
1. Ouverture.
La Présidente déclare l’ouverture de l’Assemblée générale et constate que le quorum est atteint. Après une chaleureuse allocution de bienvenue, la Présidente présente les excuses de la part du Dr. Charles Mérieux, de Mme Lardy, Ghislaine Lawrence et Gretchen Worden. Elle remercie vivement Inger Wikström-Haugen et son équipe pour avoir organisé le colloque. Cela était particulièrement difficile compte tenu de l’avenir menacé du musée qui a été fermé au public en mai 1996.

Le procès-verbal, publié dans le Bulletin no 20, février 1995, est unanimement accepté, puisqu’il n’y a eu aucune observation.

3. Actes du 7ème Colloque.
Les actes du 7ème Colloque viennent de sortir et seront envoyés aux participants.


5. Rapport financier.
Les recettes de l’année 1995 s’élèvent à 35 959,76 FF; les dépenses s’élèvent à 32 819,51 FF. Cela donne un excédent de 3 819,25 FF au 31 décembre 1995. Les correspondants locaux mentionnés ci-dessous centraliseront les cotisations pour:

Pays Scandinaves et Islande
Inger Wikström-Haugen

Allemagne et Autriche
Christa Habrich

Suisse
Christoph Mörngeli

Italie
Giuseppina Bock Berti

Péninsule Ibérique
Felip Cid

France et Wallonie
Marie-Véronique Clin

Pays-Bas et Flandres
Wim Mulder

Royaume-Uni
Ghislaine Lawrence-Skinner

Etats-Unis
Gretchen Worden

Conformément à la législation française un bulletin d’adhésion est à remplir tous les ans.
6. Adhésions.

7. 9ème Colloque, 1998.

8. Colloques à venir.
Le Dr. Fortes Espinheira propose d'organiser le Colloque de l'an 2000 à Porto, Portugal.
L'Assemblée générale estime que cette possibilité devra être plus profondément étudiée. Le Dr. Cid se propose à étudier les possibilités et à en discuter.
Le Médecin-Chef Ferrandis fait savoir que le Musée du Val-de-Grâce, en collaboration avec les autres musées parisiens, serait heureux d'accueillir le colloque suivant (en 2002), ou qu'il serait d'accord pour accueillir celui de l'an 2000 au cas où Porto s'avérerait impossible.
Nous devons veiller à qu'il n'y ait pas de similitude de dates avec le colloque de la Société Internationale d'Histoire de la Médecine.

9. 'Workshops'.

La Présidente fait savoir que le petit-fils du Dr Charles Mérieux était une des victimes de l'accident meurtier de la compagnie aérienne TWA. C'est pourquoi lui et Mme Lardy ne sont pas présents.

11. Autres sujets.
La présidente informe qu'elle, Annick Perrot et Marie-Véronique Clin, ont été invitées par Mme Lardy à participer à une réunion avec Pr. Bernardino Fantini, représentant de l'Association Européenne de l'Histoire de la Médecine et de la Santé (AEHMS). L'idée est d'organiser une exposition à Naples en l'an 2000 sur le thème 'Le Corps, imagerie et anatomie'; un CD-ROM présentant les treasors des collections européennes d'histoire de la médecine ayant un rapport avec ce sujet pourrait être édité. Dr. Riccardo De Sanctis devait donner plus de détails dans sa communication. Malheureusement il a été obligé de quitter le colloque pour des raisons personnelles extrêmement tristes. Cependant, le sujet sera discuté ultérieurement pendant le colloque, quand la Présidente fera une introduction à la communication de M. De Sanctis. Lors du colloque international 'In the name of Marco Aurelio Severino', qui aura lieu à Naples les 4 et 5 avril 1997, à l'occasion de l'ouverture du musée d'anatomie de Naples, auquel seront conviés des membres du Conseil d'administration aura lieu une réunion préparatoire.

12. Election du Conseil d'administration.
Puisqu'aucun candidat n'a été proposé, le Conseil d'administration composé par Président : Christa Habrich
Vice-président 1 : Felipe Cid
Vice-président 2 : Inger Wikström-Haugen
Secrétaire général : Steven de Clercq
Secrétaire général adjoint : Annick Perrot
Trésorier : Marie-Véronique Clin
Trésorier adjoint : Giuseppina Bock Berti
Rédaacteur du Bulletin : Kees Grooss
Membre : Ghislaine Lawrence
Membre : Gretchen Worden
Membre : Christoph Mörgeli
Membre : Karl Arons
Déléguée générale : Mme Claude Lardy
est unanimement réélu par l'Assemblée générale.

La question de l'éventuelle adhésion de l'Association à l'ICOM est posée. Le Secrétaire général en discutera avec le membre du Conseil d'administration Ghislaine Lawrence, qui s'est déjà occupé de ce sujet, et il s'informera auprès du quartier général de l'ICOM à Paris.

Utrecht, le 28 août 1996
Steven W.G. de Clercq, Secrétaire général
Minutes of the General Meeting of the European Association of Museums of the History of Medical Sciences, Göteborg, August 26, 1996 at the occasion of the 8th Congress, 24-27 August 1996.

1. Opening.
The President declares the General Meeting opened, noticing that the quorum is present, representing fourteen countries. After a warm welcome, the President offers the excuses of Dr. Charles Merieux, Madame Lardy, Ghislaine Lawrence and Gretchen Worden. She also expresses her sincere thanks to Inger Wikström-Haugen and her staff for organising the congress. This has been especially difficult against the background of the dark clouds above the future of the museum, which has been closed to the public in May 1996.

These minutes - which have been published in Bulletin No. 20, February 1995 - are adopted unanimously, since no comments have been made.

3. Proceedings of the 7th Congress.
The proceedings of the 7th congress have just appeared and will be handed out to the participants.

The editor of the Bulletin, Mr Kees Grooss, urges all members to supply him with the maximum of information on future activities and manifestations well in time of the publication – date of the next Bulletin. The Bulletin is a most important instrument in the internal life of the Association.

5. Financial report.
The income over the fiscal year 1995 was FF 35.959,76; the expenditure was FF 32.819,51. This leads to a positive balance on December 31 1995 of FF 3.140,25. The ‘local representatives’ mentioned below will collect the subscription fees for: Scandinavia and Iceland Inger Wikström-Haugen Germany and Austria Christa Habrich Switzerland Christoph Mörkeli Italy Giuseppina Bock Berti Iberian peninsula Felipe Cid France and Walonia Marie-Véronique Clin Netherlands and Flanders Wim Mulder Great Britain Ghislaine Lawrence-Skinner USA Gretchen Worden

French law prescribes that a Bulletin d’Adhesion is filled out each year.

At the end of the year 1995, the Association had 79 individual and 67 institutional paying members, representing practically all European countries and including members from the United States of America, Canada, The Republic of South Africa and Venezuela. There were new members from Belarus and from Chile. The number of members - and participants to the Congress - from former East European countries is increasing. On the other hand, the number of members from the British Isles is far behind.

7. 9th Congress, 1998.
This was an extra reason to accept the invitation for 1998 from the Thackray Medical Museum, Leeds, England, which was confirmed by Mr. Alan Humphries. The general theme has not yet been decided. The British museums will have at least half a day to present themselves.

8. Subsequent Congresses.
There is an offer from Dr. Fortes Espinheira to have the 2000 Congress in Porto, Portugal. The General Meeting feels that we must further investigate this possibility. Dr. Cid has kindly offered to examine and further discuss the possibilities. Dr. Ferrandis announces that the Museum Val de Grace, together with the other museums in Paris would be happy to host the next Congress (2002) and that he is willing to take the 2000 Congress in case Porto would not work out. We must take care that there is no overlap in time with the conference of the International Association.

9. Workshops.
The results of the 1995 workshop in Kaunas were published in Bulletin No. 21, December 1995. The workshops have become an important part of the life of the Association and prove to have a very stimulating effect on all participants. The next workshop will be housed by Tatyana Svetlovich of the Belarus Museum of the History of Medicine in Minsk, where the theme will be the conservation of medical instruments. All members are invited, not only to participate, but also to allow and even stimulate their skilled technicians to share their experience with others. There will be further information in the next Bulletin. It is also suggested that the technical reports are made available and therefore published in the Bulletin.

The President announces that Dr. Charles Merieux has very sadly lost one of his grandsons in the recent TWA air-crash. For this reason he and Madame Lardy are not present.

11. Other matters.
The President informs that she, together with Annick Perrot and Marie-Véronique Clin, has had a special meeting, invited by Madame Lardy, with Prof. Bernardino Fantini, as representative of the European Association for the History of Medicine and Health (EAMH). The idea is to organize an exhibition in Napels, in 2000 on the
theme 'The body, imagery and anatomy'; also a CD-ROM with the highlights of the European medical-historical collections on this specific subject should be produced. More details were to be given by Dr. Riccardo de Sanctis in his Congress-paper. Unfortunately, he had to leave the Congress for very sad personal reasons. However, this subject will be discussed later on during the conference, when the President will further introduce Mr. De Sanctis paper.

The International Meeting ‘In the name of Marco Aurelio Severino’, to be held in Naples April 4-5, 1997, at the occasion of the opening of the Napels museums of anatomy, for which members of the Council will be invited, is to be seen as a preparatory meeting.

As was published in Bulletin No. 22, June 1996, the Council of the Association had to be (re-) elected at the 1996 General Meeting during the Göteborg Congress. All present members of the Council have agreed, in conformity with the International Rules of the Association, to sit for the next period. Since no competing candidates have come forward, the proposed Council consisting of:
- President: Christa Habrich
- Vice-president 1: Felipe Cid
- Vice-president 2: Inger Wikström-Haugen
- Secretary-General: Steven de Clercq
- Secretary-General-adjoint: Annick Perrot
- Treasurer: Marie-Véronique Clin
- Vice-treasurer: Giuseppina Bock Berti
- Editor Bulletin: Kees Grooss
- Member: Ghislaine Lawrence
- Member: Gretchen Worden
- Member: Christoph Morgeli
- Member: Karl Arons
- General delegate: Mrs. Claude Lardy

is unanimously re-elected by the General Meeting.

Many museums are approached by so-called professional CD-ROM producers. It is advised that we should handle these questions with great care. It is suggested that this subject will be dealt with in some detail during the Congress in Leeds, 1998. The question whether the Association should become member of ICOM is raised. The secretary-general will discuss this point with Council-member Ghislaine Lawrence, who has dealt with this subject before and he will also seek information at the ICOM headquarters in Paris.

Utrecht, August 28, 1996
Steven W.G. de Clercq
Secretary-General

NOUVEAUX MEMBRES

Angleterre:
Membre individuel: John Kirkup, M.D.
1, Weston Park East
Bath, BA1 2XA

London Museums of Health and Medicine:
Kevin Flude
213 Brooke Road
London E5 8AB

Belgique:
Musée Dr. Guislain:
L'Histoire de la Psychiatrie et des soins psychiatriques
Josef Guislainstraat 43
9000 Gent
Directeur: Fr. Dr. René Stockman
Ouvert: Mardi, Jeudi, Dimanche 14-17 h.
Prix d'entrée: 50 Bfr. (reductions 30 Bfr), Groupes: 30 Bfr.
Collection: L'Histoire de la Psychiatrie et des soins psychiatriques

Projets d'expositions: Des expositions temporaires sur des sujets concernant l'histoire de la psychiatrie
Publications concernant le Musée et ses collections:
- Ni Rime ni Raison, L'Histoire de la Psychiatrie
- Oscar Colbrandt, 1879-1959
- Vastenheiligen, Wondermeisjes en Hongerkunstenaars, Une histoire de l'anorexie mentale
- Zuur, Zoet of Bitter
- Le Frère Ebergist (1887-1943) et l'Education Sensorielle
- Doodgezwegen, Experiments et meurtre sur des fous et d'autre 'indigneants, dans l'Allemagne des nazis.

Espagne:
Membre individuel: Dra. Estilita Espinosa Ramos
Facultad de Farmacia
Universidad de Barcelona
Av. Diagonal, 643
08028 Barcelona
France:

Association ‘Amis du Musée de la Pharmacie’
4 Avenue Ruysdael
75008 Paris
Président: Jacques Gravé
Tél.: 1 40 537432.

Hong Kong:

Hong Kong Museum of Medical Sciences Society
2 Caine Lane, Mid-Levels
P.O. Box 20 G.P.O
Hong Kong
Corresponding member: Prof. Faith C.S. Ho
Ouvert: Tuesday-Saturday 10 am-5 pm, Sunday & Public Holidays: 1-5 pm; Monday closed
Prix d’entrée: HK$ 10.00; HK$ 5.00 for students and senior citizens
Collection: Medical instruments, laboratory equipment, records and photographs relating to the development of medical science in Hong Kong

Projets d’expositions: Opening Exhibition starts Mar. 22, 1996. 16 different themes including interface between scientific and traditional Chinese medicine and vaccination East and West.
Tél.: 852 2549 5123

Italy:

Membres individuels
Prof. Vincenzo Esposito, Prof. Vincenzo Mezzogiorno
Prof. Cosimo Passiatore, Riccardo de Sanctis

Museo di Anatomia
Via Luciano Armanni 5
Napoli CAP 80138
Tél.: 081 5666010

Suisse:

Membre individuel: Dominique Noel
4, Chemin de l’Echarpine
1214 Vernier-Genève

Musée historique et des porcelaines
Chateau de Nyon
1260 Nyon
Conservateur: Vincent Lieber
Tél.: 022/3638282

The third workshop under the auspices of the EAMHMS will be organised in Minsk 24th - 29th of August 1997!

Theme: Conservation of Medical Instruments.

Information:
Mrs Dr Tatyana G. Svetlovich, Director of Belarus Museum of History of Medicine, 6 Leningradskaja str., Minsk 220050 Minsk Belarus, fax *375 172 262146, or
Willem J. Mulder, curator Medical Collections, Utrecht University Museum, Postbox 12055, 3501 AB Utrecht, fax *31 30 2538700.
The Utrecht University Museum reopened on October 11th 1996
Steven W.G. de Clercq

Utrecht University Museum has moved to a new location: the former 'Hortus- complex' in the heart of the Museum Quarter, close to the Old Observatory in the southern part of the medieval town of Utrecht. The museum was founded after the discovery in 1918 of some 1.000 mainly 18th century scientific instruments. In 1936 the City of Utrecht donated the university, at the occasion of its 300th anniversary, a building to house the museum, which by then was extended with a.o. a vast collection on the history of the university and student-life. In the early 80's, the museum was forced to move to the outskirts of the city, into a building which was far too small and without proper facilities for the public. The initiative to move the museum, was taken in the winter 1982/83, when it became certain that the faculty of biology would abandon the Botanical Laboratory with the adjacent Old Botanical Garden (1723). The removal of the museum to this historic site, would also prevent the Old Botanical Garden from being transformed into a parking lot or a location for social housing. This initiative could only be realised with support and money from outside the university. The threat that the Old Botanical Garden would get lost, stimulated the four Utrecht Rotary clubs to adopt the garden and to start a campaign for its rescue. This initiative was supported by a great number of neighbours and volunteers (± 70), who until the present day take care of the garden and have offered to continue to do so. This had a very positive effect on both the University and the City to allow the museum to move and to let the Old Botanical Garden be part of the museum. The University agreed under the condition that we would raise the necessary funds ourselves, and guaranteed the yearly exploitation in case we would manage to do so. Finally, with the help of our Association of Friends, we managed to bring together the necessary six million guilders for the reconstruction of the exhibition part.

Exhibitions

Man and his inquisitiveness are central stage in our museological approach. We try to answer the kind of questions the visitor could have and we invite the public to 'look over the shoulder' of the scientist. Science is not a one-way success story but a continuous trial and error. At this moment, the exhibitions do not reflect the composition of our collections. This is partly due to the fact that we are still busy mounting our permanent exhibition, and partly a (temporary) homage to 'Dental Netherlands' who financed almost 1/4 of the new museum building. The permanent exhibition on the ground floor 'Learned in Utrecht' (open to the public: July 1997) is dedicated to the (history of the) university as an institution for higher education. In the setting of a late 19th century lecture hall (30 seats), the vast range of our collections allows us to show the various subjects and their interdisciplinary relations. We also show the process of teaching, academic rituals, portraits of professors, etc.

The first floor houses a temporary exhibition with photographs of our collection by Rosamond Purcell; a selection of these photographs has been brought together in the book Curiosity. This exhibition will be replaced by our 'Youth-laboratory' (ready winter 1997/98), which is developed in collaboration with three schools for higher vocational training for teachers to develop science- & technology-related programmes around the theme 'observation' and tuned to the national curriculum age-group 10-15. The subjects are linked together by a 'crimi-story' based on a train accident (± 1870).
rooms: a multi-functional ‘Open Depot’ and the ‘Tower hall’. Dentistry is the central theme in our first temporary exhibition, the ‘Opening’ (open until december 1997). It starts by questioning: why on earth we do have teeth, how did they come into existence during evolution, what can we learn about a creature by studying its dentition (age, type of nutrition, climate, environment). It shows the relation between food and dentition and ends with a glimpse on various ethnographic aspects and the psychological influence of the quality (beauty?) of teeth. And, what would the the far-future man look like, when degeneration of the dentition continues at the present rate?

The ‘Tower hall’ has been transformed into a late 18th century Cabinet of natural history showing a pre-Linnaean ordering-system and questioning Man’s position in the magnificent product of the Great Creator. Our ‘Open Depot’ is a multi-functional room, with the possibility for lectures and receptions in a museological setting and the temporary museum shop & café. Here we show, in a ‘taxonomic order’, a cross-section of our collections on dentistry and ophthalmology; the public can get further information on each object on display (1227) with the computer.

The Old Botanical Garden as museum garden
All temporary buildings have been torn down and automobiles are expelled from the garden, which is no longer a botanical garden, but the garden of a (history of) science museum. Ordering, being basic to all sciences, has been chosen as the leading principle for landscaping the garden. We show four different ways of bringing order in the vegetable kingdom, each with its characteristic shape:
* the 17th century with a medical-pharmaceutical garden (‘Regius Garden’); ordering and measurement of the beds is based on the Hortus Medicus as it was in 1650 under Prof. Regius (a list of some 250 plants is available);
* the 18th century with two orangeries; we use the old orangery (1724) to keep the orangery-collection during winter (half October-half May); the future museum-café is planned in the younger orangery (1765), set on a geometrical square with orange-trees etc.
* the 19th century in English gardenlandscape style with sight-lines around ponds (in the basements of the torn-down temporary buildings) and
* the 20th century with various ecological plant-associations, including a rhododendroncorner and a ‘cottage garden’.

New address: Utrecht University Museum
visiting address Lange Nieuwstraat 106
postal address PO Box 12055
3501 AB Utrecht (the Netherlands)
telephone * 31.(0)30.2538008
telefax * 31.(0)30.2538700
e-mail w.j.mulder@pobox.ruu.nl
website http://www.museum.ruu.nl

The Hong Kong Museum of Medical Sciences
To educate and to preserve, for public enjoyment...

The Museum serves both as an educational venue and a secure location for the preservation of medical artefacts of historical interest. It occupies the renovated Edwardian-style premises of the former Old Pathological Institute in Cain Lane. This magnificent edifice, now protected by law as a historical building, houses exhibition rooms, a lecture hall and special facilities for study and education to be used by the general public, school groups, researchers and overseas visitors. The official opening of the Museum on March 22nd 1996, commemorates the 90th anniversary of the building.

A unique theme — interface between Western and traditional Chinese medicine...

Exhibits in the Museum will aid members of the community to learn more about the science of health and disease, including past conquests, current developments and future challenges of special relevance to Hong Kong. The Museum will also explore the interface between traditional Chinese and Western medicine and encourage research in this area. As such, it will be the first of its kind amongst medical museums in the world.

We would welcome members of the EAMHMS to visit (Tue-Sat 10 AM - 5 PM, Sundays and Public Holidays 1 PM - 5PM) and also to help us build up a collection of materials related to the history of development of ‘Western’ medicine in China and the Far East. Since the Museum is run entirely on private donations to the Hong Kong Museum of Medical Sciences Society we hope that so of the readers of the Bulletin will also be interested in donating or putting us in touch with potential donors.

*
Projets d’Exposition / Planned Exhibitions

Allemagne:

Wilhelm-Fabry-Museum
Benrahter Strasse 32a
40721 Hilden

Rheinische Psychiatrie im 19. Jahrhundert
July 24, 1997-September 1997

An exhibition about the Rheinische Irren-Heil-Anstalt Siegburg. This institution became one of Germany’s most important Psychiatric Hospitals in the first half of the 19th century. In the late 70’s the institution was closed down, because it seemed to be too expensive. The ideas about the care for the patients survived however and so of its basic ideas are still to be found in modern treatment of mentally disturbed patients. Dayly life in the institution as well as patient care are well documented in the exhibition.

Deutsches Apotheken-Museum
im Heidelberger Schloss
Heidelberg

Der Salamander
Ein gar fürchterliches Thier
May - July (no exact dates available)

Danemark:

Steno Museum for the History of Science and Medicine
University Campus
C.F. Moellers Allé Bygning 100, 8700 Arhus
Tél.: * 45 8942 3975
Fax.: * 45 8942 3995
Heures d’ouverture / Visiting hours: Tuesday-Sunday 10.00-16.00 h.

Tycho Brahe, superstar in the history of astronomy

Tycho Brahe (1546-1601) was born 450 years ago. This is celebrated with a large exhibition dealing with his life and work, produced in collaboration by the Landskrona Museum, the Ole Roemer Museum in Taastrup near Copenhagen and the Steno Museum in Arhus. The exhibition can be seen at the Steno Museum from December 14th 1996 to March 13th 1997.

Suisse:

From October 17, 1996 until June 1, 1997, the Museum of Medical History of the University of Zürich, will be showing an exhibition entitles ‘150 Years of Anaesthesia’.

Ramistrasse 69, Zurich
Tuesday to Friday 13.00 to 18.00 hrs.
Saturday and Sunday 11.00 to 17.00 hrs.
Entrance free of charge

150 Years of Anaesthesia
Christoph Mörgeli

October 16, 1996 marks the 150th anniversary of ‘Ether Day’, the day on which a general anaesthetic was applied successfully during surgery for the first time. Exactly 150 years ago, a surgeon at the Massachusetts General Hospital in Boston successfully removed a tumor from the neck of the fourteen-year-old printer’s apprentice, Gilbert Abbot, using an ether-based anaesthetic. This heralded the

Oil and Gas in Denmark

From April 21th to May 25th 1997 the museum in collaboration with the Danish Underground Consortium presents an exhibition about Danish research in and production of oil.

‘Have a Look’ - The history of endoscopy

From June 11th to October 15th 1997 the Steno Museum will present a special exhibition on the development of endoscopy beginning with Philipp Bozzini in 1807. Max Nitze and Joseph Leiters invention of a practical useful cystoscope (1879-87) introduces a new diagnostic method, which became therapeutical useful within a few decades. Parallel to this the field of endoscopy was widened (rectoscopy, bronchoscopy etc.), but the importance of the method in general was limited because of the rigid instruments. The invention of the fiber light — in which several inventors were active more or less independent of each other — brought on flexible endoscopes, and with them a revolution in diagnostic procedures and in surgical operations. The fiber light turned out to become more useful too in the field of telecommunication. The exhibition concentrates on the medical history of endoscopy from 1807 to 1997, and will also give a survey of the use of fiber light in other fields. (Laurits Lauridsen)
beginning of painless surgery and was America's first contribution to world medicine. To commemorate this occasion of such significance for medical history, the Institute for Anaesthesiology of the Zürich University Hospital and the Museum of Medical History of the University of Zürich have joined forces to present an exhibition. Using objects, documents, texts and videos, this exhibition illustrates the development of anaesthesiology from its modest beginnings to a fully-fledged medical discipline. The first use of anaesthetics in Europe, Switzerland and Zürich 150 years ago is of particular interest when compared with today's procedures.

**Pain during operations before 1846**

Until October 16, 1846, there was no hope of achieving painless surgery. Pain during an operation had seemed inevitable and insuperable for thousands of years. Doctors and barber surgeons, dentists and army-surgeons were forced to inflict a great deal of pain on their patients during treatment. To hinder convulsive movements or other natural defence mechanisms, strong assistants were required to hold the patient down. Doctors rightly had reservations about the use of alcohol, debilitating blood-letting or plant-based narcotics (opium, mandrake).

A surgeon was considered competent if he could operate rapidly and cold-bloodedly. The anaesthetizing properties of nitrous oxide (laughing gas) were discovered as early as 1772, while the description of ether's numbing effects dates to 1818; chloroform was discovered in 1831. During the early decades of the nineteenth century, mainly in America and England, so-called laughing gas and ether parties were organized. Brave individuals would inhale anaesthetizing gases at such popular events, as a result of which they lost all self-control.

**'Humbug - no humbug'**

At an exhibition in early December 1844 in Hartford (Connecticut), the dentist Horace Wells became convinced of the pain-relieving effects of laughing gas. He had a tooth removed under the influence of laughing gas and tried the procedure on fifteen patients. In early 1845 Wells had the opportunity to perform an anaesthesia demonstration before an auditorium of students and doctors. As the head surgeon, John Collins Warren, began the operation, the patient in pain cried out loud. Everyone believed that they had been tricked by the 'humbug', but the failure of the experiment was probably due to the fact that the patient was a massively overweight alcoholic and was thus difficult to anaesthetise. Another dentist, William Thomas Green Morton, was determined to pursue Wells' theory. The Boston doctor and chemist Charles Thomas Jackson recommended that he should apply ether during his operations and constructed for this purpose an inhalation apparatus.

As Wells had done before, Morton asked the surgeon Warren to demonstrate the device for him. This demonstration, since then celebrated annually as 'Ether Day' took place on October 16, 1846 in the operating theatre of Massachusets General Hospital. Warren removed a tumor from the left side of the neck of the aforesaid Gilbert Abbot and the painless operation was a success. The head surgeon Warren turned to the students, that where present with the words: 'Gentlemen, this is no humbug!'
Fig. 1 Members of the team that performed the world’s first operation under anaesthetic on October 16, 1846, at the Massachusetts General Hospital in Boston: on the foreground to right, with his hands on the legs of the patient, head surgeon John Collins Warren; at the operating table, wearing a checked waistcoat, dentist William Thomas Green Morton. Daguerreotype of October 17, 1846.

Fig. 2 Apparatus for the inhalation of sulfuric ether, after William Thomas Green Morton and Charles Thomas Jackson, who was involved in the first successful anaesthesia demonstration of October 16, 1846, as head surgeon John Collins Warren recorded in writing. The original is in the Museum of Harvard Medical School, Boston (USA) (Loan from Prof. Dr. med. Horst O. Stoeckel, Bonn).

Italy:

Laboratorio neuropatologico di Collegno:

Beni Culturali in Ambiente Medico Chirurgico:
L’Académie de Médecine de Turin, qui est intéressée à récupérer et sauver le patrimoine des Hôpitaux et des Institutions privées de la Région Piémont (bâtiments, instruments, bibliothèques, archives etc.) a conduit et réalisé, avec la collaboration des Assessorats à la Culture et à la Santé, une recherche au sujet de l’identification et de la classification de tous les objets recensés dans 55 Hôpitaux de la Région. Pour ce patrimoine, qui était en général méconnu, ou inconnu, se pose maintenant le problème de la sauvegarde; un projet de valorisation est à l’étude. F Zina Vignotto/M. Galloni: Beni Culturali in ambiente medicochirurgico (Censimento presso gli Ospedali piemontesi), Giornale della Accademia di Medicina di Torino CLVIII (1995), suppl. pp.257. Ref.: Accademia di Medicina di Torino, 18.v. Po, 10123 Torino.

Anatomia e storia dell’anatomia a Firenze:
Pays-Bas:

Curiositeit / Curiosity
Photographs by Rosamond Purcell

Introduction and descriptions by
Piet 't Hart, Ludo Hellemans and Willem J. Mulder

— 108 pages with over 50 full color photographs
— Joint publication of the Utrecht University Museum and Roche Nederland BV.

In 1995 the American photographer Rosamond Purcell spent some time working in the Utrecht University Museum. In her work she puts forward her own views on the past of science. She tempts us into making up our own stories to go with the pictures. This book shows that Rosamond Purcell is one of the great photographers of our time.

Fl 34.50 exclusive post and packing
To be ordered at the Utrecht University Museum
PO Box 12055
3501 AB Utrecht (The Netherlands)

Poland:

Jagiellonian University
Medical Faculty Museum
ul. Radziwillowska 4
31-026 Krakow

Medical medals in the Jagiellonian University Medical Faculty Museum

The exhibition was on display at the Jagiellonian University Medical Faculty Museum at Cracow Medical Society House from May 29th to June 8th 1996. The exhibition showed 120 medical medals of different kinds. For this occasion a book has been published: Zdzislaw Gadja: Medals of the Cracovian Physicians in the Jagiellonian University Medical Faculty Museum, Krakow, 1995.

Varia

HISTORICAL MEDICAL EQUIPMENT SOCIETY

The Historical Medical Equipment Society represents the interests of all those interested in medical instruments and equipment. Membership includes collectors and curators in all fields, including pharmacy, medicine and dentistry.

The society aims to provide resources to collectors and museums, and to promote the study of the history of medical artifacts to the present day. The Chairman is Mr. John Kirkup FRCS, and the first meeting is planned for early 1997. Contact the secretary, Dr. David Warren, PO Box 85, Portsmouth PO6 2bb, Great Britain, for information.

MEDICAL MUSEUMS TERMINOLOGY WORKING GROUP

At the invitation of the UK Museums Documentation Association (MDA) a new Medical Museums Terminology Working Group held its first meeting at the Wellcome Centre in London on 6 September. Representatives from a varied group of British museums and archives with specialist medical collections discussed currently available thesauri and termlists and sought to identify the more glaring gaps left by existing sources.

Most present thought the naming of instruments and equipment less of a problem than identification, dating and collation of the constantly changing terms used through medical history to describe physical and mental conditions and diseases. A single term, such as melancholia or fever might appear across widely different chronological periods, in different cultures and social groupings, and have a host of disparate meanings from the vaguest lay use to the clinically specific.

It was agreed that the Group could play a very useful role in pulling together a series of compatible yet flexible termlists in this and other relevant fields. Catherine Draycott of the Wellcome Centre of Medical Sciences agreed to act as Chair and Helen Fryers of the Thackray Museum, Leeds as Secretary.

Anyone who may be able to assist with guidance on sources, particularly of termlists for obsolete medical terminology, and anyone working with a relevant collection who is interested in joining the Group or being kept informed of its progress is invited to make contact through the Terminology Projects Manager MDA.

Please make first contact via:

Terminology projects manager
Museum Documentation Association
347 Cherry Hinton Road, Cambridge CB1 4DH
United Kingdom
Tel: +44 1223 242848/Fax: +441223213575
E Mail mda@mdocassn.demon.co.uk
Conservation of fluid preserved specimens, properties of sealants and their effect on preservation quality

Andries J. van Dam

Introduction

The introduction of fluid preservation in the mid-17th century was a major development in the preservation of biological tissues. From this time till the end of the 19th century almost all preparations had 'spirit of wine', now known as ethanol (EtOH), as main ingredient. The specimens were stored in glass vials which were hand blown with a flanged top in order to secure some form of seal. Spirit of wine was a costly ingredient. When it was kept in open containers the spirit rapidly evaporated and could cause maceration of the specimen. Therefore, a tight and secure seal was necessary. In the Netherlands, most anatomical institutes used essentially the same sealing technique. For jars with a small opening a cork was used as a stopper. For jars with wide openings a chiselled plate of schist was used. These were sealed with wax. This sealing-wax probably consisted of beeswax, carnaubawax or colophonium, minium (redlead) and chalkpowder. To prevent the lid from loosening, a pig or sheep bladder was wetted and stretched over the top of the jar and secured with a thin string. When the bladder was dry and tense, it was painted with minium and finally with (coloured) varnish. This method gave a fairly long-lasting, tight and secure seal. In the second half of the 19th century the methods of fixation and preservation of organic tissues was influenced by the introduction of formalin (Blum, 1893). This substance is characterised by its excellent fixation properties, its non-flammability, its low vapour pressure and its low expenses. In the late 19th century Kaiserling (1896) discovered procedures enabling the preservation of colour in formalin fixed specimens. By this time the manufacturing of jars became more sophisticated and were also commercially used in roofing and plumbing. It is easy to apply and has excellent filling properties. 

In the mid-80's the Museum of Zoology in Utrecht introduced another sealant. This cold hardening bitumen, known as 'Tixophalte', was developed by Shell company. It is commercially used in roofing and plumbing. It is easy to apply and has excellent filling properties.

In the nineteen seventies a universal transparent silicon rubber was used in several Dutch anatomical institutes. At first, silicon rubber seemed to have great advances over the old techniques, because of its superior chemical resistance, its flexibility, and its excellent adhesion to glass. However, it was noticed that EtOH affects silicon rubber, which resulted in a rapid loss of the preservative fluid.

In the beginning of the 1980s the Paramelt Syntac company developed a new sealing material for the spirit collections of the National Natural History Museum in Leiden. The product, named Dicera 4799, consisted of refined hydrocarbon waxes and a polyisobutylene rubber (the main substance in chewing-gum) and is not affected by EtOH. Its melting point is between 60°C and 62°C. The material is soluble in white spirit. The procedure of sealing was similar to that of 'kitvet'. The result is an almost invisible seal.

Therefore, a tight and secure seal was necessary. In the Netherlands, most anatomical institutes used essentially the same sealing technique. For jars with a small opening a cork was used as a stopper. For jars with wide openings a chiselled plate of schist was used. These were sealed with wax. This sealing-wax probably consisted of beeswax, carnaubawax or colophonium, minium (redlead) and chalkpowder. To prevent the lid from loosening, a pig or sheep bladder was wetted and stretched over the top of the jar and secured with a thin string. When the bladder was dry and tense, it was painted with minium and finally with (coloured) varnish. This method gave a fairly long-lasting, tight and secure seal.

In the second half of the 19th century the methods of fixation and preservation of organic tissues was influenced by the introduction of formalin (Blum, 1893). This substance is characterised by its excellent fixation properties, its non-flammability, its low vapour pressure and its low expenses. In the late 19th century Kaiserling (1896) discovered procedures enabling the preservation of colour in formalin fixed specimens. By this time the manufacturing of jars became more sophisticated and were also available in rectangular or square shapes. This gave a more accurate picture of the specimen in comparison with the cylindrical jars.

At the beginning of the 20th century, a new technique for sealing the glass lids of these jars was introduced. This dark brown coloured sealing material was known as 'kitvet' (literally: 'sealing fat'). It was composed of the following ingredients:

1. Sebum Ovile (sheeptallow; solid fat of sheep)
2. Commercial paraffin (melting point 54C-60C)
3. Masticated rubber (polyisoprene)
4. Leadplaster (leadsalt of fatty acids)

These components were melted and mixed. The mixture was applied with a small brush on the glass rim of the jar which had been ground before. The sealing surface of the glass covering plate was ground along the edges. The covering plate was heated with a flame till about 70°C and fixed on the rim of the jar. When the top plate was cooled down sealing was completed. This procedure also gave a fairly long-lasting, tight and secure seal.

After the second World War the chemical industry introduced many new synthetic sealing materials. In the nineteen seventies a universal transparent silicon rubber was used in several Dutch anatomical institutes. At first, silicon rubber seemed to have great advances over the old techniques, because of its superior chemical resistance, its flexibility, and its excellent adhesion to glass. However, it was noticed that EtOH affects silicon rubber, which resulted in a rapid loss of the preservative fluid.

In the beginning of the 1980s the Paramelt Syntac company developed a new sealing material for the spirit collections of the National Natural History Museum in Leiden. The product, named Dicera 4799, consisted of refined hydrocarbon waxes and a polyisobutylene rubber (the main substance in chewing-gum) and is not affected by EtOH. Its melting point is between 60°C and 62°C. The material is soluble in white spirit. The procedure of sealing was similar to that of 'kitvet'. The result is an almost invisible seal.

In the mid-80's the Museum of Zoology in Utrecht introduced another sealant. This cold hardening bitumen, known as 'Tixophalte', was developed by Shell company. It is commercially used in roofing and plumbing. It is easy to apply and has excellent filling properties. It is evident that the properties of a sealant, such as chemical resistance, adhesion, and permeability, have a direct effect on the preservation quality of the specimens.

The purpose of this paper is to discuss in what way these properties affect the preservation quality, in order to minimise the risk of 'poor' seals.

Theoretical considerations

To determine which properties a suitable sealant for fluid preservation should have, a couple of questions has to be answered.

What do we want to achieve by sealing a glass jar?

1. Inhibition of fluid loss. Fluid loss can result in the change in the preservation properties of the fluid, shrinkage and drying out of the specimen (Reilly, 1989).
3. Keeping access to specimen. The specimens should remain accessible for scientific research and maintenance. In the latter case, because in hermetically sealed jars the..
preservation condition will still alter due to the interaction of the specimen with the fluid or the instability of the fluid. Formalin is a very unstable preservative fluid, because of the formation of formic acid and its polymerisation (Piechocki, 1986 and Simmons, 1995). EtOH extracts fat out of the tissue and can become rancid (Moore, 1989). Therefore replacement of fluid is necessary in time.

With regard to these demands, what are the minimum qualifications a sealant should have?

1. Chemically: inertia towards the preservation fluid
2. Physically: — low absorption of the preservative fluid
   — low permeability
   — good tear strength and flexibility (to withstand pressure differences, caused by fluctuations in storage temperature, as described by Horie in 1994)
3. Good adhesion to glass
4. Removable (without the risk of damaging the glass)

A sealant has to conform to these requirements. Inadequate sealing would be a costly waste of preservative, and more important, time (Lincoln, 1989). In institutes with large collections the use of these poor seals could give, in short time, troubles not easy to overcome.

On the other hand, one has to consider that there is no ideal sealant. No sealant will last forever. Therefore, a sealant has to be removable to ensure that, when necessary, the jar can be resealed with maybe even more superior material than yet known or available.

Observations

Problems with silicon rubber. - In the spirit collections of our museum it was noticed that silicon rubber is affected by EtOH, which is also described by Reilly (1989). The rubber swelled and softened, due to the absorption of EtOH. Consequently a rapid fluid loss (> 10% in ten years) was recorded.

Another problem was the stability of silicon rubber. Because of its chemical resistance to solvents and its excellent adhesion to glass, the rubber was very hard to remove. In the formalin collection the glass lids had to be broken often in order to remove them. The rubber left on the rim had to be removed with a scalpel or a single edge razor blade. To get the tiny rubber particles out of the ground surface, the rim surface had to be ground again.

Problems with Dicera 4799. - It appeared that the permeability for EtOH was extremely low. Over a period of 10 years visually no lowering of the fluid level was noticed. Due to the modest filling properties of Dicera, leak seals were found especially in jars with an uneven rim surface, mostly observed in jars with a large diameter (> 15 cm).

Problems with Tixophalte. - As with Dicera, loss of preservative fluid (EtOH and formalin) is extremely low. The loosening of the glass lids of several jars was noticed within one year after sealing and occurred especially in summertime, when there was a significant increase in storage temperature. Compared to silicon rubber, Tixophalte has a lower tear strength and adhesion and therefore the seal is less pressure resistant. The problems observed in using these different sealants are summarized in table 1. The chemical and physical properties of these sealants can be found in table 2.

Discussion

Silicon rubber. - Silicon rubber has an excellent adhesion to glass, very good flexibility and tear strength. These three properties are very important to prevent the loosening of lids. Loosening of the lids can be caused by an increase in the internal pressure, due to increase in storage temperature, which is described by Horie (1994). Furthermore, silicon rubber is chemically inert to most chemicals. Physically however, solvents can alter its properties, such as permeability and tear strength. It is commonly known that silicon rubber in contact with gasoline or white spirit tremendously swells and softens, due to the high absorption of these solvents, in a short period of time (less than a day). This swelling and softening was also noticed in the spirit collection after 5 years. It appears that in case of EtOH the process progresses at a much slower rate than with gasoline, although both resulting in a much lower tear strength and a high permeability. Because of the lower tear strength the lids can come loose when there is a significant increase in storage temperature.

Although with some solvents silicon rubber swells and softens it is not soluble and does not lose its excellent adhesion to glass. This means that the rubber is very hard to remove, when necessary. Scraping off the rubber and grinding the glass again seems to be the only method.

All this implicates that silicon rubber is not suitable as a sealant for EtOH preserved specimens. It can be used for formalin preserved specimen, but because its poor removability it is in our opinion not recommendable.

Dicera 4799. - Dicera is not affected by EtOH, has a very good adhesion to glass, and has very low permeability. Its chemical resistance to formalin is not yet tested. Dicera is easy to remove. It can be melted or dissolved in white spirit. In order to get a tight seal the applied Dicera has to be melted by heating the glass lid. In this melted state Dicera has poor filling properties. Therefore, jars with uneven rim surfaces are very hard to provide with a leak-free seal. Especially jars with a large diameter (> 15 cm) have these irregularities. Also glass lids are not exactly plane. The larger the lid the higher the discrepancy of the outer edges. In case of small jars the rims can be easily ground with carburundum when their surface is irregular.

Although Dicera has less tear strength and flexibility than silicon rubber, loosening of the lids caused by increase in storage temperature was not recorded. This can be explained by the method of applying the sealant. When the heated lid is put on top of the jar, the air inside the jar expands due to temperature increase. Air escapes through the liquefied sealant till it solidifies. Once the inside air is cooled down a negative pressure is created inside the jar, which prevents the loosening of the lid when there is an increase in storage temperature.

Despite the modest filling properties of Dicera, it is quite useful as a sealant provided
that the above mentioned restrictions are taken into account.

**Tixophalte.** - Tixophalte it is not affected by EtOH and formalin and has very low permeability for both fluids. It is dissolvable in white spirit and it softens when warmed up, which makes the seal easy to remove. In contrast with Dicera, Tixophalte has excellent filling properties which makes it suitable for all type of jars, provided that the sealing surfaces are ground. Its adhesion to smooth glass is very poor, whereas to ground glass fair. Due to the latter and its lesser tear strength and flexibility than silicon rubber, lids can come loose when there is a significant temperature increase. Therefore it is recommended to store the jars in rooms with low temperature fluctuations (<5°C) and where the average temperature is a few degrees lower than the place where they were filled and sealed. This will create a slight negative pressure inside the jar, preventing the lid from loosening.

**Conclusions**

Sealants must have low permeability for the preservative fluid and must be chemical resistant as well as removable. If sealants do not apply conform these standards they should not be used in fluid preservation. Properties as good adhesion, good tear strength and flexibility are of equal importance when the sealed jars are stored in rooms with high temperature fluctuations. When these fluctuations are low these properties may comply to a lower standard. The better the filling properties of a sealant the less important irregularities in the rim surface of the jar and thus the broader its usability.

With regard to the sealants used in our collections it can be concluded that:

1. Universal transparent silicon rubber is not a suitable material to seal glass jars containing EtOH. On the other hand it can be used for sealing jars containing formalin. Because of its poor removability it is however not recommendable.
2. Dicera 4799 is a good sealant, which gives an almost invisible seal. However for large glass jars, where the rim has an uneven surface, it is not suitable due to its modest filling properties.
3. Tixophalte gives similar results as Dicera. An advantage above the latter, is the better filling properties, which makes Tixophalte also suitable for large glass jars. However, it can only be successfully applied on ground glass, whereas Dicera can be applied to both, ground and smooth glass. Furthermore, a durable seal can only be guaranteed when the jars are stored in rooms with low temperature fluctuations.

**Acknowledgements**

I would like to thank Paul van de Brand of the Utrecht University Museum for sharing his practical knowledge of bituminous sealants and Dr. Harm Beukers for reviewing the manuscript and providing useful comments.

**References**


Table 1. Problems observed in the use of different sealants. All combinations are stored in rooms without environmental control. With regard to the temperature, fluctuations of 10°C daily are not exceptional. Because of the variety in size in the same category of jar type and thus the amount of sealant used, the rate of fluid loss is just a rough indication.

<table>
<thead>
<tr>
<th>sealant</th>
<th>preservative fluid</th>
<th>jar type (glass)</th>
<th>rate of fluid loss</th>
<th>problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon rubber</td>
<td>EtOH 80%</td>
<td>cylindrical</td>
<td>high</td>
<td>swelling and softening, loose lids, hard to remove</td>
</tr>
<tr>
<td>Dicera 4799</td>
<td>EtOH 80%</td>
<td>cylindrical</td>
<td>very low</td>
<td>leak seals</td>
</tr>
<tr>
<td>Tixophalte</td>
<td>EtOH 80%</td>
<td>cylindrical</td>
<td>very low</td>
<td>loose lids</td>
</tr>
<tr>
<td></td>
<td>formalin 4%</td>
<td>rectangular</td>
<td>very low</td>
<td>loose lids</td>
</tr>
</tbody>
</table>
Qualitative observation of the properties of silicon rubber, Tixophalte and Dicera 4799.

(- -) = very poor, (-) = poor, (-/+)= fair, (+) = good, (+ +) = very good, ? = not known.

<table>
<thead>
<tr>
<th>Property</th>
<th>Silicon rubber</th>
<th>Dicera 4799</th>
<th>Tixophalte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical inertia:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethanol 70%</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Formalin 4%</td>
<td>++</td>
<td>?</td>
<td>++</td>
</tr>
<tr>
<td>Physical inertia (absorption)</td>
<td>-</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Flexibility</td>
<td>++</td>
<td>-/+</td>
<td>-/+</td>
</tr>
<tr>
<td>Tear strength</td>
<td>++</td>
<td>-/+</td>
<td>-/+</td>
</tr>
<tr>
<td>Adhesion to glass:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smooth glass</td>
<td>++</td>
<td>++</td>
<td>--</td>
</tr>
<tr>
<td>Ground glass</td>
<td>++</td>
<td>++</td>
<td>-/+</td>
</tr>
<tr>
<td>Permeability:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethanol 70%</td>
<td>--</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Formalin 4%</td>
<td>-/+</td>
<td>?</td>
<td>++</td>
</tr>
<tr>
<td>Filling properties</td>
<td>++</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>Ease in use:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply</td>
<td>++</td>
<td>-/+</td>
<td>++</td>
</tr>
<tr>
<td>Remove</td>
<td>--</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Choices in conservation and restoration of historic specimens, an ethical approach.

Willem J. Mulder

Introduction

In many anatomical and zoological museums including medical history institutes many so called 'wet' specimens are on display or in storage. Some of them are up to 300 years old. Those treasures of former days are a source of anxiety because it is increasingly difficult to keep them in proper condition. Joseph Hyrtl (1810-94), the great Austrian anatomist, already said: 'Die zweckmässige Behandlung von feuchten Präparaten bildet eine wahre Lebensfrage anatomischer Museen'.

In the march of time many specimens and even complete collections have been lost by accidents, lack of interest or just decay and disintegration. Large parts of collections were 'forgotten' sometimes for more than 100 years. More often there was not enough money available to take proper care because of other priorities. Nevertheless, many of them survived wars, disasters and occasionally less professional treatment. In the meantime, of nearly all the original specimens left, the composition of the liquid must have changed. Most of the jars were repeatedly refilled and several were radically restored. In fact this procedure must have taken place at least once in every 25 to 40 years. In several cases the interval is less than ten years; in others much longer. This brings us to the question: How original are these specimens? And, how do we treat them to keep them available as a historic source of information for posterity? Those questions are not easy to answer. The right answer has to be pragmatic. In the Netherlands there is a proverb that says: it's no use to be more Roman than the Pope.

Early history of preservation

Except for dried bones the history of the preservation of anatomical and pathological, (human and zoological) specimens, is relatively short. Only towards the end of the 17th century, many experiments were undertaken to preserve human and animal soft tissues. In the late 17th century, Ruysch booked spectacular results. Some of his experiments are still in museums in Leiden, Petersburg and probably in Poland. It is well known that Ruysch sold his collection, to the Russian Czar Peter the Great during his visit to the Netherlands in 1717 for the vast amount for the time of 30,000 guilders. Later, after his death, a smaller second collection was sold to the King of Poland, Johan Sobiesky.

It is said that sailors and other transporters drank from the preserving liquid and that this may have been the reason why so many specimens have been lost. I do not believe this to be true, because the mixture must have been poisonous, due to the use of alum, tannic acid, camphor and resin. Not to speak about the taste of such a mixture. More probable is that many jars broke and specimens collapsed during transport. Another reason why many specimens have been lost, is that the quality of the spirits of wine was much less than the expected 60%.

Ruysch kept his recipe like many others secret, for a long time. However, he revealed some of it after selling his collection to the czar. The czar made this one of his purchasing conditions, as he had to know how to keep his expensive collection in order. Edwards and Edwards traced a recipe: 1 oz, 6 drams of black pepper, 0,5 oz. of seeds of small cardamomium, and 0,5 oz. of cloves, to 12 lb. spirit of wine. The mixture had 2 oz. of camphor suspended in it and the whole was distilled to 11 lb. 3 oz and diluted before use. Anyhow, other anatomists found similar methods and hence, the collections of many universities (professionals) and private persons (laymen) grew enormously. As mentioned, the oldest specimens are now nearly 300 years old and most of them are still very interesting and have most certainly some educational and certainly historic value.

Injection techniques

Simultaneously with the development of the conservation technique, Ruysch and several contemporary anatomists from throughout Western Europe with amazing patience experimented on injection techniques, especially to study the blood and lymphatic systems. Water, ink, milk, wax and many other liquids were injected in order to make these systems visible. A special impulse to this development is given by the discovery of the circulation of the blood by William Harvey (1578-1657) in 1628. The trouble was that most of these injections did not last permanently. After some time the injected materials escaped from the vessels and made the fluid turbid. Therefore
better results were reached using material that solidified afterwards. It appeared that a mixture of hot coloured wax and resin gave the best results. Jan Swammerdam (1637-1680), the Amsterdam anatomist and physiologist, was the first to use a mixture and became famous with his micro-injections in insects. Also, new methods of preservation using alternative liquids such as Venetian oil of turpentine (oleum terebinti) and much later greenwax (oleum gautheiriae), were introduced. This obviously resulted in a great number of specimens that had to be preserved and mounted.

Pioneers of the injection technique

In the Netherlands anatomists, such as Jan Swammerdam, Bernard Siegfried Albinus (1697-1770), Andreas Bonn (1738-1818), Jan Bleuland (1756-1838) and many others started fine collections.

It is obvious that this happened in other countries as well, among them from Italy: Marcello Malpighi (1628-94), Great Britain: the brothers John (1728-93) and William Hunter (1718-83), Germany: Johann Nathanael Lieberkühn (1711-56) and Samuel Thomas von Sömmering (1755-1830) and from France: Guillaume Dupuytren (1777-1835).

In Riga and Moscow parts of the collection of Justus Christian von Loder (1753-1832) the anatomist who was born in there, are still available. This brings us to the conclusion that the 17th and 18th century must have been the heydays of anatomical cabinets and freak shows.

It is not always clear who actually made the specimen, this may be an extra handicap in finding historical backgrounds. Anatomists used to spend more time on dissection than they did on writing. Also often the labels of the jars were lost or damaged with the result that the information on the original specimen was limited or even failed completely. On the other hand, there are some reasonable clear descriptions in catalogues made by industrious curators.

I will not go into details of who invented or made what and where. Such information is amply available in medical history literature. Important for our theme is that those collections were and still are in need of almost constant care. Preservation, fixation and restoration had short and long term effects. They influenced the tenability for a great deal. With this conclusion we arrive at the essence of our problems.

The collections as such and their role in modern life

As we are dealing with human material, we are speaking of rather morbid collections. However, we have to realise that death and decay in the 17th century were more experienced in family life than today. The collections were formerly presented to the public as freak museums and they were to be visited during summer when there were no (public) dissections. Later the attitude of these museums changed to more distinguished semi- or pseudo scientific cabinets owned by the rich, who showed them to friends and colleagues. The medical professors assembled their own private collections, which were demonstrated in private lectures to their students. Later they or their heirs often sold them to universities. These collections played an important role in the teaching process of the physicians to be and had little appeal to the general public at the time.

Now heading for the 21st century, a broader public is better educated and more involved with health-care in general and more in particular with their own health. For that reason anatomy museums are now more popular and more important than they used to be. The former curator of the Leiden anatomy museum Mrs Luyendijk-Elsbouts described this important collection in her thesis in 1952 in a masterful way. She pointed out that a large part was in a very bad condition indeed. The care she presented for the collection cannot be valued enough in recent times. Considering all this, the protection on the one hand and the use for historical research on the other are contradictory. We are dealing with historical material which cannot be replaced, so we are forced to maximise the protection, however it must remain accessible for educational purposes. It gives such useful information which means an extra risk of damage and even deterioration handling the specimens.

A new problem occurs in modern times. It appears to be impossible to keep all, old and new specimens, for ever in museums due to lack of space, money and staff. Therefore it is a growing concern to make choices in what to keep and what not. I am afraid I do not have a solution for that problem and limit my attention to our historic preparations.

Care of historical collections

For centuries curators and their assistants have tried to do their utmost (we hope) to keep the specimens in a as good condition as possible. We all know that spirits of wine evaporate easily. So, what happens to the quality of both the liquid and the preparation?

In early times, the lost liquid was replaced by the available spirits. Because spirits of wine evaporate faster than water the quality of the whole contents of the jars reduced. When curators realised this, they took no half measures and replaced all of the fluid. This gave a reasonable guarantee that the specimens were well-kept. But, what happened to the staining, the original jar and its contents? Were they saved or replaced? And the specimen itself? Had it shrunk, the colours faded? We regretfully have to admit that we are now looking at a specimen that differs from the one it was made.

Another point is that former curators and their assistants used to have more time to spend on making preparations than we have now. For that reason these specimens were much better taken care of. Against this argument we have to admit that we now have much better techniques and chemicals available to preserve specimens properly.

Preservation

I hope I made clear that maintenance of the ‘wet’ collections demands much attention. For the modern curators it is a heavy responsibility to keep the specimens in good condition.

After some time the specimen potentially desiccates, loses colour or even worse,
disintegrates. So, it is important to close the jars as tight as possible without giving the preservation-liquid a chance to evaporate. This has never been an easy task, certainly not with the simple methods available. Many methods of sealing have been used, but the results, we have to admit, are often rather poor. Only very few specimens are in the original state. When the jars were not refilled in time, due to lack of care, the specimens often completely decayed.

If we wish to save those completely dried pieces of tissue, they have to be carefully rehydrated. For the restoration of these objects a more specific plan is required. However, real rehabilitation and reconditioning is impossible and the specimen will always bear the marks of damage.

We will now try to follow a preservation process, as it may have been carried out in the early 18th century.

The technique of mounting a specimen

Imagine a winter morning late in the 17th century at the Anatomical Theatre in one of the Dutch universities. The anatomist just received the body of a criminal who has been executed the day before. An anatomical demonstration which is held in public takes place and at that occasion the prossector dissects, e.g. an interesting part of the intestines. The body is still fresh and without fixation. It is important to remove the blood out of the vessels and the best way to do so is massaging. He takes great care not to damage the blood-vessels because the next step will be the injection of a mixture of hot red coloured wax and mutton fat into these vessels. The anatomist of the early 18th century is interested in the vascular systems. The discussions about the circulation of the blood discovered by William Harvey are still in the centre of the physicians. The red colour is made using oxide of mercury. In case of the lymphatic system he could inject pure quicksilver as well. Then, after several attempts, the results are satisfactory and the anatomist asks his assistant for a vial. This vial is made of clear glass. It has a thin wall which made it very vulnerable and a narrow opening. That is an advantage because the smaller the opening, the easier and tighter the jar can be closed.

The preparation is now ready to be mounted and consists of still soft tissue. The assistant puts it very cautiously into the jar and fixes it with a single hair of a horsetail at the top of the jar with some pitch. Now he carefully pours his preservation liquid, which is a mixture of ‘Nantic Brandy’, some seasoning and some resinous material, to the capacity of the jar. The composition of the recipe is often unknown as nearly everyone used his own method and kept it secret. He puts a lid made of a piece of slate or sometimes glass, again with some pitch and maybe some tallow and putty on the opening, to close the jar. In case of a very narrow neck he might even use a cork. In that case almost certainly the atrophy of the specimen will commence due to the corks instability. Now sometimes the lid is covered with a foil of lead and at last, he shrinks a pig’s bladder over the lead and after drying, the cap is painted. The specimen is now ready for display for a long time.

Changes in composition of the tissues

What happens next? In the jar the tissue of the preparation hardens because of coagulation of the protoplasm in the cells as an effect of the relatively high concentration of the spirits of wine and other fixing material. After some time, the colour changes and the liquid becomes a bit more yellowish, due to the seasoning and probably some moisture from the specimen. Changes in temperature over the years also have an influence and the horsehair becomes somewhat brittle.

In the last few decades an extra problem occurs with the introduction of central heating systems. This causes an extra burdening to the specimens. On the outside the pig’s bladder cover dries and so does the pitch. Fortunately, the slate top fits very well so the jar remains hermetically closed. Then, after many years a new curator wants to demonstrate his beautiful preparation. He takes the jar out of the cabinet and carefully places it on the table. Now there is a shock! A tiny crack appears in the pitch and a small drop of spirits wriggles into it. After some time the lead foil that covers, the lid corrodes being affected by the aggressive mixture of spirits, pepper and camphor. Later again the pig’s bladder becomes wet and starts leaking as well; the spirits of wine find their way to evaporate. At last, the liquid has been reduced to half. Now the quality of the preservation liquid reduces real fast. The specimen seems to be still in reasonable condition, but needs urgent care. It is on the border of putrefaction now as the upper part starts to dry. A temporary solution, which often has been applied, is to drill a hole in the lid and inject some new preservation liquid, probably slightly different from the original one but for the present time the specimen is saved. However, through the new hole in the lid, the spirits of wine evaporate even faster.

Restoration or no restoration?

Then, at the occasion of another demonstration, the brittle horsehair breaks and the specimen collapses to the bottom of the jar. By the force of falling down, some of the injected wax has burst out of the blood-vessels, and it sinks also to the bottom of the jar. Now we come to the question: what is the proper thing to do for the curator? Anyhow, he wants to save the specimen. So, he needs to open the jar, to save what is left of it. He also wants to remount the specimen and make it presentable. In short, what he is forced to do is: restore the whole composition. Now we can raise the following question. Is complete restoration the right thing? In terms of originality, we should keep it as it is. But then the specimen most certainly will be lost. Another problem occurs; it appears to be impossible to get the specimen out because of the narrow neck of the jar. The original soft tissue is hardened and it will definitely be damaged when folded. After all these years the tissue is very brittle indeed.

The questions are now: can we save the specimen, can we save the jar? Do we have to replace the horsehair and if so, do we use a longer lasting piece of nylon? And what about the rest of the liquid? Should we, if we are able to do so, keep the colour intact? Not to mention the quality of the sealing material. Mentioning all these problems it is needless to say that if an old jar is closed and in good condition, please do not touch it. Because it only can become worse.
The dilemma of choices

We are confronted with a very difficult dilemma. It is clear we cannot soften the specimen without damaging it. The moment we add new liquid or change anything to the original, we introduce changes which are not reversible and they influence the originality. Then future generations will be disappointed because they will not be able to study the original material any more. But, if we leave it as it is, the specimen collapses, will decay and be lost. In that respect we also have to realise that severe irreversible damage has been done already.

An example of such irreversible interference is a result of a late 19th century discovery: formaldehyde and its preserving effects (Blum, 1893; exact 100 years ago)! The advantage of this liquid is that it does not evaporate as easily as spirits. Thus, many specimens were replaced into formaldehyde, disturbing the original fixative.

A possible cure?

There is no perfect solution, so we try to find the next best. In my opinion, we have to consider the preparation itself first. If we are sure there is no way to save the jar, we have to replace it. The same is true for the preservation liquid. Needless to say it is absolutely necessary to report each action in a case history. That will enable our successors to learn what we have done and when.

A new housing of our specimens does not mean that we can use an alternative material such as acrylic. A historic specimen should be mounted in a real glass jar and I think it is unacceptable to change that aspect. The best solution is to order a professional glassblower to produce some identical jars (of course with a wider neck). It is important to know that the quality of the liquid is as perfect as possible. We do want to save the specimen, don’t we? So the best thing to do is choose a liquid nearest to the original. This way the least damage will be done. In case there is some spirits of wine left over preferably refill the jar with approximately alcohol 70%.

If in the last century the preservation liquid has been changed into formalin, the best thing to do is leave it in the same liquid. If we go back to spirits again most certainly additional damage will occur.

I would also choose for the replacement of the horsehair by a new one; not by nylon threads. It is more original and secondly nylon might be even sharper and cut into the vulnerable tissue.

For recognition it is useful to put a small piece of paper with the inventory number, using East Indian ink, into the jar. This way the specimen is easier to trace.

Sealing the restored specimens

Sealing is a special problem that needs extra attention. The main aim is to seal the jar as tight as possible. We have to realise that if this is done properly there will be less need to re-restore the specimens in the future. I will not go into technical details in this matter. There will be others who will talk about these aspects. I am interested in the results, the tightness of the sealing and in the aesthetical aspect. In my opinion it is important to keep the specimen in its historical context as much as possible. On top of that the less we have to interfere in the future the better it is for our specimens. In the Netherlands the Government recently subsidised a conservation plan in order to save at least a part of our cultural heritage. One of the conditions is that only the most necessary measures are to be taken. In other words we are not allowed to restore the whole specimen but simply take care of the object and protect it from further damage. I believe that this is just the best approach. In this way we cannot over-compensate the already existing damage.

Conclusion

In my opinion I have not given ‘a ready to be tried’ solution. At its best it is a contribution to the discussion. And I hope that curators and technicians from now on will handle a different approach when restoration of historic specimens is needed. We are morally responsible for the heritage of our predecessors. I do hope and expect that our efforts to take serious measures in order to save the ‘wet’ specimens and their originality will be heard. During the course of time too much important material has been lost or mutilated. Our material is worth to take proper care of.

References

1 Hyrtl J.; Handbuch der praktische Zergliederungskunst (Wien, 1860).
7 Lindeboom G.A.; De geschiedenis van de medische wetenschap in Nederland, Fibula- van Dishoeck (Bussum, 1972) p. 69-72.
11 Swammerdam J.; De Bijbel der Natuure; Isaak Severinus, Boudewijn van der Aa, Pieter van der Aa (Leiden, 1737). Reprint: De Banier, Utrecht. See also: Schierbeek A.; Jan Swammerdam. His life and works; (Amsterdam, 1967).
12 Lindeboom G.A.; Het kabinet van Jan Swammerdam (Amsterdam, 1980).
21 Romeis B.; Mikroskopische Technik; Leibniz Verlag (München, 1948).
22 Elshout; p. 10-11.

The Library of Medical History
on microfiche
Editor: K.S. Grooss, Museum Boerhaave, Leiden

A collection of rare titles, mainly from the library of the Museum Boerhaave in Leiden. The selection of authors and titles is based on Garrison and Morton's Medical Bibliography.

The collection of titles is divided into 28 subjects, among which:
Anatomy, Boerhaave, Electro-cardiography, History of Medicine, Public Health / General Medicine / Hygiene, Surgery.

All titles are also available separately, minimum order 150 Dutch guilders.

395 monographs and 18 serials

Brochures available free on request.
Medical Instrument Catalogues

on microfiche

Editor: K.S. Grooss, Museum Boerhaave, Leiden

4-cell bath, Louis & H. Lievensstein.
Elektromedizinische Instrumente und Apparate. 1909.

A microfiche collection of sales catalogues of medical instrument makers who have been advertising in printed matter since the 18th century.

This collection offers an illustrated history of medical instruments which gives a good idea of the range of instruments employed in medical procedures.

An indispensable source of information for any researcher dealing with the history of medicine.

The collection now contains catalogues from the richly endowed libraries of Museum Boerhaave at Leiden and the Thackray Medical Museum in Leeds.

694 sales catalogues on 2,146 microfiche

Brochures available free on request.

IDC
Microform Publishers
P.O. Box 11205, 2301 EE Leiden, The Netherlands Fax 31-71-513 17 21
MÉDECINE
ET
SCIENCES
ANCIENNES

LIBRAIRIE THOMAS-SCHÉLER
Lucien SCHÉLER et Bernard CLAVREUIL
19, rue de Tournon - 75006 Paris