MEMORY OF THE WORLD REGISTER

Ignác Semmelweis and the Practice of Aseptic Childbirth

(Hungary)

Ref N° 2010-46

PART A – ESSENTIAL INFORMATION

1 SUMMARY

The document created in 1861 deals with a single issue of medical science: namely how to prevent a common infection by a special procedure in an age characterized by a limited knowledge of microbiology.

The document is a single sheet printed notice by a Hungarian physician, Ignác Fülöp Semmelweis, issued on 27 March 1861.

The title of the document is: "Instruction to the medical students studying at the Maternity Hospital of the Hungarian Royal University of Pest to prevent childbed fever". Semmelweis had this Instruction presented on the doors of the wards in the Obstetrical Clinic that he chaired and all persons entering the wards were obliged to follow its requirements.

Aseptic prevention in medical practice was not known or justified by a cause and effect relationship until the middle of the 19th century. It was Ignác Semmelweis who first provided the explanation for this, also elaborating and introducing into medical practice a rigorous method of aseptic prevention. Semmelweis proved in the case of a maternity ward that puerperal fever, having led earlier to particularly high mortality rates, can be fully prevented. He determined the aetiology of puerperal fever and, in doing so, also proved that the infection can be fully prevented if the persons getting into contact with the women giving birth thoroughly sterilize their hands. The prevention recommended by him is unique and was accepted relatively slowly in the world, although others also studied this phenomenon.

There is only one known copy of this Instruction, which belongs to the collection of the Semmelweis Museum, Library and Archives of the History of Medicine, a national, public museum of Hungary specializing in the history of medicine.

2 DETAILS OF THE NOMINATOR

2.1 Name (person or organisation)
Semmelweis Museum, Library and Archives of the History of Medicine

2.2 Relationship to the documentary heritage nominated
Owner and custodian

2.3 Contact person (s)
Benedek Varga, director general of the Semmelweis Museum, Library and Archives of the History of Medicine

2.4 Contact details (include address, phone, fax, email)
Budapest, H-1013, Apród Str. 1-3, Hungary
phone: (+361) 201 15 77
fax: (+361) 375 39 36
semmelweis@museum.hu
vargabenedek@semmelweis.museum.hu

3 IDENTITY AND DESCRIPTION OF THE DOCUMENTARY HERITAGE

3.1 Name and identification details of the items being nominated

« Instruction to the medical students studying at the Maternity Hospital of the Hungarian Royal University of Pest to prevent childbed fever »

Registry number: SOM : XI/2 67.409.1.

3.2 Description

Basic data
single sheet printed notice
age : 1861
place : Pest (Budapest)
printed by Gusztáv Emich
size : 206x365 mm
material: paper

Provenance:
The documentary heritage (a print ordered by Ignác Semmelweis himself) was used at the Medical Faculty of the Royal University of Sciences of Pest instruct students what sort of hygienic requirements they should meet. There might have been 20-50 prints of the Instruction by the known academic printer Gusztáv Emich. Academic printers were used to produce small circulation of prints, and although we have no exact knowledge about the number of copies Semmelweis have ordered, we can assume that the printer would not produce less than 20 copies, and on the other hand, 50 copies could have been the maximum Semmelweis might use in the hospital.

This particular copy belonged to the collection of the Royal Association of Budapest Physicians. The Association, established in 1839 in Pest, was the main academic forum of medical science in 19th and early 20th century Hungary. Besides providing the means for conferences, public lectures and professional discussions the Association collected books, manuscripts and even artistic objects, related to medicine, as well. When, due to communist takeover and subsequent Sovietisation, it was abolished in 1949, its library was moved to another building, and was united with the library of the former Order of Charity (also dissolved by the government). These two made up the National Library of Medical History. The print belonged to this collection between 1950/51-1967. In 1965 the National Library of Medical History was integrated into the Semmelweis Museum of the History of Medicine. In 1967 this
documentary heritage (along with dozens of other small prints), were removed from the Library collection, and placed into the Museum’s Small Print Collection. It is still preserved there. Therefore we have a clear and continuous line of provenance.

Analysis of physical state:
Wood based paper, on recto printed text (Instructions by Semmelweis) with the date of 1861. On verso handwritten text by ink (list of cloths and shirts) and inventory numbers by pencil.
Yellowish-brown paper, slightly acidic Ph value, but is still flexible. On the bottom third of the paper in the middle of the recto bigger shadowy mark or blemish, possibly of fat origin. The print was cleaned and renewed; its tears were amended in the 1980s. In good condition.
Has been kept in acid-free box, among acid-free covers (pallium), in a lying position. Maximum length of exhibition: 3 months, under strict UV and IR protection.

4 JUSTIFICATION FOR INCLUSION/ ASSESSMENT AGAINST CRITERIA

4.1 Is authenticity established?
Yes, it has been. The print was made in Pest in 1861 by Gusztáv Emich, a well known printer for the Hungarian Academy of Sciences. Semmelweis himself refers to this Instruction in his “Die Aetilogie, der Begriff und die Prophylexis des Kindbettfiebers (Pest-Wien-Leipzig, 1861), and it has been widely mentioned in the contemporary and later literature, that Semmelweis presented Instructions on the doors of the hospital ward and was very strict that the requirements should be met.

4.2 Is world significance, uniqueness and irreplaceability established?
Yes, it has been. It is the only known copy of this print which was intended to instruct the students and midwifes studying at the Hungarian Royal University of Pest (Budapest) about the prophylaxis he introduced. Although this is not the first publication or communication of his discovery, it is the only known document which he issued for the students and his staff, and which also summarises his theory.

4.3 Is one or more of the criteria of (a) time (b) place (c) people (d) subject and theme (e) form and style (f) social, spiritual and community significance satisfied.
Actually, each criteria is met.

A) Criterion one: Time
Aseptic prevention in medical practice was not known or justified by a cause and effect relationship until the middle of the 19th century. It was Ignác Semmelweis, a Hungarian physician, who first provided the explanation for this, also elaborating and introducing into medical practice a rigorous method. Semmelweis proved in the case of a maternity ward that puerperal fever, having led earlier to particularly high mortality rates, can be fully prevented. He determined the aetiology of puerperal fever and, in doing so, also proved that the infection can be fully prevented if the persons getting into contact with the women giving birth thoroughly sterilize their hands. He was the first in the world to prove that puerperal fever is one and the same as pyaemia. The prevention recommended by him was unique and was
accepted relatively slowly in the world, although others also studied this phenomenon. The distinctive nature of Semmelweis’s explanation is embodied in the fact that before the establishment of the modern bacteriological approach, he was able to understand what causes the development of childbed fever and how to avoid the disease by reliable preventative action. His views were vindicated by valid microbiological knowledge, developing in the 1870s (Pasteur, Koch) and the surgical practice based on it from the 1880s (Lister).

B) Criterion two: Place
The place is Budapest. Ignác Semmelweis worked in two institutions here: first at St Rochus Hospital and then at the Obstetrical Clinic. He worked at St Rochus Hospital for six years, until 13 June 1857. In that period there were 933 childbirths at the hospital and only 8 childbearing women (i.e. 0.85%) died from puerperal fever. During those years the mortality rate from childbed fever in Vienna or Prague, for example, was as high as 10-15%, but the European average was also between 8 and 9%. He was later able to further decrease the above rate at the Obstetrical Clinic of the university in Budapest, as in 1860 and 1861 he managed to have no case of childbed fever in the unit headed by him.

C) Criterion three: People
On the basis of contemporary medical theory, it was difficult to accept Semmelweis’s explanation, according to which puerperal fever, appearing in the maternity wards of hospitals all over the world, can be derived from one single cause. One of the groundbreaking significances of Semmelweis’s findings is that he broke away from assuming multifactorial explanations. Instead, he traced back the development of puerperal fever to one single cause, namely that decaying organic matter is carried into the wards on the hands of physicians and medical students, causing infection which leads to death in a great percentage of labouring women. The identification of childbed fever with pyaemia is attributed to Semmelweis, and he fought long and hard to have his discovery acknowledged.

D) Criterion four: Subject and theme
The document created in 1861 deals with a single issue of medical science: namely how to prevent a common infection by a special procedure in an age characterized by a limited knowledge of microbiology. This aseptic approach and the related cause and effect principle are clearly associated with the name of Ignác Semmelweis, who applied it with complete success in the maternity wards headed by him in Budapest.

The single sheet printed notice by Ignác Semmelweis, issued on 27 March 1861, belong to the collections of the Semmelweis Museum, Library and Archives of the History of Medicine.

The title of the document is: "Instruction to the medical students studying at the Maternity Hospital of the Hungarian Royal University of Pest to prevent childbed fever". Semmelweis had this Instruction presented on the doors of the wards in the Obstetrical Clinic that he chaired and all persons entering the wards were obliged to follow it.

The Instruction reads as follows:

“Pest, 7 May 1861

[Document content]
Childbed fever is induced in most of the cases by the students examining delivering women with hands contaminated with decaying animal matter. Fingers are contaminated in this way when the examiners deal with decaying corpses or puerperae producing decaying animal matter, or treat cases of a similar kind in gynaecology hospitals.

Therefore doctors dealing with corpses or the above mentioned cases cannot be admitted to practical obstetrics. These include assistants working in descriptive and pathological anatomy, assistant doctors at surgical hospitals and units, trainee surgeons etc.

Students of practical obstetrics are obliged to wash their hands with chlorinated lime solution placed in each delivery ward, before and after all the examinations, until they become slippery.

Those who fail to wash their hands properly will be banned from the course in obstetrics.

As obstetricians and midwives cannot in their private practice avoid coming into contact with patients generating decaying matter, they are strictly recommended to wash their hands with chlorinated lime solution before and after each obstetric examination so as to avoid causing an outbreak of puerperal fever by failing to do so.

Ignác Semmelweiss
University Professor of Obstetrics

The Instruction is the first exact formulation of the modern principle of non-infection (or asepsis) recognized by Semmelweis in 1847 and adopted in later decades and after long debates by the whole world.

During his earlier career in Vienna, Semmelweis was unable to get his findings on childbed fever accepted and to achieve that the preventative regulations were officially introduced in the clinics in Vienna. For example in 1846 in the first clinic in Vienna, which also provided medical training, out of 4010 women giving birth 459 (that is 11.4%), died from puerperal fever. He tried to explore the causes and identified them as external infections. He thought that “Childbed fever is an absorption fever transmitted by decaying animal matter. Childbed fever is not an independent disease but a variety of pyaemia.” Semmelweis wanted to prove that puerperal fever was produced by external infection, and this is how he explained its cause: “Decaying animal-organic matter is carried by examining fingers, operating hands, instruments, bed-linen, sponges, basins, hands of midwives and attendants getting into contact with decaying substances secreted by patients suffering from serious cases of childbed fever or by other patients and then getting into contact again with labouring women or those who have just given birth. In other words, decaying animal-organic matter is carried by everything contaminated by decaying animal-organic matter and getting into contact with the genitals of individuals. The disease can be found ... after the absorption of decaying animal-organic matter in anatomists, surgeons and patients who are operated on surgical wards etc.”

From then on he was fighting to prevent decaying organic matter from being transmitted into puerparae, warning: “Don’t introduce decaying organic substances into the body, and remove those substances from the body before they could be absorbed.” This is basically the 'non-infectio' principle of modern surgery, and Semmelweis was the first in the world to recognise
it. He established unequivocally that childbed fever was caused by decaying organic matter carried into the delivery wards by human hands if those hands come into contact with the genitals of the women giving birth.

Some of the Viennese specialists frowned on Semmelweis’s statements and teachings, and from 20 March 1849 he had to leave the Vienna General Hospital forever.

He returned to Budapest, his native city, in October 1850 and worked here until his death as an acknowledged obstetrics specialist. From 20 May 1851 he worked as head physician in St Rochus Hospital and that was when the maternity ward, which had earlier been under the same control as the surgical ward, became independent. Semmelweis worked in St Rochus Hospital for six years (until 13 June 1857), and during that time he was able to reduce the maternal mortality rate from puerperal fever to a striking 0.85%. In those years in Vienna and Prague for example the mortality rate from puerperal fever was 10-15%.

On 18 July 1855 he was appointed professor of obstetrics at the University of Pest and at the same time the director of the Obstetrical Clinic, but for two years he kept his chair as head of the maternity ward of St Rochus Hospital. He continuously made efforts to prove his theory on childbed fever: his series of articles was published in the Hungarian language Medical Weekly (Orvosi Hetilap) from 1858, and his book in German appeared at the end of 1860, with already 1861 printed on its cover. Semmelweis’s discovery finally led to a victory: with the help of his strict rules, in 1860-61 he managed to have no cases of death from puerperal fever at all in his clinic.

This was the time when his famous instruction was written.

E) Criterion five: Form and style

The single sheet print from 1861 is a world rarity with only a couple of surviving copies. It is a true bibliographical rarity. The document is in good condition, and the complete text is extant. It is in a secure place, kept in a public collection. Several certified copies of the document have been made, which have been placed in different collections.

Our goal is to make the copies of the document accessible and also to ensure that the related historical background and the process in scientific history are explored. This work is coordinated in Budapest by the Semmelweis Museum, Library and Archives of the History of Medicine, one of whose buildings can be found in the house where Ignác Semmelweis was born. Semmelweis’s lifetime achievement itself needs also protection, as today he is sometimes – mistakenly– considered an Austrian scholar, although he was born in Budapest (then Pest) and it was Budapest where he returned to after working in Austria for a few years, and where he was appointed professor and head of a clinic. And above he considered himself Hungarian throughout his life.

Several hundreds of studies and scientific monographs have been published about his achievements both in Hungary and abroad; his activities can be followed in Hungarian, German, French and English language monographs (often scattered with the distortions mentioned above). He is also commemorated in a modern Norwegian play, a contemporary Italian opera and several films. A truly internationally renowned physician, he was, with everlasting achievements not only in medical theory but in medical practice as well.
4.4 Are there issues of rarity, integrity, threat and management that relate to this nomination?

The print is a rarity, in respect of its uniqueness, as the single remaining copy, which communicates a scientific discovery in the form of an instruction for hospital staff. It is a complete document, the whole text has been survived. Its significance has been realized, that is why an identical copy has been placed in our permanent exhibition to inform our visitors. The text has been re-printed in medical history literature, and access to the original documentary heritage has been guaranteed on the bases of scholarly and scientific investigation.

5 LEGAL INFORMATION

5.1 Owner of the documentary heritage (name and contact details)
Semmelweis Museum, Library and Archives of the History of Medicine
Benedek Varga, director general
Budapest, H-1013, Apród Str. 1-3, Hungary
www.semmelweis.museum.hu

5.2 Custodian of the documentary heritage (name and contact details, if different to owner)
Same.

5.3 Legal status:
(a) Category of ownership: Semmelweis Museum Library and Archives of the History of Medicine, as one of the national museums of Hungary, is the owner and custodian of the print.

(b) Accessibility: an identical copy is on display in the Museum’s permanent exhibition, the original print is kept in a box but access for scientific or scholarly studies is provided.

(c) Copyright status: full copyright status is at the Semmelweis Museum

(d) Responsible administration: The Semmelweis Museum, Library and Archives of the History of Medicine, is a government sponsored public collection. Our activities are supervised by the Ministry of Education and Culture.

(e) Other factors

6 MANAGEMENT PLAN

6.1 Is there a management plan in existence for this documentary heritage? YES/NO

The print is kept in the Small Printed Items Collection (XI/2) of the Semmelweis Museum, Library and Archives, in its building at Apród Str 1-3. The direct environment (temperature,
humidity, light air pollutants, insects) of the document and the storage room itself is continuously and fully monitored and kept under control.

7 CONSULTATION

7.1 Provide details of consultation about this nomination with (a) the owner of the heritage (b) the custodian (c) your national or regional Memory of the World committee

The Hungarian National Committee for the Memory of the World
Semmelweis Museum, Library and Archives of the History of Medicine

PART B – SUBSIDIARY INFORMATION

8 ASSESSMENT OF RISK

8.1 Detail the nature and scope of threats to this documentary heritage

This documentary heritage has not been imperiled. No physical or political situation put it at risk. The authenticity and uniqueness of the documents is established, and Semmelweis originality has benne accepted.

9 ASSESSMENT OF PRESERVATION

9.1 Detail the preservation context of the documentary heritage

The documentary heritage is kept in a box made of strong, acid free paper, designed and manufactured for archival materials. The box closes well, so dust and any air pollutants could hardly gain access into it. The storage room is on the first floor of our building at Apród Str 1-3, which also houses the museum. The house is kept in good condition. The storage rooms have been monitored on daily bases: temperature, relative humidity, light have been checked and its data are collected into books which is kept for a year. The storage rooms are cleaned thrice in a week. The whole house certainly has an advanced electronic alarm system against both illegal intruders and fire. In any case our security staff would carry out its task.

There are various copies of the documentary heritage. The most recent, which has been presented in the Museum’s temporary exhibition, was made by computers technique: a digital photo was printed on paper keeping the shape and colours of the original one. A copy of there has been attached to this application.

The Semmelweis Museum, Library and Archives has a staff of all professionals needed to run a public collection: museum experts, librarians, archivists, consecrators, photographers and historians, art-historians, archaeologists, museum and library pedagogues, etc. with college (university) degrees, and reliable working experience. Certainly, the well educated staff is a guarantee for the preservation of items of our collection, including this documentary heritage.