



## FEPS NEWSLETTER

February 2011

#26

<http://www.feeps.org>

### Secretariat

#### FEPS Newsletter:

Bianca Feenstra  
Dept. of Physiology  
University Maastricht  
P.O. Box 616  
6200 MD Maastricht  
the Netherlands

Phone: +31-43-3884003

Fax: +31-43-3884166

[B.feenstra@](mailto:B.feenstra@maastrichtuniversity.nl)

[maastrichtuniversity.nl](mailto:B.feenstra@maastrichtuniversity.nl)

### Executive Board of FEPS:

Ulrich Pohl  
Munich, Germany  
President

David Eisner  
Manchester, UK  
President Elect

Ger van der Vusse  
Maastricht, the Netherlands  
Secretary General

Bryndis Birnir  
Uppsala, Sweden  
Treasurer

Ginés M. Salido  
Cáceres, Spain  
Member

Alexej Verkhatsky  
Manchester, UK  
Member

[http://www.facebook.com/  
pages/Federation-of-  
European-Physiological-  
Societies/131608756896823](http://www.facebook.com/pages/Federation-of-European-Physiological-Societies/131608756896823)

# FEPS

## Federation of European Physiological Societies

<u>Letter of the Secretary General of FEPS</u>	1
<u>FEPS 2011 in Istanbul, Turkey</u>	2
<u>FEPS 2012 in Santiago de Compostela, Spain</u>	2
<u>IUPS 2013 in Birmingham, UK</u>	2
<u>New category on FEPS website:</u> Pre- and post graduate student applications: Students looking for physiological research or clinical positions abroad.	3
<u>FEPS on Facebook</u>	3
<u>Famous European Physiologists:</u> <u>Hartog Jacob Hamburger</u>	4
<u>Content of the January and February 2011 issue of Acta Physiologica</u>	8

---

## Letter of the Secretary General of FEPS

---

Dear Colleagues,

2011 will become an important year for FEPS.

In September the FEPS congress will be held in Istanbul Turkey.

The preparations are in full swing. Our Turkish colleagues are doing a great job to make this congress a big success, both scientifically and socially.

During this congress professor Ulrich Pohl will step down as FEPS president and professor David Eisner will take office for the upcoming four years.

The FEPS 2012 congress is scheduled in Santiago de Compostela.

Our Spanish colleagues are starting with the preparations: bids for scientific symposia can be submitted soon.

In 2013 FEPS will participate in the IUPS congress in Birmingham, UK.

Information on these three meetings can be found in this issue of the FEPS newsletter.

I'm looking forward to meeting you in Istanbul.

Ger van der Vusse  
Secretary General of FEPS



## **FEPS 2011 congress in Istanbul, Turkey September 3-7, 2011**

The meeting will start with the traditional European Young Physiologist Symposium (EYPS) on Saturday September 3, organized by and for young physiologists.

The official opening ceremony will take place in the evening of the same day followed by the FEPS keynote Presented by professor Antoon Moorman of the University of Amsterdam. The title of his lecture is "Development of the Building plan of the heart".

On Sunday, Monday and Tuesday September 4-6 the congress harbors scientific symposia, poster presentations and plenary lectures by distinguished physiological scientists.

Wednesday September 7 is reserved for an optional touristic program including visits to the most exciting places in Istanbul, the former capital of three successive empires: the Roman, Byzantine and Ottoman empires. Devised by the Bosphorus, Istanbul is the city where Europe and Asia meet.

Further information can be found on the webpage of the meeting [www.feps2011.org](http://www.feps2011.org).

## **FEPS 2012 congress in Santiago de Compostela, Spain**

The FEPS 2012 congress will be organized by the Spanish Physiological Society with the support of the Endocrine Society of Portugal. The meeting will be held in Santiago de Compostela, Spain from September 8-12, 2012.

The program committee is chaired by professor C. Dieguez of the University of Santiago. The website for further information on this congress will be launched soon.

## **IUPS 2013 in Birmingham, UK**

FEPS will actively participate in the International Union of Physiological Societies (IUPS) congress to be held in Birmingham, UK from July 21-26, 2013.

The IUPS 2013 organising committee is chaired by professor Bridget Lumb. The International Scientific Programm Committee is chaired by professor David Eisner, who is informing us about the call for suggestions for plenary and keynote lectures:

*"As many readers will know, the international Union of Physiological Sciences holds its meetings every four years. The most recent meeting was held in Kyoto, Japan in 2009 and was a resounding success. The next meeting will be held in Europe in July 2013 in Birmingham, UK. Although the official host is the Physiological Society (UK and Republic of Ireland), the meeting organization will be very much a European collaboration, as well as being the annual meeting of the Physiological Society, it will also be the meeting of FEPS and FEPS is represented on both the main organizing committee and the Scientific Programme Committee by its President, Ulrich Pohl. In addition the Scandinavian Physiological Society has made the IUPS meeting its annual meeting for 2013.*

*The meeting will be held in the ICC in the middle of Birmingham. This conference centre is within easy walking distance of hotels and is situated next to pleasant canal side walks with many cafes, bars and restaurants for participants to unwind in.*

*Birmingham is also an excellent centre for those wishing to visit Stratford upon Avon, Wales and the Midlands. Further details are available on the website: <http://www.iups2013.org/index.html>.*

*There is currently a call for suggestions for plenary and key-note lecturers. The organisation would appreciate as many suggestions as possible from FEPS members."*

For detailed information of the IUPS congress check their website [www.iups2013.org](http://www.iups2013.org).

**New category on FEPS website:  
Pre- and post graduate student applications:  
Students looking for physiological research and clinical positions abroad.**

According to the FEPS statutes, one of the objectives of our organisation is to facilitate the exchange of pre- and post-graduate students within the European region on an international scale (objective 2.2.8).

To facilitate the exchange, FEPS has opened a "Student application" link on its webpage.

Pre- and post-graduate students are entitled to post an application (free of charge) for participating in a scientific and/or clinical setting abroad.

Team leaders are invited to browse through these applications and contact the students by email to host a foreign student in their institute.

### **FEPS on Facebook**

Following the latest fashion on the internet (and thanks to Hanny Taylor of the Scandinavian Physiological Society) FEPS has now its own Facebook page!

Here you can become friends with FEPS, post a reaction and read all about our new meetings and events.

It is also possible to post photo's, video's and links on Facebook.

For posting or more information, please e-mail [b.feenstra@maastrichtuniversity.nl](mailto:b.feenstra@maastrichtuniversity.nl)

Check our Facebook page:

<http://www.facebook.com/pages/Federation-of-European-Physiological-Societies/131608756896823>

# Famous European Physiologists

## Hartog Jacob Hamburger Grand Dutch Physiologist

Nico Westerhof

Departments of Physiology and Pulmonary Diseases, Institute for Cardiovascular Research, ICaR-VU, VU University Medical Center, Amsterdam, The Netherlands.

In the middle of the 19th century physiology in the Netherlands reawakened after about one century of 'consolidation' (1). At the then 4 Dutch universities professors of physiology were nominated and new physiological laboratories were opened. This revival resulted in high quality physiology teaching and research with a number of well-known professors.

Physiology grew in quality and, by the end of the nineteenth century, the third generation of Dutch physiologists was of international renown.

The two best known professors around the turn of the twentieth century were Willem Einthoven in Leiden and Hartog Jacob Hamburger in Groningen, who both received their degree in Utrecht under F.C. Donders the first professor of physiology (nominated in 1847). Because so much has been written about Einthoven, I have chosen to pay attention to Hamburger as great Dutch physiologist with his chair in Groningen.

I will introduce his two predecessors in Groningen first, then pay full attention to Hamburger and end with a few short remarks on his successor. Thus my review spans the period between 1851 and 1946.

### Predecessors

**Izaak VAN DEEN.** Van Deen (1805-1869), was the son of Abraham Tiktin Izaäksen, and was born in Germany.

The family soon moved to Copenhagen, where Izaak went to school, and also attended medical school in Copenhagen (medical degree in 1831).

Subsequently the family moved to Groningen where his father became Chief Rabbi. This Danish background explains his name giving (van Deen means "from Denmark").

To obtain a medical license in the Netherlands he got his doctorate in Leiden in 1834 with a thesis on the nervous system.

While working in Zwolle, the Netherlands, he continued his experimental physiological work and published about the nervous system (2). In 1851 he became professor extraordinarius in Groningen and ordinarius (chair and full professor) in 1857. He had to teach Physiology, Pharmacognosy, Pharmacodynamics, and Dietetics and gave special lectures on the nervous system, his main research interest.

In 1866 he moved to a new laboratory for Physiology, and died in 1869.

**Dirk (Derk) HUIZINGA.** Huizinga (1840 - 1903) was born in Den Burg (island of Texel, North Holland) on October 16, 1840. He studied theology, medicine, and mathematics and physics, at the University of Groningen, and obtained his doctorate in science in 1867 with a dissertation entitled: *Enige opmerkingen over ozon* ("Some remarks about ozone").

In 1866 he became a teacher at a high school in Groningen and assisted Professor Van Deen in performing research in physiological chemistry. He became professor of physiology at the University of Groningen, as successor of Professor Van Deen in 1870, and his inaugural lecture was entitled: *Over de ontwikkeling der nieuwere fysiologie* ("About developments of the newer physiology").

A large part of his work was published in the literary-oriented journal *De Gids* ("The Guide"). He also wrote about subjects like: *Een en ander over voeding* ("Some aspects about nutrition"), *Schetsen uit het leven* ("Images from life") and books for grade school pupils. Many of his books were translated into German.

He received an honorary doctorate from Leiden University in 1875, at the occasion of the 300th anniversary of that university. He retired for health reasons in 1901 and died in 1903. He was, in 1901, succeeded by Professor H.J. Hamburger. Dirk Huizinga was the father of the famous historian Johan Huizinga.

**Hartog Jacob HAMBURGER (1859-1924)**

Hartog Jacob Hamburgers was born in Alkmaar in the province of North Holland, on March 9, 1859 as son of David Hamburger and Rebecka Nias. Hamburger went to secondary school (called HBS) in Alkmaar, where he received his diploma in 1877.

This secondary school type did, in contrast to graduates of the gymnasium (Latin school), not allow entrance to the university. He therefore studied two extra years to obtain a certificate that allowed him to attend university. In that period he already performed chemical experiments under the guidance of J. Boeke, director of his secondary school.

He started his studies in chemistry at the University of Utrecht in 1879 and defended his doctoral dissertation in science in an exceptionally short period, namely on June 4, 1883. The dissertation was entitled: *De quantitatieve bepaling van ureum in urine* ("The quantitative determination of ureum in urine").

During the last two years of his study in chemistry he worked as an assistant to Professor F.C. Donders. It seems logical therefore that he started his medical education after obtaining his degree in chemistry.

While working under Donders he wrote his dissertation in medicine and defended it on July 8, 1888. The dissertation was entitled *Staaffesrood in monochromatisch licht* ("Rods-red in monochromatic light"). In 1889 he received his medical license.

He married Regina Cohen Gosschalk on April 1, 1891, and they had two children, a boy and a girl.

In January 1888, the year of the defense of his medical dissertation, Hamburger succeeded H. Zwaardemaker as 'teacher' in physiology, histology, and general pathology and practical microscopy at the Rijksveeartsenijkundige School (State Veterinary School) at Utrecht.

There he already earlier started a new direction in physiology, namely the physical chemistry approach.

He proposed, in 1883, that osmosis, already known to exist in plant cells, also is present in mammalian cells and that both 'types' of osmoses are based on the same physico-chemical principles.

The general, main theme of his research that always remained the leading direction in his whole carrier, was that physico-chemical principles play an important role in physiology and thereby also in medicine.

In 1892, at the second international physiological congress at Liege in 1892, he demonstrated that 'the law of isotony' plays a role in physiology, thereby convincingly showing the important role of the physico-chemical approach in physiology.

Hamburger had a heavy teaching load at the Veterinary School but yet he found time for research. He studied the effect the respiration on the size of the red blood cells, the origin of the lymph, resorption in the intestinal tract, and permeability of mammalian cells for anions. He was the first to describe his discovery of ion shift, namely that at high blood CO<sub>2</sub>, chloride ions move from the plasma to the red blood cells. This is the so-called Hamburger shift of the blood. This theorem is not mentioned anymore as "Hamburger shift" in modern textbooks of physiology.

He also studied comparative pathology. While still at the Veterinary School at Utrecht he started to work on his three volume book:

*Osmotischer Druck und Ionenlehre in den medicinischen Wissenschaften*: ("Osmotic pressure and ion theory in medical sciences") (Wiesbaden, 1902-1904).

In 1901 Hamburger assumed the position of full Professor ('ordinarius') of Physiology and Histology, at Groningen University as the successor of Professor Huizinga. He presented his inaugural lecture, entitled *De physische scheikunde in hare beteekenis voor de geneeskundige wetenschappen* ("The physical chemistry in its role for medical sciences") on September 28, 1901.



While at Groningen university he continued his research and studied fagocytosis and published this work in the book entitled *Physikalisch-chemische Untersuchungen über Phagozyten* (Wiesbaden, 1912).

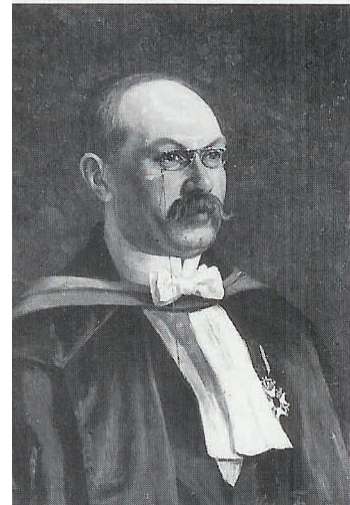
He also continued his research on what then became known as vital permeability, i.e., permeability changes of the cell membrane as determined by the physiological condition (Hamburger shift) and this subsequently led to further research on the permeability of the membrane of the glomerulus for glucose. Many of his pupils became professors: E. Laqueur, I. Snapper, W. Radsma, J. de Haan, R. Brinkman, S. van Creveld and E. Brouwer.

In 1911 he opened his new physiological laboratory, replacing the one built by Van Deen in 1866. This laboratory was, for many years, considered as an example of modern research laboratories.

In 1913 he organized the 9th International Congress of Physiology in Groningen.

In this context it is of interest to mention that the 1st Int Congress of Physiology was held at Basle, in 1889 and that the frequency of these meetings was less than every other year. Also the International Union of Physiological Societies, IUPS, did not yet exist.

The IUPS started only in 1953, and Professor Duyff, head of Physiology at Leiden, organized the 22nd IUPS (counting seems arbitrary here) meeting in Leiden in 1962.



National and international recognition of his research, while still at Utrecht, began around 1896. In that year he became member of the Koninklijke Nederlandse Academie van Wetenschappen (Royal Netherlands Academy of Arts and Sciences). He received Honorary doctorates from the University of Aberdeen (Scotland, 1906), the Veterinary School (Utrecht, 1921) and the University of Padua (Italy, 1922). In 1908 he received, in memory of the 25th anniversary of his doctorate in chemistry, an international commemorative book, *Festband der biochemischen Zeitschrift, H.J. Hamburger gewidmet*, ("Commemorative volume of the biochemical journal honoring H.J. Hamburger").

After the end of the first World War, although in poor health, he maintained the many contacts with physiologists all over the world.

Several foreign researchers joined his laboratory in Groningen. Among them was Albert von Szent-Györgyi, who worked in the laboratory of Hamburger between 1920 and 1924, and discovered vitamin C. Unfortunately funding dried up with the death of Hamburger in 1924 and von Szent-Györgyi had to leave. Von Szent-Györgyi received the Nobel prize for physiology and medicine in 1937.

Hamburger visited the University of London in 1921, where he presented a lecture entitled '*Discourse on permeability in physiology and pathology*' (*The Lancet* 99 (1921) II, 1039-1045).

In 1922 he visited the United States of America for a series of 14 lectures, three among them in the context of the so-called Charles E. Dohme Memorial Lectureship, entitled '*The increasing significance of permeability problems for the biological and medical sciences*' (*Bulletin of The Johns Hopkins Hospital* 34 (1923) 173-181). These lectures consisted of an overview of the work performed in the laboratory for physiology of Groningen University.

Hamburger published many papers, both in Dutch (het Nederlands Tijdschrift voor Geneeskunde (Netherlands Journal of Medicine, established 1857), and in German. He published more than 50 articles in the Nederlands Tijdschrift voor Geneeskunde with only one paper with a co-author.

The main foreign journals he published in were: *Virchows Archiv*, (begun in 1847), *Zeitschrift für Analytische Chemie* (Dr. C.R Fresenius), now *Fresenius' Journal of Analytical Chemistry*, started in 1861, and the *Klinische Wochenschrift*, started in 1864, and presently, since 1922, the *Journal of Molecular Medicine*. Again only a few articles had a co-author.

It is interesting to note that he did not publish in the now classical journals of physiology, namely *Pflügers Archiv* (now *European Journal of Physiology*), established in 1868, the *Journal of Physiology* (London) from 1878, and the *American Journal of Physiology*, established in 1898.

Hamburger was Rector Magnificus of the University of Groningen in 1914, during the 300th anniversary of the university. He presented his commemorative speech on June 30. This speech was entitled *De oude en de moderne universiteit in wetenschap en maatschappij* ("The old and modern university in science and society"). His term of Rector Magnificus ended on September 21 1914, where he presented a lecture entitled *De toenemende beteekenis der chemie voor ons geneeskundig denken en handelen* ("The increasing importance of chemistry in medical science and treatment").

Hamburger was not only involved in science but also was interested in societal aspects. He was vice-president of the society pledging to allow graduates of the secondary school HBS to enter the university, and not only students with a gymnasium ('latin school') diploma (Hamburger spent 2 extra years to obtain the papers allowing him entrance to the university). He pleaded for special schools (Universities) of veterinary medicine and agriculture.

He also advised the Dutch government on nutrition and devised a curriculum that, by means of summer classes, made teaching on hygiene and nutrition available for pupils of vocational schools. Hamburger was an enthusiastic teacher and students liked his interesting lectures. He was a kind person who was always willing to advise his students. Through his personal relations with the students he had great influence on them. Thanks to his enormous energy he managed to perform high quality research while much of his time was to be spent on teaching. (3)

Hamburger died in 1924, and was succeeded by Buytendijk.

**Frederik J.J. BUYTENDIJK.** Buytendijk (born in 1887) succeeded Hamburger in 1925 (until 1946). Buytendijk was much less an experimental physiologist but more inclined to philosophical anthropology. Buytendijk became Professor of Psychology at Utrecht in 1946 and subsequently at Nijmegen. He died in 1974.

#### **RELATION WITH THE NEDERLANDSE VERENIGING VOOR FYSIOLOGIE**

The Nederlandse Vereniging voor Fysiologie ("Dutch Society of Physiology") organizes a yearly congress for the Dutch physiological community. Part of the meeting is especially set aside for the young physiologists. Also the best doctoral dissertation in physiology is awarded with the Hamburger prize. The recipient gives a 45 minute lecture on the contents of her/his dissertation.

#### Literature

1) G.A. Lindeboom. *Geschiedenis van de medische wetenschap in Nederland*, Fibula-Van Dishoeck, Haarlem 1981 (tweede druk)

2) Van Deen I. *Over de voorste en achterste strengen van het ruggemerg*. *Tijdschrift van Natuurlijke geschiedenis en physiologie*. V, 1838-'39, 151-86, reprinted in *Opusc.* IV, 341-62.

3) H. Beukers. *Het fenomeen Hamburger*. In: G. A. van Gemert, J. Schuller tot Peursum-Meijer, Arie Johan Vanderjagt, *Om niet aan onwetendheid en barbarij te bezwijken: Groningse geleerden 1614-1989*.

#### **Correspondence**

N. Westerhof, Department of Physiology  
VU University Medical Center  
van der Boechorststraat 7, 1081 BT Amsterdam, The Netherlands  
e-mail: [n.westerhof@vumc.nl](mailto:n.westerhof@vumc.nl)  
Phone: 31-20-4448118.



## Contents of Acta Physiologica January, February and March 2011

---

Click on the link to check the issues of January, February and March 2011

**January 2011 Volume 201, issue 1, page 1-192:**

<http://onlinelibrary.wiley.com/doi/10.1111/apha.2010.201.issue-1/issuetoc>

**February 2011 Volume 201, issue 2, page 193-294**

<http://onlinelibrary.wiley.com/doi/10.1111/apha.2011.201.issue-2/issuetoc>

**March 2011 Volume 201, issue 3, page 295-403**

<http://onlinelibrary.wiley.com/doi/10.1111/apha.2011.201.issue-3/issuetoc>