains of aphasic patients, preserved in alcohol by the celebrated anatomist Paul Pierre Broca, and used in his research in the localization of brain functions.

Adapted from Wikipedia ©

Le Musée d'Histoire de la Médecine de l'Ancienne Ecole de Médecine

The neoclassical Collège et Académie de Chirurgie (College and Academy of Surgery) by the architect Gondoin was built in the old Rue des Cordeliers over the years 1769-1775. The rival establishment, the Faculté de Médecine, stood on the Rue de la Bûcherie. After the suppression of the academies and the closure of the faculties in 1793, it became clear that there was an urgent need for the medical schools to be reformed and then re-opened. Antoine Fourcroy presented a bill to the Convention and this was ratified on 4 December 1794. Three medical schools were founded, one in Paris, one in Montpellier and one in Strasbourg. The school was housed in the ex-Collège de Chirurgie and was known successively as the Ecole centrale de Santé, the Ecole de Médicine before ending up as the Faculté de Médicine in 1808.

The oldest part of the building is still visible: a colonnade of Ionic columns runs down the side of Rue de l'Ecole de Médicine, fronting a courtyard surrounded by a Corinthian portico, behind which is the the great lecture theatre. This vast building was rebuilt and enlarged in the year 1878-1900 by Ginain and today it houses the main administrative building of the Université René Descartes Paris V, the university library, the Medical faculty's archives and the museum of the history of medicine. This museum, opened in 1954, presents a chronological and thematic view of the history of medicine and surgery from antiquity up to the present day.

The collection contains about 1500 historical medical instruments. The period covering the end of the 18th century and the beginning of the 19th are represented by cases of trepanning instruments, some French medical bags found on the field of Waterloo and some surgeon's instrument cases. There is on display a marble bust by Chaudet (executed by Cartellier) of Antoine-Francois Fourcroy (1755-1809). Fourcroy's law, which aimed principally at producing 'Elèves de la Patrie' (Pupils of the Fatherland), that is, doctors and surgeons for the military, put a great deal of emphasis on clinical teaching and set down new principals: the fusion of surgery and medicine (it being recognised that the two were merely different aspects of the same branch of study); the development of practical, hands-on teaching (Read little, do much and see all' was Fourcroy's motto); selection by competition of pupils and teachers; the establishment of a diploma valid throughout France. This new approach based on the rational practice of medecine was to be broadly illustrated by Corvisart (1755-1821), the professor of internal clinical medecine who was nominated Medecin du Gouvernment by Bonaparte in 1801 before becoming Doctor to the Emperor after Napoleon's coronation.

The museum has two exceptional pieces. The first and most remarkable is the doctor's case belonging to Antommarchi who had used it for the autopsy of Napoleon on St Helena (the case was given to the head of the

faculty, Orfila, in 1837). The other is a model body made by Felice Fontana for use in anatomy lectures. In 1796, during the First Italian Campaign, Bonaparte asked Fontana, the director of the Grand Duke of Tuscany Leopold II's Natural History collection, to make him a wooden model body for the Paris Ecole de Santé. The model was made in 1799 and comprises several hundred pieces made of poplar representing the organs and muscles of the human body and the whole can be completely taken to pieces. On the same occasion Bonaparte also bought for the Directory about 40 anatomical wax works which today are held in the Montpellier Medical Faculty. Napoleon even dreamed of establishing a French school for anatomical wax works. A decree dated 1806 passed at Saint-Cloud provided for the founding of the school in Rouen.

There is subsequently a review of the specialisations of the 19th century, notably: urinary tract surgery, lithotrity (the crushing of gall stones!) and urology; gynecology/obstetrics; ear, nose and throat diseases; optical diseases; surgical anatomy and operatory medicine, brilliantly perfected by Xavier Bichat (1771-1802) and Théophile Laennec (1781-1826), the renowned inventor of the stethoscope; cardiology; neurology, etc.

Karine Huguenaud, Fondation Napoléon ©

Le Théâtre d'Anatomie de la rue de l'école de médecine

This "anatomical theater" was built by Charles and Louis Joubert between 1691 and 1694. In his book on Paris, Piganiol de la Force describes it: "*L'Ecole, telle qu'elle est aujourd'hui, a été nouvellement bâtie aux dépens de la communauté des chirurgiens. On y entre par une grande porte assez bien décorée et sur laquelle est cette inscription en lettres d'or : "Aedes chirurgorum". On trouve ensuite deux beaux corps de bâtiments séparés par la cour. A main droite en entrant est l'amphithéâtre. La porte de cet amphithéâtre est décorée d'un ordre ionique et de quelques ornements de sculptures, symboliques de l'art de chirurgie..*". "The School as it is today, was newly built at the expense of the community surgeons. You enter through a large and pretty well decorated door, where in golden letters the following inscription is written: "*Aedes chirurgorum.*" Then you find two beautiful buildings separated by a courtyard. On the right is the amphitheatre. The door is decorated in the Ionic order with a few ornaments and sculptures, symboles of the art of surgery ... ". These buildings are now used for the teaching of literature and English ! If you are lucky, the amphitheatre will be open, look young and enter with the students ! (my own comment)

Translated and adapted from www.bium.univ-paris5.fr/musee/enseign3.htm ©

Le Café Le Procope

Café Procope, in *rue de l'Ancienne Comédie*, 6th arrondissement, is one of the oldest restaurants of Paris. It was opened in 1686 by the Sicilian Francesco Procopio dei Coltelli, with a slyly subversive name adopted from the historian Procopius, whose Secret History, the Anekdota, long known of, had been discovered in the Vatican Library and published for the first time ever in 1623: it told the scandals of Emperor Justinian, his ex-dancer Empress, and his court.

Throughout the eighteenth century, the brasserie Procope was the meeting place of the intellectual establishment, and of the nouvellistes of the scandal-gossip trade, whose remarks at Procope were repeated in the police reports.[5] Not all the Encyclopédistes drank forty cups of coffee a day like Voltaire, who mixed his with chocolate, but they all met at Procope, as did Benjamin Franklin, John Paul Jones and Thomas Jefferson.

During the Revolution, the Phrygian cap, soon to be the symbol of Liberty, was first displayed at the Procope; the Cordeliers, Robespierre, Danton and Marat all used the cafe as a meeting place. After the Restoration, another famous customer was Alexander von Humboldt, who lunched here during the 1820s every day from 11am to noon. The Procope retained its literary cachet: Alfred de Musset, George Sand, Gustave Planche, the philosopher Pierre Leroux, M. Coquille, editor of Le Monde, Anatole France were all regulars. Under the Second Empire, August Jean-Marie Vermorel of Le Reforme or Léon Gambetta would expound their plans for social reform.

Café Procope was refurbished in 1988 to 1989 in eighteenth-century style. It received Pompeian red walls, crystal chandeliers, eighteenth century oval portraits of famous people that have been patrons, and a tinkly piano. The waiters were dressed in quasi-revolutionary uniforms. This oldest cafe in Paris in continuous operation since it opened in 1686 is on *rue* de l'Ancienne Comédie.

Adapted from Wikipedia ©

L'Hôpital de la Salpêtrière

The *Salpêtrière* was originally a gunpowder factory ("*salpêtre*" being a constituent of gunpowder), but was converted to a dumping ground for the poor of Paris. It served as a prison for prostitutes, and a holding place for the mentally disabled, criminally insane, epileptics, and the poor; it was also notable for its famous population of rats.

The *Chapelle de la Salpêtrière* is one of the masterpieces of Libéral Bruant, architect of *Les Invalides*. It was built around 1675, on the model of a Greek cross and has four central chapels each capable of holding a congregation of some 1,000 people. Its central octagonal cupola is illuminated by picture windows in circular arcs.

The Pinel's monument in front of the main entrance to the Hospital is a large bronze monument to Philippe Pinel, who was chief physician of the Hospice from 1795 to his death in 1826. The Salpêtrière was, at the time, like a large village, with seven thousand elderly indigent and ailing women, an entrenched bureaucracy, a teeming market and huge infirmaries. Pinel created an inoculation clinic in his service at the Salpêtrière in 1799 and the first vaccination in Paris was given there in April 1800.

The First hospital. 1656, Louis XIV charged the architect Libéral Bruant to build a hospital on the location of the factory, founding the *Hospice de la Salpêtrière*. The building was expanded in 1684.

By the eve of the Revolution, it had become the world's largest hospital, with a capacity of 10,000 patients plus 300 prisoners, largely prostitutes swept from the streets of Paris. From *La Salpêtrière* they were paired with convicts and forcibly expatriated to New France.

During the September massacres of 1792, the *Salpêtrière* was stormed on the night of 3/4 September by a mob from the impoverished working-class district of the Faubourg Saint-Marcel, with the avowed intention of releasing the detained street-girls; 134 of the prostitutes were released; twenty-five mad women were less fortunate and were dragged, some still in their chains, into the streets and murdered. Madame Roland, a Girondin supporter of the Revolution in its first liberalising stages, recorded in her Memoirs that the Revolution "has been stained by villains and become hideous".

In the first half of the 19th century, the first humanitarian reforms in the treatment of the violently insane were initiated here by Philippe Pinel, friend of the *Encydopédistes*; his sculptural monument stands before the main entrance in Place Marie-Curie, Boulevard de L'Hôpital. Later, when Dr. Jean-Martin Charcot took over the department, the *Salpêtrière* became world famous as a psychiatric centre. Charcot is often credited as the founder of modern neurology. His teaching activities on the *Salpêtrière*'s wards helped to elucidate the natural history and pathophysiology of many human illnesses including neurosyphilis, epilepsy, and stroke. Students came from all over Europe to listen to Charcot's lectures. Among them was a young Sigmund Freud.

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ABSTRACTS

ALPHABETICAL ORDER OF AUTHORS

"THE DISPOSSESSED": NEUROLOGY AND MEDICAL CARE IN SPAIN IN LATE 19TH CENTURY THROUGH BENITO PÉREZ GALDÓS

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Benito Pérez Galdós was a Spanish realistic writer. In his books, he portrayed the sociological, historical, scientific and medical aspects of his time. He was the friend of many renowned doctors and he was acquainted with current medical knowledge. In his novels, he could incorporate painstaking descriptions of a plethora of neurological disorders, and describe the main characteristics of health services.

The "dispossessed" ("La desheredada"), a novel published in 1881, focuses on his contemporary society with a young woman (Isidora) as the main character, who is fiercely but wrongly convinced of having been dispossessed of her aristocratic condition. She is unfairly doomed to poverty and fighting. In such a background, illnesses and the scarceness of medical care are carefully described in specific manners which will be the subject of my analyses.

Isidora suffered from a shared madness ("*folie à deux*") with delusions of grandeur, a consequence of her father's paranoid schizophrenic condition. Her only brother was alcoholic and developed an encephalopathy. He had grand mal epileptic fits and he delayed secondary psychotic behavior, with tragic consequences. The son of Isidora was floppy and disabled with rickets and features of hydrocephalus. The whole picture fits the *degeneracy theory*: a conception of diseases against a background of unfavorable social and economic conditions, inherited and eventually responsible for the disappearance of the line. Migraine, syncope and brain infectious disorders are also displayed. A pioneer asylum in Spain (Leganés) is described as overcrowded, lacking minimum resources, with patients showing clear complex motor stereotypies, tremors and different movement disorders. Finally, medical doctors are described with love and care, as they provided the best resources for exposing and improving the health and the social condition of the patients.

Clinical features are used in order to reinforce the plot with vividness and verisimilitude. The novels brings a vivid description of the neurological paradigms and health services at that time.

THE RELATIONSHIP BETWEEN MOTOR AND COGNITIVE SYMPTOMS IN MOTOR NEURON DISEASE AND ATYPICAL PARKINSONIAN SYNDROMES

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The history of the exploration of Motor Neuron Disease (MND) confronts us with a puzzling discrepancy: on the one hand, a substantial literature, going back to the early 20th century, offers detailed descriptions of cognitive and psychiatric symptoms in MND patients, with an explicit link between MND and Pick's Disease made as early as 1932. On the other hand, the disease has until recently been often regarded as affecting only motor functions while sparing mental abilities. Interestingly, most papers reporting cognitive and psychiatric symptoms in MND come from Continental Europe and non-European countries influenced by a similar tradition (Brazil, Japan). In contrast, the view of MND as a purely motor disorder is found more often in the British literature.

A similar phenomenon can be observed in other neurodegenerative diseases, such as Parkinson's Disease and atypical Parkinsonian syndromes, including Progressive Supranuclear Palsy (PSP) and Corticobasal Degeneration (CBD). The neurologists of the continental tradition, trained and practicing in psychiatry as well as in neurology, seemed to have been more likely to notice and report cognitive and psychiatric abnormalities than their British and American counterparts. But were such symptoms not noted or rather observed but not deemed relevant enough to be reported?

The history of the description of CBD offers a fascinating insight into this question. The early papers on CBD contain two apparently contradicting strands of argument. The detailed case descriptions in the papers report a wide range of cognitive and behavioural symptoms, remarkably similar to our current understanding of the disease. In contrast, the abstracts state consistently that "mental functions were not impaired". It seems likely that the case reports reflect the observations made by the clinicians, while the abstracts are more influenced by the authors' interpretation of the disease, in which cognitive and behavioural changes were not considered to be relevant.

ITALIAN NEUROLOGISTS AND PSYCHIATRISTS IN WORLD WAR I

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In Italy before the Great War, neurology and psychiatry were incompletely elucidated and quasi-inseparable medical specialties. Italian neurologists and psychiatrists such as Gaetano Perusini (1879-1915), Edoardo Weiss (1889-1970) and Marco Levi Bianchini (1879-1961) served as military physicians in World War I. For psychiatrist Edoardo Weiss of Trieste, fighting on the side of the Austro-Hungarian Empire amounted to a personal dilemma. Neurologist Gaetano Perusini of Udine, who together with Alois Alzheimer and Emil Kraepelin first described Alzheimer's disease in Munich in 1910, and who died a volunteer on the Italian side nursing a wounded soldier, is a case study in tragic patriotism. The case of psychiatrist Levi Bianchini of Nocera Inferiore, previously a colonial physician in Congo, points by contrast to Italian nationalist aspirations. This talk uses primary sources such as Levi Bianchini's war diary in the campaign against Austria, and the wartime manifesto "An Emperor's Madness or National Aberration?" authored by Palermitan neurologist and psychiatrist Ernesto Lugaro (1870-1940). Lugaro, who identified a class of cerebellar interneurons currently bearing his name, pioneered the term "neural plasticity" and became the exponent of a modern psychiatry rooted in the neurochemistry of synaptic transmission, argued in his clinical-political manifesto that German and Austro-Hungarian neurosciences were being annexed for imperialistic purposes in the service of what Lugaro qualified as "collective megalomania" rather than the "individual psychoses" of the Kaiser and Emperor.
Collectively, the trajectories of Italian neuroscientists mobilized in World War I as illustrated in this talk will hopefully serve to illuminate the ways in which twentieth-century neurology and psychiatry evolved together, shaped each other, and ultimately diverged from each other in Italy.

OLD HYPOTHESIS AND NEW TOOLS: ALFRED FESSARD'S APPROACH TO THE PROBLEM OF CONSCIOUSNESS

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The seminal contribution of Alfred Fessard to the 1954 symposium on *"Brain Mechanisms and consciousness"* describes his views on the nervous substrate that is needed for what he calls Experienced Integration in the brain at both cellular and neural network scales. Our presentation selects some of the concepts evoked by Fessard to find out whether his intuitions and theories have been verified with the currently developed new tools of investigation. Analyzing his hypothesis on the elements of the reticular systems and the operations that take place at the neuronal scale reveals that Fessard concentrates his attention more on the somato-dendritic potentials than the axonal spike. He suggests the electric lobe of the fish Torpedo as a model for testing the properties of the local potentials in somato-dendritic structures generated by messages from the cortex to reticular systems by analogy with the so-called synaptic potentials intracellularly recorded. He stresses the role of the large somato-dendritic surfaces, predicting the modern view of active dendrites that will become a new and very active field of current research fifty years later. Discussing the integrative mechanisms in neural networks, he proposes that reticular

systems including thalamo-cortical structures can be represented by three highly schematic fundamental forms of networks. He imagines that the important parameter is the number of neurons working *in parallel* and introduces such notions as *dynamic* properties and *functional geometries* that must characterize the operations of neural networks. Fessard predicts the role of inhibitory processes and of synchronization in the working of reticular systems. We will test Fessard's concepts in the light of recent results obtained at both cellular and neural network scales with new imaging technologies *in vivo* and *in vitro* and discuss the notion of progress in terms of new paradigms as defined by Kuhn (1970).

EARLY SATIRES OF PHRENOLOGY

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Satire has a venerable history. From the *silloi* of Timon of Phlius (c. 250 BCE), to the *satura omnis nostra est* of Quintillian (c. 35-90 CE), the foibles of the individual and society have been exposed to humorous mockery. The history of satiric cartoons and caricatures has been traced by Backer (1996) to Da Vinci's exploration of deformities and to woodcuts made during the Reformation by Luther. Satires and caricatures frequently ridicule social fads and fashions and so it is no surprise that *organology* (Gall), *phrenology* (Spurzheim et alia) or craniology (a term used by some followers but mostly critics) had garnered a certain amount of popular criticism (Cooter, 1984), Wyhe (2004). We focus here on three satires and one set of caricatures: Thomas Love Peacock, *Headlong Hall*, 1815; (anon.) *The Craniad: or Spurzheim Illustrated*, 1817; Thomas Hood, *Craniology*, 1827; and George Cruikshank, *Phrenological Illustrations or An Artist's View of the Craniological System of Doctors Gall and Spurzheim*, 1826. We show first that certain of the so-called phrenological organs were more susceptible to ridicule than others. Second, although the sin of materialism shadowed Gall since the end of the 18th century, few of the scientific critics raised that objection to phrenology; the satirists, on the other hand, often used materialism as the basis for humor and ridicule. Finally, we show that several of the satirists were undoubtedly familiar with scientific (philosophical) criticism of phrenology, the exception being Peacock, the earliest of the satirists.

HORIZONTAL GAZE PALSY AND PROGRESSIVE SCOLIOSIS -- A SHORT HISTORY OF A NEW DISEASE

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Emmanuel K. Dretakis was the first to recognize in the early 1970s a clinical constellation consisting of progressive scoliosis and horizontal gaze restriction. This syndrome is now known as horizontal gaze palsy and progressive scoliosis (HGPPS; OMIM 607313), and its 35 year intellectual journey highlights the power of new genetic techniques in uncovering the pathogenesis of certain diseases.

Initial descriptions of HGPPS highlighted the severe, progressive scoliosis and commented on a horizontal gaze abnormality. In 1975, Sharpe et al described the neurologic features of the disorder, but at that time it was still unknown whether the ocular motility abnormality was congenital or progressive. The family described was non-consanguineous, adding to uncertainty about inheritance pattern that lasted 30 years. Multiple reports over the next two decades failed to definitively resolve these and other issues.

In 2002 Jen and colleagues found an autosomal recessive locus for HGPPS on chromosome11. Shortly thereafter, electro-physiological studies revealed the lack of decussation of the corticospinal tracts and medial lemniscus in affected patients. This called attention to a mRNA fragment in the HGPPS region that shared homology with the ROBO family of genes critical for decussation in other species and led to the recognition in 2004 of the human *ROBO3* gene and its role (via homozygous or compound heterozygous mutations) in every affected individual with HGPPS.

The availability of a genetic definition has resulted in greater certainty that the clinical phenotype consists of congenital, complete or almost complete horizontal gaze restriction, scoliosis that is rapidly progressive during early childhood, and brainstem hypoplasia on MRI reflecting absent decussation of major motor and sensory tracts. Clinical and radiologic observations, in turn, imply that *ROBO3* mutations affect decussation of additional neural tracts in the pons and medulla, emphasizing again the interaction between phenotype and genotype in modern genetic studies.

CHARLES BONNET'S PHILOSOPHICAL PALINGENESIS: A BIOLOGICAL THEORY OF RESURRECTION

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Charles Bonnet (1720-1793), the naturalist of Geneva, is mainly remembered by biologists for his discovery of parthenogenesis in the aphid and by neurologists and ophthalmologists for his description of the phantom eye syndrome. His scientific production includes landmark discoveries in the fields of epimorphic regeneration, plant physiology and entomology. Due to his weakening eyesight, he had to abandon experimental research early, but continued to apply his talent to theoretical biology and psychology, as well as to a correspondence with leading naturalists including his cousin Abraham Trembley, Albrecht von Haller, and Lazzaro Spallanzani. His writings on the localization of mental functions in specific brain structures were influential in Gall's theory of "brain organs". In 1748 Bonnet was so impressed by Leibniz's Theodicy that in the following years he devoted himself to natural philosophy and metaphysics. In *Considérations sur les corps organisés* (1762) he describes his theory of ovistic preformationist generation, according to which at the creation of the world all future generations of living creatures are encapsulated in a set of primordial germs. In *La contemplation de la Nature* (1764), he develops an elaborated version of the great chain of beings, ranging from crystals to angels. His most ambitious philosophical work, *La Palingénésie philosophique, ou idées sur l'état passé et futur des êtres vivants (*1769), features a naturalistic theory of resurrection, within his biological preformationist paradigm. According to Bonnet, it is not the original preformed germ that survives death but a second preformed structure, an immortal "germ of restitution", a "small ethereal machine" that is the seat of memory and of the individual soul. Bonnet maintains that many "cosmic revolutions" have already taken place in the past, which have changed the environment of the earth in such a way that each revolution is an new creation. During these periodical catastrophes the bodies of all living organisms are destroyed, but restitution germs survive and resuscitate when the earth becomes inhabitable again. In Man, this immortal germ is supposed to be located in the brain, and more precisely in the *corpus callosum*, following the tentative localization of the soul proposed by the surgeon François Gigod de La Peyronie (1678-1747). While admitting the fixity of species and the individual identity of each living being, Bonnet's palingenesis implies a development as the world changes radically at each catastrophe, and the resurrected animals will have to adapt to the new environment, according to a pre-established harmony that directs them towards a more perfect biological and spiritual state. The great scale of beings thus moves forward in perpetual progress. While Bonnet's embryo-neuro-psycho-theology may now seem strange, it anticipates romantic transformist views. Similarly, his localization of individual identity and memory in the *corpus callosum* and his fibre theory, unjustly ridiculed by Voltaire, are not incompatible with 19th-century concepts of neuronal activities and "homunculi".

A HISTORY OF VON RECKLINGHAUSEN'S NEUROFIBROMATOSIS TYPE-1

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While the study of genetic diseases is a rather recent development in science, von Recklinghausen's neurofibromatosis (NF1) has a rich pictorial history, seemingly dating back to the thirteenth-century. In 1768, Akenside published a scientifically-based description of NF1, recognizing that the monsters of scholars, such as Paré and Aldrovandi, in fact suffered from a disorder of the nerves. The neuromas of NF1 were first detailed by Smith in 1849, but Friedrich von Recklinghausen is credited with its discovery and coined the name of the disorder in 1882. NF1 research widely increased between 1909 and 1990, due to the erroneous diagnosis of the Elephant Man, Joseph Merrick.

VISION IN EIGHTEENTH CENTURY EUROPE: LOOKING THROUGH THE EYES OF THE OCULIST 'THE CHEVALIER' JOHN TAYLOR

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In 1761 the 'celebrated' English oculist, John Chevalier Taylor, published his autobiography – a three-volume affair detailing his exploits and career in the treatment of the eyes. From Scotland to St. Petersburg, Taylor applied his skills in the royal courts and all the major cities of Europe; operating, demonstrating and lecturing on the delights of the eye and nature of vision. Now accounts of Taylor's flamboyance and effrontery, his excessive self-promotion, womanising, and exaggerated claims for his practice in the eyes have found a permanent home in the history of quackery.

In light of new approaches in the histories of medicine and science, John Taylor's career is in drastic need of reassessment. As the model of the medical marketplace is being updated and eighteenth century 'popular science' is gaining increasing attention, Taylor's autobiography provides a valuable opportunity to look at oculists, and their subject, in a new light. Taylor was no doubt an extreme case. Nevertheless, his autobiography gives insight into the obstacles and rewards for medical practitioners specialising in the eyes. Above all, it offers privileged access into the construction of vision and eyesight in eighteenth century Europe.

Throughout his career Taylor forged a vast web of patrons and correspondents, and lectured in front of court circles, medical societies and the public alike. Analysing these networks and the sites in which Taylor sought to exchange and expand knowledge of the eyes and eyesight has much to add to our understanding of vision in eighteenth century Europe. It is perhaps hardly surprising that vision, the eyes and eyesight were subject to widespread interest in the period for which they formed the dominant metaphor - the Enlightenment. More than simply an intellectually circumscribed topic, this paper seeks to demonstrate just how contemporary conceptions of vision were bound up with social and cultural change, such as the commercialization of knowledge and the 'rise of public science'. In doing so I show how interrogating the case of the famous travelling oculist John Taylor can begin to shed light on eighteenth century arenas of knowledge production about vision and the eyes that have to date remained obscured in the dark.

WHITHER NEUROSCIENCE? WHAT THE RECENT HISTORY OF "CONTAGIOUS SHOOTING" (1982-2006) SAYS ABOUT THE VALUE OF THE HISTORY OF THE NEUROSCIENCES

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The neurosciences have recently found widespread popularity among humanists and social scientists. One important feature of this new-found popularity has been a hardening of scientific concepts – hypotheses, theories, and ideas under constant negotiation among scientists and clinicians are resurrected in the form of absolute statements within the social sciences and the humanities. The effect, especially in the public sphere, is disconcerting and suggests an extremely important role for the history of the neurosciences in the twenty-first century.

Using as its source base newspaper articles, court testimony, legal briefs, and published scientific works, this paper uses the recent history of "contagious shooting" – a supposedly reflexive behavior where armed police officers involuntarily unleash a hail of bullets in the direction of an innocent victim – to illustrate the value and importance of historiographically informed approaches to the neurosciences. It argues more generally from this case that the assumptions and excessive enthusiasms that have mediated the expansion of neuroscientific concepts into spheres like feminist thought, economics, history, and philosophy are already beginning to show pernicious effects in public discourse, especially within common law practices. Perhaps an historiographically informed history of the neurosciences can be an important palliative?

NEUROSCIENTIFIC FOUNDATIONS OF AFFECTIVE PSYCHOPATHOLOGY: REDISCOVERING ALEXANDER CRICHTON (1763-1856)

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Alexander Crichton's (1798) *Inquiry into the Nature and Origin of Mental Derangement* provided much inspiration for Philippe Pinel and Jean-Etienne Esquirol as they endeavored to formulate their views on the psychopathology of affectivity. Crichton was indeed a pioneer in this area, although his seminal contributions are seldom sufficiently acknowledged or appreciated. His major contributions to the psychopathology of affectivity include: (1) the demarcation of affectivity as an autonomous locus of mental derangement, separate from the intellect; (2) an innovative effort to distinguish passions from emotions among the posits of the affective realm; (3) an account of the psychopathology of the passions that anticipates Karl Jasper's application of the distinction between 'form' and 'content' to the psychopathology of mental phenomena; and (4), a rudimentary derivation of the modern neuroscientific notion of 'valence' from physiological irritability and sensibility. Unlike Pinel and Esquirol, who emphasize both the 'moral' and physiological aspects of affectivity, Crichton opts for an unabashedly reductionist neurophysiological account of the psychopathology of affectivity that is meant to eschew 'moral' matters altogether. This makes Crichton one of the first pioneers of modern biological psychiatry.

THE PIONEERING CONCEPTS OF MOTOR SYNERGY DEVELOPPED BY DUCHENNE, CHARCOT AND BABINSKI, THREE NEUROLOGISTS OF LA SALPETRIÊRE HOSPITAL

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We will retrace some concepts of motor control from three French neurologists of the 19th and early 20th century associated with the famous Hospital of the Salpêtrière in Paris: G. Duchenne de Boulogne (1806-1875), J.M. Charcot (1825-1893), and J. Babinski (1857-1932).

Although the three were not of the same generation, they represent a continuity of thought related to the neural control of movement over three generations at an important time in the history of neurology. Charcot invited Duchenne to work in his hospital; whereas Babinski was later to become his last favourite student. Babinski was influenced by Duchenne's ideas as interpreted by Charcot. Between 1850 and 1930, all three men played a major role in developing and shaping the entire field of normal and pathological motor control in addition to making important contributions to three major neurological issues; the coordination of locomotion, the impact of efferent activity on the afferent processes of perception and the emerging notion of muscle synergy.

Duchenne deduced that locomotor coordination must be centrally controlled. This precise function was for him the best example of a central organisation which put into play *"the association of agonist and antagonist muscles"*. For Charcot, this rhythmic behaviour was due to the coordination of two different central levels, one in the cortex and the other in the spinal cord. Finally, Babinski showed that the anticipatory postural adjustments associated with movements were absent in cerebellar patients. Several influential notions from these three neurologists have been neglected for nearly a century and have only recently been rediscovered.

CONCEPTUAL NERVOUS SYSTEMS. MODELING CONNECTIONS BETWEEN BEHAVIOURS AND BRAINS IN BRITAIN (1950s-1960s)

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The late engagement of British physiology with the brain has been the object of much speculation by the pioneers of the field, as well as by some

historians. The standard account of the origin of British brain research explains away this "delay" in terms of methodological cautiousness and of the lack of connections between psychology and physiology. In parallel, its post war thriving is accounted for in terms of technological advances and the "molecularization" of the field. I will argue that early British brain science was instead born at the crossroads of different and at times conflicting disciplinary agendas (such as those of ethology, experimental and comparative psychology, physiology, anatomy and engineering). The interplay and tension among the theoretical outlooks, practices and aims of different disciplinary communities led to a renegotiation and redefinition of phenomena, structures and physical entities, causal explanations. The search for workable and reproducible models blurred the borders among disciplines and implied a refinement of the basic concepts (e.g. "memory", "plasticity", "adaptation"), paralleled by the quest for simpler experimental systems, permitting a more thorough approach to the structure and functioning of the nervous system. I will concentrate on one early instance of this interplay of approaches, models and objects: the research on learning and memory in *Octopus vulgaris*, conducted by the zoologist JZ Young from the late 1940s. By focusing on the development of the Octopus model and its relations with the development of behavioral, anatomical and physiological studies in Britain, I wish to highlight the role of simple systems, and of the gospel of simplification more generally, in shaping the identity and ideology of contemporary neurosciences.

BERITASHVILI AND INTERHEMISPHERIC MNEMONIC TRANSFER

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Devising experiments that will yield definitive answers is a requisite for scientific progress. This achievement was peculiarly delayed in the case of whether and how memories are shared by the two halves of the brain since, lacking the appropriate questions, erroneous answers were commonly obtained. The clue as to how to formulate the question was first offered by Köhler (1918). As an aside to his famous work with chimpanzees he mentioned interocular transfer of learned habits in chickens. Because of the total decussation of the optic tracts, this entails *interhemispheric* transfer. Ivan Solomonovich Beritashvili, in three papers (1936-1940) co-authored with his colleague Nina Chichinadze, provided fully effective testing, showing how in pigeons the supraoptic decussation is the exclusive pathway for such mnemonic interchange. At least the first of these papers reached Karl Lashley at Harvard. His student, Levine, confirmed the findings (1945-1952), also on pigeons; and another student, Roger Sperry (with Clark, 1949) extended the procedure to fish. The ultimate perfection, of course, came with Myers and Sperry (1953), with the "split-brain" cat, proving that the *corpus callosum* transferred memory from one hemisphere to the other. Intense discussions then followed between Sperry's medically trained students, Myers and Bogen, ultimately leading to the commissurotomy by Bogen and Vogel (1962) for relief of epilepsy. Knowing how to ask the questions then provided a dramatic proof that the fleeting electrical signals across the forebrain commissures are essential for unifying mentation between the two cerebral hemispheres, contrary to previous reports (Tsagareli, Doty, 2009).

EPILEPSY RESEARCH AFTER WORLD WAR II

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In 1946, for the third time in its history, the Annual Meeting of the Association for Research in Nervous and Mental Disease focused on the subject of convulsive disorders. Much had changed since the earlier meetings, the first in 1922 and the second in 1929. Many neurological pioneers, such as Ramsey Hunt and Lewis Pollock, were no longer alive. Typical of the 1922 meeting had been Foster Kennedy's "The Nature of Fits." By 1946, highly-technical presentations of experimental studies had replaced such overviews. There was an entirely new section on electroencephalography. Much attention was given to the new anticonvulsants. Yet, despite such obvious progress, the 1946 meeting had a somewhat glum tone. As William Lennox, Association President, observed, the path ahead for students of the brain looked ever "stonier and steeper," as well as substantially more costly to traverse.

This presentation uses the more than 600-page *Proceedings of the Association* to explore the post-war world of neurological research. Perhaps most interesting are the discussions that followed paper presentations. These often revealed tensions between an older generation still interested in questions of etiology, like Walter Timme, and younger pragmatists, like Houston Merritt. (Of endocrine studies and drug testing, Merritt said: they "may not be fundamental to research, but they have resulted in a great deal of benefit to mankind.") Perhaps because the Association met jointly in 1946 with the International League against Epilepsy, there was a new attention to those who suffered from epilepsy in even highly-technical papers. Wilder Penfield's announcement of the creation of a William G. Lennox Fund by the American Epilepsy League further emphasized the heightened importance of advocacy groups to the world of neuro-medicine. Although epilepsy research remained firmly embedded in elite medical schools, those conducting it found themselves increasingly reliant for funding on organizations and government agencies outside the university and the lab.

LICHTHEIM'S GOLDEN SHOT

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Ludwig Lichtheim (1845-1928) belongs to the ranks of most famous aphasiologists, in particular because of a diagram often referred to as 'Lichtheim's House', but apart from that, little is known about him. In my presentation, I will discuss a part of Lichtheim's memoirs (Wegelin, 1956), dealing with his work on aphasia. His single aphasia paper *On Aphasia*, published in 1885, drew the attention of the aphasiological community, but it became, to Lichtheim's own disappointment, famous for its diagram rather than for the theoretical proposals formulated in that paper regarding various aphasia syndromes. I will present the circumstances that led Lichtheim to write the paper and adapt Wernicke's theory of aphasia and some aspects of his model.

ANOREXIA NERVOSA: ITS HISTORY AND RECENT PARADIGM SHIFT TOWARDS NEUROBIOLOGY

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The first description of anorexia nervosa (AN) is generally attributed to Gull and Lasègue in 1873. For several decades the etiology of the disorder was thought to be solely or at least predominantly psychogenic. Even the "pituitary era" of AN (ca. 1900 to 1950) resulted from confounding this eating disorder with Simmonds' syndrome (hypopituitarism). After World War II psychoanalytic assumptions played a key role in explaining and treating the disorder. Later on, as the incidence of anorexia nervosa rose, sociological models gained wider attention.

During the last decade, however, a paradigm shift towards a (neuro-)biological explanation of AN was repeatedly set out by researchers and clinicians. The new etiological concept is largely based on genetic, neuroendocrinological and neuroradiological findings.

In order to examine this paradigm shift we take a closer look at ca. 200 psychiatric papers published between 1998 and 2009, including a quantitative as well as qualitative analysis. The objective of our poster is 1) to present the results of this research, 2) to evaluate the scientific fundamentals, 3) to identify historical and cultural factors of this change, and 4) to integrate this recent evolution into the 125-years history of AN.

NEUROSCIENCE IN THE FLYING AMBULANCE THE NEUROLOGICAL HERITAGE OF DOMINIQUE-JEAN LARREY

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The innovating concept of evacuation by "flying ambulances", his outstanding surgical skills, and his inexhaustible dedication to the wounded and exemplary ethical conduct made Dominique-Jean Larrey (1768-1842) a leading role model in the history of military surgery. His surgical memoirs won immediate international recognition. He is the protagonist of a large number of books and articles (more than twenty in the last decade). Very little is

known, however, about this interest in what would later be called the neurosciences.

Larrey was endowed with scientific curiosity, and despite being present in nearly every Napoleonic battlefield, he followed the most recent discoveries and theories concerning the nervous system. His close association with S.T. Sömmerring and F.J.Gall, together with his immense clinical experience, contributed to the development of his own concepts of the workings of the brain.

Larrey experimented and established the existence of galvanic phenomena in humans. He was the first to describe traumatic aphasia due to injury of the left frontotemporal region, and thirteen similar patients that he collected were referred to Gall, although the prevailing atmosphere in Paris barred the recognition of that region as the seat of the faculty of speech. He is probably the first to diagnose and explain *ante mortem* partial injury of the optic chiasm producing quadrantanopia. The early telegraph of Sömmerring initiated a concept, much ahead of its time, that conduction within the brain is transmitted by insulated fibers acting as voltaic piles, enabling point-to-point correspondences from parts of sense organs to specific brain areas. His studies of epilepsy due to cranial lesions are quite ahead of his time. His ideas and findings concerning cerebellar functions were influenced by phrenological concepts. Larrey's contemporaries did not, however, recognize his neurological ideas and attention remained directed to his surgical and personal excellence.

THE ENLIGHTENED MEN OF THE AMERICAN PHILOSOPHICAL SOCIETY AND THE FIRST EXPERIMENTS ON "EEL" ELECTRICITY FROM A CENTER OF LEARNING (1773)

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The earliest experimental evidence that some fishes might be electrical came from research conducted during the 1750s-60s in South America on the "electric eel." There, under sweltering conditions, natural philosophers noted that their painful shocks felt like those from newly invented Leyden jars, and that conduction could take place through known conductors of electricity, such as metals, but not through non-conductors, such as wax.

There were many drawbacks to doing this sort of research in the jungle, and investigators desperately wanted to study these creatures under better conditions in major centers of learning. This goal was first achieved not in Leiden or London, but in Philadelphia. In 1773, members of Benjamin Franklin's American Philosophical Society (APS) conducted a series of experiments, including one in which an eel's discharge even jumped a gap in a wire (albeit without a visible spark and sadly without Franklin being present), providing more evidence for animal electricity.

Europeans learned about some of the Philadelphia experiments from Hugh Williamson, a member of the APS who visited London and published his findings in the *Philosophical Transactions of the Royal Society* in 1775. Nevertheless, the original notes compiled by Rittenhouse, Kinnersley, and unnamed other APS members --- which differ in important ways from Rittenhouse's own notes --- remained unpublished until 1805, well after fish electricity was widely accepted. The reasons for this publication delay are hard to understand, but the records show that the Americans were just as interested in these specialized fish as their European cousins, and that their experiments were quite sophisticated.

WHERE THE WILD THINGS ARE: THE BRAINSTEM IN INTER-WAR MODELS OF HUMAN CONSCIOUSNESS

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By the early-20th century the "psyche" had effectively supplanted the "soul" in the handbooks of mainstream neurology and psychiatry. The burgeoning literature on the macro- and micro-architecture of the brain had ostensibly rendered the search for the seat of the soul obsolete, but in reality the psyche was implicitly localized to the cerebral cortex, where it commanded all the functions previously ascribed to the soul, including consciousness, will and memory. A clear demarcation between the roles in this penthouse of the mind and the vegetative basement of the brain was accepted without demur by most authorities. At the same time, the failure of neuropathology to account for disorders of the mind had exacerbated the growing gap between neurology and psychiatry, and the popularization of psychological approaches to these disorders, including postulates of sub- and unconscious components of the psyche by Freud and others, deepened the rift. Prior to the First World War, however, the role of the mesencephalon (midbrain) in the internal life of humans was accorded detailed attention by a number of investigators, including the Austrian psychiatrist Josef Berze (1866-1957) and the Würzburg psychiatrist Martin Reichardt (1874-1966). Each invested the brainstem with much greater significance for psychic activities than previously recognized, although they differed on one crucial point: while Reichardt viewed the brainstem as the *de facto* seat of the soul upon which the cortex is superimposed, Berze subscribed to the Economo thesis of *progressive cerebration*, whereby higher functions had gradually moved higher in the brain throughout evolution. Their ideas were widely discussed in the 1920s and 1930s, particularly as their models anticipated curious neuropsychiatric phenomena first described in encephalitis lethargica, but both have since been largely forgotten, as the significance for English language psychiatry (in particular) of both German neuropsychiatry and the concept of "self" declined after 1945.

THE LIFE AND WORKS OF KORBINIAN BRODMANN

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2009 marked the centenary of Brodmann's *Localisation*, which still forms a basis for functional localisation in the cerebral cortex. It is an account of neuroanatomy, neurophysiology and neuropathology, as well as an insight into complex relationships between European neurologists, during the momentous times when the neuron theory was new.

Korbinian Brodmann was born in 1868 in Hohenzollern, a farmer's son. He received his medical *Approbation* in 1895, but contracted diphtheria and convalesced in 1896 in the Neurological Clinic in Alexanderbad, directed by Oskar Vogt. Under his influence he turned to neurology. He met Alzheimer who inspired his interest in neuroanatomy. From 1901 to 1910 he worked with Vogt in Berlin, studying the cells of the cortex using the new method of Nissl. His results were published between 1903 and 1908 and served as a basis for his 1909 monograph.

Brodmann's career was marred by the rejection of his *Habilitation* thesis, and in 1910 he left Berlin for Tübingen where he founded his own Brain Research Institute. He turned to anthropological aspects, such as differences in brains of human races. In 1913 he presented these findings, and also those on such pathology as microcephaly, epilepsy and blindness, and a wealth of data on the prefrontal cortex from a huge range of primates and non-primates.

In 1918 Brodmann received a prestigious appointment to Kraepelin's Psychiatric Research Institute in Munich where Nissl had moved. Thus began a collaboration between two great neuroanatomists, although Brodmann was only to live for less than a year, dying in August 1918 of septicaemia, perhaps from a wound during his work as a pathologist.
One is struck by Brodmann's many forward-looking references to much later concepts, such as multiple representations of functional areas, chemical neuroanatomy, and ultrastructure. What might Brodmann have discovered if he had lived beyond the age of 49?

IT *IS* BRAIN SURGERY: NEUROSURGEONS IN POPULAR IMAGINATION, 1900-1950

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The categories of analysis developed by cultural historians of medicine can inform scholarship on the history of neuroscience in a number of interesting ways. My paper seeks to make a larger historiographical point about the application of cultural history to the history of neuroscience by presenting as a case study the cultural representations of North American neurosurgery during the first half of the 20th century. I trace the ways in which neurosurgeons' collective identity was constructed and reflected in cultural discourse by examining a large array of newspaper and magazine articles in the popular press, Hollywood films, several memoirs, and a number of novels. These documents construct neurosurgery as an elite

medical specialty and testify to society's increasing fascination with brain surgery. At the same time, however, these narratives reveal a tension and ambivalence about the neurosurgeons' prominent status. By examining the particular linguistic and visual technologies that inform the creation and reflection of identity, cultural historians can shed light on the historical origins of the considerable symbolic capital held by the contemporary neurosurgeon. I will demonstrate that these origins are quite complex – a function of the often competing popular narratives about medicine and surgery, and about the brain and personhood.

SCIENCE, PSEUDOSCIENCE, AND SCIENCE FICTION: THE EVOLUTION OF VICTOR FRANKENSTEIN'S ATTEMPTS TO GIVE HIS CREATURE LIFE

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Conceived by a 21-year-old woman, the story of Victor Frankenstein's quest to conquer death produced a legacy that has endured for almost 200 years. Powerful in its condemnation of the scientist's quest to achieve knowledge at any cost, the novel also illustrates the moral complexities of the science of Mary Shelley's day, which was decidedly anti-female and anti-family. Mary Shelley was the self-educated daughter of two of the most radical writers of the time: Mary Wollstonecraft and William Godwin. She eloped with the already married Percy Shelley when she was only 17 years old and bore him several children, only one of whom survived until adulthood. Despite receiving no formal educational training, Shelley's diaries reveal her as one of the best read women of her time: it has been suggested that her reading list for the years 1818-1819 alone would today suffice for a Master's degree in comparative literature.

The fact is that Mary Shelley's *Frankenstein* is one of the most enduring novels of all time. It has never been out of print and is still taught in numerous colleges in the USA and other countries. The novel has been translated to both stage and screen many times since its "birth." Numerous novels, short stories, and scripts have drawn upon Shelley's primary theme: the creation of a living organism from the dead, dying, and decaying body parts of human beings. From the original Creature as conceived by Shelley to the Creature as thrust into 21st century America by Dean Koontz, numerous authors have attempted to examine the issues related to the use and misuse of the power available to scientists in their attempts to conquer nature and create life.

Mary Shelley was unable to provide detailed information about the way in which the Creature was animated, although in the 1831 edition she made use of Galvani's experiments with electricity to update the novel in accordance with more contemporary scientific research. As the basic tale of the scientist creating life continued throughout the 19th and into the 21st centuries, authors since Shelley's time have been able to provide more information of how such creations could be animated. These illustrations have become more detailed and more sophisticated as knowledge of neuroscience has increased. The present paper explores the portrayal of these life-infusing processes as they have evolved over time. Given the sheer number of works using Shelley's theme, a selection of treatments from the 20th and 21st centuries will be examined and correlated with the neuroscientific research being pursued at the same time.

ELIE METCHNIKOFF'S NEGLECTED RECOGNITION OF THE ROLE OF MACROPHAGES IN ALZHEIMER'S DISEASE

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Elie Metchnikoff (1845-1916) began his career as an embryologist. While investigating the development of mesoderm he became interested in the digestive properties of mesodermally-derived amoeboid motile cells. In 1882, at the Straits of Messina in Italy, he introduced a thorn into star-fish larvae, producing what he later termed a "phagocytic" response. This led him to postulate a conceptually radical idea (contradicting the current belief that immunity was passive in nature) that immunity was both cellular in origin and an active and protective inflammatory response. For three decades he formulated and vigorously defended the central tenets of his phagocytic theory and its evolutionary and ontogenic underpinnings – becoming the founder of cellular immunology (leading to the award of the Nobel Prize in 1908). He postulated that immunity was an active process resulting from mesodermally-derived amoeboid cells (named phagocytes or macrophages) which were present in blood and migrated to tissues; and which directly engulfed and digested atrophic (e.g. muscle cells or neurons) or unnecessary tissue (e.g. in metamorphosis) as well as invading micro-organisms. This process was essential to host defense serving to contain and eliminate pathogens and to establish the immune response. Following his interest in maintenance of integrity of the organism, he extended his studies to the role of phagocytosis in "senility" in 1901, demonstrating the presence of macrophage phagocytosis of neurons in the brains of senile humans and animals. Without knowing the mechanisms involved, he postulated that phagocytes were the chief agents of the aging process and that phagocytosis of neurons contributed to the development of senility. These findings were not included in the seminal description of dementia by Alois Alzheimer (1906) or of microglia by Pio Del Rio-Hortega (1932) and anticipated recognition of the role of macrophages in the pathogenesis of Alzheimer's disease by almost 90 years.

FUNDAMENTAL DISCOVERIES OF BRAINSTEM RESEARCH IN THE EARLY 20TH CENTURY IN VIENNA

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The systematic attempt to correlate symptoms to anatomical abnormalities was typical of the Vienna medical school. It prompted a broad interdisciplinary approach particularly in the field of the nervous system and brain researches.

This is reflected by many examples, as in the fields of psychiatry and neurology, where anatomo-pathological methods are used to correlate lesions to the symptoms caused by brain tumors or encephalitis. Fundamental insights into the function of the brainstem were achieved. Physiology is another example. In neurophysiology, one of the major fields of interest, animal experiments led to pioneering discoveries. Surgical techniques were developed for the study of the brainstem. A systematic approach was undertaken in experiments using transections and stimulations.

Together with the Institute of Neurology – the first international research institution for theoretical brain research – the Laboratory of Brain Anatomy at the Mental Asylum and the Institute of Anatomy in Vienna developed interdisciplinary efforts in brain research as well as co-operations and joint research publications in the early 20th century.

In the field of brainstem researches, Johann Paul Karplus (1866-1936) and Alois Kreidl (1864-1928) contributed to the description of sympathetic nerve centers at the base of the diencephalon. Constantin von Economo (1876-1931) – who first described lethargic encephalitis – discovered the sleep-regulating center at the mesencephalic-diencephalic junction. Moritz Probst (1867-1923) identified unknown fibers and pathways of the brainstem.

CHILD LANGUAGE IMPAIRMENT AND THE IDIOGLOSSIA DEBATE OF THE 1890s

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In 1891, Walter Hadden published a paper on defects of articulation in children noted to be late talkers, who had presented with speech difficulties and no other significant defects. Hale White and Golding-Bird published details of two boys similarly language impaired later that year. They labelled the condition, as seen in their own and Hadden's subjects, "idioglossia" because it appeared that the children were using a language of their own invention. Taylor (1891), presenting a case of his own, and challenged the term. He thought the condition was rather a defect of articulation.

These three papers are important because they concern children admitted to hospital for no reason other than developmental language impairment. The treatment these physicians adopted and described are among the first examples of the early modern assessment and therapy accorded

those who, prior to that date, would more likely be seen by a teacher of the deaf and dumb than be admitted to hospital. From the early 1890s onwards children with difficulties beginning to speak began to be viewed from a medical perspective rather than considered a matter for educators only. By the turn of the century, childhood difficulties with the acquisition of speech and language had become the concern of numerous professionals. Within the field of medicine, interest in acquired language disorders in childhood fell somewhat into neglect in comparison.

This paper, using Hadden's patients from the Great Ormond Street Hospital and his published work as the starting point, considers the early history of "idioglossia", the debate that surrounded the proposed name, and the prognosis and treatment suggested. It looks at how children presenting with severe speech difficulties were assessed prior to and after the 1890s and how idioglossia was later to be linked to word deafness and verbal aphasia.

MAX NONNE AND "WAR NEUROSIS"

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Film demonstration of functional movement disorders in WWI before and after hypnosis by the Hamburg neurologist Max Nonne.

The depiction of war tremblers in film before and after hypnosis by Max Nonne, Hamburg. Max Nonne (1861-1959) very early on contributed to the therapeutic use of hypnosis (1888). He had gathered insights from Charcot in Paris, from Bernheim in Nancy and Forel in Zürich as well as experiences in traumatic neuroses in hysteria before nerve doctors and psychiatrists were confronted with a wave of war neuroses in WWI. The war meeting of German nerve doctors and psychiatrists in 1916 in Munich is known as the climax of discussions, and Nonne was the most important opponent of Hermann Oppenheim. His therapeutic concept consisted in applying the persuasion method with a mild form of Kaufmann's electrotherapy and hypnosis. A separate symptomatological group is the object of the eight-minute film: movement disorders with hypercinesia and tremor (war tremblers), muteness, astasia-abasia and other disturbances and their disappearance after hypnosis by Max Nonne as the examiner and demonstrator in the film. It is one of the first medical educational films, supposedly first shown by Nonne at a meeting of military doctors in Berlin in March of 1918, and for the last time by Nonne in his last lecture in 1956 at the age of 95, three years before his death. Nonne concluded that the war neurosis in its various appearances could mainly be ascribed to hysteria and that Oppenheim's "traumatic neurosis" was a doctrine, more and more rejected by the German neuropsychiatrists. It definitely had lost its civil right (Nonne) with the event of WWI. The efficacy of hypnosis obviously was based on typical contemporary trust in authority. The ethics of most of the doctors were inclined towards the re-installation of war service (back to the front).

TREATING REFRACTORY TOURETTE SYNDROME WITH DEEP BRAIN STIMULATION

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Tourette Syndrome (TS) is characterized by involuntary motor and vocal tics. Originally understood as hereditary, progressive, and "psychical," it was mainly treated psychologically, and with the spread of psychoanalysis, psychoanalytically. Organic understanding of the disorder grew in the late 1960s due to a few successful treatments of TS with dopamine antagonists. Other medication treatments followed with various degrees of success, and more and more the disorder was treated pharmacologically. In return the response of patients to their treatments further informed the understanding of TS. The natural next step was to treat refractory patients with a more extreme biological intervention – deep brain stimulation (DBS). We discuss this surgical procedure from the perspectives of the historical evolution of the construct of TS, and of the increasing application of neurosurgical procedures – especially in movement disorders (e.g., Parkinson's disease) and psychiatric disorders (e.g., obsessive compulsive disorder, and depression). Different clinics in Europe and the US target different brain regions, often with similar results. The brain circuits that contain these structures seem to be more important than the individual brain region targeted. As with medications, the outcomes of DBS surgeries extend our understanding of the neurobiology of TS, but the reasons the procedure is effective are still elusive. We review the application of DBS in TS – the where and why of target selection, and its efficacy so far. We discuss two patients of ours who underwent DBS – their surgical experience, sign and symptom reduction, and subjective evaluation.

STROKE AT THE PARIS HOSPITALS: THE EMERGENCE OF ANATOMICO-CLINICAL CONCEPTS AFTER 1810

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Around 1800 correlative pathology of nervous disorders and attempts to classify neurological diseases successfully had reached a dead-end. Only a decade later, however, hospital-based physicians in France and Great Britain worked out new definitions of brain diseases. Using a case study approach, this paper describes the transformation of the concept of apoplexy at the Paris hospitals during the years 1810 to 1820.

After 1810, three new conceptualizations of stroke emerged. First, Jean-André Rochoux in what may be called the most important dissertation in the history of neurology defined apoplexy restrictively as cerebral hemorrhage (1812). Second, softening of the brain earned its place in neurological nosology with the work of Leon Rostan (1820). A third theory, apoplexy as an inflammatory process, was put forward by François Lallemand (1820). Key elements and the historical context of these controversial concepts will be presented in detail.

It will be argued that the anatomico-clinical model of stroke introduced by the Paris school brought about a new concept of brain disease – a concept upon which clinical neurology is still largely based.

PSYCHOGENIC AND ORGANIC ATTRIBUTIONS IN THE HISTORY OF DYSTONIA

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In the last few centuries there has been a continuous sway between organic and psychogenic explanations for dystonia. We studied this history assuming the perspective of a spectrum from organic to psychogenic between which ideas were moving. We focused on primary generalized dystonia, cervical dystonia, writer's cramp, and complex regional pain syndrome (CRPS) related fixed dystonia. We studied medical texts published from the 19th century and their references.

Charcot advocated the concept of hysteria: disorders in which besides predisposition, environmental factors were involved in its pathogenesis. Freud introduced psychoanalysis as an explanatory theory for psychic disorders. These theories and the lack of an organic substrate for dystonia made a strong case for psychogenic explanations. As a consequence, many dystonia patients were said to suffer from psychological conflicts and treated alike. Following the description of new hereditary cases in the 1950s, the limited efficacy of psychotherapy in torsion dystonia, the effects of surgical treatments, and experimental lesion studies in the 1960s, more physicians became convinced of the organic nature. The culminating point was the discovery of the DYT1 gene in 1997. In the meantime, experts convinced the neurological community that focal dystonias, including cervical dystonia and writer's cramp should be considered forms of generalized dystonia, and therefore organic disorders. The pathophysiology of CRPS related fixed dystonia remained controversial and psychogenic dystonia was observed and defined.

Recent functional imaging and neurophysiological studies in dystonia show abnormalities of sensorimotor integration and cortical excitability that refer to Sherringtonian physiology. These studies blur the border between neurology and psychiatry. Knowledge of the history of dystonia is instructive and reflects a well-known phenomenon in the history of medicine, i.e. that the solution of a scientific problem often has to wait for a new sophisticated method.

AN HISTORICAL SURVEY OF THE IMPACT OF COMPARATIVE ANATOMY, DARWINIAN EVOLUTION, RACISM, GENETICS AND EUGENICS IN THE ANALYSIS OF THE HUMAN BRAIN

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Accurate and detailed depiction of the human brain in the seventeenth century was achieved at a level enabling Willis to consider individual variation by illustrating the less convoluted "changling" (retarded) brain. This led others (cf. Edward Tyson) to pursue comparison with brains of a "blackamore", apes, other primates and the more convoluted "porpess" brain. Brain size and convolutions proved complex variables for allocating phyletic status, and religious influence extending into the 21st century blocked coherent evolutionary constructs. This report deals with the subsequent impact of genetics, insect taxonomy, racism and eugenics in contributing to evolutionary modernity and a modern technology for enabling comparison of brain structure in relation to complex behavioral capacity.

BLAMING THE PATIENT: NEUROPSYCHIATRY FACES TOURETTE SYNDROME, 1825-2010

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Patients with uncontrolled tics and eruptive vocalizations have long brought Tourette syndrome (TS) to public notice. Lately, patients with the most persistent florid signs, particularly eruptive cursing, have once more become a source of embarrassment. As a result the florid, cursing TS patient, who once served as an emblem of the disorder, has become resegregated. This paper argues that the re-stigmatization of the florid TS patient is informed by cultural and medical values similar to those which led to the stigmatization of the afflicted over the past two centuries. These include: (1) The continued failure to identify a robust etiological explanation; (2) The limited efficacy and debilitating side effects of interventions for florid patients; (3) The tendency of health professionals to blame florid patients themselves for therapeutic failures; and (4) The recent extension of the diagnosis to a larger population of children with milder presentations, reflecting a general tendency in contemporary psychiatry to colonize a larger patient population who inhabit phenotypical borders. This paper examines these four elements in the context of the construction and treatment of the florid TS patient from the early nineteenth century to today.

ACCEPTANCE OF THE NEURON THEORY BY CLINICAL NEUROLOGISTS OF THE LATE 19TH CENTURY

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This presentation explores reactions of clinical neurologists of the late-nineteenth century to the concept of a unified nerve-cell, the "neuron." This concept developed over several decades from the research on fine anatomy of the nervous system. This research made relatively swift advances during the 1880s leading to the formalization of the concept, as well as the name "neuron," by Wilhelm von Waldeyer (1836-1921) in 1890 based on a review of the research. Contemporaries as well as historians acknowledge Waldeyer's influence in the acceptance of the neuron theory. His influence may be over estimated, however, because contemporaries were free to read the same literature and some drew similar conclusions before he did, for example, William Richard Gowers (1845-1915) of England. American medical literature shows rapid acceptance of the new theory, eager applications, and high expectations. Nonetheless, some clinicians were disappointed in its immediate relevance. The reason proposed in this paper for the disappointment implicates the diagnostic orientation of clinical neurology at that time. The additional understanding permitted by the neuron concept added little of diagnostic value.

ROGER SPERRY AND THE CONCEPT OF EMERGENCE IN NEUROSCIENCE

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I shall present the evolution of Roger Sperry's ideas about the mind-brain relationship in the course of his life as a neurologist, leading him to adopt and defend an emergentist view of the psychic experiences.

Strongly influenced by the behaviorist philosophy as a student at the Oberlin College, at the beginning of his professional life Sperry looks for a solution of the mind-body problem in terms of motor output. However, from 1953, he begins to turn his interest to experimenting on commissurotomized animals and from 1962 he gets access to the `split brain' patients of Bogen and Vogel. From 1965 he becomes a proponent of a subtle but strong, ontological notion of emergence, and of a downward causation of the mental on the neurophysiological mechanisms, whereby the mental indeed controls and changes the course of neurological processes in the brain.

This standpoint was based on his observations of split-brain patients abilities, as well as on some other neurophysiological observations. In the following years he defended his views against strong opponents, such as Puccetti, MacKay and Eccles, in particular in a long commentary entitled "Mind-brain interactions: mentalism yes, dualism, no" and in his Nobel laureate lecture (1981).

Finally, I shall show that one of his most favoured arguments, based on the consideration of pain experience in missing members in amputees, was perhaps not as convincing an argument as others, such as the consideration of the fusion of percepts from the left and right perceptual spaces, which he himself briefly considered in 1976.

SOVIET NEURO(PATHO)LOGY (1917-1991)

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There were 309 neuro(patho)logists in the Russian Empire in 1916. Statistics from 1940 show there were 3,213 neurologists in USSR at that time, along with 8,549 neurological beds. Several neuropsychiatry research institutes were organized in the 1920s and 1930s. During the inter-war period, neurology itself was fragmented into "daughter specialties" such as neurosurgery, pediatric neurology, occupational neurology, neuromorphology, vegetoneurology, etc.

Neurological activity during the Great Patriotic War (1941-1945) was almost totally dedicated to neurotrauma. It included the timing of surgeries for peripheral nerve injuries, managing open head injuries, intracarotid injections of penicillin in posttraumatic cerebral infections, indications for closure of traumatic skull defects, and surgical treatment of causalgia, etc.

There were more than 100 neurological clinics and hospital departments in 1947. By 1957, there were 87 chairs of neurology – 76 at medical institutes (medical faculties of universities became independent medical institutes around 1930), and 11 chairs at postgraduate medical institutes. By 1959, the number of neurologists had risen to 9,850 (2.6% of the total number of Soviet physicians).

The All-Union Society of Neuro(patho)logists and Psychiatrists was established in 1936. In the early 1990s, it was split into two separate societies, one for neurologists and the other for psychiatrists. The former launched the Vserossiiskoe obshestvo nevrologov (VON) (All-Russian Society of Neurologists), which today has 74 branches and about 7,000 members. The total number of neurologists in Russia is about 20,000. In 2001, the number of inpatient neurological beds was 80,394.

THE CIRCLE BEFORE WILLIS: A HISTORICAL ACCOUNT OF THE INTRACRANIAL ANASTOMOSIS

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The "Circle of Willis" is one of the most famous eponymous structures in human anatomy. There is no doubt Thomas Willis at Oxford accurately demonstrated the anastomotic arterial supply at the base of the brain, however, this eponymous name does not reveal the history of the discovery of the ramification, nor does it give credit to the

anatomists and artists, including Berengario, Vesalius, Fallopius, Casserio, Vesling and Wepfer, who have contributed to the understanding of this clinically important structure.

This paper first traces the story of the discovery of the Circle of Willis. Willis's contribution and innovative approaches are then discussed. Finally, despite Willis not being the first to describe the "Circle", we explain why he still deserves to retain the eponymous title.

CARICARICATURES ON FRENCH NEUROLOGISTS IN THE 19TH AND 20TH CENTURIES

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The development of caricature in the 19th century was a consequence of two practical circumstances. One was the spreading of the press: satirical images ceased to appear on separate sheet, and became illustrations in newspapers and periodicals. The other important innovation was lithography to use form and color which could be accurately and rapidly mass-produced in print.

It was France that gave the lead in caricature during the 19th and 20th centuries. Under a political tolerance caricaturists enjoyed a certain degree of liberty. There was a complete freedom of the press, several French periodicals appeared in that time: *Chantedair*, *La Caricature*, *Le Charivari*, *Les Corbeaux*, *L'Assiette au Beurre*, *Le Journal pour Rire* (later called *Le Journal Amusant*). Famous were artist caricaturists: Louis Léopold Boilly (1761-1845), Charles Philipon (1806-1862), Jean Ignace Isidore Gérard Grandville (1803-1847), Paul Gavarni (1804-1866), Honoré Daumier (1808-1879), Henri de Toulouse-Lautrec (1864-1901).

The great improvement of the press furthered the popularity of caricature to a new level of acceptance in the 19th and 20th centuries. Caricature became hugely popular because it bridged both the language and the illiteracy better than the written word. The subjects of caricaturists were published on a regular basis and they illustrated the opera of man more so than social aspects.

Attention was also given to the influence of medical cartoons particularly with respect to the emerging neurology and clinicians who were protagonists of the development of Neurology: Jean-Martin Charcot (1825-1893) and his pupils: Joseph Julie Dejerine (1849-1917), Joseph Babinski (1857-1932), Pierre Marie (1853-1940) and others.

Their caricatural portraits were used to illustrate and educate about knowledge and to disseminate to public eager to learn how neurology would benefit their life.

JOSEPH BABINSKI'S ITALIAN PUPIL

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Several international neurologists were part of the larger Babinski circle: Nöica from Romania, Grégorie Maranon from Uruguay, Robert Wartenberg born in Germany and then living in the United States of America, Samuel Kinnier-Wilson from the United Kingdom, Ludo Van Bogaert from Belgium, Charles Gilbert Chaddock from United States of America and the Italian Vincenzo Neri.

In 1907, Vincenzo Neri (1880-1961), after graduating in Bologna, moved to Paris at the Pitié hospital. In Paris he began to apply the cinematography for patients admitted in different neurological departments directed by Dejerine, Pierre-Marie and Babinski. He became the most important Babinski's Italian pupil and their friendship is documented by different clinical collaboration and photographs. Neri became a clever clinician applying Babinski's semeiotic method and the Italian neurologist described two important clinical signs.

In 1910, Neri returned to Bologna where he was a consultant Neurologist of Rizzoli Orthopedic Institute for forty years. Then he founded a private neuropsychiatric clinic. In these places he took care of neurological patients who were filmed during his fifty years of career in his neurological clinical practice.

Neri's original clips and pictures about his activity in Paris with Babinski we found and restored. These materials are new information and documentation about the use of the cinematography as method of research and clinical study in patients: they were followed up and repeatedly filmed. Babinski himself used the cinema for his studies.

Vincenzo Neri with other Italian neuroscientists: Camillo Negro (1861-1927) and Osvaldo Polimanti (1869-1947) are considered pioneers of the application of the cinematography in neuroscience as an important method for the development of neurological knowledge.

GAETANO DONIZETTI'S NEUROBIOLOGICAL ILLNESS

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The composer Gaetano Donizetti (1797-1848) created 65 operas, some with scene of neuropsychosis: *L'esule di Roma* (1828), *Anna Bolena* (1830), *Il furioso all'isola di San Domingo* (1833), *Lucrezia Borgia* (1833), *Lucia di Lammermoor* (1835), *Roberto Devereux* (1837), *Maria Padilla* (1841), *Linda di Chamounix* (1842). The Italian composer was affected by neurosyphilis and he died in a state of psychosis. Donizetti contracted syphilis before his marriage with Virginia Vasselli (1808-1837) on July 1, 1828. Donizetti in his letters described to suffer from fever, headache, convulsion, neck pain, mental disorientation, and personality change. In 1846, Donizetti had a great deterioration and his nephew Andrea Donizetti went to Paris to examine Donizetti by three specialists. Physicians declared that Donizetti should be treated for mental alienations. He was incarcerated in the mental asylum in Ivry, his mental and physical condition deteriorated (February 1846 to June 1847). He was taken to Paris and, finally, to Bergamo, Italy, where he was cared for, at the Countess Rosa Basoni's villa, until his death (October 1847 to April 1848).

The composer's neurological disease, which led to his neuropsychosis and death, had an influence on his ability to create powerful and outstanding scenes of psychosis in his operas. Donizetti captured in music mental disorder in memorable operas such as: *Anna Bolena* and *Lucrezia Borgia*. In *Lucia di Lammermoor*, Donizetti portrayed a girl with hallucinations in an unforgettable "mad" scene. "Mad representations" flourished in nineteenth-century romantic opera but were a characteristic of Donizetti's music.

Examining Donizetti's neurosyphilis and "mental scenes" in his operas we can enter into the tormented body and mind of a human being devastated by psychosis. In these masterworks, Donizetti portrays person whose brain is malfunctioning and translate into melody the disorganization, delirium, and torment of severe mental illness.

KORBINIAN BRODMANN'S ECLIPSE OF ALFRED WALTER CAMPBELL

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The first studies of the cytoarchitectonic structure of the human cerebral cortex began to appear in the late 1800s and early 1900s and the first complete one was that made by Alfred Walter Campbell. Related studies were carried out by others, notably by Korbinian Brodmann. Although the work of Campbell and Brodmann was not without precursors, each conducted their research independently and provided starting points for much later cytoarchitectonic work. The initial reaction to Campbell's work was positive and enthusiastic; that to Brodmann's equally positive but perhaps not quite as enthusiastic. Campbell's star outshone Brodmann's for some twenty years but around 1930 it began to wane so much that by about 1940 Campbell's name had almost completely been replaced by Brodmann's.

In this paper I explore three possible reasons for this change in status. The first is that Campbell's work was marginalized by major figures in British physiological and medical circles after he returned to Australia and substantially gave up active research. The second is that Campbell never forged close ties with the practitioners in the emerging specialty of neurosurgery. In contrast, Brodmann continued his cytoarchitectonic research for nearly

13 years after Campbell had completed his major work. During those years Brodmann had reasonably close links to Feodor Krause and Otfrid Foerster, then probably the two most prominent German neurological surgeons. The peculiarity that Brodmann's cortical maps seemed to give more precise knowledge of cortical structure than Campbell's may also have played a part.

HOW ELECTRO-NEUROPHYSIOLOGY CAME TO THE UNIVERSITY OF MELBOURNE

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The establishment of electrophysiology at the University of Melbourne was influenced by two major scientists, David Dewhurst and Ross Adey.

Tentative exploration of electrophysiology had begun in the Physiology Department near the end of World War II. David J. Dewhurst, a demobilized Army Signals officer, graduated in physiology and electronics in 1948 and, from 1949, combined part-time demonstrating with post-graduate study. He was made Lecturer in 1952, Senior Lecturer in 1959 and Reader in 1964.

Dewhurst's army training in advanced wireless and electrical techniques helped him to put the Department's electrophysiology on a sound practical and theoretical basis. He used army-disposals equipment to construct electronic equipment for practical classes, set up research apparatus for staff members, and built a post-graduate research unit investigating motor unit reflex responses to stepwise muscle stretch in various defined conditions. He ran an undergraduate theoretical and practical course in fundamental membrane physiology. Widely consulted on electrophysiology, he instituted a lecture and practical course in biological electronics for clinicians and medical biologists.

He installed the first minicomputer in Melbourne for online control and analysis of experiments and was central to developing safety standards for electromedical equipment. In 1965, Dewhurst became Vice-President of the International Federation for Medical and Biological Engineering, and was President from 1968 to 1971.

In addition to these activities, the University's Anatomy Department was joined in 1952 by W.Ross Adey, a war-time Surgeon Lieutenant in the Australian navy who had studied brain limbic system anatomy in Oxford, and cerebral neurophysiology with Magoun at UCLA. Adey installed the methodologies in Melbourne, interacted with the Dewhurst laboratory, and inspired a few beginners in the new field (one of whom was later recruited to the Physiology teaching staff on Dewhurst's recommendation) before departing in 1957 for a career as Professor in the UCLA Brain Research Institute.

A NEUROSCIENTIFIC TOOL TO JOIN THE INTERESTS: A SHORT HISTORY OF THE DEEP BRAIN STIMULATION

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Deep Brain Stimulation (DBS) is a therapeutic tool created in 1986 by Professor Alim Louis Bénabid, a French neurosurgeon. Two small electrodes are surgically implanted into the brain and linked to a pulse generator placed in the chest. Brain structure activity can then be modulated by chronic high frequency stimulation.

Today, DBS is used experimentally worldwide for the treatment of several neurological disorders (Parkinson's disease, epilepsy, dystonia) or psychiatric and neuropsychiatric disorders (depression, obsessive compulsive disorder, addiction, Tourette Syndrome). It is a symptomatic treatment that improves the patient's clinical state but without curing the disorder. Since 2000, publications on its applications have grown exponentially.

In this paper, we will trace the history of this device and describe how DBS has become a major stake in the neuroscientific field, pushing less invasive devices into the background. We will explain that DBS lies at the crossroads of neurosurgery and experimental neurophysiology. Its origins can be found in both brain lesioning techniques and clinical use of experimental electrical brain stimulations. During its short history, DBS has been used simultaneously as an experimental treatment and as a powerful tool for in vivo investigations of human brain functioning. It has radically changed the temporality of clinical observations and allowed the creation of reproducible human clinical experimental models. For these reasons, DBS has proven its efficacy at joining the interests of both clinicians and researchers.

ELECTRORETINOGRAPHY, AN EARLY AND ENDURING ELECTROPHYSIOLOGICAL APPLICATION

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The ophthalmological diagnostic instrument, electroretinography (ERG) was for a long time an elusive tool for frontline research in visual neurophysiology applied by numerous researchers, including no less than five Nobel laureates; Willem Einthoven, Lord Adrian, Ragnar Granit, Keffer Hartline, and Torsten Wiesel. ERGs are records of the peripheral, electrical, potential changes caused by visual activation. It was discovered first time in 1866 by the medical physiologist Frithiof Holmgren (1831-1897) as a dynamic function independent from the ocular resting potential (cf. Holmgren, 1871). The latter is nowadays used for electro-oculography, and was first observed in 1849 by Emil du Bois-Reymond (1818-1896). Holmgren worked with ERG on and off between 1865 and 1882. He observed retinal potential variations in relation to the intensity of a light stimulus' increase and/or decrease, for all vertebral classes except fish. In some instances he could record the potentials from isolated retina, later verified by Kühne and Steiner (1880). Holmgren's findings were confirmed independently, and extended in a series of experiments published between 1873 and 1877 by the chemist, and physicist, vacuum flask inventor James Dewar (1842-1923), together with his brother-in-law, the physiologist John Gray McKendrick (1849-1926). Recordings were made initially from enucleated eyes, but Dewar and McKendrick found that they could be made on intact animals, and consequently also on man (cf. Dewar, 1877). The early observations were held back by lack of sufficiently sensitive and fast recording equipment. Assessments improved during the first half of the 19th century with the advent of better recording tools and tube amplifiers. The positive and negative variations of the ERG potential were attributed to different retinal structures in publications by, among others, the above Nobel laureates. Nevertheless, the verifications of ERG interpretations, and their addition to medical practice awaited the advance of computer technique, and electrode design, in the century's second half.

RE-READING RENÉ DESCARTES' SCIENTIFIC MEDICINE AND NEUROSCIENCE: ON THE RELEVANCE OF THE PERCEIVABLE CHANGES OF THE BODY

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After all the traditional misinterpretations of the works by René Descartes since then, I think that it is time to re-read and to re-investigate them in a way that is appropriate. Therefore, I try to draw the picture of the basic elements of the Cartesian theory of the human being, his methods of scientific medicine and neuroscience. These basic elements are:

1. Sounds, which are always around us and have the capacity to move our soul, as formulated by Descartes in his first work *Compendium Musicae*.
2. The human body and the perceivable changes of the body, as formulated by Descartes in his last work *Les passions de l'âme*.
3. The human mind, the self or the I; expressed by the sentence: *Je pense, donc je suis*.
4. Truth and the methods to achieve it; the basic demand for doing genuine scientific work.

Based on that picture I investigate Descartes' theory of the human body, the regulative systems within the human body and the perceivable changes of the body, and its relevance for acting ethically. Descartes' theory was influential on the French moralists' theory of the passions, but was totally misunderstood by the opposite philosophical schools, namely the Anglo-Saxon and the German ones, and became nearly forgotten.

The aim of my contribution is to show that René Descartes' theory of the human being, the body and mind, as he worked it out, is of high importance for contemporary neurosciences, theory of education, theory of acting, and social and political theory.

SUBSTANTIA NIGRA AND PARKINSON'S DISEASE: A BRIEF HISTORY OF THEIR LONG AND INTIMATE RELATIONSHIP

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The French anatomist Félix Vicq d'Azyr (1748-1794), who greatly contributed to our knowledge of human brain organization, discovered the *substantia nigra* as early as 1786. However, it took more than a century before the French pathologist Paul Oscar Blocq (1860-1896) and the Romanian neurologist Georges Marinesco (1863-1938) allude to a possible link between this structure and Parkinson's disease. The insight came from the study of a tuberculosis patient who was admitted to Jean Martin Charcot (1825-1893)'s neurology ward at la Salpêtrière because he was displaying unilateral parkinsonian tremor. At autopsy, Blocq and Marinesco discovered an encapsulated tumor confined to the *substantia nigra*, contralateral to the affected side, and concluded that tremor in that particular case resulted from a midbrain lesion. This pioneering work, published in 1893, led Edouard Brissaud (1852-1919) – a former student of Charcot – to formulate, in 1895, the hypothesis that the substantia nigra is the major pathological locus in Parkinson's disease. Brissaud's hypothesis was validated in 1919 by the Russian neuropathologist Constantin Trétiakoff (1892-1956) in a remarkable thesis summarizing a post-mortem study of the *substantia nigra* conducted in Marinesco's laboratory, under the supervision of Pierre Marie (1853-1940), another former student of Charcot. Despite highly convincing evidence of nigral cell losses in idiopathic and post-encephalitic Parkinsonism, Trétiakoff's work raised considerable doubts among his colleagues, who believed that the striatum and pallidum were the preferential targets of parkinsonian degeneration. Trétiakoff's results were nevertheless confirmed by detailed neuropathological studies undertaken in the 1930s and by the discovery, in the 1960s, of the dopaminergic feature of the nigrostriatal neurons that degenerate in Parkinson's disease. These findings have strengthened the link between *substantia nigra* and Parkinson's disease, but modern research has unveiled other brain structures and chemospecifc systems involved in the pathogenesis of shaking palsy, revealing the multifaceted nature of this neurodegenerative disorder.

NEUROTOXICITY OF ORGANOPHOSPHORUS COMPOUNDS.

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The synthesis of the first ester of phosphoric acid is widely attributed to the Frenchman de Clermont (1831-1921) and the Muscovite Wladimir Moschnin, both élèves of Adolphe Wurtz (1817-1884) in his Paris school of chemistry. Each of them independently synthesized tetraethyl pyrophosphate (TEPP) by reaction of the silver salt of pyrophosphoric acid with ethyl iodide (Williamson method).

TEPP's prominence is related to the extreme toxicity of most organophosphates, the substance class to which TEPP belongs. TEPP is considered nowadays to be the first organophosphate inhibitor of cholinesterases. Of course neither the toxicity nor the mode of action of the new compound was known at the time, as evidenced by de Clermont's willingness to taste his product, which he describes as a sticky liquid with a burning taste and a peculiar odor [Petroianu, 2008, 2009, 2010].

It would be almost a century later, in 1932, that Willy Lange and his graduate student Gerda v. Krueger, working on the synthesis of ester of monofluor phosphoric acid would recognize the toxicity of this class of compounds: "the fumes of these compounds have a pleasant, slightly aromatic odor. But a few minutes after inhalation there is a feeling of pressure to the larynx and difficulty in breathing. Then a disturbance of consciousness develops, as well as blurred vision and a painful oversensitivity of the eyes to light. Only after several hours do the problems wear off. "

While the paper the two published "Über Ester der Monofluorphosphorsäure." is cited by almost everybody working in the field, little is known about the authors [Lange & v. Krueger, 1932]. This brief communication attempts to shed some light on the life of the two, following the Krueger family back to the time of the Napoleonic wars.

HISTORY OF NEUROSCIENCES IN ANCIENT INDIA: FROM CONCEPTS OF STATES OF CONSCIOUSNESS TO NEUROANATOMY AND THERAPEUTICS

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Neuroscience history is almost as old as the history of human civilization. A quest for understanding the inner functioning of mind led to early foundation of thoughts on the subject. Indian civilization also reflects this thought process. The Vedas, one of the oldest texts known to mankind, refer to different states of consciousness and an intuitive description of the nature of neural signals (Kak, 2008). This is remarkable considering that the texts date back to at least 1500 BC.

The description of various anatomical CNS structures, detailed descriptions of CNS disorders and surgical instruments in ancient medical texts like *Sushruta Samhita* (1000 B.C.) point out to a well organized system of health care in ancient India (Kaviraj K.L., 1910, Joshi BC 1984). This system called Ayurveda did not restrict itself to the description of various symptoms of CNS diseases but even classified disorders like epilepsy into different types (Jain, 2004). The therapeutics was also not primitive. Natural remedies to control tremor predominant Parkinson's disease were described in the Ayurvedic texts. An example is the use of "cowage" (cowitch) plant (*Mucuna pruriens*) for this disorder. The active alkaloids of plant extract were found to contain Levodopa-like substances in 1970s and their activity was compared with modern drugs recently (Katzenschlager R., 2004, Manyam, 2004).

The precise documentation of history of neurosciences in ancient India was a hazy picture until recently due to the oral tradition of imparting knowledge in the ancient times and difficulty in understanding the context of references in texts in Sanskrit language.

This paper describes the references from Indian texts, and establishes their congruity with modern concepts of neurosciences.

A FILM OF PATIENTS WITH MOVEMENT DISORDERS MADE IN QUEEN SQUARE, LONDON, IN THE MID-1920's BY SAMUEL ALEXANDER KINNIER WILSON

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Through Edward Reynolds' collaboration with Samuel Alexander Kinnier Wilson's (SAKW) son, James, on Babylonian neurology and psychiatry, and his contact with James' nephew, Jim, grandson of SAKW, a remarkable film of patients with movement disorders, made by SAKW in the mid-1920's, has come to light.

The 20 minute silent film with captions by SAKW includes patients with senile tremor, Parkinson's disease and post-encephalitic parkinsonism, hemiballismus, Huntington's chorea, Sydenham's chorea, hysterical palsy and tremor, multiple sclerosis and progressive lenticular degeneration. Most of the patients are filmed in the square outside the National Hospital. The British Film Institute dates the film to 1924 and the captions to 1925. The case records of 6 of the 14 patients, who were admitted to the National Hospital, Queen Square, under the care of Dr SAKW have been identified.

SAKW may have been stimulated and facilitated to make this film through his personal contact with Charlie Chaplin with whom he stayed at his Californian estate, probably in the summer of 1924. The first films of neurological patients were made in Europe and the USA at the beginning of the 20th century, although most have perished. This may be one of the oldest examples from the UK. It is also notable for the inclusion of Wilson's disease and a brief shot of SAKW himself.

RETHINKING COPROLALIA

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Tourette Syndrome (TS) is a neuropsychiatric disorder characterized by motor and vocal tics. Its socially most penalizing manifestation is coprolalia – involuntary and, according to Gilles de la Tourette, foul utterances. Even though involuntary, coprolalia demonstrates the sensitivity of the afflicted to culture by violating the culture's norms, often in a way that is meaningful to the specific situation. The construct of the disorder has evolved historically. For Gilles de la Tourette, coprolalia was a diagnostic criterion, but this is no longer the case for the DSM-IV. The meaning of coprolalia has undergone historical changes too. This study proposes a more nuanced understanding of coprolalia and revisions in the meaning of the term. The study is based on video-taped interviews with adult TS patients and their relatives, and on historical cases. Applying current theories in cognitive psychology and cognitive linguistics, the study leads to an understanding of coprolalia unlike that of Gilles de la Tourette: Coprolalia is not necessarily obscene. It is rather an involuntary breaking of cultural taboos and social rules. A discussion follows of how this improved understanding of coprolalia can lead to improved interventions.

MEDICINE AND REASONING: THE DIAGNOSTIC PROCESS IN NEUROLOGY

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What is the thinking process involved as physicians strive to resolve the enigma: "What is my patient suffering from?" Such is the question behind this presentation. Our analysis is based on real-life situations in which medical residents discuss specific cases in neurology with the aim of reaching a joint diagnosis. Our theoretical hypothesis holds that although the diagnostic process has a rational component that lends itself to logical reconstruction, it still requires the personal presence of doctors. By examining a particular case in neurology we reconstruct a cognitive process that employs the three approaches to diagnostics that are pertinent to this area of medical specialization – syndromatic, topographic, and etiologic – and are used to arrive at a conclusion via a combination of abductive and deductive reasoning used to discard diagnostic hypotheses. This analysis supports the idea that clinical judgment, which dates from the 19th century and rests upon a rational medicine centered on diagnostics, is still very much in use.

CENTRAL AND PERIPHERAL VISION IN IBN AL-HAYTHAM'S OPTICS: SOME KEY EXPERIMENTS

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In his *Optics* (*Kitāb al-Manāzir*, 1040), Ibn al-Haytham (L. Alhazen) provides the earliest experimental definition of the formation of an image in the eye based on a point to point correspondence with light reflected from the surface of the visible object. In Books I-III of the *Optics*, he gives a detailed description of the stages of visual sensation of 'light and color' through the parts of the eye, optic nerve and chiasma as distinct from its perception in terms of 'inference' based on learning, recognition, and memory. The paradigm changing importance of the *Optics* in the history of visual science and the subsequent impact of its Latin translation on major figures [acknowledged and unacknowledged] is becoming recognised. However, the exhaustive experimental investigation of vision (related – in modern terms – to pattern vision, visual acuity, central versus peripheral vision, binocular integration, color) in an effort to establish valid 'unchanging, invariant' principles still remains to be studied. In this presentation, I will explore some of the key areas and experiments in the *Optics*, place them in their historical context, and evaluate their significance against the Graeco-Arabic tradition.

BRITISH CONTRIBUTIONS TO THE UNDERSTANDING OF STROKE IN THE FIRST HALF OF THE 19TH CENTURY

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" … I found that the information relative of these diseases, contained in the writings of English physicians was scanty…" (Cheyne, 1812)

Nevertheless advances in the understanding of cerebrovascular disease and the "comatose states" by British scholars can be found in the first half of the 19th century. Most notable are contributions of John Cheyne (1812), John Abercrombie (1828) and Richard Bright (1831).

These authors added to the steady accumulation of autopsy reports on patients who succumbed to "apoplexy". Cheyne believed that "the more a clinical treatise is descriptive the better" (Cheyne). Each author apparently agreed with this notion and described in more detail the clinical aspects of patients than was customary at the time. As a result of these efforts it became apparent that not all comatose states were due to intracranial hemorrhage and that not all comatose states were "apoplectic". It was shown that intracranial hemorrhage resulted not only from arteriosclerotic changes of blood vessels, but also occasionally from other vascular abnormalities such as aneurysms. Focal cerebral softening (*ramollissement* of French authors) was also shown to be due to diseased blood vessels. Intracerebral, subarachnoid and subdural bleedings were clearly demarcated.

These efforts represent an advance in the prelude to the ultimate understanding of cerebrovascular disease, which had to await the discovery of thrombosis and the establishment of cerebral localization.

ASYNERGY, A MOVEMENT COORDINATION DEFICIT OF CEREBELLAR ORIGIN: WAS BABINSKI MORE PERCEPTIVE THAN HIS CONTEMPORARIES?

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Joseph Babinski (1857-1932) was a student of Charcot (1825-1893), the founder of the chair of Neurology at the Salpêtriere. Babinski was renowned as a highly astute clinical observer. Today, he is best remembered for the 'Babinski reflex', characteristic of pyramidal tract damage. However, another major contribution to neurology was Babinski's description of the cerebellar syndrome including such clinical deficits as *dysmetria*, *adiadochokinesis* and *asynergia*. *Asynergia* was the pathological opposite of synergy, which he defined as "the capacity to accomplish simultaneously the various movements that constitute a single act" (see Babinski, 1934). The absence of forward movements of the hip and knee as the patient tilts the head and trunk backward, the failure to lean forward at the onset of gait, and the lack of leg extension when sitting from a supine position are clinical examples.

Several of Babinski's contemporaries dismissed the term asynergia as superfluous to the cerebellar syndrome (Déjerine, 1914, André Thomas, see Déjerine, Holmes, 1939, Lhermitte, 1958, p. 447) until a reassessment evoked the particular role of cerebellum in motor learning (Ito, 1984) and the idea that many movements require postural changes that 'anticipate' the potential loss of equilibrium to synchronize movements with their compensatory postural support. Learned anticipatory postural adjustments associated with various movements were described by many authors as well as their impairment in cerebellar patients (see Clarac et al., 2009). The cerebellar role in forming and storing learned muscle activation patterns for the time dependent control of limb mechanics was emphasized by Smith (1996), Thach (1993), and Wolpert et al. (1998). Consequently, the concept of asynergia as a symptom of cerebellar pathology has gained new credibility, and demonstrates that Babinski's discerning clinical observations, were really ahead of their time in describing what could only be explained after the application of electromyography and biomechanics to the study of cerebellar function.

HENRI BERGSON AND THE NEUROSCIENCE OF MEMORY

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According to Bertrand Russell, Henri Bergson (1859-1941) was the 'leading French philosopher of the present century' (1). This is a mid-century view and Russell was far from being an admirer of Bergson's work. Nevertheless, few would dispute

the fact that Bergson was hugely influential in the first part of the twentieth century. In this paper I want to look again at Bergson's major work on memory as expressed in his 1896 work *Matière et Mémoire*. This work made his name and was largely instrumental in his election to the position of Maître de conférences at the *École normale supériaure* in 1898 and to a Chair in philosophy at the *Collège de France* in 1900. *Matter and Memory* represents the fundamentals of Bergson's early thought. In it he develops from a deeply meditated philosophical background an original and unorthodox theory of memory. This theory is not only profoundly intertwined with his metaphysics but is also supported by numerous references to the neuroscience and neurology of the time. Many of these supporting references concern the brain pathologies known at the end of the nineteenth century. In this paper, therefore, I want, after a brief introduction to Bergson, to examine his neurophilosophy of memory in the light of a further century of neuroscience.

GEORGES DE MORSIER (1894-1982) AND NEUROLOGICAL RESEARCH ON HALLUCINATIONS IN THE 1930s

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Paris can be considered the most prominent place for research on hallucinations up to the Second World War. While hallucinations had already been a popular topic in clinical research and studies on cerebral localization throughout the 19th century, once again they happened to become of exceptional interest in the Paris of the 1930s. Although efforts in the neurological foundation of hallucinations were widespread, definitions of hallucinations were heavily influenced by psychoanalytic and phenomenological accounts. Evidently, Gaëtan Gatian de Clérambault's *"automatisme mental"* didn't follow this trend. Hence, it is not at all surprising that Clérambault's disciple Georges de Morsier explicitly criticized his Parisian contemporaries when teaching neurology back in Geneva. Apart from some insightful polemics against attempts of definition and theorization, de Morsier mostly stuck with his case studies but informed them with up-to-date reading of English, German and French neurological literature. In my paper, I will focus on his 1938 extensive summary on neurological findings on hallucinations, exploiting de Morsier's professional archive including his patients' records, reading notes and drafts.

METAPHYSICS / BIOPHYSICS: FRAMING 'NEUROSCIENCE' C.A. 1950

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For good reasons, in what has emerged over the last few decades as the cultural history of the neurosciences, the way to proceed has been to write histories of the brain (and its sciences) in the idiom of culture. It was to highlight representational practices, the social malleability of concepts, and the historicity and historical specificity of brain-centric discourses and practices; noteworthy too, it has been to study not the recent genesis of neuroscience, but periods prior to WWII.

If there exists a grand narrative of post-war developments, it crucially involves the story of cybernetics, and hence, as this paper argues, a particularly cerebral, and insufficiently problematized, vision of the neuroscientific past. More generally this paper argues that the centrality accorded to cybernetics in historical accounts of mid-twentieth century neuroscientific developments is, more than anything else, a function of the public visibility of cybernetics; and thus, symptomatic of the broader historiographical tendency above: a tendency to conflate cultural histories of the brain, of the mind-body problem and of discourses of human nature with the (mundane) traditions, specialities, initiatives, institutions-in-the-making and events that presaged the quite recent coalescence of neuroscience. It is this cerebro-centrism of the historiography I wish to complicate here. In my paper, I draw on a range of archival material to show how, first, as historians, we may have by and large failed to interrogate the historical realities of the cybernetic brain discourse; and second, how in doing so we have obscured crucial spaces of inquiry that are all-too-easily glossed over in the necessarily manifold origins of neuroscience: devoid as they were, as I shall suggest as well, of the brain, of 'culture' (certainly in the emphatic sense), and of the intellectual excitement surrounding cybernetics and the philosophical puzzles it generated.

FROM CUTTING-EDGE BRAIN SURGERY TO THE CREATION OF PARALYMPIC SPORTS: CONSIDERATIONS REGARDING THE INFLUENCE OF EXILE ON THE GERMAN-BRITISH NEUROSURGEON SIR LUDWIG GUTTMANN (1899-1980)

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One of the co-founders of the Paralympic Games was Sir Ludwig Guttmann, who after 1933 fled the Nazi regime and emigrated to London, England where he basically continued to practice as a conservative neurologist. However, the impact of refuge and exile on his clinical research program strongly reflects an emigration-dependent process of professional change from being a trained neurosurgeon to becoming a fervent neurological clinician. As is well known, Sir Ludwig developed into a widely renowned rehabilitation specialist for the paraplegic and became a "father" of the Paralympic sports movement in his later career – starting with the "hospital games" at Stoke Mandeville. In fact, the fascinating work biography of Ludwig Guttmann embodies many traits and essential assumptions regarding the increasingly interdisciplinary organized field of neuroscience. His own research program later reintegrated aspects from early rehabilitation and sports as a reflection of the underlying assumption of neuronal adaptation and brain plasticity. But this was far from obvious in the beginning:

Guttmann is rather an adequate example for an analysis of the cultural impact of work norms on scientific development – here in an outstanding physician and rehabilitation specialist. Conventional research trends have by far neglected the complex cultural modes, scientific interactions, and evolutionary patterns associated with the historical process of forced migration. The aims of this paper therefore are: first, to introduce the general research topic of forced-migration in the neurosciences; second, to map the non-linear biographical development in Sir Ludwig's amazing career and third, to flesh out a perspective that challenges the well-held belief of many science managers, politicians and even some historians of science who champion a linear "brain gain" theory of emigration-induced change in the post-war (neuro-) sciences in the United Kingdom, the United States or Canada. This paper draws on archival work in the archives of the Wellcome Institute for the History of Medicine in London as well as on interviews and talks with Canadian and Israeli colleagues and friends of the late Sir Ludwig.

SIGMUND EXNER AND THE ORIGINS OF EXPERIMENTAL RESEARCH ON THE ROLE OF THE CORPUS CALLOSUM IN INTERHEMISPHERIC INTEGRATION

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The anatomy of the Corpus Callosum has long suggested that it could play a significant role in interhemispheric communication and the unity of consciousness (Wigan, 1844). Nonetheless the work of the Sperry group in the period from 1950 to 1970 is frequently regarded as the original formulation of this conjecture. This view persisted despite the widely known early publication of Bykov and Speransky (1924) of the effects of section of the corpus callosum on tactile conditioned behaviour in dogs (Myers, 1953). Surgical transections of the corpus callosum in human patients were undertaken by Dandy (1930) who performed it to access third ventricular tumours. A second group of patients, following callosum section, were intensively tested by Akelaitis (1940, 1941). As is well-known neither of these groups failed to find any cognitive deficits following cerebral disconnection. The great contribution of Myers and Sperry was to recognise that sensory information was shared by peripheral information transfer (optic chiasma) to both hemispheres as well as by central transfer via the corpus callosum. Myers developed a dorsal method of midline sectioning of the optic chiasma to ensure there was no peripheral visual transfer pathways available to the callosum sectioned animal.

The purpose of the present paper is to present evidence that animal research on the corpus callosum began significantly before the studies of either Pavlov or Sperry. Sigmund Exner in his 1894 book *Entwurf zu einer physiologischen Erklärung der psychischen Erscheinungen* (Plan towards a

physiological explanation of psychological phenomena), clearly theoretically anticipated the problem presented by dual information pathways (peripheral and central) between the hemispheres. His student Imamura (1903) provided an elegant experimental separation of these two systems in the dog.

THE KANEMATSU INSTITUTE AND GHOSTS OF NEUROSCIENCE PAST: SYDNEY

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An editorial, with the somewhat alarming title of "Slight Case of Murder in Macquarie Street", appeared in the 28th April, 1985 edition of the *Medical Journal of Australia*. The victim was the Kanematsu Memorial Institute at Sydney Hospital and the accused, the NSW State Government.

The original donation to Sydney Hospital from the Kanematsu Company ensured a "state-of-the-art" building when completed in 1932. In 1935 a world-wide search was commenced for a suitable Director of Research for the Institute. The successful applicant was an Australian, a Melbourne University graduate, Dr John Carew Eccles. Eccles, aged 34 when he arrived to take up the position, was already well credentialed and a leader in his chosen field of neurophysiology. Eccles was joined shortly after by Dr Bernard Katz, a graduate of Leipzig, and Dr Stephen Kuffler, a graduate from Vienna. Together they formed a formidable research team: 2 future Nobel Laureates (Eccles and Katz), and a future leader in American neuroscience (Kuffler).

Eccles left the Kanematsu in 1944 to take up a position in Dunedin, New Zealand where he would continue his research on synaptic transmission. This glorious period of neuroscience research in Sydney came to an end.

Future directors took the Kanematsu into other fields of research, and many separate interests were followed.

In the 1980s the Government, with a policy to decentralize medical services, took the decision to demolish the building and re-locate the various research groups in other institutions. The building vanished without trace. Very few of the current neurologists are aware of this period of local neuroscience history. However, the part that Eccles played in the development of an independent Australian research community cannot be underestimated.

THE CURIOUS CASE OF PRIVATE SCHNEIDER: A CLASSIC IN NEUROPHENOMENOLOGY

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On 4 June 1915, Johann Schneider (Schn), was heavily wounded by a mine-explosion while serving in the German army. The blow left him comatose for several days. After he regained consciousness a bizarre neurological syndrome emerged, characterized by a variety of cognitive impairments, including *alexia*, *acalaulia*, *akinetopsia* and visual *agnosia*. His case was extensively documented by Goldstein and Gelb in 1918. Despite the various, severe deficits he suffered, Schneider had surprisingly little problems performing actions of daily life, for example blowing his nose or lighting a match. He also continued his work in a wallet factory just as he had been doing previously to his accident. According to the French phenomenologist-philosopher Maurice Merleau-Ponty (1908-1961), the latter actions are all proof that knowing starts with the body rather than the mind: the case of Schneider is at the basis of his theory of the 'body-subject' that he unfolded in his book 'Phenomenology of perception' (1945). In this paper we review the case of Schneider and his influence on the development of Merleau-Ponty's philosophy. The fact that Schneider might have been feigning a large deal of his symptoms, as turned out several years after the 'Phenomenology of perception' appeared, is also taken into consideration.

EARLY VIEWS OF CHRISTFRIED JAKOB ON THE CEREBRAL CORTEX: CHALLENGING THE SUPREMACY OF THE FRONTAL LOBE

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This presentation focuses on six sequel articles (Jakob 1906a,b,c; 1907a,b; 1909), published in Argentina by the neuropathologist-neurophilosopher Christfried Jakob (1866-1956) (Triarhou & del Cerro, 2007) between 1906 and 1909 and addressing functional localization in the frontal lobe. At the time, the localization-holism controversy was at a peak, triggered by the historic Marie-Déjerine aphasiology debate. Jakob held that the constitutive physiological elements of cognition are localized but he cast doubt on phrenological approaches that considered the frontal lobe as 'superior' to the remaining cortical regions. Jakob studied the human frontal lobe from fetal life through senility, in normalcy and in pathology, including tumors, injuries, softening, general paralysis and dementia. Based on his findings, he viewed strict localization theories as a dead-end. Jakob criticized Flechsig's claim on the parallel ontogenies of frontal association centers and intellect. Instead, Jakob maintained that the frontal lobe does not carry any selective advantage over the remaining human cerebral lobes or even over the frontal lobe in non-human species. Regarding lesion experiments in laboratory animals, he pointed to methodological caveats, such as insufficient recovery time, which may lead to disorientating conclusions, and he rejected élite brain research – the anatomical study of the brains of eminent persons in the quest for revealing the structural differences that accompany intellectual superiority or talents – calling it superficial and inexact. Jakob thought that the verification of the anatomical connections of the frontal lobe would elucidate its functions. Thus, he viewed the frontal lobe as a central station receiving input via olfactory pathways and thalamic radiations, pertinent to muscular and cutaneous senses, and attributed a perceptive character to a brain region traditionally associated with productive functions. Modern neuroscience seems to support Jakob's rejection of distinguishable motor and sensory regions and to adopt a critical stance against oversimplified localization views.

IVANE BERITASHVILI, VERSATILE NEUROSCIENCE DESPITE THE ADVERSITIES OF THE 20TH CENTURY

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Born on 31 December 1884 and speaking the Kakhetian dialect of Georgia, the first problem for Ivane Beritashvili was to master Russian to attain an education. He earned a place in the laboratory of Wedensky, who had bested Pavlov for the Professorship at St Petersburg University (Doty, 1975; Tsagareli 2007). In careful experiments, Beritashvili disproved his mentor's theory of neural inhibition, and was consequently denied his doctoral degree! Becoming an early expert in use of the string galvanometer, he established the field of electrophysiological investigation of spinal cord reflexes (Beritov, 1916). His fellowship was interrupted by the onset of World War I but he still managed to contribute significant data to Magnus' classical *Körperstellung*. Luckily he then obtained a position at Odessa (to which Sechenov had once been "exiled"), and began unique studies of conditional reflex behavior. Georgia had a moment of independence after the war, and Beritashvili was awarded the chair in physiology at the new university. Independence was soon eliminated by the Bolsheviks, but Beritashvili at least escaped Beria's massacre, that took 10,000 lives. Up to that time, he had published 42 papers in German and English, but thereafter it was exclusively in Russian. While he served with Pavlov in officiating at the 1935 International Physiological Congress in Moscow, in 1950 the physiologist Bykov, and his political clique, caused a 5-year hiatus in Beritashvili's professorship, for being "anti-Pavlovian" (Langue, 1997). Subsequently, he joined Jasper as Honorary President of the Moscow Colloquium that became the founding event of the International Brain Research Organization (IBRO) (Marshall, 1996). His versatile work includes extensive, comparative studies of vertebrate memory (Beritasvili, 1971). Although criticized for his concept of "image-driven" behavior (Beritashvili, 1965), that seemingly outstripped then known facts, recent experiments have verified such phenomena in rats. Ivane Beritashvili died on 29 December 1974 two weeks before his 90-year jubilee. He was buried in the square of Tbilisi State University, in the pantheon of founders of the University.

HISTORY OF TREATMENT OF BACTERIAL MENINGITIS

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Although meningitis was not yet known as such, its symptoms, especially headache, fever and decreased consciousness, have been described for centuries. In the course of time, these symptoms have been conceptualized in different ways and many theories about its causes have been formulated. Initially, diagnostic means were limited and therapeutic methods were different from today. The development of bacteriology has been of great influence on the perspective of diagnostic and therapeutic methods. In this presentation, we will discuss, based on a literature study, several therapeutic methods that were used in the course of time.

Until the end of the 19th century, therapeutic methods included bloodletting, blistering and emetics. In patients suffering from epidemic meningitis, mercury and drinking as much alcohol as the stomach could bear, were considered as indispensable in the treatment. However, these methods appeared not very effective.

The development of bacteriology and the introduction of the lumbar puncture put treatment of what then became known with the term meningitis in a different light. At the beginning of the 20th century, the meningococcus, considered the most common pathogen, was identified. This enabled the production of an antiserum which could protect against meningitis, and sometimes even could cure it. The real breakthrough in the treatment of meningitis, however, came with the discovery of sulphonamide in the 1930s. The use of this chemotherapeutic resulted in a sharp decrease of mortality. At that time, penicillin, the first antibiotic, had also been discovered. However, it was only after the development of sulphonamide resistance, that penicillin and other antibiotics have been used on a large scale for the treatment of meningitis. Nowadays, with the use of antibiotics bacterial meningitis can often be cured.

THE FRENCH IMPACT ON RUSSIAN NEUROSCIENCES

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In the 19th century Russian medical sciences went through an important phase, as they moved from being actually almost non-existent to becoming a legitimate and productive part of the European medical community. France was among the influential allies of Russia not only politically and economically, but also scientifically. Medico-scientific exchanges between France and Russia had started in the Age of Enlightenment but would come to flourish starting from the middle of the 19th century. There was a significant French impact on the development of the medical sciences in Russia, particularly in the field of neurosciences, such as neurophysiology, neurology and psychiatry. This was associated with the names of such great French scientists as Claude Bernard, Jean-Martin Charcot and Louis Pasteur, all of whom were strongly pro-Russian. Here is just a short list of Russian scientists who benefited from the collaboration with France and made a valuable contribution to society: Ivan Sechenov, a pioneer of Russian neurophysiology; Alexey Kozhevnikov, the founder of the Moscow school of neurology; Sergey Korsakov, the first Russian professor of psychiatry; Vladimir Bekhterev, an outstanding neurologist, psychiatrist and psychologist, and many others. However, Franco-Russian relations in the field of medicine were never part of an official program; they were mainly the result of private initiative.

THE 19TH CENTURY CONCEPT OF 'BRAIN FEVER': ITS APPEARANCE, ITS DISAPPEARANCE, ITS REMAINDERS

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In the first half of the nineteenth century, various conditions then or now associated with cerebral inflammation existed in parallel, notably phrenitis, acute hydrocephalus, meningitis or encephalitis. The emergence of the concept of brain fever, a disease rooted in the older maladies of phrenitis and nervous fever, hardly contributed to a better understanding of the inflammations of the nervous system. The use of the term was inconsistent, ranging from its being used as a simple synonym for phrenitis, meningitis or encephalitis, to its being an independent medical entity only accepted by parts of the scientific community, to its literary employment by Victorian writers as well as in fiction from the continent. However, a simple translation of brain fever into the French *'fièvre cérébrale'* or the German 'Hirnfieber' would not be correct. Whereas in literature its combination of psychological trigger and severe, sometimes fatal clinical course was the source of considerable attraction for authors of fiction right into the second half of the 19th century; in clinical medicine the term was soon substituted by more precise concepts corresponding to pathological, microbiological or psychosomatic aspects.

JAVAL AND THE RECORDING OF EYE MOVEMENTS DURING READING

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Louis-Émile Javal (1839-1909) founded and directed the ophthalmology laboratory at the Sorbonne and was a member of the Académie de Médecine. His main research focus was upon visual deficits – an interest that probably arose because his sister was strabismic and Javal himself was astigmatic. However, he is widely regarded in visual science as the first writer to use the term 'saccade' to refer to rapid eye movements during reading. In 1878 and 1879 he wrote eight papers on the visual processes involved in reading; they were concerned mainly with font size and accommodation. However, it now seems likely that Javal's contribution to the early understanding of saccadic eye movements may be somewhat less than previously thought. He tried to record eye movements using several techniques but none were successful. On the basis of his subjective impressions, he believed that the eyes glide smoothly along text during reading. It is argued that his work has been inappropriately interpreted as a consequence of passing through the filter of Edmund Huey's eyes in its summary into English, published in 1908. Subsequent students relied on Huey's account rather than returning to Javal's original articles. In 1879 Javal did mention saccades in a footnote on the penultimate page of the final article of his series. However, this was a reference to work by his colleague Lamare, rather than by Javal himself. Moreover, the technique used by Lamare was similar to one described earlier in 1879 by Ewald Hering. The term 'saccade' was adopted by writers in English as a consequence of a suggestion by Raymond Dodge in 1916. The sequence of studies by Hering, Lamare, Huey and Dodge provided the basis for modern investigations of eye movements during reading.

HUGHLINGS JACKSON'S UNFINISHED MASTERPIECE

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This paper examines the circumstances surrounding John Hughlings Jackson's abortive attempt to compile his neurological ideas in a single volume, and his subsequent participation in selecting the contents of the two-volume *Selected Writings of John Hughlings Jackson*.

In 1901 William Osler of Baltimore, Silas Weir Mitchell of Philadelphia and James Jackson Putnam of Boston wrote to Hughlings Jackson, encouraging him to prepare a volume on his neurological ideas for publication. In reply, Hughlings Jackson promised one volume on his major contributions and another on his more minor works. In the event, no such volume ever materialized, though the two volumes of the *Selected Writings* were published in London in 1931 and 1932. A new archive throws further light on these events.

Hughlings Jackson had his private papers destroyed at the time of his death, but unknown colleagues saved at least two collections of them. One of them subsequently gave a small collection of them to Macdonald Critchley, whose widow donated them to the Royal College of Physicians in London. The Rockefeller Library of the UCL Institute of Neurology, Queen Square, contains a second collection. Examination of these archives reveals the story of Hughlings Jackson's unfinished masterpiece.

The Critchley collection contains four bound notebooks into which Hughlings Jackson pasted printed copies of his published papers on aphasia, epilepsy and evolutionary neurophysiology. These articles are heavily annotated with handwritten revisions and editing marks in ink and pencil. In addition, the collection contains loose typescript pages with page numbers up to page 56. These are also revised in Hughlings Jackson's hand, and concern various comments on psychology. These pages are divided into numbered sections, and internal evidence shows that they

were written after 1901. The Queen Square collection includes typescripts of Hughlings Jackson's published papers which appear in *Selected Writings*, and which contain editing marks and comments in both Hughlings Jackson's and James Taylor's handwriting.

In a biographical introduction to *Neurological Fragments*, James Taylor say that Hughlings Jackson was ill and intimidated by the laboriousness of the project, and never completed it. The material in the Critchley Collection supports this conclusion. The topics would certainly have formed the basis of any monograph of Hughlings Jackson's ideas, and his revisions to the articles on aphasia, epilepsy and neurophysiology are comprehensive. Hughlings Jackson appears to have focused on precision rather than organization, however, so the chapters are not publishable in their extant form. The loose pages on psychology, divided into sections, are similarly chaotic. After abandoning the monograph, Hughlings Jackson himself appears to have selected the works included in the *Selected Writings*. These findings show that, much like other scientists, Hughlings Jackson was concerned that posterity remember his seminal work, but the magnitude of the task proved too much for him.

AMERICAN CONTRIBUTION TO THE DISCOVERY OF TUBERCULOUS MENINGITIS AT THE PARISIAN HOSPITAL FOR SICK CHILDREN. WILLIAM WOOD GERHARD DEMANDS JUSTICE FROM LOUIS BENOIT GUERSANT

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In the first half of the 19th century L.B. Guersant (1777-1848), a celebrated Parisian physician, and his numerous disciples at the Children's Hospital, advanced understanding of meningitis and its forms. Among the Americans who worked in this hospital was W.W. Gerhard (1809-1872). Following his return in 1833, Gerhard published one of the earliest American communications on child neurology "On the Cerebral Affections of Children", based on observations collected in Paris by him and his friend E. Rufz. This article played a crucial role in recognizing tuberculous meningitis as a form of phthisical disease. Gerhard wrote, "The obscurity […] in the application of the terms acute hydrocephalus, or according to M. Guersent, meningitis, has led to the extreme diversity of opinion amongst physicians…M. Guersent was of opinion that it consisted in an inflammation of the meninges [...] The cases which I have detailed, induce me to regard this form of cerebral affections as closely analogous to the deposition of tuberculous matter in other organs."

In 1839, Guersant implied in his remarks in the *Dictionaire de Medicine* that two doctors, Constant and Fabre, preceded Gerhard in discovering tuberculous meningitis. The next year, Gerhard responded, "We have been accustomed to respect the character of M. Guersant, and we are not disposed to censure him for an error which we presume is involuntary; nevertheless, it is a matter of duty on our part to place the subject in true light…" Supported by a Parisian physician Valleix, Gerhard insisted in two papers that he and Rufz were the first to establish the nature of the disease. In 1843, however, Rilliet and Barthez, in their outstanding textbook on diseases of children, reclaimed the priority for L.N. Papavoine, who recognized tuberculization of meninges in 1830. Rilliet and Barthez, nevertheless, agreed that Gerhard's essay was "the most remarkable treatise that had been published on the subject."

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