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**Μεταπτυχιακή Διπλωματική Εργασία**

**The Third International Neurological Congress in Copenhagen, 1939**

**Της**

**ΜΙΣΑΗΛΙΔΟΥ ΜΑΡΙΑ**

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## **The Third International Neurological Congress in Copenhagen, 1939**

### **Abstract**

The Third International Neurological Congress was held on 21–25 August 1939 in Copenhagen, Denmark. This Conference was characterized by difficult historical times as the Second World War was just bursted. 338 delegates from 35 different countries participated at the Conference. Three were the decided main themes of the Congress: the endocrine-vegetative system, heredofamiliar diseases, and neurological aspects of the avitaminoses. A central figure was Viggo Christiansen the most esteemed neurologist of Denmark, as he was the one that suggested Denmark as the hostess of the Third International Neurological Congress. Special tributes were paid to Lucio Bini and his coworker Ugo Cerletti as they proposed a pioneer method to induce seizures to people with psychoses. The method was the Electroconvulsive therapy and was presented for the first time in Copenhagen at the Congress.

## Περίληψη

Το τρίτο διεθνές νευρολογικό συνέδριο διεξήχθη στις 21-25 Αυγούστου του 1939 στην Κοπεγχάγη, στη Δανία. Το συνέδριο έλαβε χώρα σε μία δύσκολη ιστορικά εποχή καθώς ο Δεύτερος Παγκόσμιος Πόλεμος είχε μόλις εμφανιστεί. Στο συνέδριο συμμετείχαν 338 εκπρόσωποι από 35 διαφορετικές χώρες. Τρία ήταν τα βασικά θέματα του συνεδρίου : το ενδοκρινικό σύστημα, οι κληρονομικές ασθένειες και οι νευρολογικές διαστάσεις της αβιταμίνωσης. Ένα πρόσωπο που ξεχώρισε στο συνέδριο ήταν αυτό του Βίγκο Κρίστιανσεν, ο οποίος θεωρείται ο πιο διακεκριμένος Δανός νευρολόγος καθώς ήταν αυτός που πρότεινε το Τρίτο διεθνές Νευρολογικό Συνέδριο να διεξαχθεί στην Δανία. Επίσης, δόθηκε φόρος τιμής στους Λούσιο Μπίνι και τον συνεργάτη του Ούγκο Σερλέτι για την παρουσίαση μίας καινοτόμου μεθόδου για την θεραπεία της ψύχωσης. Η μέθοδος ήταν η ηλεκτροσπασμοθεραπεία (θεραπεία με ηλεκτροσόκ) και παρουσιάστηκε για πρώτη φορά κατά τη διάρκεια του συνεδρίου, στην Κοπεγχάγη.

## INTRODUCTION

The Third International Neurological Congress in Copenhagen, Denmark was arranged by Knud Krabbe and Viggo Christiansen, two renowned Danish neurologists. Christiansen was the president of the Congress. The Nobel laureate, Sir Henry Dale, was a keynote speaker. The Congress began in the Assembly Hall of the University of Copenhagen at 9:00 a.m. on 21 August 1939. At 12:00 noon, participants were asked to gather in front of the Hall's entrance for a group photo.

Amidst the tumultuous events of the European scene during the Interwar period, the world of neurology witnessed the realization of the third in the historic series of conferences that helped to establish the field as an independent medical specialty. The Third International Neurological Congress was held in Copenhagen, Denmark, on 21–25 August 1939,<sup>1</sup> following the First and Second International Neurological Congresses which had taken place in Berne, Switzerland, and London, England, respectively, in 1931 and 1935.

The predominant figure in the decision, at the 1935 London meeting, to host the following meeting in Copenhagen was Viggo Christiansen (1867–1939), Denmark's renowned neurologist, who had also inaugurated the Scandinavian Neurological Congresses as its first president in 1922.<sup>2</sup>

We base the present report on the original book of Abstracts,<sup>3</sup> and the published Proceedings.<sup>4</sup> Twenty-six delegates from 16 countries met in Copenhagen on 29–30 June 1937 to prepare the Congress. It was decided to have three main themes: the endocrine-vegetative system, chaired by Ludo van Bogaert (1897–1989) and Heinrich Pette (1887–1964); hereditary diseases, chaired by Georges Guillain (1876–1961); and neurological aspects of the avitaminoses, chaired by Georg H. Monrad-Krohn (1884–1964).

The officers of the Congress were Viggo Christiansen (1867–1939), president; Knud H. Krabbe (1885–1961), secretary-general; Einar Sørensen, treasurer; and Knud Winther, editor of the transactions. Twenty-one vice presidents were elected to represent their countries, including pioneers of neurology such as Nils Antoni (Sweden), Antônio Austregésilo (Brazil), Ludo van Bogaert (Belgium), Bernardus Brouwer (Netherlands), Vito Maria Buscaino (Italy), Georges Guillain (France), Mikhail B. Kroll (U.S.S.R.), Gonzalo Rodríguez Lafora (Spain), Ion Minea (Romania), Georg H. Monrad-Crohn (Norway), Wilder Penfield (Canada), and Henry Alsop Riley (U.S.A.).

There were 338 delegates registered from 35 countries.<sup>4</sup> The official languages of the Congress were English, French, German, Italian, and Spanish. The registration fee amounted to 40 Danish Kroner,<sup>1</sup> equivalent to about \$15 at the time.

Gordon M. Holmes (1876–1965), Bernard Sachs (1858–1944) and Sir Charles S. Sherrington (1857–1952) were honorary presidents. Harvey Cushing (1869–1939), Henry Marcus (1866–1944), Pierre Marie (1853–1940), Max Nonne (1861–1959), Károly Schaffer (1864–1939), and Alexandre-Achille Souques (1860–1944) were honorary members.

Four invited speakers presented 20-min talks in each of the three symposia. At the conclusion of each session of the main lectures, 5-min discussions were allowed. Free communications on diverse topics, 10-min in duration, were allowed in the afternoon sessions.

A full day was devoted to neurosurgery. The Norwegian neurologist Johan A. Aarli, past president of the World Federation of Neurology, considered that occasion the first truly international neurosurgical meeting.<sup>5</sup> A meeting of the International League Against Epilepsy (ILAE) also took place during the Congress.

## **HISTORIC CONTEX**

The Congress took place during the tumultuous era that led to the Second World War. By that time, Italy had already invaded Albania. The ‘Munich Agreement’ on Czechoslovakia had been concluded a year ago. At the time of the Congress, Denmark was remained neutral. In September 1939, Nazi Germany occupied Denmark, diregarding a signed 10-year peace accord.

Four months before the Congress, in April 1939, the Folketing Election took place for a new government in Denmark. The Social Democratic Party, led by Thorvald Stauning (1873–1942), won. Christian X, known for his resistance against the German invasion, was the King of Denmark then.

## **PAPERS**

Sir Henry H. Dale (1875–1968) of London, who had shared the Nobel Prize with Otto Loewi (1873–1961) three years earlier for their discoveries on the chemical transmission of nerve impulses, read the introductory paper on Monday morning, titled “Chemical mediation in the peripheral nervous system and its relation to endocrine organs”. The

other presenters of the first symposium were Léon Laruelle (Brussels) with a lecture on “The anatomical bases of the cortical and medullospinal autonomic system”, John F. Fulton (New Haven) on the “Central levels of autonomic function with particular reference to the endocrine organs”, Oskar Gagel and Otfried Foerster (Breslau) on “The relationships of the hypophysis to the vegetative nervous system (diencephalon)”, and Ragnar Forsberg (Oslo) on “The relationships of the endocrine glands to muscle function, with special reference to the myopathies”. Shorter talks by speakers registered in advance were given, among others, by Arturo Donaggio (Bologna), Abraham Myerson (Boston), Auguste Tournay (Paris), Margit Halasy Eszenyi (Budapest), and Ernst Fünfgeld (Cologne), on topics related to autonomic physiology and pharmacology. MacDonald Critchley (London) spoke on disorders of nocturnal sleep in narcoleptics as an additional symptom besides cataplexy and sleep attacks, and concluded, based on evidence from the EEG, that narcolepsy was not closely related to epilepsy. Rita Levi-Montalcini (Brussels) was co-author on a paper read by Laruelle on the vegetative centers of the spinal cord in the cat and rabbit embryo and the growth of their connections.

The second symposium on heredo-familial diseases, held on Tuesday, included papers by Bernard Sachs (New York) on “Pressing problems concerning amaurotic family idiocy in its relation to hereditary and

familial diseases”, which was actually read by Henry Alsop Riley; the talk covered the faulty fat metabolism typical of Tay-Sachs and Niemann-Pick diseases. A paper authored by André Thomas (Paris) was actually read by Jean-Alexandre Barré (Strasbourg), dealt with “Cerebellar, cerebellofugal and cerebellopetal heredoatrophies.” Nicolae Ionescu-Șișești and Gheorghe Stroescu (Bucharest) spoke on “Genetic considerations on the inherited diseases of the basal nuclei, on myopathies, and on von Recklinghausen neurofibromatosis”, Friedrich Curtius (Berlin) on “The hereditary disease of the nervous system in light of modern genetics”, Karl Schaffer (Budapest) on “The general pathology of hereditary diseases of the nervous system”, actually reported by Dezső Miskolczy (Szeged). Twenty-six shorter talks followed by speakers who had registered in advance.

The third Symposium on the neurological aspects of the avitaminoses occurred on Friday. The main lectures were by the discoverer of vitamin D, Sir Edward Mellanby (London) on “Neurological aspects of the avitaminoses, with special reference to the peripheral nervous system”, whose paper was read by Monrad-Krohn; Giuseppe Carlo Riquier (Pavia) “On the clinical and anatomical aspects of the so-called experimental beriberi of pigeons and on the action of vitamin B<sub>1</sub>”; Israel S. Wechsler (New York) “On the etiology and pathology of polyneuritis (polyneuropathy), with remarks on treatment and general neural

degeneration”; Charles C. Ungley (Newcastle upon Tyne) on “Nutritional deficiency and the peripheral nervous system: clinical aspects, with special reference to the role of vitamin B<sub>1</sub>” (that paper was not read); and Hans Peter Stubbe Teglbjærg (Dianalund) on the “Treatment of nervous disorders with vitamins”. Eighteen shorter talks followed by speakers who had registered in advance.

On Thursday, a general session was held that comprised various sections, including Anatomy and Pathology, Physiology and Experimental Pathology, Clinical Neurology, Therapy, Epilepsy, and Neurosurgery. Several pioneers of the neurological sciences were among the speakers, such as Jerzy Rose (Vilnius), who presented work in rabbits on the development of the optic tectum and its relations with diencephalic nuclei; Cornelius Ubbo Ariëns Kappers (Amsterdam), who compared endocranial casts of Java man specimens discovered by Eugène Dubois and Gustav Heinrich von Königswald, Erwin Niessl von Mayendorf (Leipzig) on the anatomical substrate of asymbolias; Alf Brodal (Oslo) on the olivocerebellar projection in rabbits; Hans Gerhard Creutzfeldt (Kiel) on cerebral and cerebellar pathology in diffuse sclerosis; Ilya M. Scheinker (Paris) on cerebral edema in brain tumors; Nils Antoni (Stockholm), Paul Delmas-Marsalet (Bordeaux), Vito Maria Buscaino (Catania), Giuseppe Moruzzi (Cambridge) on epileptiform discharges from the motor cortex, co-authored with Lord Edgar Douglas Adrian,

who had shared the 1932 Nobel Prize with Sir Charles S. Sherrington for their discoveries regarding the functions of neurons; Tracy J. Putnam (Boston), the co-discoverer of dilantin, on the treatment of athetosis by section of the extrapyramidal pathways in the anterior column of the cervical cord; and Herbert Olivecrona (Stockholm) on the surgical treatment of acoustic neurinomas.

## **ELECTROCONVULSIVE THERAPY (ECT)**

A highlight of the Third International Neurological Congress was the introduction by Lucio Bini (1908–1964) of electroconvulsive therapy (ECT) to induce seizures in patients with psychoses for therapeutic purposes. It was the first time that Bini reported such an application of electricity in Psychiatry before a large international audience.<sup>5</sup>

Bini and his collaborator, Ugo Cerletti, had given two lectures on this topic, which they had commenced the year before at the University Psychiatric Clinic of Rome and presented at the Royal Academy of Medicine of Rome under the title “A new method of shock therapy: electroshock” on 28 May 1938. These two physicians gave electroshock to their first patient as a treatment. In Rome, on 11 April 1938, Cerletti and Bini treated Enrico X with a dose of 80V for 0.25 sec. The first try

was a failure but this was not the issue of the ones that followed. In the next trials Enrico X received higher voltages and started to respond to the treatment. Two months later, Enrico X was free to go off the clinic, “calm, well oriented” as Cerletti said. On May 28, the two scientists presented their therapy to the Royal Academy of Medicine of Rome.

Bini gave a lecture in German, which he and Cerletti spoke fluently, entitled “Seizures triggered through electrical current (electroshock)”. Cerletti’s lecture was titled “Der Elektroschock in die Neurologie” (Electroshock in Neurology). In his talk, Bini pointed out that, in order to induce epileptic seizures in human beings, numerous experiments were conducted on animals and much research has been carried out to determine the ideal conditions of the type of electrical current and appropriate type of electrodes, as well as the measuring and regulating instruments.

The type of electric current that was decided as the most suitable was AC of approximately 45 Hz. The tension was measured with a voltmeter and an amperometer and was determined by the resistance of each patient with the help of a chronometer. The range of measured resistance was 151–1500  $\Omega$ . In order to avoid—or at least eliminate—pain, custom broad electrode mountings were made that were placed on the patients’ temples.

They further studied the impact of the shock to the heart and found

that the current had to be regulated to the shortest possible interval of time for the voltage available. The interval was 0.1 sec and the voltage usually between 130–145 V.

The electroshock was successful as a treatment for a range of circumstances that belonged to the category of “crises of an epileptic variety”, using appropriate currents. The shocks were divided into two categories: complete and incomplete. The complete shocks were used for convulsive phenomena and were differentiated into immediate and delayed. The incomplete shocks were “absences” divided into non-appearing and incomplete seizures, depending on the duration and depth of the loss of consciousness and apnea.

With regard to the motor phenomena, the seizures were indifferent as symmetric and asymmetric overall seizures. The former were well known as classic epileptic seizures, whereas the latter took place only in one part of the body, with the patient in a state of decerebration, with the head to one side and limbs in a defending posture. They mentioned that, until then, neither damage nor complications had been observed, even after applying electroshock to some 3000 cases.

Contrary to Bini’s lengthy lecture, Cerletti’s was rather short. He summarized the main points of Bini’s talk, and emphasized the importance of electroshock in neurology and its potential use in gaining more knowledge in other neurological domains.

## **REPRESENTING GREECE**

Among the 338 participants of the Congress, there were nine representing Greece. G. Pamboukis presided over the Greek delegation, and D. Triantaphyllos was the secretary. I. Patrikios, D. Couretas, G. Vlavianos, I. Tsiminakis, K. Konstantinidis, G. Anastasopoulos, and A. Katakouzenos were the other participants from Greece.

## **DISCUSSION**

The International Neurological Congresses played a significant role in establishing interactions among leading neurologists, and provided them with the opportunity to discuss theories, implementations and achievements in their fields of interest. Up until these Congresses took place, communication among members had been difficult, especially at a transatlantic level, as in those days there was a great risk for the loss of letters sent by regular mail. Such a relationship was the one between Knud Krabbe of the Department of Neurology in Copenhagen and Henry Alsop Riley of the Neurological Institute of New York. Krabbe had an

interest in comparative neuroanatomy and neuropathology, and Riley in neuroanatomy, having co-authored anatomical textbooks, including “The Form and Functions of the Central Nervous System”. Their interaction evolved to a significant friendship sharing ideas on their common interests on neurology. Their correspondence arose as a result of the International Neurological Congresses.

Due to the War, the next Congress took place in Paris 10 years later, in 1949. Since then, the Congress has uninterruptedly endured as the central event in world Neurology; it has signified the global presence and coming of age of Neurology as an standalone medical discipline; it facilitated the exchange of ideas across entire schools, and contributed to the dissemination of information and scientific progress in the basic and clinical research in the neurosciences, despite the Cold War and its discontents.<sup>5</sup>

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