The following nomination is for the discovery of the causes of childbed fever and elaborating aseptic prevention against it by Ignaz Philipp Semmelweis between 1847-1861. Semmelweis’s theory appeared in a number of publications, which he authored between 1858-1861. This collection of printed materials are in the custody of the Semmelweis Museum, Library and Archives, a national collection of Hungary that collects, preserves and presents the history of medicine in general.

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 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 sterilise their hands. The prevention recommended by him is unique and was accepted relatively slowly in the world, although others also realised his achievement and studied this phenomenon.

2.1 Name of nominator (person or organization)

Semmelweis Museum, Library and Archives of the History of Medicine

2.2 Relationship to the nominated documentary heritage
Owner and custodian

2.3 Contact person(s) (to provide information on nomination)
Benedek Varga, director general of the Semmelweis Museum, Library and Archives of the History of Medicine
2.4 Contact details

Name: Benedek Varga, director general
Address: Budapest, H-1013, Apród Str. 1-3, Hungary

Telephone: (+361) 201 15 77
Facsimile: (+361) 375 39 36
Email: vargabenedek@semmelweis.museum.hu

semmelweis@museum.hu

3.0 Identity and description of the documentary heritage

3.1 Name and identification details of the items being nominated

If inscribed, the exact title and institution(s) to appear on the certificate should be given

The following items are nominated as a collection for the registry of the Memory of the World Programme:

Number One:

«Professor Semmelweis Ignác: A gyermekágyi láz kóroktana » [Aetiology of Childbed Fever] published in Orvosi Hetilap, Pest [Medical Weekly] in seven chapters in issues 1st, 2nd, 5th, 6th, 21st, 22nd, 23rd of volume 1858

Number Two:

Professzor Semmelweis Ignácz: «Utasítvány a pesti m. k. egyetemi, szülészeti kórodán tanuló és tanulónők részére, a gyermek ágyi-láz elhárítása végett. » Pest, 1861.)

[Instruction to the Medical Students Studying at the Maternity Hospital of the Hungarian Royal University of Pest to Prevent Childbed Fever by Ignác Semmelweis] (Pest, 1861.)

Number Three:

« Die Aetiology, der Begriff und die Prophylaxis des Kindbettfiebers von Ignaz Philipp Semmelweis.» (Pest, Wien und Leipzig, 1861)

[Aetiology, Concept and Prophylaxis of Childbed Fever] (Pest, Vienna and Leipzig, 1861)

Number Four:

Zwei offene Briefe an Dr. J. Spaeth Professor der Geburtshilfe an der K.K. Josefs-Akademie in Wien, und an Hofrath Dr. F. W. Scanzoni, Professor der Geburtshilfe zu Würzburg von Dr. J. Ph. Semmelweis, Professor der Geburtshilfe an der königl. ungar. Universität zu Pest. (Pest, 1861)
[Two Open Letters to Dr. J. Spaeth, Professor of Obstetrics at the Imperial and Royal Joseph-Academy in Vienna, and to Royal Councillor Dr. F. W. Scanzoni, Professor of Obstetrics at Würzburg, by Dr. J. Ph. Semmelweis, Professor of Obstetrics at the Hungarian Royal University at Pest] (Pest, 1861)

Number Five:

Zwei offene Briefe an Hofrath Dr. Eduard Cas. Jac. v. Siebold, Professor der Geburtshilfe zu Göttingen, und an Hofrath Dr. F. W. Scanzoni, Professor der Geburtshilfe zu Würzburg von Dr. J. Ph. Semmelweis, Professor der Geburtshilfe an der königl. ungar. Universität zu Pest. (Pest, 1861)

[Two Open Letters to Royal Councillor Dr. Eduard Ca. Jac. c Siebold, Professor of Obstetrics at Göttingen, and to Royal Councillor Dr. F. W. Scanzoni, Professor of Obstetrics at Würzburg, by Dr. J. Ph. Semmelweis, Professor of Obstetrics at the Hungarian Royal University at Pest] (Pest, 1861)

Number Six:

Offener Brief an sämmtliche Professoren der Geburtshilfe von Dr. Ignaz Philipp Semmelweis, Professor der Geburtshilfe an der königl. ungar. Universität zu Pest. (Ofen, 1862)

[Open Letter to All Professors of Obstetrics by Dr. Ignaz Philipp Semmelweis, Professor of Obstetrics at the Hungarian Royal University at Pest] (Buda, 1862)

In this part of the form you must describe the document or collection in sufficient detail to make clear precisely what you are nominating. Any collection must be finite (with beginning and end dates) and closed.

3.2 Catalogue or registration details

Catalogue numbers of the items mentioned above:
SOK= Semmelweis Library for the History of Medicine, Budapest
SOM=Semmelweis Museum for the History of Medicine, Budapest

1. SOK: P.695 / I.R.
2. SOM XI/2 67.409,1.
3. SOK 18326 /S, 351.
4. SOK 2452/ S.809.
5. SOK 75633/ S.966
6. SOK 20552 /S.353.

Depending on what is being nominated, appending a catalogue can be a useful way of defining a collection. If this is too bulky or impractical, a comprehensive description accompanied by sample catalogue entries, accession or registration numbers or other ways
of defining a collection’s size and character can be used.

3.4 History/provenance
Describe what you know of the history of the collection or document. Your knowledge may not be complete, but give the best description you can.

Number One:
The first printed publication of Semmelweis’s discovery as appeared in the Hungarian Medical Weekly (Orvosi Hetilap) in 1858. It was published in seven chapters, in consecutive issues of the year. The journal was published literary week by week, and was run in about 100 copies by the end of the 1850s. This particular copy of the journal of this year belonged to the Library of the Royal Association of Budapest Physicians, from where the Semmelweis Museum, Library and Archives has inherited it. Copies of the journal are available in some of the main Hungarian and foreign libraries as well.

Number Two:
The documentary heritage (a print ordered by Ignác Semmelweis himself) was used at the Medical Faculty of the Royal University of Sciences of Pest to instruct students what sort of hygienic requirements they should meet. There might have been 20-30 prints of the Instruction produced 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, 30 copies could have been the maximum Semmelweis might use in the hospital. This is the only copy of this print existing in public collection.

This particular copy belonged to the collection of the Royal Association of Budapest Physicians. The Association, established in 1837 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 united with the recently established 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.

Number Three:
Semmelweis’s main work on the causes and prophylaxis of childbed fever. After publishing his thesis in 1858 in Hungarian in the Orvosi Hetilap, Semmelweis decided that he needed to reach the international medical public in a language available for
them. He worked for two years on this book in German, and decided to bring it out with the copyright in Pest (the name was changed for Budapest in 1874) Vienna and Leipzig. The book, being much longer than the original Hungarian publications gives the most detailed analysis how he had realised the causes of childbed fever, how he could reduce mortality rates, and how his achievements are compared to earlier and later data in the same hospital wards. Also, he gives statistics about his success in the St Rochus Hospital at Pest, and gives numerous arguments against the childbed fever being an epidemic, and criticising the way it was treated by other doctors in other institutions.

The book was probably published in less than a 100 copies. There are no reliable records on the number of prints by the Hartleben Verlag, neither by its Hungarian branch. The estimate comes from the circulation of similar books on science of the age.

The original edition is available at some of the main libraries worldwide. Particularly, in the Österreichische Nationalbibliothek, Vienna; the Wellcome Library for the History of Medicine, London; the Library of Congress, Washington; the National Library of Medicine, Bethesda; Bibliotheca Universitaria, Pavia, etc.

However, there are no copies of the original edition (among other libraries) in the Bibliothèque Nationale, Paris; Deutsche National Bibliothek, Frankfurt a.M.; the Herzog August Bibliothek, Wolfenbüttel; the Bodleian Library, Oxford; the Biblioteca Nacional de España, Madrid.

The particular copy owned by the Semmelweis Museum, Library and Archives originally belonged to the Library of the Union of Medical Students of the Budapest Royal University of Sciences and was later owned by the Royal Association of Budapest Physicians from where we inherited it.

**Number Four:**

Publishing his major work Semmelweis met serious critics from various professors of obstetrics mainly from Austria and Germany. He decided to address some of them in open letters which he brought out in pamphlet forms in the following years. The first open letter was directed to his two main ardent opponents: Joseph Spaeth, who worked at the time at the Josephinum at Vienna, and Friedrich Wilhelm Scanzoni, originally from Prague, who was the chair of obstetrics at Würzburg. Semmelweis made direct attacks on their ideas in the papers.

This edition appeared in less than a 100 copies. The copy in the collection of the Semmelweis Museum, Library and Archives belonged to the Library of the Royal Association of Budapest Physicians, from where our collection inherited it.

**Number Five:**

In the same year as Semmelweis published his first Offene Briefe (to Spaeth and Scanzoni) he reverberated his main points once again and published a new pamphlet to Eduard Siebold from Göttingen and the aforementioned Scanzoni once again. The edition again was published in less than a 100 copies. The copy in the collection of the
Number Six:
In a desperate move to convince his contemporary colleagues in obstetrics Semmelweis published an open letter in German to all of them, in order to convince them that by applying simple precautionary methods the high mortality rates of puerperal fever could be substantially reduced. The aim of this pamphlet was not debate, but propagation of a viable method that could save the life of tens of thousands of women still dying in vain. The edition was probably published in between 100-200 copies, as it aimed a wider public. The copy in the collection of the Semmelweis Museum, Library and Archives also belonged to the Library of the Royal Association of Budapest Physicians, from where our collection inherited it.

It is fully responsible for the preservation of the documents.

4.4 Accessibility

Describe how the item(s) / collection may be accessed

The documents are kept in the special rarity collection (labeled “S” collection) of our Library and one in our Museum units. These can be consulted by any adult reader (above the age of 18). Underage readers need to present a special letter of recommendation from their headmaster stating the purpose of direct access to the books.

Identical copies of the documents are presented in the permanent collections of our Museum branch which are seen by thousands of visitors every year.

On our website presents the frontispieces of the documents, and the complete text of the article in the Orvosi Hetilap (Number One), and that of the Utásítvány (Number Two).

All access restrictions should be explicitly stated below:

All restrictions to the access are according to Hungarian national regulations. Any adult (above the age 18) be foreign or Hungarian can read them in our Library and Archive Reading Hall. No possibility for borrowing, be it via interlibrary lending routines or directly.

Access is only restricted by the considerations of preserving the documents: wearing white woolen gloves and using pencils are required. These are provided by the Library. Consulting the books can only be carried out under strict supervision by a member of the Library staff, without using pens, or ink.

Encouraging accessibility is a basic objective of MoW. Accordingly, digitization for access purposes is encouraged and you should comment on whether this has been done or is planned. You should also note if there are legal or cultural factors that restrict access.

Digitization of the printed materials are not yet completed. The articles originally published in Hungarian in the Orvosi Hetilap (Number One) and Utásítvány (Number Two) are available on our website:

The Aetiology (Number Three), and the three open letters (Numbers Four, Five and
Six) are under process of digitization. The open letters will be added to our website by July 2012, and the Aetiology by the end of 2012.

In case our application for registry in the MoW is successful, the fact will be certainly noted on our website.

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4.5 Copyright status

Where copyright status is known, it should be stated. However, the copyright status of a document or collection has no bearing on its significance and is not taken into account in determining whether it meets the criteria for inscription.

Since the author published these books to the general public, and because after his death the required 70 years has passed there are no copyright withheld on any reprints on the documents. The exception is the single sheet print of 1861 in Hungarian (Number Two in this application), as it is the only known copy of this print. Although its content could be published in any book, but not in a facsimile form without prior agreement by the Semmelweis Museum, Library and Archives, as it is regarded a special print.

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5.0 Assessment against the selection criteria

5.1 Authenticity.

The identity and provenance of all the documents have been established. All the printed materials that we presented in this application are beyond doubt the works of Ignaz Philipp Semmelweis. The publication in the Orvosi Hetilap in 1858 (Number One) appeared in a journal that was edited by Semmelweis’s lifelong friend, Dr. Lajos Markusovszky. The three types of open letters (Numbers Four, Five and Six) clearly indicate his own discovery as it has been accepted by the scientific community ever since he published them. The same goes for his major work, the Aetiology (Number Three).

Number Two is the text that was printed in Pest in 1861 by Gusztáv Emich, a well known printer for the Hungarian Academy of Sciences. Semmelweis himself refers to this print as the “Instruction” in his Aetiology and it has been widely discussed in 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.
5.2 World significance

Uniqueness:

They are all unique and altogether consist the full explanation of Semmelweis’s discovery. Of the volume 1858 of the Orvosi Hetilap (Number One), about less than a fifty copies survived in Hungarian and foreign libraries.

The copy of the Utasítvány (Number Two), is the only known copy of this print which was intended to instruct the students and midwives 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. This document is irreplaceable.

The original 1861 edition of Aetiology (Number Three) is a rarity even in major libraries or science collections. There are about five copies of it in Hungarian public collections, three in Austria, two in the United Kingdom, one in Italy, two in Germany, and four in the United States. However, we could not establish the existence of any copy of the original edition in many countries in the world. There are no data on private collections either.

The three types of open letters (Numbers Four, Five and Six) were published in even fewer copies. It seems that apart each copies the Semmelweis Museum, Library and Archives have, there are literally only one or two copies outside Hungary.

Impact:

The impact of Semmelweis’s theory came through a series of publication, and was delayed in time from 1847 until the late 1860s. In order to understand this process we must have a deeper view in the various publications of his theory (the documents that are presented in this application), and to some of the contemporary reports about his discovery.

Semmelweis’s discovery was a breakthrough in the development of medical sciences. Due to inadequate understanding of hygiene puerperal fever was a common disease in 19th century hospitals. It proved to be fatal in most cases. Semmelweis discovered through autopsies that the fatal changes in corporeal tissues shown similarity between those of dying mothers from puerperal fevers and those of dying from ordinary pyemia. He introduced hand washing by chlorinated lime solution (the strongest available disinfectant of the age), to doctors, medical students and midwifes before attending labouring women. By doing so he could substantially reduce the mortality rate of puerperal fever from 10-35% to 0-2%.

He gave a lecture on his discovery in 1847, of which a short report appeared in the Zeitschrift der k.k. Gesellschaft der Ärzte zu Wien, 4ter Jhg.(1847/48) 2te Band. pp 242-244 entitled “Höchst wichtige Erfahrungen über die Aetiolege der an Gebäranstalten epidemischen Puerperalfieber”. The report states the reduction of mortality rates of the puerperal fever in the General Hospital in Vienna was probably due to the introduction of hand washes with chlorinated lime solution. (”Durch diese
Although some supportive announcements appeared in important journals during 1848 (one by Professor Hebra in the same Austrian journal, another in the British Lancet, based on a lecture presented at the Royal Medical and Surgical Society in London, and a third one in the Gazette Médicale de Strasbourg by F. Wieger, a former student of him) Semmelweis met refutation from most of his colleagues at Vienna. After being dismissed from his position he returned to his native Pest in 1851 as a physician at the Saint Rochus Hospital. There he introduced the same precautionary methods and produced yet again the same results as he did in Vienna.

In 1858 he eventually published a complete explanation of his discovery in the main Hungarian medical journal of the time. It had a positive effect on the routine of Hungarian obstetricians. There is also a single paper sheet from the same hospital, which summarizes his thesis on the cause of puerperal fever and the precautionary regulations for medical students and staff in his ward. This paper was printed in 1861 entitled as *Utasítvány* (Regulations) and was authorised by Semmelweis.

In 1861 he published his thesis in German with long, detailed analysis, statistical figures and his pathological findings in his Aetiology. The Aetiology, which run in about 100 copies is the main scientific explanation of his discovery. It presented over a hundred statistical graphs, and clarified his experience through symptoms and autopsies. This book is the internationally accepted authoritative description of his discovery and achievements.

His opinions were challenged by most members of the medical community of the age, as they directly confronted the established views and beliefs of mid-19th century medical theories. In particular:

1. the idea of transmission of the disease by corrupted air (miasma-theory),
2. the idea that the cause of the disease is an imbalance of the four alleged basic humours of the human body (dyscrasia-theory),
3. the idea that the cause of the disease are due to adverse terrestrial-cosmical-atmospheric influences.
4. The idea of epidemic – that puerperal fever is caused by some infection, i.e. being a “contagium”.

To refute his main critics he published his two first open letters to particularly ardent opponents (professors Spaeth from Vienna, Scanzoni from Würzburg, and Siebold from Göttingen). These pamphlets repeated his opinion in passionate argumentation and disproved any critique against it. His last open letter was addressed to all obstetricians of the world in which he reiterated his opinion and demanded all of them to follow his precautionary methods to save the life of labouring women.

5.3 Comparative criteria:

1 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 Ignaz Semmelweis, a Hungarian physician, who first provided the explanation for this, also elaborating and introducing into medical practice a rigorous method of hand washing by chlorinated lime solution. 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 sterilise 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 is 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 childbirth fever and how to avoid the disease by reliable preventative action. His views were vindicated by valid microbiological knowledge, developing in the 1860s (Pasteur) and the surgical practice based on it from the 1870s (Lister).

2 Place

The basis of the high mortality rates caused by puerperal fever was due to inadequate hygienic conditions of 18-19th century hospitals. As the number of women who gave birth in hospitals increased (a consequence of rapid urbanisation and ultimately modernity) spreading of infections increased. The other condition was the development of pathology. As autopsies became common within the medical community from the early 19th century doctors were easily able to bring the bacteria on their hands and equipment from patient to patient. As both conditions were typical in the urbanised Western world it was obvious that women giving birth in hospitals were far more effected by puerperal fever than those labouring at home or in rural society.

Semmelweis had made his discovery in the General Hospital in Vienna in 1847, meeting a similar situation in Pest in 1851, he introduced the same prophylaxis. This could have been happened in any urbanised Western society where the effects of hospitalization preceded the proper understanding of hygiene, or disinfection. One should not forget, however, that Vienna and to a lesser extent Pest, were particularly keen on, and advanced in pathology. Autopsies were everyday practice, especially in the case of Semmelweis, who used to be a student of Carl von Rokitansky one of the most influential pathologist of the 19th century. Therefore a Central European doctor had probably more chance to realise the effects of this disease, though out of thousands of doctors it was him alone who did so.

3 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. The groundbreaking significance of Semmelweis’s findings was that he broke away from assuming multifactorial explanations and considering puerperal fever being an epidemic. Instead, he traced back the development of puerperal fever to a single
cause, namely that decaying organic matter is carried into the wards on the hands of physicians and medical students, causing infection within female body which lead 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. His discovery has everlasting effect on medical attendance of any labouring women by doctors or midwives all over in the world and any time since then.

4 Subject and theme

It was not until the revolution in bacteriology (i.e. the proper knowledge of the existence of microorganisms and their effects on animal life), by the germ theory of Pasteur, the bacteria identified by Robert Koch, and Joseph Lister in the late 1860s that his discovery could have been proved by modern scientific standards. Hence came the reluctant understanding of his achievements. Since then it has been generally accepted by the scientific community that Semmelweis’s discovery preceded his age, the methods he introduced were adequate to save life. In terms of the history of science theory, today it is widely held that his opinion to connect the source of an illness to a single cause was a large step towards modern medical theory of understanding and avoiding infection in general.

5 Form and style

The documents (written in two languages) do not have an outstanding aesthetic or linguistic value. They represent the usual didactic or scientific prose of the age. Similarly the articles in the journals or the books correspond to the customary form of mid 19th century European printings.

6 Social/ spiritual/ community significance:

The discovery of Semmelweis, as it appears in the printings, has an everlasting effect on all humankind no matter what culture, civilization or religion we talk about. They are the first unfailing explanations of the infection of puerperal fever, and the first reliable precautionary methods to avoid it.

6.0 Contextual information

6.1 Rarity

As it has been stated above (5.2. Uniqueness) that these printed materials were published in very limited copies. Consequently, astonishingly many main public collections do not have them in their collections. Regarding the collection of all the six documents it seems that only the Semmelweis Museum, Library and Archive of the History of Medicine have them in their totality.

6.2 Integrity

The documents together consist the full development of Semmelweis’s theory. Its first
clear explanation appeared in the articles of the Orvosi Hetilap, 1858 (Number One), and in an enlarged, and reverberated form in his opus maior, the Aetiology, 1861 (Number Three).

The previous announcements in the Austrian medical journal (Please see 3.5. Bibliography: Contemporary announcements) were written by Hebra about Semmelweis’s idea and opinion, but then Semmelweis’s theory had not been fully developed and explained. The same goes for the notes that were brought out in British and French journals in 1848-49, which presented a clear report on his achievements on the reduction of the mortality rates, but no proper explanation of why it could have happened.

The rest of the documents of this application were written for specific purposes. Regulations for university students and medical personnel (Number Two), or pamphlets to his main opponents (Numbers Four and Five), and an announcement to the world’s obstetricians and medical community (Number Six).