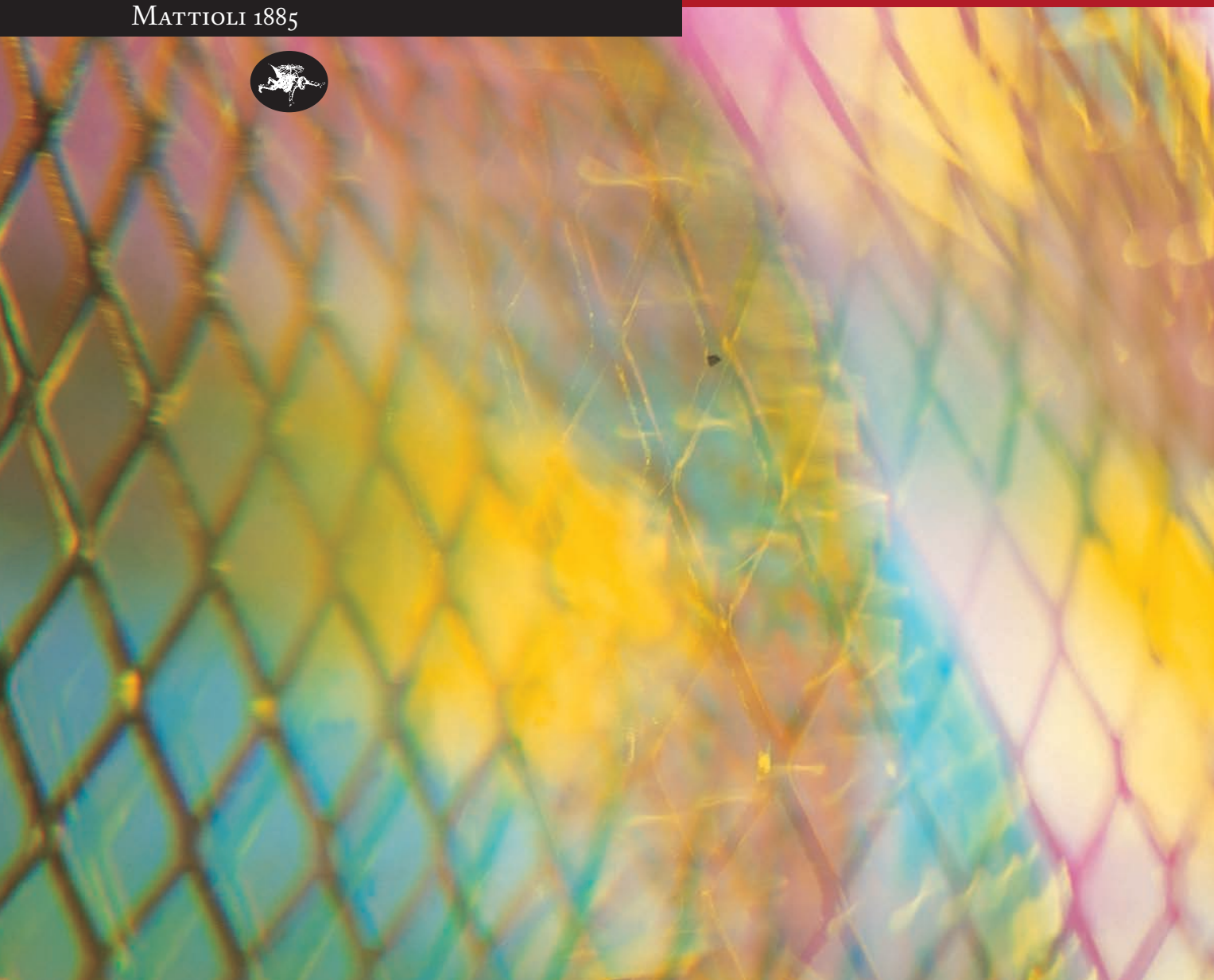
Med. Histor. - Vol. 2 - N. 2 - August 2018 | ISSN 2532-2370

MEDICINA HISTORICA

Organo Ufficiale della Società Italiana di Storia della Medicina

Mattioli 1885



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MEDICINA HISTORICA
Registrazione Tribunale di Parma
n. 20/1997
ISSN 2532-2370
Periodicità quadrimestrale

Journal Director /
Direttore Responsabile
Federico Cioni

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Editorial

"Medical Humanities" in the age of technological and informatics medicine

We must take note of the radical changes in the medical profession (we must consider the radical changes that have involved the medical profession): tumultuous development of technology, computerization, procedures, corporatization, financial repercussions.

The human dimension has been reduced to apparatuses, cells and chemical reactions. But the physician can not be reduced to a graph reader and the unwell are not just a mass of molecules. Today, every effort must be made to recover the plurennillennial agreement between the physician and the patient.

Human sciences allow us to rediscover (to regain) the psychological dimension and the spirituality of the sick. A necessary return to the immutable foundations of "medical art" "art of medicine". Each patient has a history that goes beyond the symptoms. The patient's bed should return to the center of work. No doctors who graduate are taught how to deal with the patient and his family members.

Serious illness threatens the integrity of the unwell, with the collapse of identity accompanied by anxiety, depression and despair. Therefore, it is necessary, with the participation and involvement of the patients - in scientific terms "engagement" - to create an emotional and relational bond: empathy. The term "therapies", care, must regain the original meaning of service. This is the task of the "Medical Humanities", disciplines that offer a valid help to communicate humanity.

Authoritative institutions, societies and science centers hope to reformulate the curricula, extending the set of special biomedical disciplines to such knowledge in degree courses, graduate schools and courses of health professions, in particular nursing. Reference is made to: ethics, anthropology, sociology, psychology, history of medicine, end-of-life problems, palliative care, pain therapy.

Many believe that new students should receive, as a first impact, the teaching of "Medical Humanities" in order to understand better of what is expected of them, once they become doctors: a sort of "baptism of university freshman". This fundamental formation should be interconnected, in terms of temporal continuity, horizontal and vertical integration with the biomedical disciplines, with a coordinator who follows the humanistic formation in the several years of the course.

In a shared medicine the doctor must explain, listen, communicate; fleeing the ephemeral, giving hope and security. Human medicine must be placed on the agenda of health problems. This need was recently reiterated also by the prestigious medical journal "The Lancet".

At its last meeting the "Superior Council of Health" unanimously approved a substantial document - with a title equal to this editorial - drawn up by 22 teachers, scholars and scientists of different cultural backgrounds, where the above needs are presented to the Institutional Authorities of reference. For a good medicine.

Adelfio Elio Cardinale
Vice Presidente del Consiglio Superiore di Sanità
Presidente della Società Italiana di Storia della Medicina

Medicina Historica 2018; Vol. 2, N. 2: 58-62

Healing bodies: the ancient origins of massages and Roman practices

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Abstract. The practice of body manipulation with therapeutic aims has been used in the Western world since the origins of Hippocratic medicine. By retracing the therapeutic use of massage as a therapeutic, preventive and educational practice, the authors attempt to highlight the concepts, techniques and methods of massage and the manipulation of the body in order to offer a valuable and useful historical reconstruction concerning ancient medicine. The study on the relationship between culture, diseases and medicine constitute a significant part of the historical medical research carried out within the Research Project of National Interest PRIN entitled 'Disease, health and lifestyles in Rome: from the Empire to the early Middle Ages' funded by the Ministry of Education, MIUR University Research in 2015

Key words: massage, therapy, ancient medicine

The practice of the manipulation of the body for medical purposes has been used in the Western world since the origins of rational Hippocratic medicine (1). Although the word 'massage' has been related in a number of different ways, in its etymology, to the Hebrew term that indicates kneading, as well as to the Arabic term that indicates the practices of lightly touching and to the Sanskrit root *makch*, which indicates pressure (2), we can be certain that the word used in the texts of Greek medicine is the derivation of the verb *anatribein*, from the most frequently used term, *anatripsis*, which indicates the act of rubbing and kneading, but also that of caressing and making something smooth and uniform. The most common use of this term, corresponding to the word *frictio* in Latin medical literature, are found in non-medical literature, in particular in the texts of the Homeric epic as well as, with greater frequency and conceptual importance, in some treatises of the Corpus Hippocraticum, the set of writings that the Alexandrian tradition ascribes to Hippocrates of Cos, founding father of rational medicine.

Whereas in the Iliad and the Odyssey the massage with oils and aromatic substances is mentioned as a means to relax the tired limbs of warriors and a way to help the treatment of wounds, along the lines of a tradition of care that had already been attested in the therapies practiced inside the Asclepius temples – with the use of natural substances, herbs and ointments – this practice becomes a tried and true therapeutic practice in Hippocratic medicine.

The work on *Articolazioni* (joints), cited in the list of Eroziano and commented by Galen, traditionally attributed to the school of Cos and dated between the end of the 5th century and the beginning of the 4th century BCE (3), deals a great deal with massage as a healing technique following the dislocation of the shoulder and knee, pathologies that tend to recur (4). In the case of shoulder dislocation, which should be treated with a wax bandage and a wool pad to be placed under the armpit to keep the bone in the correct position, the arm should be held up so that the head of the bone should placed as far away as possible from the anatomical site in which the dislocation pushed it.

At this point, the doctor can practice a massage, which should be carried out "softly and with persistence". The importance attributed to this technique is clearly highlighted by this step, in which we the act of carrying out the massage is not given to simple or practical 'hand operators', who share their skills with *cheirourgoi*, but rather the massage is formally assigned to the Hippocratic physicians, who are required to have a vast array of skills and expertise, an integral part of which is the knowledge of the manipulation of the body. The importance given to the technique is further confirmed by the fact that Hippocrates promises, within this context, to dedicate another treatise entirely to the manipulation and massages. He stresses that, although the word *anatripsis* can be used in a variety of contexts, the meaning attributed to this word changes a great deal according to the contexts in which it is used: massage is the practice aimed at solidifying and tightening a joint that is too loose, yet massage is also used to relax articulations or joints that are too tight or rigid.

Manual actions carried out on the body surface are useful as 'internal' treatments, i.e. pharmacological; anointments, effusions, friction and cataplasms correct the possible imbalance of the body, in which everything is based on an ordered relationship between 'inside' and 'outside' (5). Therefore, much like any other therapeutic technique, massages serve to restore the level of dryness, humidity, or heat to the body, having lost this balance during a pathological process (6).

However, in the case of a dislocation, massages are used as an operation of extreme delicacy, which must be carried out with a great understanding, "without violence" and, to the extent that this is possible, without giving the patient additional pain. Thanks to massage, Hippocrates claims that the healing is complete, with variable times depending on the severity of the case.

In his treatise *Officina del medico* (The Workshop of the Doctor), traditionally ascribed to the ancient group of surgical documents of the Cos school, chapter 17 is entirely dedicated to the topic of unbundling and massage that, according to tradition, are associated with the skills required by surgeons, together with the ability to correctly perform a curative or corrective bandage. The treatise offers the most systematic description of the purpose of massage, which can alternately relax or solidify body parts, increase or decrease muscle mass. The fundamental qualities that define Hippocratic physiopathological theories also recur in the definition of the type of massage – dry rubbing (friction) is used to give tone, while softer massages are useful for relaxing muscles and joints. Timing and frequency also play an important role: if practiced frequently, massage induces weight loss; if practiced on a moderate basis, it strengthens and solidifies the body.

The same treatise indicates the technique that is useful for correcting a series of physical defects, in particular regarding diastases, fractures and small displacements of the joints, or feet that are displaced towards the front or back, where the therapeutic massage must follow bandaging without compression, and must be directed to return the body part in the direction opposite the deviation or displacement, forcing it even a little beyond its natural position.

The therapeutic use of massage is also evident in the purely clinical treatises, such as the book on *Epidemie* (Epidemics), in which we find massages cited as a surprising remedy to a case of deafness that afflicting Acanto's cook, who was suffering from the annoying consequences of a phrenitis (*delerium*). Other rather 'bizarre' applications of massages are reported in the Treatise on Internal Affections, which indicates this therapy as a useful therapeutic tool even in the treatment of tetanus, whose clinical description is described with great precision and clarity - the disease is known as severe and often untreatable, and can be treated with fumigations that introduce continued applications of warm oil on contracted body parts. In this case, the oil should be mixed with wormwood and bay leaves, grains of *hyoscyamus* that are ground up in white wine and in a "new jar". These are odorous substances, whose supposed effect is to relax, due to their pleasantness, the tight muscle fibres caused by the disease. For this reason, when treatment is applied on the body and head, the patient should be left to rest for a long time so that he or she can "absorb" the positive qualities transmitted by the *pharmakon*.

The use of herbs or drugs from the animal or vegetable world in association with massage oil is a common practice: the oily substances used by the doctor during massage therapy can be combined with herbs such as coriander and cumin, or substances such as

Egyptian nitro, burnt and mixed with fat. Anointing can also be used on specific parts of the body, as highlighted by a case in which it is used on a patient suffering from ulcerated haemorrhoids (7). However, the effects of the therapy in this case were not beneficial. Unfortunately, the ulceration turned into a *karkinoma* and led to the death the patient.

In other cases, described in the gynaecological treatises (8), the repeated unction of the external genital organs and the uterus with substances that had a very strong or even repellent odour serve to prevent the dislocation of an organ that ancient medicine considers capable of moving inside the body, "like an animal", attempting to reach the proper level that the feminine nature, cold and humid, physiologically imperfect, is not able to ensure for reproductive organs in the absence of sexual relations and heat that only the correct contact with the male is able to procure.

In Hippocratic therapy, friction and anointing of the body are often associated with rubbing, either moderate or more vigorous, depending on the body's makeup and the patient's health. The therapy also includes wrestling and exercise or gymnastics, which heat the surface of the body and allow for the release of humours that are wet or humid. Both techniques (gymnastics and massage) force the external parts of the body to a make a useful effort, warming the tissues, solidifying and developing muscle mass, condensing – through the movement – the parts of the body that according to nature are compact, adding volume those that are deeper, such as the veins (9). The process is favoured by the onset of heat, triggered by the manual skills and expertise of the doctor, carried out on the area to be treated, which causes the flesh, heated and deprived of excess moisture, to more easily attract the nourishment provided by veins.

Massage is certainly not simply an accessory to ancient therapy, but rather a strategy of treatment with the same value as pharmacological intervention, phlebotomy or cupping – such importance remains a sign also in the passage of the tradition of Greek medicine in Rome.

Aulus Cornelius Celsus, Roman encyclopaedist who lived between the 1st century BCE and 1st century CE, author of an encyclopaedic work on the Arts of which only the book dedicated to medicine survives today (9), dedicated the 14th chapter of the book to massage and the history of this practice.

Here we find the name of Asclepiades, a Greek doctor practicing in Rome in the 1st century BCE, as the 'inventor' of massage therapy, mentioned in the treaty *Communium Auxiliorum* (on common remedies) together with the treatment based on water and gestation (therapeutic treatment that involves the oscillation and soft movement of the patient, on a stretcher, in gestation chair, or on a boat) as a therapeutic system for all the diseases. Celsus recognizes Asclepiades with the merit of having given importance to *frictio*, having indicated the best use of this method, however he places the history of massage much earlier, emphasizing the importance that massage had within the Hippocratic tradition and in the authentic writings of the teacher from Cos. Hippocrates was the first to argue that the forceful massage strengthens the body. When done softly, it aims to make the body softer. When used repeatedly, massage tends to thin the body, and when used moderately, the therapy helps make the body more robust.

Therefore, indications for massage treatment are quite clear: the massage must be prescribed in the event that the body must be firmed because it is limp, or softened because it is contracted or tense; it can be indicated if there is a humour excess to be dissipated and dispersed throughout the entire body; it is useful if the body is weak, as a supplement to the diet, in order to reconstitute the body's fibre.

Celsus takes time to analyze the principle according to which massage seems to work, even though it does not concern the competence of the doctor (*quod iam ad medicum non pertinet*). He deals with the concept of subtraction (*quae demit*), because living bodies become tight if the principle that made them relax is take away. Likewise, they soften, by subtracting that which "created hardness" inside. They become full, not because of the friction itself, but because the massage allows the best penetration into the tissues of food already subjected to digestion processes. For Celsus, the vast array of effects depends on the way massages are practiced. Friction and anointment (*unctiones*) are not the same thing, due to the fact that their indications differ: the anointing of the body or part of it and soft rubbing is also indicated in the case of acute and recent illnesses,

during remission, while the prolonged use of the friction is not useful in acute diseases and not even in those that are worsening, except in the case of frenetic illnesses, in which the massage attempts to induce sleep in the patient. Along general lines, massage is a remedy indicated in long-term illnesses that are not at the initial stage, in which their aggressiveness is less evident. Therefore, massages must be used after the signs of a first improvement, and never if there is, for example, an increasing fever. The best indication would be when the body is completely free from chills, or when the disease begins a process of remission. The doctor will determine from time to time whether the massage should be extended to the whole body, or if only one part of it should be treated, affected by a weakness or an illness.

Celsus also offers several indications for the use of massages: recurrent and long-lasting headaches, as well as paralysis to certain limbs, benefit greatly from friction therapy, which can restore vigour and strength to the parts of the body affected by the illness.

Not always can the doctor directly treat the affected body part: in some cases, the treatment will only serve to 'recall' matter from the upper or middle parts of the body, through the rubbing of the lower parts.

For Celsus, there is no clear rule regarding the amount of massages that must be prescribed. However, it is important to understand the strength and the degree of resistance of each patient. If the patient is weak, fifty movements may suffice. If the patient is strong, he or she will also be able to handle two hundred, and medium severity cases require intermediate treatments. The ancient theory of the constitutions of gender and age is clearly expressed here: women, who are incomplete, weak and humid beings, can handle a lower number of massages than men, and so the children and the old, other 'liminal' categories of Hippocratic physiology.

The doctor's hands *dimovendae sunt* in local applications, using many vigorous actions if one intends to disperse matter that has accumulated, or mild and limited over time if the disease is extended to the whole body. In the latter case, requires only that the skin's surface is softened, in order to facilitate assimilation of the new matter taken into the body with food.

Based on the Hippocratic principle that gives cold a negative quality, massage, which warms the body's surface, can rightfully *alicui medicinae locum facere*: again, not a palliation, but an effective substitution to pharmacological therapy.

Perhaps the most interesting discussion on massage in Rome is that offered by Soranus of Efesus (90-150 CE), the methodical doctor who wrote a treatise on diseases in women, childbirth, and the care and treatment of the newborn (10). Soranus also goes beyond the therapeutic massage – massage is an educational gesture of the body, a modelling (*to diaplasmòn*) that tends to guarantee the newborn beauty, proportion and health. It is a hygienic and preventive practice, whose importance is that it can help shape the perfect *cives romanus* in the body.

This aspect of massage as a preventive practice will find full application in the 'hygienic' work of Galen of Pergamus, the *De sanitate tuenda* (11), in which a large part of the second book is dedicated to a discussion and study of massage.

Galen discusses and comments on the entire tradition he had before him, from Hippocrates to the gymnasts who are cited as experts in massage at the same level as doctors. The body must be warmed up so that its fibres are ready to receive the beneficial effects transmitted by the oil, through repeated gestures, of medium intensity and speed. When the skin turns red – which indicates good health - the person carrying out the massage must place their hands on the person, without forcing the body into a position that is unnatural: they must work slowly first, then with increasing strength, in order to exert pressure once or twice in every single part of the body. The massage must be balanced, neither all directed upwards, nor all downwards, but in a balanced way, with oblique, transverse, straight and sub-transverse movements. The transverse movement is for Galen the one contrary to the a straight movement; sub-transverse is the one that is directed a little towards one or the other part; the sub-rectum movement moves away from the right in one direction rather than in another; the oblique movement is halfway between the straight and transverse movement. Galen, following his complex anatomical-physiological systems, builds a theory also structured on massage: the important thing is that the movement affects in a balanced way all the muscle groups, in every direction. Each gesture, in its directionality, obtains a different

effect. The transverse massage, which in Rome some call "round", hardens, contracts and tightens the tissues, while the "straight" massage makes them soft and loose, relaxes, softens and loosens the body. Much like Hippocrates, Galen recognizes that massages can be used in various ways for the solution of various pathological situations. For each type of massage, there is a structured gradation of effects in a theory of degrees and intensities that are typical of Galen's thought process (13 Montraville R & Green MD 1951).

If similar actions cure similar problems, in short – soft massages soften, vigorous massages strengthen – this should be combined with an understanding on the frequency and intensity of the rubbing and "friction" that are the true prelude to a theory behind the workings of therapeutic massage that will last for centuries.

While falling from grace as a therapeutic practice during the Middle Ages and the early modern era (12), massage will retain its specific healing role in the thermal baths, in the practices of the Roman "stufaroli", until arriving, with Ambroise Paré, to the official recognition of massage as a therapeutic practice to support surgery, renewed and improving over time.

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Medicina Historica 2018; Vol. 2, N. 2: 63-74

Original article: history of medicine

Introducing the trained and educated gentlewoman into the wards of a children's hospital. The role of Charles West, M.D. (1816-1898) in the rise of pediatric nursing

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Abstract. The recent bicentenary year of Charles West (1816-1898), the well-known pioneer of pediatrics, gives us the opportunity to highlight his fundamental role in the birth and first development of pediatric nursing. His initiatives (most notably the establishment of the first pediatric hospital in London, the Great Ormond Street Hospital for Sick Children) and his ideas on nursing were often misunderstood and opposed by his contemporaries. But nowadays they appear to us very relevant and forward-looking, centered as they are on the rigorous selection and the full human and professional training of the new nurses for "sick children". His attempt to fight classism – a social feature so deeply rooted in the Victorian era – which many people wanted to be reflected also in the organization of hospital nursing, deserves to be remembered and analyzed. Along with many other aspects of his life and works, starting with the role he played in the professional education and advancement of one of the leading figures of early pediatric nursing: Catherine Jane Wood.

Key words: Charles West, Catherine Jane Wood, history, pediatrics, nursing, London, Great Ormond Street Hospital

Introduction

Charles West "in 1862, introduced the trained and educated gentlewoman into the wards of the Children's Hospital, and from that year may be dated the immense advance that took place in the nursing of children's diseases" (1).

This authoritative statement was made by Catherine Jane Wood (1841-1930), probably the most influential among the UK's pioneer pediatric nurses (2), and could on its own suffice to to give Charles West (1816-1898), founder of the Great Ormond Street Hospital in London, a prominent place in the origins of pediatric nursing.

However, West's interest in and thoughtful concern for the development of this specific nursing specialty began much earlier than 1862. (This paper will also offer considerations on *why* Wood indicates that year…)

As evidence for this, we can cite, for example, *The First Annual Report of The Hospital for Sick Children*, published in London in 1853, about a year after the opening of the new little hospital in Great Ormond Street. On the cover page of the report the three "Objects of the Institution" were listed as follows:

"I.- The medical and surgical treatment of poor children.

II.- The attainment and diffusion of knowledge regarding the diseases of children.

III.- The training of nurses for children" (3, cover page).

Whereas the achievement of the first "object" gives full credit to West as the founder of one of the world's leading institutions for the care of sick chil-

dren and the achievement of the second "object" makes of him one of the fathers of general pediatrics (4), the third object still needs a thorough investigation which is the specific aim of the present article: West's championing of a specific "training of nurses for children".

Great expectations

The first traces of West's appreciation for the nursing role in hospitals, together with his advocacy of a better training for general nurses, can be traced back to 1838 in his first publication after his Doctoral thesis.

In the Autumn of 1837, West returned to London from Berlin where on September 27, he had obtained his degree in Medicine (5, 6). Thanks to Dr. Peter Mere Latham, West was allowed to attend the wards of the old St. Bartholomew's Hospital, which at that time were ravaged by many cases of epidemic typhus (7, p. 118).

Among the preserved notes of the sixty cases which came under his notice, we are struck by the story of a forty-nine years old hospital nurse whose death was attributed to the lack of attention of one of her fellow nurses: "The nurse, whose duty it was to attend upon her at night, appears to have neglected her, and in the morning she was evidently dying. An unsuccessful attempt was made to rally her by sinapisms, &c. but she died at 5 p.m., on the 4th of February [1838]" (7, p. 124).

In this same paper West noticed that the greater mortality among women with typhoid had as the only possible explanation the fact that "while the sister in the male-ward was active and assiduous in seeing that the nurses did their duty in waiting on the sick, she who had the care of the female-ward was indolent and inattentive" (7, p. 143; 8, p. 65).

In the year when Florence Nightingale was just eighteen, Charles West seems already perfectly aware of "how much depended upon the nursing in the wards and their proper supervision"(8, p. 65).

In the following years, while West's clinical interests focused more and more on the diseases of women and children, his sensitivity to the quality of care for the sick, especially if "so frail a being" (9, p. 22) as a new-born child, was expanding. We get the impression that in his writings of the early 1840s, a set of best care practices is forming gradually, even if not always explicitly referred to nurses and nursing. For example, in a paper about children's pneumonia we can read:

- "nothing is of greater moment than that a sick child should retain its fondness for its attendants during the whole period of its illness" (10, p. 363);
- "never to allow the children to lie flat in bed or in the nurse's arms, but to place them in a semi-recumbent posture in the arms, or propped up in bed. By so doing respiration is facilitated, since the diaphragm is relieved from the pressure of the abdominal viscera, and that stasis of the fluids in the posterior parts of the lungs is prevented, which has been shown by French writers to be so prejudicial to infants or children labouring under pneumonia" (10, p. 363);
- "when pneumonia has reached an advanced stage, or has involved a considerable extent of the lungs, the children should be moved only with the greatest care and gentleness, lest convulsions should be brought on. Whatever may be the explanation of this occurrence, the danger is by no means an imaginary one, for I have seen instances in which children have been seized with convulsions immediately on being lifted somewhat hastily from bed and placed in a sitting posture" (10, p. 364).

West shows that he knows well the history of nursing assistance (from Guy de Montpellier, in the early 13th Century, to the modern Sisters of Charity and beyond…) (9, pp. 3-4), especially with reference to those antecedents of children's hospitals which were foundling hospices and orphanages (9).

While recognizing and describing the severe limits of such structures, West does not agree with those who consider them totally useless and even harmful. To him, the high mortality among the foundlings is mainly caused by "a want of due care" (9, p. 22). He knows that, in principle, the best thing for children's health is that their stay in a hospice was "as short as possible"(9, p. 22) and that "a new-born child is so frail a being that a thousand precautions are essential to the preservation of its life" (9, p. 22). But he seems to sense that the poor results of foundlings hospitals and orphanages (and even of the world's first children's

hospital, the *Hôpital des Enfants Malades* in Paris!), derived mainly from lack of sanitation and other fundamentals of caring (10): solve those problems, change those "extremely unfavorable hygienic conditions in which all children are placed" (10, p. 3) and the importance of this kind of institution will appear in a completely different light.

He gives as an example the hospice for foundlings in Lyon where the mortality rate had been dropping ever since, in the early 1810s, reforms had been undertaken to improve, in an "unwearied" manner, the care for sick children (9, p. 23). For example, he notices: "In Lyons messengers are employed, who carry the infants, placed in a cradle and well protected from the weather, on their heads, and this mode of conveying the children is considered preferable to any other, from its exposing the children less to be shaken or injured" (9, p. 22).

His attention not to underrate the information received by the mother or the nurse of the sick child ("You see the child but for a few minutes… They tend the little one by day and night…"), is also a good clue of how much eager the young West was to create a fruitful professional collaboration between physician and nurse: "A mother hanging over her sick infant, or a nurse watching the child she has helped to rear from babyhood, may sometimes see dangers that have no existence, but will generally be the first to perceive the approach of such as are real" (11, p. 797).

As these few examples indicate, West was at that time building, little by little, a real system of "fine tuning" in the health care of children.

West's connection with the Royal Dispensary for Children in Waterloo Road dated back to the late 1830s (8, p. 30) and his connection, as Physician Accoucheur, with the Finsbury Dispensary for poor people at least to 1841 (10, p. 3). It is probable that such direct and lasting contact with those charitable institutions for the poor and for sick children, with all their limits and potentiality, gave him the idea of creating a hospital specifically for children in London.

In fact we know that from 1843 onwards West made many attempts to convince the Committee of Management of the Royal Dispensary to create wards for inpatients (8, p. 89). Despite a theoretical consensus the proposal did not go ahead and, later in his life, West remembered sadly and a little bitterly his final unsuccessful attempt: "In 1848, I made an attempt to convert the institution [in Waterloo Road] previously only a dispensary into a hospital. Several new members joined the committee, of whom one of the most active was Mr. W. Hawes, brother of the late Sir Benjamin Hawes. The attempt failed, owing to the jealousies of local medical men" (12, n. 2).

It is important to remember that in London the opposition not only to the opening of children's hospitals but also to the creation of children's wards in general hospitals had deep and strong roots, all of them related to the nursing problem. Even George Armstrong, founder of the first children's health facility in Europe, the Dispensary for the Infant Poor (1769), took a very strong position in 1772 against the idea of a children's hospital or ward: "a very little Reflection will clearly convince any thinking person that such a scheme can never be executed. If you take away a Sick Child from its Parent or Nurse you will Break its heart immediately: and if there must be a Nurse to each Child what kind of Hospital must there be to contain any number of them? Besides, in this case the Wards must be crowded with grown Persons as well as children; must not the Air of the Hospital be thereby much contaminated?" (quoted in [8], p. 59).

Along those same uninterrupted lines, around 1850, came the decision to close the only children's ward existing at that time in London, the one at Guy's Hospital. The main reason was that the ward "required so many nurses that it was better to place them [the sick children] where the services of women patients could be utilized in their nursing and care"(13, p. 358).

Had it not been for the climate of growing concern for the miserable conditions of the poor sick children of the city, raised by the works of Charles Dickens (Little Nell in *The Old Curiosity Shop*, 1841, and Tiny Tim in *A Christmas Carol*, 1843, come immediately to mind), West's utopian project would probably never have turned into a reality (8).

Nurses and nursing education in the first years of the Great Ormond Street Hospital (1852-1862)

In the context of such oppositions, West honed his skills for public relations and fund raising. It took

about three years of intense work, but in February 1852 a small Hospital for Sick Children opened its doors in Great Ormond Street (from here onward usually referred to as GOSH).

In April of that same year Charles Dickens and his friend and collaborator Henry Morley visited the hospital for the first time ("That was a mansion too: broad, stuccoed front, quite fresh and white; bearing the inscription on its surface, *Hospital for Sick Children*"). They were positively impressed by many details, but in the article published shortly after in *Household Words* (14) they make no reference to a nursing staff.

Nonetheless, we know for sure from the report of a meeting of the Committee of Management that no later than November 1852 the hospital was equipped with a few nurses (their only sleeping room was to be provided with "a Chest of Drawers and a Wash Stand") and a Matron (who, on that occasion, was authorized by the Committee to procure those pieces of furniture) (8, p. 34).

That tiny initial staff must have grown gradually along with the number of little patients (only 24 outpatients and 8 inpatients during the first month (8, p. 4) but already 1250 outpatients and 143 inpatients at the end of the year (15, p. 11). In 1854, West published *How to nurse sick children* (16) dedicating the work "to the nurses at the Hospital for Sick Children" (16, p. 4).

This little book, which underwent many re-editions and translations, is a milestone of pediatric nursing and of nursing in general, being the first book on the subject to appear in Britain in the *Nightingale era* (17, p. 27).

Unlike Florence Nightingale's *Notes on nursing* (1859), West's work is devoted primarily to those who wish to choose nursing as a profession and reveals the author's greater concern about the human qualities of nurses than about their specific technical and professional training: "Indeed, if any of you have entered on your office without a feeling of very earnest love to little children, a feeling which makes you long to be with them, to take care of them, to help them, you have made a great mistake in undertaking such duties as you are now engaged in: and the sooner you seek some other mode of gaining an honest livelihood, the better. I do not mean this unkindly, for you may be very good, very respectable women, and yet be very bad nurses" (16, p. 8).

This is not to say that West underestimated the importance of a nurse's knowledge and skills ("the nurse may do much by her careful observation towards helping the doctor to come to a right decision") (16, p. 26) or of her independence of judgment ("Any doubt as to the result of a plan which the doctor is pursuing, must be stated to him quietly, respectfully, in the absence of the patient's friends") (16, p. 23). However his attention seems more focused on the "soft skills" of the professional nurse.

Not only he asks nurses to keep a cheerful attitude despite all the difficulties that the profession entails ("be happy in spite of it, if you have to be a useful nurse") (16, p. 11), but he asks them also, for example, to be good storytellers: "If the child is older, you may tell it stories to keep it quiet, and no one who really loves children will be at a loss in finding a story to tell. All children love to hear of what happened to grown people when they were young: tell them of your own childhood, of what you saw and did when you were a little girl, of the village where you played, of where you went to school, of your church and your clergyman. Or tell the fairy tales that you heard, and your mother before you, and her mother before her in childhood the tales of Goody Two Shoes, or Cinderella; Blue Beard, or Beauty and the Beast. I name them because I would not have you think that fairy tales are too foolish to be told, now that we have so many good and useful books for children. Grown people need amusement sometimes, and children, even when well, cannot be always reading wise and useful and instructive books. The story which teaches nothing wrong; which does not lead a child to think lightly of what is good and right, which, in short, does no harm, is one which you need not fear to tell to children, even though it does not impart any useful knowledge, or convey any important lesson. God himself has formed this world full not only of useful things, but of things that are beautiful, and which, as far as we can tell, answer no other end than this, that they are lovely to gaze upon, or sweet to smell, and that they give pleasure to man" (16, pp. 60-61).

This approach - albeit very time-consuming - easily explains Charles Dickens' growing enthusiasm for

GOSH (15) and the importance West himself gave to the charitable help of the "lady visitors", women of good social level who dedicated their free time to keeping company with the hospital's sick children (18, pp. 64-65). It can just as easily explain the growing uneasiness of Florence Nightingale - that other absolute protagonist of the birth of modern nursing – who after returning from the glorious Crimean experience was focusing nursing on the problems of hygiene. In her fundamental work, *Notes on Nursing* (1859), she took a very strong stand against children's hospitals: "For a long time an announcement something like the following has been going the round of the papers: 'More than 25,000 children die every year in London under 10 years of age; therefore we want a Children's Hospital.' (…) The causes of the enormous child mortality are perfectly well known; they are chiefly want of cleanliness, want of ventilation, careless dieting and clothing, want of white-washing; in one word, defective *household* hygiene. The remedies are just as well known; and among them is certainly not the establishment of a Child's Hospital" (19, p. 7, note).

It has been suggested that, in spite of his eulogistic expressions ("a good nurse is worth a great deal more than a bad doctor") (16, p. 20), West continued to consider nurses as little more than handmaidens at the service of the physicians and surgeons in charge (18, p. 38). However, in the absence of specific evidence, we think this must be seen as a matter of opinion or emphasis.

What is certain is that, in a period "when Dr. West was practically the Director of the Hospital" (20, p. 6), a great novelty was introduced into the nursing organization of GOSH. In 1862, for the first time an unpaid Lady Superintendent was appointed to the hospital to lead a new group of sisters – young and well-educated women – in the task "to supervise regular nurses and instill them with 'respectability and decorum'"(18, p. 39). Isabella Babb, the daughter of a solicitor, was this first superintendent (18, p. 39).

The organizational improvement must have been quickly and remarkably achieved, if Charles Morley, appointed by Dickens to prepare a new report on GOSH's tenth anniversary, was able to remark that now "there is a good superintendent nurse" (21, p. 455) and to consider even the way of feeding many babies at a time worth describing: "In the middle of the floor of one [of the nurseries], is the round nest in which the young ravens are fed; it is a circle of tiny seats into which babies can be shut, built on the floor around a central stool. The feeding nurse sits in the middle of the nest with basin and spoon; fourteen of the fledglings can be settled around her; and she then proceeds to revolve on her stool, filling mouth after mouth – finding mouth one, as well as mouths two, three, and four, empty and open, by the time fourteen is filled" (21, p. 455).

These changes, which occurred around 1862, are probably the reason for the statement by Wood we quoted at the beginning of this article: "in 1862, [Charles West] introduced the trained and educated gentlewoman into the wards of the Children's Hospital, and from that year may be dated the immense advance that took place in the nursing of children's diseases"(1).

Those gentlewomen helped to quickly transform the climate of the nursing group, which, to be fair, in the first few years of the hospital had not gone without criticism, due to the much gossiping and many other "shortcomings in tone, motive and feeling" (Louisa Twining, a lady visitor in 1860, quoted by [18], p. 38).

The training of nurses, during those first years, was probably informal and unstructured, but we know that West "gave the most unremitting attention to all the details of the nursing; nothing escaped his notice; he knew each nurse; and he constantly inquired as to their progress and aptitude for the work. A nurse was not only to be proficient in her work, but she was to succeed in making her patients happy and in winning their confidence, or she was not worthy to be on the staff" (1).

And this last professional note must have been very central, if Morley also points it out in his article: "It is the sound rule of the place that the most estimable person in the world cannot be accepted as a nurse, if she proves unable to keep children happy and amused" (21, p. 456).

Charles West and Catherine Jane Wood (1863-1874)

Catherine Jane Wood (1841-1930) entered GOSH as a sister, under superintendent Babb, in the

summer of 1863. In her early twenties at the time, Wood had already been for some years a regular visitor to the children of the hospital. She apparently gave good proof of her abilities for she was nominated ward superintendent less than a year later, in the spring of 1864 (22).

In her later years, Wood gave a very synthetic description of nurses training at GOSH which seems to confirm a mostly informal way of learning based on a day by day experience and communication between the doctors and the nurses: "In those early days there was no training for nurses, you just picked up what the doctors would teach you" (23).

However, we know from a much earlier work of hers (*The Training of Nurses for Sick Children*, 1888) that things were already much more thought out and organized: "Perhaps, to make clear my meaning, I had better refer to the system of training initiated at the Great Ormond Street Hospital. This system was organized by Dr. Charles West, one of the founders of the Hospital, and I conclude has existed since 1852; its results are known by all who have seen the work done by the Nurses at that Hospital. The Ward was under a Sister (the Sister did not come into being until 1862), and each Nurse had a certain number of children allotted to her, according to her experience and the nature of their diseases; she was responsible to the Sister of the Ward for the care of these children, and through her, as a rule, she received the Doctor's instructions concerning these children; to her she made her report, and through her instructions learnt what to observe and what to expect. (…) The senior Nurse of the Ward was not changed, and the juniors were kept quite six months, or often longer, in the Ward where they began their training, so that the instruction might sink into their being and become part of themselves" (24, p. 510).

From 1865 or 1866, along with Jane Spencer Percival, another nurse at GOSH, Wood was involved in the project to create a new Hospital specialized in the treatment of children suffering from diseases of the joints, who needed a longer hospitalization than GOSH could afford to provide for for them (25, p. 79). The new hospital, with only ten beds, opened in March 1867 in the nearby Queen Square and was initially named "The House of Relief for Children with Chronic Diseases of the Joints" (later, in 1881, it was renamed after its great supporter, the future Queen Alexandra, as "The Alexandra Hospital for Children with Hip Disease") (25, pp. 80-81).

We do not know if West was directly involved in that new project, but he was surely impressed by Miss Wood's managing skills to the extent that he asked her in 1870 to become Lady Superintendent of Cromwell House, the new country convalescent branch of GOSH at Highgate Hill (2, p. 16). Of Cromwell House – whose "repairs, alterations and furnishing" were executed entirely under West's direction (12) – Wood "had the full charge and responsibility, as there was then no resident medical officer" (22).

West, always very focused on the development of GOSH, directed and oversaw the projects for the building of new hospital wings, under discussion from the late 1860s (18, pp. 176-177) and of which the foundation stone was laid by Princess Alexandra on July 11, 1872 (26). But this new project drove his attention even more toward the selection and training of nurses. For example, in its meeting on June 11, 1873, the Committee of Management (West was among those present) discussed "the training of young women as Nurses in view of the increased staff required for the service of the New Hospital" (27, p. 114).

But in the months preceding the inauguration of the new buildings (planned for November 1875), tensions arose between West and other members of the Committee of Management. The conflict, becoming more and more evident, eventually led to the final and traumatic divorce between GOSH and its founder two years later.

A detailed historical analysis of this conflict still awaits scholarly attention and is beyond the scope of the present work. But we cannot but notice that at the very heart of the matter there were, once again, questions about the training of nurses and the organization of the nursing department. What we can offer here is a summary report of its key developments.

We should keep in mind that in this tumultuous period Wood was engaged - apparently to everyone's great satisfaction - on the peripheral front of Cromwell House, and was probably quite untouched by the conflict.

The great divorce (1874-1878)

Towards the end of 1874 the news of West's conversion to Catholicism became public (20, p. 1), although it probably occurred a couple of years earlier, partly influenced by his friendship with Cardinal Newman (28, p. 386, note 2). Some historians have traced the break between West and GOSH to the climate of distrust that arose around him because of this choice (18, p. 15), especially since the appointment as a new Chairman of the Committee of Management, in December 1875, of John Walter III (1818-1894), the Liberal politician and chief proprietor of *The Times* (29).

West himself seemed to corroborate this interpretation when he wrote: "the Chairman of the Committee, Mr. Walter, declined to work with me when he heard that I was a Roman Catholic. He admitted my perfect loyalty in the past, but a large majority agreed with him that I could not be trusted for the future" (quoted by [6], p. 922).

At the time of the break, the Committee of Management had obviously denied that West's conversion had anything to do with the conflict (20, p.4) but - what matters most - the analysis of published sources and unpublished documents preserved in the GOSH archives seems to indicate that the events went differently and that things were much more complicated than this.

In view of the opening of the new building and the subsequent need for staff expansion, someone had suggested the possibility of entrusting the managerial nursing roles at GOSH (Lady Superintendent and Ward Sisters) to one of the Communities or Sisterhoods - religious societies of women devoted to the care of the sick - which had been appearing, even in the Protestant world, on the model of the Deaconesses of Kaiserwerth (30, pp. 17-18, 27-28). In November 1874, at the suggestion of West, the Committee of Management rejected this hypothesis and recommended that the nursing of the hospital "be continued as at present conducted, under the superintendence of a Lady appointed by the Committee" (20, p. 1).

But a few months later, in February 1875, West, whose appointment as Physician to the Hospital was expiring, decided not to seek reappointment for the following reason: "I did not seek reappointment as Physician in 1875, under the mistaken impression that when it was evident that I could have no PERSONAL interest in the prosperity of the hospital my influence would be greater, and my hands would be freer to help in its proper management, and in the control of its wantonly extravagant expenditure" (12, n.19).

The Committee accepted West's decision and, in a way that seemed to confirm its full confidence in him, asked him to continue as a member of both the Managing and Building Committees (20, p. 2). In the following months, on the recommendation of the Medical Officers, he was also nominated to the new post of "Consulting Physician" and elected a Vice-President of the Hospital by the Court of Governors, as well as a member of the House Committee, the body responsible for the daily management of the hospital (20, pp. 2-3).

Despite all these roles, which were by no means merely honorific, something important went wrong between West and his colleagues, and when the majority of the House Committee, against his advice, decided to accept a long delay in the selection of several new Ward Sisters by the Lady Superintendent, he ceased attending the meetings of that Committee (20, pp. 2-3).

West did however continue to follow closely the construction and furnishing of the new buildings and, in the autumn of 1875, he made a gift to the hospital of his collections of books on children's diseases and of drawings of morbid specimens (6, p. 922).

It seems that even the appointment as Chairman of John Walter, who in previous years had criticized the excessive cost of GOSH management, happened "with the full approbation of Dr. West" (20, p. 3). Moreover, at least according to the Committee of Management, Walter accepted the Chair in December 1875 "mainly with the desire of co-operating with Dr. West in reducing the unusually high rate of expenditure at the Hospital" (20, p. 3).

Unfortunately, in the following months the situation deteriorated more and more, apparently due to the rejection by the Committee of Management of a proposal advanced by West concerning, once more, the necessary training and qualification of a Ward Superintendent or Sister. West's proposal was that "no per-

son be appointed Sister in the Hospital until she bring proof of having had at least twelve months of previous training in some general Hospital, and until she has discharged the duties of Sister for at least three months to the satisfaction of the Medical Officers and of the Lady Superintendent" (20, p. 3).

The majority of the Committee felt that the proposed Regulation "would operate harshly and ungenerously upon the Lady Superintendent" (20, p. 4) and, as we have mentioned, on April 27, 1876, rejected it. From that moment West "ceased altogether to attend the Meetings of the Managing Committee, and gave instructions that no notices of Meetings should be forwarded to him" (20, p. 4).

In *The Annual Report of the Hospital for Sick Children*, published in January 1877, West's name appears for the last time among the Vice-Presidents and - first among the Medical Officers - as the only Consulting Physician (31, p.4). However, he does not seem to have been present at the celebrations for the 25th anniversary of GOSH, held at the *Freemasons' Tavern* on February 21, when the senior Physician of the Hospital, Dr. Dickinson, warmly remembered the services "of no ordinary kind" rendered to the hospital by West (32, p. 7).

By then, unable to recover the necessary harmony with the current leaders of GOSH - perhaps because of his somewhat harsh and resentful character - West was writing a sort of "spiritual testament" for the hospital he had created: "I do not care to relate the strifes which led to my final separation from the place I love, further than to say that my views on hospital management which led to my unpopularity, are those contained in my book on Hospital Organisation, and that I have seen no reason to change them" (12, *post* n.19).

West's book "*On Hospital Organization, with special reference to the organization of Hospitals for Children*" (30) was published in the spring of 1877 (Florence Nightingale acknowledged the receipt of a copy with a letter dated June 4) (17, p. 318) and dedicated to the then President of GOSH, Anthony Ashley-Cooper, the 7th Earl of Shaftesbury, with the aim of helping "those who may be privileged to carry on my unfinished work" (30, p. 1).

We think that this book, always well-reasoned and written in soft-spoken style, is the best source for reconstructing West's thinking on these issues at the end of such a troubled and, we can easily imagine, painful period.

We will conclude this section by listing some of the key points of West's vision of nursing training and organization:

a. while recognizing the many merits for the nursing system of religious sisterhoods and institutions - Catholic or Protestant - West gives his preference to lay personnel. Apart from the problems connected to the excessive independence or, rather, dual dependence of the religious personnel (on their religious institution and on the hospital direction), "the experience of all medical practitioners will confirm, that there is no necessary connection between religious feeling and the gentleness or fitness in other respects for the duties of a sick nurse"(30, pp. 29-30);
b. West then strongly affirms the need of absolute exclusion of *caste* from the nursing organization of a hospital: "the class distinction which one hears in some institutions between the *ladies* and the *nurses* should find no place in a well ordered hospital"(30, p. 58). Highly-educated women are very welcome, provided they "pass through the same training of every other nurse, in as much detail and for as long a time"(30, p. 37). One can easily imagine how unpopular such statements must have been in many social environments of the Victorian era;
c. along the same lines, West believed it prudent that the various stages of a nurse's career be conducted in different hospitals. He maintained that it would be "very inexpedient to take away from the nurse the possibility of promotion, if not in her own hospital, at any rate in another, and to destroy that stimulus to improvement which the power of rising by merit yields to every one in all the occupations of life. The existence of a governing caste from which others are hopelessly excluded is fraught with danger to the good working of any institution, and constitutes one, and certainly not the smallest, of the drawbacks inseparable from a sisterhood"(30, p. 58);

d. as for the practical education of new nurses, West calls for a partnership between some "of the medical staff" and the "superintendent of nurses" and provides the following indications: "Some small amount of elementary knowledge of the structure of the body, and of the signs and tendencies of disease, should be given orally by the doctors, and the mode of teaching should be as far as possible friendly, conversational, catechetical, and as little as possible purely didactic. The nurse should be taught what to observe, and why in one disease a set of symptoms is to be specially noted, and why in another a different set. She should be instructed in the simplest tests of the urine, and in the use of the thermometer, as well as shown how to make a poultice, and how to apply leeches; but the wisdom of her instructor will appear most in the endeavour to teach but little, and to teach that little well. She should learn to bandage and to dress wounds under the house surgeon; and should not be left to learn everything by practice, but should be shown why one way of doing a thing is right and the other wrong"(30, p. 58).

We can conclude this section by saying - relying on the archival records of that period, which are sometimes incomplete and fragmentary (see especially, [33]) – that West did not feel sufficiently backed and trusted by the Committee of Management in some of his strongest beliefs about nursing. Not even his book on "Hospital Organization" managed to put things in place and at the beginning of 1878, all formal links with GOSH were definitively severed (34).

Nevertheless, and quite paradoxically, the melancholic reflection which concludes his book would in time prove to have been an accurate forecast of the future, giving an importance to West's work surely well beyond his most optimistic hopes: "There is nothing left for me but to commend this little book to the serious consideration of those who have undertaken to carry on my work. Counsel sometimes has more weight when the personality of the counsellor is no longer obtruded on those whom he ventures to advise"(30, p. 97).

Catherine Wood and the foundation stone of pediatric nursing (1878-1888)

West wrote that the Superintendent of the Nurses had to be "the best nurse in the hospital"(30, p. 53) and outlined her human and professional profile with the following words: "her position is the most important one in the hospital; for that exists only for the cure of the sick, and their recovery depends on the efficiency of the nursing as much as on the skill of the doctor; often, indeed, good nursing is able to make up for deficient care or deficient skill on the part of the doctor. The tone, too, which she gives to the nurses pervades the whole hospital (…). She also represents the hospital on many occasions to the public at large, and especially does she in the case of a hospital for children. Much correspondence of necessity passes through her hands; many of the supporters of the institution, for one reason or another, seek for an interview with her, and are either won or estranged by her manner of receiving them. She has it in her power to quiet many complaints, often causeless enough, on the part of subscribers, and to soothe the anguish of relatives bereaved of those whom they held most dear, or of parents deprived of their children. She can be the good angel of the poor, the comforter of the afflicted, the adviser, the friend of those who work under her" (30, pp. 10-11).

We do not know if West was thinking of Catherine Wood when he wrote these words, but he was surely very happy to know that the new Committee of Management, in December 1878, had chosen Wood as the new Lady Superintendent of GOSH (35, pp. 7-8).

In the previous months the relationship between West and Wood had been quite intense. She was about to publish her milestone *Handbook of Nursing for the Home and the Hospital* (36) and asked for West's final review. She wrote to him from Cromwell House on September 14, 1878 (taking the opportunity also to give him some news about GOSH's financial restraints and "continued disorganization"): "taking you at your word I have sent you the proofs of the book on Nursing. I have done the rough corrections on the first proofs; but I shall feel very grateful to you, if you will look it [?... unintelligible word] and honestly criticize its contents, mentioning if anything ought be omitted or altered"(37).

In the *Handbook*, which was published before the end of the year, the harmony of ideas between Wood and West about the main nursing issues to which we have referred is clearly evident, as we can see from the following passage: "it would be absurd for a woman to set herself up as the instructor or overseer of nurses in their duties when she was in ignorance of the experimental nature of those duties: therefore, let her be among and work with the nurses, and so will she be the better fitted for the more responsible and ambitious post" (36, p. 40).

The *Handbook* further gives evidence of the fundamental merit with which Wood always credited West at a time when the new leadership of GOSH was embarrassed even to name him in its Annual Report (see, for example, [35]): "at last the little children had a hospital all to themselves. All honour to him who did it. The little children are weaving a crown for him (…) That man has built his own monument in his lifetime, and to him is given to see thousands pressing on and following in his footsteps even whilst he yet lives. (…) Dr. West, the founder of the Hospital for Sick Children in London"(36, pp. 136-137).

Wood insists from the first pages of her book that in order to become a good nurse "a course of training is required"(36, p. 2) and we know that her first year as Lady Superintendent was devoted to this subject as well as to the difficult task of putting in order the Hospital's accounts. The Committee of Management will give her credit for both tasks in its Annual Report for the following year: "special economy and great reduction in the household expenditure was necessary, and (…) this has been done with considerable success. (…) The Committee feel that they cannot too highly express their gratitude to the Lady Superintendent, to whose constant and attentive supervision in a great measure must be attributed this satisfactory result"(38, pp. 5-6).

And, a few pages later: "One of the objects of the Institution is 'to assist in the education and training of women in the special duties of Children's Nurses'. A scheme is in preparation, by which this intention may be carried out, and the Hospital will be, it is hoped, in a position to supply skilled Nurse for Children for service outside its walls, thereby satisfying a demand that is undoubtedly greatly needed"(38, p. 10).

This is the first explicit reference to the future *Charles West School of Nursing* (18, p. 87), which would begin to take root in the following decade under Wood's careful supervision. A detailed study of the first evolution of the school (programs and organization, teachers and students, etc.) is beyond the scope of the present work. But it is relevant here to point out that the new school - aiming to add to the practical training the "disciplining of the mind and memory" of the future nurses (24, p. 509) - would raise, once again, many objections and much criticism. Wood would address them only once her working relationship with GOSH had come to an end - for personal reasons (see below) - in 1888. We quote from a paper on *The Training of Nurses for Sick Children*, she delivered to the topic, in November 1888, at a meeting of the *British Nurses Association* of which she was a co-founder (39, vol. III, p. 38):

"Against this plan it can be objected that it is slow in working out its results, that it requires a large supply of Trained Nurses [as teachers and supervisors], and that it may encourage too much individuality on the part of the Nurse. To the first I would answer, 'slow and sure'; a children's nurse must be a thorough Nurse, or she is missing her aim, and it will be a sorry day for patients and Hospitals, when they simply become factories for Nurses, turning out a certain quantity per annum, irrespective of quality. To the second I say, that in the nature of things sick children require more attention than adults, and unskilled attendance is wasteful and harmful to the patients. To the third the best reply is, that the individuality of the Nurse is the very quality that will make her work, and only by a slow process with uniform training can the good or evil of the individual be known" (24, p. 510).

It is the same paper, published in *The Nursing Record* issue of December 6, 1888, where she gave full credit for that training system to her teacher and friend Charles West (24, p. 510).

Conclusion

In December 1887, Wood's brother had died of typhoid, contracted while performing his medical duties, leaving a widow with eleven children. Catherine Wood, feeling it was her duty to help her sister-in-

law, sent a letter of resignation to Lord Aberdare, then President of GOSH (40).

The thirty-sixth anniversary of the Hospital for Sick Children was celebrated at *Willis's Rooms* on April 25, 1888. Among the many speeches and toasts of the evening, a special one to "*The Ladies*" was entrusted to none other than Oscar Wilde. The writer, brilliant as ever (he remarked that "although nature allowed him only one mother, and custom only one wife, he adored the entire sex"), did not omit important references to the role of well-trained nurses and to that in particular of Miss Wood:

"At the beginning of the Queen's reign [1837] there was no regular organised profession of nurses. The nursing was left more or less to the ignorant and to the incompetent – to that type of nurse which Dickens has so brilliantly caricatured in one of his novels. But there are now present in England no less than 15.000 women following the profession of trained nurses. That I think is an enormous fact, showing us how much we are indebted to women for everything connected with the alleviation of suffering, and with sympathy with sorrow of every kind. And I would ask you to remember that their sympathy is not merely the blind good nature of ordinary sentimentality that usually does as much harm as it does good, but that it comes from people who are trained under experienced doctors, have learned something of the principles of science, are acquainted with the proper treatment of cases, and possess a considerable amount of medical knowledge. (…) You all know with what tact, with what cheerfulness, nurses must work in the presence of suffering, and what very high degrees of mind and feeling are required in order to be able really to fulfil a nurse's duties. Those duties the women of the present day are admirably fitted to fulfil, and I think that the way in which they have taken up this new profession shows us what we may hope for in the future. This Hospital has lately lost its superintendent Miss Wood, who presided over the nurses for many years with great success"(Oscar Wilde, in [41], p. 8).

It was a great sign of appreciation for Wood, that was followed in the autumn of the same year by a special present from the Committee of Management: "a purse containing one hundred guineas, a beautiful travelling clock, and an illuminated roll of the names of subscribers to the well-deserved testimonial" to the nurse who had worked for nearly 25 years at the service of GOSH without any remuneration (42, p. 397).

In the following years, Wood was to become even more active and influential in the UK nursing world (23) but she never forgot her old teacher and friend. And when West died in 1898 she wanted to add her personal testimonial to the official and - we must say - very eulogistic obituary published by the *British Medical Journal*: "Having had the privilege of working with Dr. West, and of being trained under his eye, I can speak from my own experience of the earnest devotion that he threw into the art of nursing, and the enthusiasm with which he inspired all engaged in the work" (1).

It was the final seal on a lasting and fruitful professional and personal collaboration for the benefit of pediatric nursing.

Acknowledgements

Thanks to Nick Baldwin, Archivist at the Great Ormond Street Hospital, for his assistance during our research there. Thanks to Nancy Isenberg for stylistic and grammatical revision of the manuscript.

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Medicina Historica 2018; Vol. 2, N. 2: 75-81

Original article: history of medicine

The industry of butter made with pasteurised cream as a defence against Tuberculosis transmission

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Abstract. This paper presents the research conducted by Serafino Belfanti to assess the suitability of cream pasteurisation processes in industrial butter production in the Lombard dairy factories of the time. Belfanti's work focused on assessing whether those pasteurisation processes were enough to eliminate tuberculosis bacilli and whether they affected the quality of the butter compared to traditional methods. We can conclude that the pasteurisation process safely removes the bacilli and that the flavour of the butter is affected in a negligible way. Therefore, this process was recommended for commercial purposes.

Key words: Serafino Belfanti, tuberculosis, vaccine, pasteurisation

Introduction

Serafino Belfanti (Castelletto Ticino, 28 March 1860 – Milan, 6 March 1939) was an Italian medical researcher, immunologist, infectious disease specialist, and the founder of the Istituto Sieroterapico Milanese (1895) (1, 2). His role in the research and prevention of tuberculosis (TB) can be understood from one of his main works, carried out with doctor C. Coggi. This work dating back to 1902 provides such methodical and accurate data and conclusions that only an enthusiastic researcher can convey. This research, which was already conclusive and later inspired the work of other scholars, is still of great interest and importance in the long journey leading to the acquisition of concrete and effective means to fight tuberculosis. This paper describes the experiments carried out exactly as they were published in *Rendiconti del R. Istituto Lombardo di Scienze e Lettere* in March 1902.

While at the Congress on TB held in London in the early 1900s Robert Koch reassured everyone, denying that bovine tuberculosis could be transmitted to humans, the measures against infection from dairy products were not abandoned. Koch assured that infected meat and milk could be consumed without any worries, although there was no absolute certainty. In fact, the susceptibility of cattle to human tuberculosis was known among the scientific community. Many experiments had confirmed this possibility by inoculating cows, rams, and goats subcutaneously (but also orally or through intraperitoneal injection) with "*sputum of consumptive patients*" and verifying the occurrence of typical experimental tuberculosis in these animals (Delépine (3), Arloing (4), Santori-Faelli (5)). Furthermore, Lasar (6) had noticed the high incidence of tuberculosis verrucosa cutis (TVC) in butchers who handled meat infected with the bacilli. "*Therefore, the doubt or rather the conviction that, given certain factors, bovine TB bacilli can adapt to the human environment remains.*"

Belfanti concluded that maintaining and extending all measures that can limit the danger, even in the presence of the slightest doubt, is paramount.

As a result, it was suggested to proceed with the tuberculisation of animals and then eliminate the infected ones. However, this would have caused enormous economic loss and great damage to the cattle and dairy trade, which was fundamental for several regions.

Compensation payments to owners based on their cattle loss – a provision which was implemented in some rich countries (e.g. Belgium) – would have been extremely costly.

At that time, research focused on identifying a sterilisation method, such as boiling applied to milk, which could be used on other dairy products, such as cheese and butter. Belfanti focused in particular on butter.

Milk from infected cows could be boiled while milk from non-infected cows could be consumed raw. The tuberculin test was carried out in the small cowsheds of the Public Gardens and the Park, and in Milan at the Gambaloita Dairy of the Vittadini brothers.

Butter was not widespread in Italy, and it was mainly consumed by wealthy families. However, Lombardy produced and exported this product to various countries where it was widely popular, such as England.

Butter is made with cream, which is separated from fresh milk. Cream cannot be boiled, but it can be pasteurised (1).

Pasteurisation is a heat treatment applied to some foods to eliminate pathogenic non-spore-forming microorganisms. Unlike sterilisation, pasteurisation eliminates only vegetative cells, thereby allowing the complete removal of the most heat-resistant pathogen (*Escherichia coli*). The pasteurisation process gets its name from French chemist Louis Pasteur, who carried out the first pasteurisation test with Claude Bernard on 20 April 1862. In Italy, milk pasteurisation was introduced by Royal Decree in 1929. Liquid food pasteurisation occurs through a tubular, scraped-surface, or plate heat exchanger (the latter consists of stacked metal plates. The liquid to be treated runs on one side and the fluid heated at the required temperature on the other). The two fluids run in opposite directions an in a thin layer so as to make the heat exchange more efficient and ensure that the liquid food reaches the desired temperature. Pasteurisation is not used for large-scale sanitation of all foods, as it could affect their taste and quality. It is only used for liquids (especially milk, wine, beer, and fruit juices). *Low*-temperature pasteurisation occurs when the food is kept at 60-65°C for 30 minutes, which is the temperature range mainly used for wine and beer. *High*-temperature pasteurisation requires 75-85°C for 10-15 seconds and is mainly used for low-acidity products, such as milk and derivatives.

The pasteurisation process – with temperatures ranging from 87°C to 110°C – eliminates pathogenic microorganisms, such as typhus agents, coliforms, mycobacteria, and brucella. (7)

During that time, pasteurisation was the routine in Sweden and Denmark, whereas in Italy and Germany, it was common belief that the process could affect the quality of butter and make it acquire "*a cooked flavour*". As a result, cream pasteurisation was either not carried out at all or carried out in a way that did not ensure the elimination of TB bacilli.

Belfanti's work aimed at establishing whether the industrial pasteurisation processes in use in Lombard dairy factories were enough to eliminate TB bacilli and whether they affected the quality of butter compared to traditional methods.

In the early 1900s, several researchers had already demonstrated how TB bacilli are incredibly resistant. Galtier (8), Jersin (9), Bang (10), Bitter (11), Förster (12), De Mann (13), and Bonhoff (14) had identified the following conditions to kill the bacteria:

- 55°C for 4 hours
- 60°C for 1 hour
- 65°C for a ¼ hour
- 70°C for 10 minutes
- 80°C for 5 minutes
- 90°C for 2 minutes
- 95°C for 1 minute

Martin (15) observed how the germ's resistance varies according to the biological liquid it is contained in: sputum, milk, organ extract, or pure broth cultures. Sormani (16) showed that the bacilli in a milk and sputum mixture were still alive after boiling at 90°C for 10 minutes. Beck (17) noticed that boiling at 80° C for 30 minutes was not enough to neutralise the bacilli, as milk infected with bacilli, however finely crushed, caused TB when inoculated in the test animal. However, according to Heim (18), that same temperature was enough to prevent the infection if the inoculum consists of sputum alone. Levy and Bruns (19) demonstrated the elimination of the bacilli contained in milk over a bain-marie at 65-70°C for 15-25 minutes.

Such variable results can be explained by the difficulty in heating the entire mass of a dense liquid, such

as milk. In fact, Mann had recommended using capillary tubes to allow the liquid to reach the required temperature (13).

Therefore, Belfanti concluded that "*based on the latest experiments*," a temperature of 75°C can kill all the bacilli in milk; however, whether this temperature was enough to eliminate the bacilli also from a fat product, such as cream, needed to be verified because that's where it is believed that microorganisms acquire greater resistance.

Again, Belfanti listed discordant results from several other researchers. In 1889, Scala and Alessi (20) had observed how TB bacilli added to heated artificial butter were killed, whereas Rabinowitsch-Kempner (21) indicated that 30 minutes at 87°C for were not enough to eliminate them. On the other hand, Gottstein and Michaelis (22) ensured that 5 minutes at 87°C were enough to sterilise infected fat. In a series of experiments, Herr (23) showed that *"TB bacilli in cream die":*

- in 10-15 minutes at 65°C
- in 1-5 minutes at 70°C
- in 1-3 minutes at 74°C
- in 5 seconds to 3 minutes at 80°C
- in 5 seconds at 85°C or more

These data do not differ that much from the time required for milk sterilisation

Now, it was important to demonstrate that the results obtained in ideal laboratory conditions, with different means compared to those used in industries, and using a minimum amount of cream, could also be achieved in large dairy factories, where industrial machinery was used to sterilise tonnes of product at a time.

Large dairy factories used machines equipped with dual wall cylinders (like the *Triumph* pasteurising machine, Fig. 1) in which steam circulated at 112-114°C.

The cream was centrifuged in the cylinder at 35°C by a flapped beater moved by a pulley. This way the product was thrown against the cylinder walls by the centrifugal force and then moved up through a refrigerating pipe. The temperature of the cream would quickly rise in contact with the cylinder walls heated at 112°C. After a few seconds, every part of it would reach 80-85°C since the rotating layer was only a few centimetres big. When running up the pipe – which was kept cold by the running water circulating inside the walls – it quickly cooled down to 18-20°C, spreading inside the serpentines, and then falling into the containers for acidification. This way, the temperature of the cream would go from 35°C to 85°C, and down to 18-20°C again in 4 to 5 seconds.

This type of machine could pasteurise more than 1000 litres of cream per hour. The cream could reach a maximum temperature of 90-92°C. Low-fat milk could reach up to 102°C, thanks to the help of a second, smaller machine.

Another pasteuriser suitable for small dairy factories and recommended for small owners was the

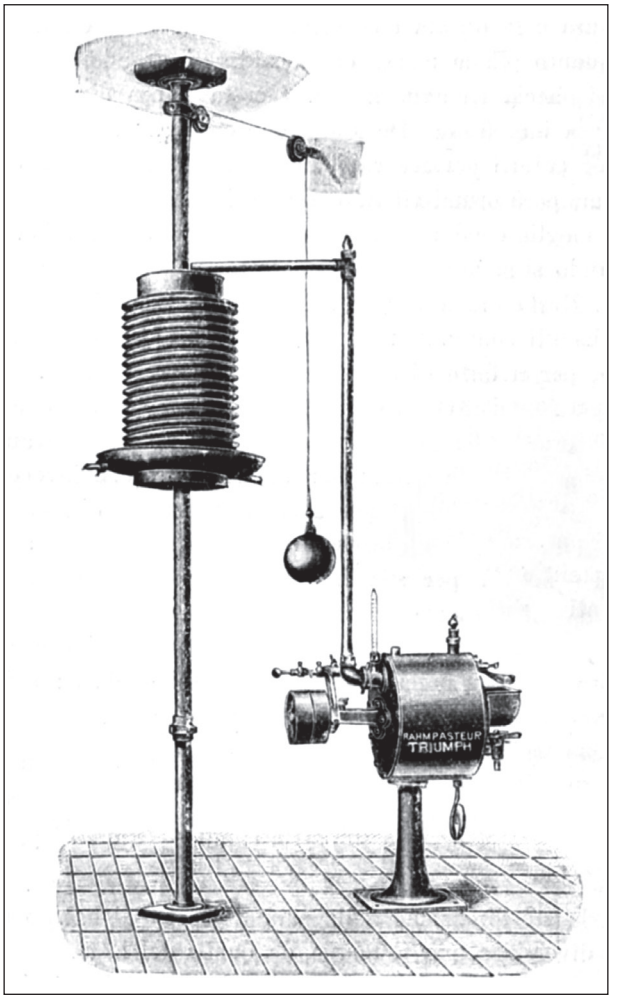


Figure 1. *Triumph* pasteurising machine. This type of machine could pasteurise more than 1000 litres of cream per hour (see description in text).

Lister machine (Fig. 2), which Belfanti used for the experiments described in this paper. Its operation was similar to the *Triumph*'s. The only difference was that the beater was moved by a steam-driven turbine. The product would take 15 to 20 seconds to travel from the inlet to the outlet. This machine could pasteurise about 100 litres of product per hour.

Both machines used *Schmidt* refrigerating systems, which, however, had a downside: the serpentines along which the cream ran were not protected; therefore, the product would come into contact with air. This inconvenience could be solved by a special casing (Fig. 3).

Belfanti highlighted how the temperature range used by the machine was enough to eliminate the bacilli. Then, he proceeded with the experiments as follows.

"First of all, we verified the virulence of the TB bacilli we had been cultivating in the laboratory." To this end, Belfanti inoculated 10 guinea pigs with an emulsion consisting of the film extracted from the culture broth contained in a small *Erlenmeyer* flask[1], obtaining reassuring results (Tab. 1).

Belfanti conducted the experiments first with milk and then with cream.

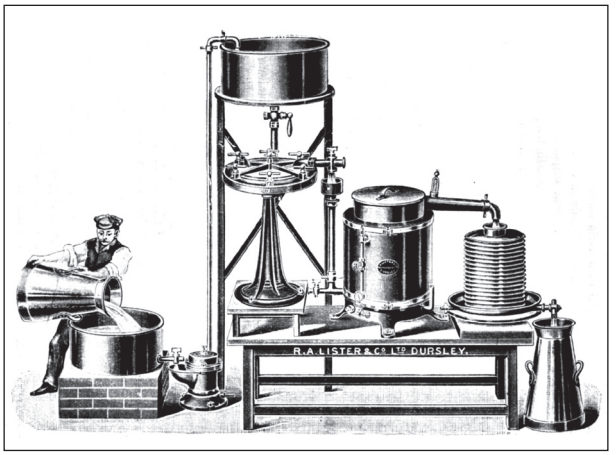


Figure 2. The *Lister* machine, suitable for small dairy factories and recommended for small owners, which Belfanti used for the experiments described in this paper. Milk fresh from the cow would be poured into the skimmer, which separated it from the cream. The cream was then conveyed to the pasteurising machine and, from there, to the refrigerator.

[1] A conical laboratory flask.

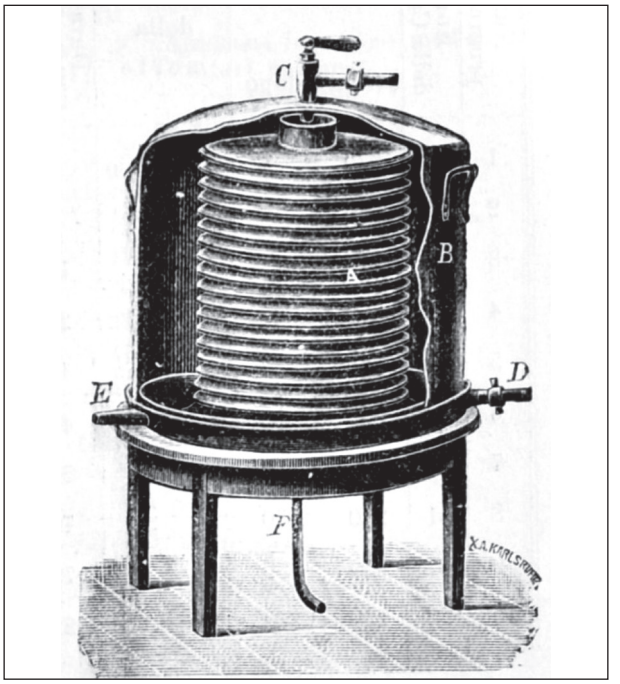


Figure 3. Serpentine protection casing. This special casing protect the cream, that ran along the serpentines, form the contact with air.

Table 1. Diffuse Tuberculosis has been found in gross necropsy of 9 out of 10 guinea pigs inoculated with an emulsion extracted from the culture broth of the TB bacilli.

6 maggio 1901.

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	*Osservazioni*
1	100	375	—	7 maggio	1	Negativo	morta
2	77	275	—	11 „	5	„	„
3	98	365	—	22 „	16	Tuberc. diffusa	uccisa
4	25	250	310	28 „	22	„	„
5	15	230	280	21 giugno	46	„	„
6	76	300	380	21 „	46	„	„
7	2	300	480	23 luglio	78	„	„
8	51	250	370	23 „	78	„	„
9	67	290	480	23 „	78	„	„
10	28	230	320	27 „	82	„	„

He mixed a small amount of milk with the aforementioned tubercular emulsion; then he took a control sample from this mixture. He took a second sample

after the pasteurisation process was completed. Both samples – which were of the same size as the sample used during the previous experiment to test the virulence of the bacilli – were inoculated in 8 guinea pigs through intraperitoneal injection. The results are summarised in Tab. 2.

The experiment was repeated for a second time with equally reassuring results. Belfanti then carried out a third experiment using only the pasteurised milk sediment after centrifugation. Again, this product proved to be harmless for the animals.

The experiments with the cream were carried out mixing 10 litres of cream with 30 cc of the usual TB emulsion. Samples were taken before and after, and then butter was made in the laboratory but without acid fermentation. Next, the melted butter was injected into the guinea pigs both via the peritoneal and subcutaneous route, obtaining the same results as the experiments with milk (Tab. 3a-d).

Table 2. 8 Belfanti inoculated 8 guinea pigs with milk mixed with tubercular emulsion and not pasteurized. In gross necropsy 5 of these showed diffuse tuberculosis, 1 leukocyte cluster in the peritoneum and in the lymph nodes and 1 enlargement of the retroperitoneal lymph nodes. Only one was completely free of infection. A second sample of mixed milk was inoculated after the pasteurisation process; gross necropsy shows no infection in all 8 Guinea pigs

11 maggio 1901 (latte non pastorizzato).

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	Osservazioni
1	1	300	—	19 maggio	8	Ammassi leucocitari nel peritoneo e nelle ghiandole.	morta
2	16	310	—	19 „	8	Ghiandole retroperitoneali ingrossate.	„
3	8	550	520	28 „	17	Tuberc. diffusa	uccisa
4	9	320	290	28 „	17	„	„
5	66	420	330	31 „	20	„	„
6	88	460	—	9 giugno	29	„	„
7	85	650	610	21 „	41	Negativo	„
8	59	600	580	21 „	41	Tuberc. diffusa	„

11 maggio 1901 (latte pastorizzato).

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	Osservazioni
1	42	370	—	18 maggio	7	Negativo	morta
2	33	320	260	28 „	17	„	uccisa
3	44	600	570	28 „	17	„	„
4	86	500	400	31 „	20	„	„
5	52	480	450	20 giugno	40	„	„
6	38	320	300	20 „	40	„	„
7	12	580	520	21 „	41	„	„
8	69	550	670	21 „	41	„	„

Table 3a. Endoperitoneal injection with non-pasteurized cream butter: 4 out of 5 guinea pigs show diffuse tuberculosis.

13 agosto 1901 (Injezione endoperitoneale)
(Burro di panna non pastorizzata).

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	Osservazioni
1	75	430	430	14 agosto	1	Negativo	morta
2	24	500	490	15 sett.	33	Tuberc. diffusa	uccisa
3	10	450	435	15 „	33	„	„
4	5	500	500	2 ottobre	50	„	„
5	82	550	450	2 „	50	„	„

Table 3b. Endoperitoneal injection with pasteurized cream butter: 5 out of 5 guinea pigs are negative for infection.

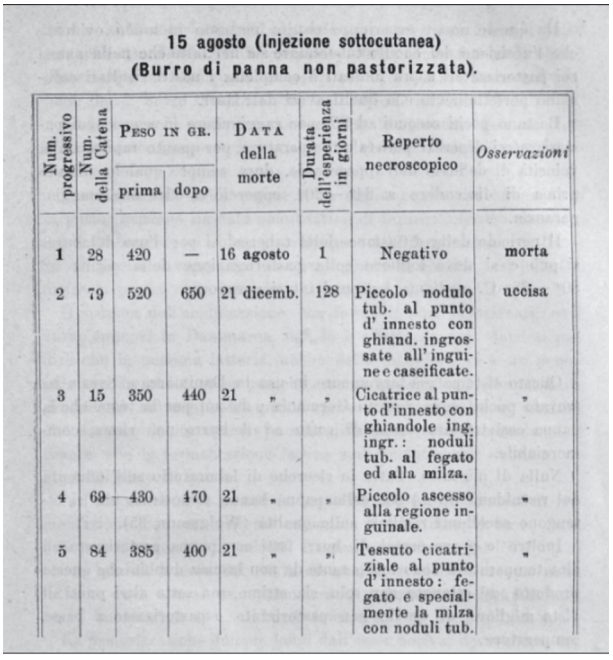
(Burro di panna pastorizzata).

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	Osservazioni
1	11	390	390	14 agosto	1	Negativo	morta
2	68	500	550	15 sett.	33	„	uccisa
3	74	620	660	15 „	33	„	„
4	3	490	520	2 ottobre	50	„	„
5	56	410	470	2 „	50	„	„

Conclusion

"Our results coincide with Mr Herr's"; therefore, the methodology allowed for the safe elimination of the bacilli (1).

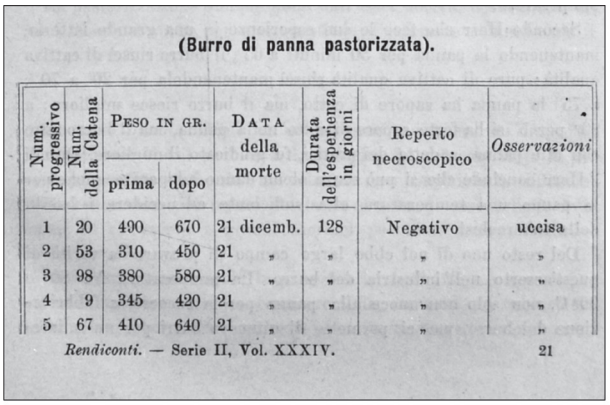
Table 3c. Subcutaneous injection with unpasteurized cream butter: 1 Guinea pig out of 5 is negative for infection. The remaining 4 show: a small tuberculous nodule at the inoculum site with enlarged and caseified inguinal lymph nodes; a scar at the inoculum site with swollen inguinal lymph nodes and tuberculous nodules in the liver and spleen; a small abscess in the inguinal region; scar tissue at the inoculum site and tuberculous nodules in the liver and spleen.



15 agosto (Injezione sottocutanea)
(Burro di panna non pastorizzata).

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	Osservazioni
1	28	420	—	16 agosto	1	Negativo	morta
2	79	520	650	21 dicemb.	128	Piccolo nodulo tub. al punto d' innesto con ghiand. ingrossate all' inguine e caseificate.	uccisa
3	15	350	440	21 „	„	Cicatrice al punto d'innesto con ghiandole ing. ingr.: noduli tub. al fegato ed alla milza.	„
4	69	430	470	21 „	„	Piccolo ascesso alla regione inguinale.	„
5	84	385	400	21 „	„	Tessuto cicatriziale al punto d' innesto: fegato e specialmente la milza con noduli tub.	„

Table 3d. Subcutaneous injection with pasteurized cream butter 5 out of 5 guinea pigs are negative for infection.



(Burro di panna pastorizzata).

Num. progressivo	Num. della Catena	Peso in gr. prima	Peso in gr. dopo	Data della morte	Durata dell'esperienza in giorni	Reperto necroscopico	Osservazioni
1	20	490	670	21 dicemb.	128	Negativo	uccisa
2	53	310	450	21 „	„	„	„
3	98	380	580	21 „	„	„	„
4	9	345	420	21 „	„	„	„
5	67	410	640	21 „	„	„	„

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As for whether cream pasteurisation affects the butter's characteristics, Belfanti reassured producers by mentioning the excellent results concerning quality control published by Weigman in the *Chemiker Zeitung* (243). Moreover, according to Herr's experiments, the butter acquired even finer characteristics, even if the cream had somewhat of a "*cooked flavour*" if treated at higher temperatures or for longer (hence the possibility of using higher temperatures for the process).

Evaluations conducted at the cooperative dairy factory in Casalpusterlengo showed that the butter had *"superior characteristics compared to so-called sweet ones with regards to flavour and (…) shelf life."*

Indeed, the *"cooked flavour"* of the cream could be removed through an acidification process, widely used in Denmark. This process consisted in adding lactic ferments grown in low-fat milk to the cream after the pasteurisation process. The mixture was then left to acidify at 18-20°C before being churned. In Italy, however, this acidification process was not particularly widespread, and when it was applied, it did not give good results.

However, the excellent results obtained even without this process led Belfanti to recommend pasteurisation for commercial purposes. But he also stressed that, although infected milk could be used to make butter, it could NOT be used for direct consumption. He also reassured those who believed that butter alone could not ensure enough profits by reminding them that its production process allowed obtaining low-fat milk and its by-products, i.e. lactose and casein. This way, the revenues would compensate the loss due to infected raw milk.

Belfanti suggested a process that, on the one hand, avoided any damage for producers and, on the other was "*hygienically safe for consumers, who have the right to protect their health, which is too often threatened by avoidable infectious diseases.*"(1).

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Medicina Historica 2018; Vol. 2, N. 2: 82-84

Semmelweis at 200: creativity, skepticism and charm in medicine

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Abstract. 2018 marks the 200th anniversary of the birth of Ignaz Semmelweis, the man who first intuited the iatrogenic and infectious causes of puerperal fever, then was violently opposed for questioning old dogmas, and ultimately died of sepsis in a mental asylum. The rejection he encountered is not unusual among innovators, as breakthroughs are often ridiculed before eventually being accepted as self-evident. In fact, automatic rejection of new ideas has even been dubbed "The Semmelweis Reflex". Thus, the anniversary of his birth provides a timely opportunity for revisiting the risks and benefits of skepticism in the creative process.

Key words: history of medicine, skepticism, creativity, antisepsis, semmelweis

"If you want to tell people the truth, you'd better make them laugh or they'll kill you."

(G. B. Shaw)

Born in Budapest in 1818, Semmelweis was the ultimate outsider: an ethnic German in Hungary, a Hungarian provincial in Austria, the son of a lowly grocer in aristocratic Hapsburg society, and a leftist sympathizer in conservative Vienna. This barred him from an Internal Medicine residency (1) and forced him to instead accept a position at the Viennese General Hospital's Obstetrics Clinic. Feeling ostracized made him resentful and angry, and thus might have contributed to his eventual downfall. Yet, on the positive side, alienation might have also increased his independent thinking and thus made him more creative. In fact, another creative mind that actually relished being a "lone traveler" was that of Albert Einstein, who wrote in *The World as I See It*, "I have never belonged to my country, my home, my friends, or even my immediate family, with my whole heart."

The problem Semmelweis and his Viennese colleagues were trying to solve was puerperal (childbed) fever, a post-partum menace traditionally blamed on "bad air", or *miasmas.* Curiously enough the bad air was killing many more women in the physicians' maternity wards than in the clinic run by midwives (2). Nobody knew why.

Then in 1847 something unexpected happened. One of Semmelweis' colleagues got cut during a post-mortem exam, acquired a febrile condition, and died. At autopsy he presented findings remarkably similar to those of women dying of childbed fever.

There was no germ theory yet, but Semmelweis postulated that through that cut his colleague might have acquired some "cadaveric particles" and that these particles eventually caused his demise. Then Semmelweis had an epiphany. Since autopsies were only performed by doctors, and doctors typically rushed from the autopsy room to the delivery room with hands still soiled, Semmelweis speculated that this might have favored the exclusive transmission of cadaveric particles to the women cared for by doctors (2).

Hence, years before Pasteur, he required all physicians on his ward to wash their hands with chlorinated lime. He also washed surgical instruments. The result was a drop in maternal mortality from 18% to 1.3%

(3). As Semmelweis put it: puerperal fever was not a "species of disease but a variety of pyemia" (4).

It was a breakthrough but conflicted with established explanations. Thus it earned its young and "provincial" discoverer only rejection and scorn. Semmelweis was denied a reappointment and ultimately dismissed (5).

In 1850 he returned to Budapest where he accepted a position without pay at the Szent Rokus Hospital. There he introduced the same lifesaving washing protocol he had used in Vienna (Figure 1), obtained an appointment as professor at the University of Pest, and finally published his work on childbed fever in 1861. That was also the year Pasteur began studying pyogenic bacteria. Still, criticism continued and eventually Semmelweis lashed out.

He started writing ranting letters with sentences like, "You have participated in the massacre of women and children. Murder must cease!" (5). He was right, of course, but insulting colleagues has never been a good way to win acceptance.

In the end, either because of all the humiliations he had to endure, or because of a case of early dementia or syphilis, or simply because of a mental breakdown, Semmelweis cracked. In 1865 he was admitted against his will to a mental asylum, straitjacketed, isolated and beaten. Less than two weeks later he died of sepsis from wounds acquired during the beating (2). He was forty-seven years old. Ironically, the day before he died, pioneering British surgeon Joseph Lister began using those phenol antiseptic techniques that quickly earned him the respect of the medical community.

Figure 1. The funerary monument of Teresa Pelzer, a young German woman from Aachen, who was described by contemporaries as "litteris et musicis scientissima" (exquisitely gifted in music and literature). After marrying the Italian Antonio Cerasi she moved to Rome, where in 1852 she died of puerperal fever at the age of twenty-six. Her newborn baby died with her. The Latin inscription on their grave says, "Post Tenebras Spero Lucem" (After Darkness I Hope in Light). The year of their death coincided with the time when Semmelweis had been able to lower maternal mortality at the Szent Rokus Hospital in Budapest to only 8 deaths out of 933 births (0.85%). (Sculpture by Giuseppe Tenerani. Cappella Cerasi of Santa Maria del Popolo, Rome, Italy; Photo by SM)

Why was Lister accepted while Semmelweis suffered violent rejection? What can we learn from their stories that might help us think critically but also better promote our ideas?

The answer probably lies in the personality of the discoverer and the timing of the discovery. As in vintage Greek tragedy, Semmelweis was the proverbial hero with "hamartia" -- the single tragic flaw of hubris that ultimately causes the hero's demise. Conversely, Lister remained humble, charming, totally comfortable in his own skin, and generally well-liked (6). Maybe his time was also ripe. After all, Pasteur's insights had just been published, and physicians were becoming more receptive to the need for antisepsis. This might have helped Lister's ideas, since whether pioneers end up unscathed or with arrows in the back is often a matter of how far ahead they find themselves. Whatever the reasons, Lister died a hero.

Of course, nowadays Semmelweis is a hero too. The Austrians placed him on a stamp and a 50 Euro gold coin, his home in Budapest has become a museum, and the oldest medical school in Hungary is named after him. That is all good, but no consolation for a man who experienced lifelong rejection.

Still, Semmelweis' case is not isolated. Hubris and arrogance have brought down scores of innovators. Andreas Vesalius is another example of an outsider's self-destruction. Competitive, arrogant, boasting and self-promoting, the Flemish firebrand started chipping at Galenic dogma while still a student in Padua, Italy. Made full professor at the age of 23, he eventually became the man who reinvented anatomy. Yet his attacks on academia so irritated the medical community that by age 50 he had become a pariah.

Fellow Padua graduate William Harvey couldn't have been more different.

Quirky and colorful (great people often are), Har-

vey was also self-sacrificing and genuine, definitely not the boasting kind. It was probably the charm of his personality that eventually helped him promote his bold idea of "circulation" and earn the love of the English nation.

So, what lessons can we learn from the tragedy of Ignaz Semmelweis that might allow today's young arsonists to set dogmas on fire without getting burned?

The first and foremost is undoubtedly the need for *courage*. Innovators have to defy conventional wisdom, shift paradigms and turn holy cows into burgers. That entails daring. Creativity, said Matisse, requires courage. Innovators must also be *iconoclastic free-thinkers*. Nobel laureate Rita Levi Montalcini urged us to nurture a taste for rebellion. Leonardo da Vinci was even more blunt: "Selvatico e' quello che si salva" (only the loner saves himself). Hence, pathfinders must be *willing to reject authority*, including the authority of the group. Dogma and conformity are good for religion but not for science. To this end, it might help to be young, since we are all born arsonists but we die firefighters. That is why Osler semi-jokingly spoke of the "comparative uselessness of men above 40." (7) Semmelweis had all these qualities.

Yet, if courage, rebelliousness and independent thinking are fundamental for the creative process, there is another and even more important ingredient that may determine the initial failure or success of a new idea: *salesmanship*. That depends on the personality of the creator. Vesalius and Semmelweis are good examples of how arrogance and confrontation inevitably lead to rejection. Conversely, Harvey and Lister remind us that an agreeable, humorous and charming personality can better help us convince others of even the most outlandish insights. This is as fundamental for the creative process as creation itself, since a breakthrough that doesn't take hold is ultimately lost to mankind.

Obviously, to become new dogmas, breakthroughs will eventually have to stand the test of time. Yet, Semmelweis' story reminds us that if violently resisted, innovation may be smothered in the cradle (8). To paraphrase Bertrand Russell, if all great truths are born as blasphemies, blasphemy might also get us burnt at the stake. Hence, a pre-requisite for the success of a new idea is often the charm of the innovator. In other words, be bold but be charming.

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Medicina Historica 2018; Vol. 2, N. 2: 85-93

The hypothesis on the presence of entheogens in the Eleusinian Mysteries

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Abstract. Forty years after the issue of the book *The Road to Eleusis* (1978), the hypothesis formulated by R. G. Wasson, A. Hofmann and C. A. P. Ruck on the possible use of entheogens in the Eleusinian Mysteries is still inducing a lively discussion among scholars, divided between those who accept it enthusiastically and those who reject it without compromises. The aim of this article is to review the different theories of the specialists (both scientists and classicists) regarding the types of drugs taken during the Eleusinian ritual and will be analysed some archaeological artifacts characterized by a specific iconography able to provide a confirmation, although indirect, of the thesis worked out by the three authors.

Key words: Eleusinian Mysteries, entheogens, ergot, psychotropic mushrooms, kykeon

Introduction

Despite the centuries-old tradition of studies dedicated to the Eleusinian Mysteries, what really happened within the *Telesterion*, the *sancta sanctorum* of the temple of Eleusis (1), is still unknown: in fact, the most important rites were held in this hall but the participants, obliged to keep the secret, were not allowed to leak anything on the outside; this ban of divulgation was so scrupulously observed over the centuries by the believers that the mystery of the practices and the ritual actions that took place therein remains unsolved yet.

Nonetheless, from the works of some ancient authors we learn that the aim of the initiates was to have a mystical experience in the form of a vision: in the *Homeric Hymn to Demeter*, datable around the VII century B.C, the most ancient version of the founding myth of the Eleusinian cult (2), we read "Joyful among the men who live upon the Earth he who has contemplated these things", in Pindar "Blessed are those who go underground having seen these things" and in Sophocles "Thrice happy are those among the mortals who go to Hades having seen these mysteries".

Similarly, Aristotle adds that "those that are initiated must not learn something but feel some emotions, evidently after being prepared to receive them" and Plutarch points out how this vision provoked dizziness and perspiration, standard symptoms that accompany the first stages of the experience with visionary drugs (3).

The debated presence of hallucinogenic substances used in the Eleusinian Mysteries is the main focus of this paper: after a brief description of the Eleusinian cult, we will examine the different theories of scholars, starting from the by now renowned ergot hypothesis of Wasson, Hofmann and Ruck, formulated for the first time exactly forty years ago (1978). Then, we will consider some archaeological artifacts that play a primary role within the current discussion, since their iconography offers some indicators that would seem to strengthen the theory of Wasson and colleagues.

The Eleusinian Cult: the lesser, the Great mysteries and the Epoptìa

The Eleusinian Mysteries, in their most complete structural expression, after a series of preliminary puri-

fications (4), started with the so-called Lesser Mysteries at Agra, a suburb of Athens located near the banks of the Illyssus, from the 19 to the 21 Anthesterion (today's February), within a temple consecrated to Demeter and Kore (1, 3).

There are few data regarding this first part of the ceremonial (1), but in any case we know that the initiates ate and drank something ritual as testifies Firmicus Maternus, who has bequeathed to us a *synthema* used as code word during the exam of admission to the Great Mysteries (in order to verify that the participants had really taken part in the Lesser Mysteries): "I fed myself from the *tympanon*, I drank from a *cymbalon*, I have become a *mystes*" (5, 6); this formula should refer to some operations that the candidates had to do, maybe the most important or the most secret ones.

In addition to the actions of eating and drinking, the devotees were purified in the water of the river Illyssus and were taught some notions in order to be prepared for the Great Mysteries (this was the most likely core of the rite), maybe some events linked to the god Dyonisus not known outside the circle of the initiates (7).

The *mystai*, during the month of Boedromion (between September and October), could get access to the Great Mysteries at Eleusis, 20 km far from Athens and linked to it by a road called the Holy Way.

This second phase of the ritual (which lasted 9/12 days) had to be preceded by a period of chastity and day-time fasting and, during the days of the ceremonies, the participants were prescribed a diet in which were banned many foods such as birds, poultry, fishes, broad beans and apples (1).

The first day, on the base of the liturgical calendar reconstructed by scholars, was the 13th of Boedromion, when the Ephebes of Athens went to Eleusis; the following day the priests and their assistants moved to Athens in the *Eleusinion* on the Acropolis transporting the *hiera*, the 15th the initiates entered the aforesaid temple and the 16th made some purifications on the shores of the sea and sacrificed a piglet. The 19th they turned to Eleusis in procession bringing back the *hiera* and at sunset, in the courtyard of the temple, with torches lit, sang and danced in honour of Demeter and Kore. Finally, on the 20th of the month, the secret ceremonies and the initiations began (they finished on the 23th) and the believers re-acted the drama of Demeter in search of the kidnapped daughter, the whole thing accompanied by prayers and liturgical formulas (7).

Furthermore, within the *Telesterion* a symbolic journey to the Hades was performed by the initiates and, at a moment not established with certainty, there was a sudden shift from darkness to light and the participants were shown the *hiera*, whose vision was the most solemn part of the ceremony (1).

Even for the Great Mysteries a ritual formula is known, handed down to us by Clement of Alexandria: "I have fasted, I have drunk the *kykeon*, I have taken from the *cysta* and after my work I have deposited in the *kalathos*, and then from the *kalathos* to the *cysta*" (8). Arnobius (9) offers a slightly different version of this formula: "I have fasted, I have drunk the *kykeon*, I have taken from the *cysta* and I have placed in the *calathus*; I have taken once again, I have transferred in the *cysta*". The *cysta* and the *kalathus* are two wicker baskets.

The first part of the *synthema* highlights the centrality of the act of drinking the *kykeon* (*infra*) and the importance of the preliminary fasting; instead, the second part is less linear and seems to imply the manipulation and the transfer of certain objects(7), maybe the *hiera* carried in procession from Eleusis to Athens and vice versa. Scholars don't agree on their identification and have proposed differently Mycenean reliquaries, phallic symbols, tools for refine and grind grain, vegetables or a kind of cake that accompanied the drinking of the *kykeon* (1, 3, 10).

Besides the Lesser and the Great Mysteries, according to some authors there would have been a third initiatory grade, achievable with the (facultative) attendance at a further rite in which was experienced the *epoptìa* through which the candidates became *epoptes* (1, 6), whereas for others there aren't concrete proofs and the grade of *epoptes* was obtained in the Great Mysteries (3). It is worth mentioning Ken Dowden's hypothesis that the initiation of the *mystai* was held inside the sacred enclosure of the Eleusinian sanctuary, while the hall of the *Telesterion* was used by the *epoptai,* defined as "a class of *mystai* privileged" (6, 11). During this rite, the hierophant showed in silence to the devotees an ear of corn and pronounced a *synthema* ("The venerable Brimo has generated the young Brimos")

(12) and this ostension "shocked" the initiates causing them a sudden alteration of emotions (3).

The *Kykeon*

The word *kykeon* generally stands for a beverage composed of various elements of vegetable and/or animal origin: the most common ingredient was barley while the other components could be variously water, wine, honey, thyme, onions and cheese (11).

Demeter, in the *Homeric Hymn* dedicated to her, rejects the offer of "a cup of wine as sweet as honey" because it was forbidden for her to drink red wine and so she orders a *kykeon* made of "water, barley flour, mixed with the delicate mint" (vv. 208-209). The refusal of the goddess suggests that wine and alcoholic drinks were not supposed to be part of the composition of her *kykeon*. According to some scholars, this is due to the fact that wine was under Dyonisus' aegis and this interdiction would express the distinction between Demeter and Dyonisus's spheres of competence (11).

Antonio Battegazzore correctly points out that, even though the recipe of the *kykeon* is changeable, the one with water and barley and mixed with a sprig of mint is the exclusive drink of the Eleusinian Mysteries and, in support of his argument, cites a passage by Plutarch (*de garrul.* 17=*Mor.* 511b) where is reported that once Heraclitus, invited to give a judgment on harmony, "having taken a cup of cold water and scattering some flour, he mixed it, drunk it and went away" (13). This gesture had been compared by scholars with a passage from the philosopher's *Fragments* (B 125), in which is told the proverb "The ingredients of the *kykeon* also separate if they are not kept in motion" and both the *kykeon* of this adage and the one of the above-mentioned gesture had been considered neither consecrated nor used in religious rituals (11). Instead, according to Battegazzore, the motto "also the *kykeon* not agitated decomposes" would hide a reference to the Eleusinian Mysteries and the potion drunk by the philosopher would be the same *kykeon* that the initiates drank in the Great Mysteries (13). Moreover, according to the author, the sprig of flexible mint present in the recipe would be the tool used to pour the beverage and so, besides the functions of mixing and flavouring, the *glechon* would have also a fundamental instrumental value making cohesive water and barley, two elements naturally not mixable (13).

Therefore, from Heraclitus we learn that the act of mixing was of extremely importance in the contest of the ritual operations of the Mysteries and, plausibly, was made a moment before drinking the *kykeon* (1, 11).

The entheogens in the Eleusinian Mysteries: history of studies

The first formulation of the hypothesis that the *kykeon* was an entheogenic beverage (14), notwithstanding some academic debates (1), is due to the synergy between Robert Wasson and Robert Graves: the former, in 1956, at the American Philosophical Society of Philadelphia, talked about the Mexican mushroom cult and in the subsequent discussion hinted at the possibility that this creed might shed some light on the Eleusinian Mysteries (15). Five years later, he published an article in the *Botanical Museum Leaflets* where he drew attention to some affinities between the Mexican rite of the *velada*, based on psilocybin mushrooms, and the Eleusinian one, thinking that also in the last one could be used the indoles, with particular reference to the indolic alkaloids (3).

Graves, in the same year (1956), described in his book *Food for Centaurs* the ritual use of psychotropic mushrooms in the Greek world and conjectured that the initials of the Greek words for the three ingredients of Demeter's *kykeon* spelt the secret word *muka*, linked to *muk*(*or*), i.e. mushroom. Furthermore, the two were used to exchange information and new discoveries by epistles and it is Graves to remind that his colleague at first contemplated the presence in the *kykeon* of *Amanita Muscaria* (3, 16), while he believed that the hierophants used the *Panaeolus papilionaceus*, a psilocybin mushroom; however, both agreed that the hallucinogenic agent was put in the *kykeon* drunk in the Great Mysteries and that in the Lesser Mysteries was not implicated any psychotropic substance. In brief, the first theory that sees an entheogen at the basis of the Eleusinian ceremony and vision (psychoactive mushrooms, fly-agaric or psilocybin mushrooms) can be called the "*Graves-Wasson hypothesis*" (3).

In 1962, Karol Kerény, in the essay *Die Mysterien von Eleusis*, was of the opinion that *glechon* (*Mentha pulegium*) was the Eleusinian psychopharmacological key and in 1968-1969 Wolfgang Schmidbauer, in the article *Halluzinogene in Eleusis*? welcomed enthusiastically the fly-agaric hypothesis without ruling out the use of opium and even of Syrian rue (*Peganum harmala*), a plant that the subsequent studies have shown to have weak intrinsic psychoactive properties (3).

The milestone date though is 1978, the year of publication of the book *The Road to Eleusis. Unveiling the Secret of the Mysteries* by Wasson, Albert Hofmann and Carl Ruck, in which for the first time it is suggested that ergot was the entheogenic agent in the *kykeon*: actually, as Giorgio Samorini has outlined, it would be more appropriate to recognize two distinct ideas, the "broad hypothesis", concerning the use of hallucinogens in the Eleusinian Mysteries, and the "restricted hypothesis" that identifies mushrooms (the fly-agaric) and psychoactive alkaloids of ergot as the psychotropic agents of the Mysteries (11).

Ergot (*Claviceps purpurea*) is a parasitic mushroom of various species of wild graminaceous plants and cereals, is not of uniform chemical composition and produces plentiful alkaloids (nitrogen-containing alkaline substances representing the pharmacologically active principles of many plants) derivative of lysergic acid (17, 18).

The ergot hypothesis is based on the following Hofmann's reasoning: "Within the kinds of ergot produced by the various species of the genus Claviceps and its many hosts, cereals and wild grasses, types of ergot do exist that contain hallucinogenic alkaloids, the same alkaloids as in the Mexican hallucinogenic morningglories. These alkaloids, mainly lysergic acid amide, lysergic acid hydroxyethylamide, and ergonovine, are soluble in water, in contrast to the nonhallucinogenic medicinally useful alkaloids of the ergotamine and ergotoxine type. With the techniques and equipment available in antiquity it was therefore easy to prepare an hallucinogenic extract from suitable kinds of ergot" (17). So, the barley of the recipe would have been ergotised and even without the knowledge of the initiates and, according to the three authors, this would be the great secret of the Mysteries known only by the hierophants, who were selected exclusively from the two ancient elite families of the Eumolpides and the Keryces in order to prevent the divulgation of this procedure on the outside (11).

Hofmann states that there were three methods in which the Greeks would have been able to obtain a psychoactive beverage from ergot: use the sclerotia of the most widespread ergot (*Claviceps purpurea*), grind them producing a watery solution where were present the psychoactive alkaloids and not the toxic ones, use the sclerotia of another type of ergot (*Claviceps paspali*), or those of a third ergot infesting the ryegrass (especially *Lolium temulentum*) that contained only psychoactive alkaloids (15, 17, 19).

Besides the ergotised barley, the three authors have hypothesized that also in the Lesser Mysteries an entheogen was used and Ruck in particular has proposed a mushroom, originally linked to the Dyonisiac world, while the ergot would belong to Demeter's sphere; the mushroom in question would be the *Amanita Muscaria* that, if adequately dried, could be stored and be available at different times of the year (3).

The first scholar interested in their theories was Mark Merlin who in 1984, in the volume *On the Trail of the Ancient Opium Poppy*, sustained that the ergot hypothesis didn't leave out the presence of opium (one of the element most frequently associated with Demeter) in the Eleusinian cult and its use in the potion of the *kykeon* (3).

On the contrary, an unfavorable opinion was given by Giulia Sfameni Gasparro and Walter Burkert: the former, in the essay *Misteri e culti mistici di Demetra* (1986), "belittled" the importance of a possible entheogen, not able, in her opinion, to be at the centre of a religious system and the fulcrum of its rituals, while the second scholar (in the volume *Ancient Mistery Cults*, 1989) rejected completely the ergot hypothesis, claiming that the source of the vision was actually the wealthy banquet which was held at the end of the Eleusinian ceremony (11).

In the early '90s, Terence McKenna (*Food of the Gods*, 1992) and Ivan Valenčič (in the article *Has the Mistery of the Eleusinian Mysteries been solved*?, 1994) "rehabilitated" the old Graves's thesis regarding the use of psilocybin mushrooms in the *kykeon*: the former proposed the mushroom *Stropharia cubensis* and stated that an entheogenic beverage derived from ergot wasn't

known yet, while the second scholar exposed various objections against the presence both of *Claviceps purpurea* and of *Claviceps paspali* and ended up agreeing with Graves and McKenna.

A fundamental contribution to the debate on the entheogens in the Mysteries has been given by Giorgio Samorini, author of numerous studies on the subject since the mid-'90s (16, 20, 21): first of all, he has proposed to apply the concepts of "broad and restricted hypothesis" to the Wasson, Hofmann and Ruck's thesis and, in collaboration with Francesco Festi, has demonstrated how the Hofmann's hypothesis considering the *Claviceps paspali* as one of the possible psychotropic substances of the *kykeon* should be abandoned, since this ergot infests exclusively graminaceous plants of the *Paspalum* genus and its spread in Europe took place only in modern times (21).

The scholar, upholder of the involvement of ergot in the Eleusinian rituals, has suggested a new interpretation of the "flowering harvested ear of corn" that was shown during the *epoptìa*: every year, in September-October, on the ears of cereals and wild graminaceous plants appear the sclerotia of ergot and maybe the ancient Greeks could have mistaken these purple bulges for the flowers of the ears of corn; therefore, the "flowering ear" might be the ear of corn covered of sclerotia of ergot (11).

We own to him also the notion of the Eleusinian "psychopharmacological complex": in the Mysteries it is likely that were used more entheogens, both during the Lesser Mysteries, in which the disciples ate and drank something ritual, and during the Great Mysteries, in which they surely drank the *kykeon* and probably swallowed something; if then we accept that the *epoptìa* was truly a third initiatory grade, it's easy to think that also in this occasion they ritually drank (always the *kykeon* or another potion?) and ate something, the same substances of the first ceremonies or maybe a completely different kind of foods.

On the basis of these eventualities, we can thus conclude that in the Eleusinian rites were present at least two and up to six psychoactive agents: in the Lesser Mysteries the fly-agaric or a psilocybin mushroom, in the Great Mysteries (and in the e*poptìa*?) ergot and fly-agaric or psylocibinic mushrooms, without forgetting the opium poppy that could be used in association with ergot in the potion of the *kykeon*.

In 2000, Peter Webster, Daniel Perrine e Carl Ruck, in the article *Mixing the Kykeon*, backed up the ergot hypothesis assuming though that the real secret of the Mysteries wasn't the active ingredient but the way in which it was prepared or processed (22). The three scholars postulated that the hierophants had found a way to achieve a partial hydrolysis of the mostly toxic alkaloids of *Claviceps purpurea*, by which they obtained an extract of ergot containing a mixture of psychedelic compounds; the hydrolisis was also necessary to remove the toxic ergopeptine alkaloids converting them to psychoactive alkaloids such as ergine and isoergine (15, 22). The conversion of ergot to ergine could be attained by boiling rough ergot for several hours in water to which the ashes of wood or other plant material (for example barley) had been added (22).

However, according to the three authors, the potion containing ergine itself couldn't "shocked" the minds of the initiates and let them reach the mystical vision that was actually ensured by a sum of factors such as fasting, entheogens, religious beliefs and the centuries-old ritual external context where rites were held; the ecstatic theophany would have been gained through the conditioning of the triad *set, setting and drug* and the synergy of these three elements would have been able to amplify and intensify the religious experience of the Mysteries.

In the last years, the discussion on the presence of entheogens in the Eleusinian Mysteries (15, 23) has not decreased and scholars are still debating, divided between those for and those against it, with a clear preponderace of the latter: Georgia Petridou, in an article on the Eleusinian ritual vision (24) doesn't mention any entheogens and ignores Wasson and colleagues' thesis, Michael Cosmopoulos (25) considers the hypothesis regarding hallucinogenic substances speculative and thinks of the *kykeon* as a beverage suited for offer refreshment to the initiates after the preliminary fast and Lisa Maurizio omits any reference to the *kykeon* (25).

If these scholars prefer leaving out the question, Max Nelson, in an article on the possible use of beer in the ancient Greece (26) states that no ancient source mentions that *kykeon* had intoxicating, hallucinogenic or narcotic effects and even mushrooms have

never been listed among its ingredients; so, the ergot hypothesis would be completely groundless, also because ergot would have been required in an unimaginable quantity and its reliability as psychotropic agent is anything but proven.

Generally *kykeon*, as the Homeric or the Pseudo-Aristotelian one (27, 28), was a beverage based on wine, while the potion of the *Homeric Hymn* is made with water and mint (besides barley flour), two ingredients often used in a medical context, and this consideration makes the author think that the one that was drunk in the Mysteries was a curative drink, whose main function was to refresh the initiates after the long ritual fast.

To sum up, there would be no proofs in the ancient sources of the entheogenicity of the Eleusinian *kykeon*, that therefore shouldn't have provoked any ecstatic vision but, on the contrary, it would have been used as a "quasi-medical drink" that of course didn't contain any trace of alcohol or hallucinogenic substances (26). However the scholar, in his argument, forgets that in the *Etymologicum Gaudianum* (210-225) Demeter is called with the epithet *Erysibe*, the Greek term for ergot, and it is hard to think that this is just a coincidence; consequently, the debate remains open to future developments and for the moment the "Secret of the Secrets" of the Eleusinian Mysteries is still safe within the *Telesterion*.

The archaeological evidence

Let's now turn to the archaeological documentation, focusing our attention on the iconography of some artifacts that, even if there is no agreement among scholars, would seem to strengthen the theories in favour of the presence of entheogens in the Eleusinian Mysteries, specifically of psychotropic mushrooms.

The first object in exam is the so-called Lovatelli Urn, a marble cinerary vase (about 30 cm wide) found in 1876 during the excavations near Porta Maggiore (Rome) within the burial ground of the servants and freedmen of the *gens Statilia*; dated at the beginning of the Imperial Age, it is a Roman copy of a Greek original not preserved (29) (Fig. 1).

Along the outside surface are illustrated certain stages of the initiation into the Eleusinian Mysteries

Figure 1. Rome, Museo Nazionale Romano. Detail of the Lovatelli Urn with the *mystes* and the hierophant.

of a man, plausibly Hercules (14, 29): in one of the three scenes a hierophant (maybe Eumolpus) pours with the right hand some water over a piglet that is going to be sacrificed, while with the left he holds a *lanx* on which stand three objects, identified by Ersilia Lovatelli as opium poppy capsules (29). Instead, according to Ruck, the thickness of the stalks that sustain the capsules is too large and these three elements would be actually mushrooms; furthermore, Samorini has pointed out that the upper part of these "vegetables" has got a smooth spherical form different from the capsules of the opium poppy as for the absence of the stigmatic disk.

Ruck however doesn't exclude the possibility that the objects on the plate might be the representation of "cakes" or a sort of "flat breads", since a passage by Atheneus's *Deipnosophistae* (III, 113) mentions a bread made with seeds from opium poppy shaped like mushrooms but Samorini has rightly noticed that the Greek author's description, rather than bear out the identification of the images discussed as opium poppy

Figure 2a. Rome, Palazzo Borghese. Front of the Torre Nova sarcophagus.

capsules, it seems to consolidate the mycological hypothesis; it can't be a mere coincidence that in a ritual context some breads were modelled right in the shape of mushrooms (14).

The same exegetic problems are found on a sarcophagus unearthed in 1903 among the ruins of a Roman Villa at Torre Nova (Rome), along the Via Labicana; made of Pentelic marble, it probably comes from Lycia and has been dated between the end of the II and the beginning of the III century A.D. (30) (Figs. 2a, 2b).

On the front of the sarcophagus is portrayed the initiation of a *mystes* and the hierophant, ritually dressed, is performing the rite of the *nephalia*, a type of expiatory libations entailing the pouring of water from an *oenochoe* over the flames of an altar; in the left hand he holds a tray whose contents have been identified by Giulio Rizzo as fruit (30). At first Ruck, as in the case of the Lovatelli Urn, had thought of "cakes/flat breads" of a certain type but then he has changed his mind opting in favour of fly-agaric caps, the mushroom considered by him as the one used as entheogen in the Lesser Mysteries by the hierophant and the "Queen" during their symbolic union (31). Similarly, also the objects on the platter held by the hierophant on a fragmentary side of a sarcophagus now in the collection

Figure 2b. Detail of the Torre Nova sarcophagus with the *mystes* and the hierophant.

of the Museum of Antiquities of Turin could be fungal substances; generally dated in Late Antiquity and

iconographically really close to the Lovatelli Urn and the Torre Nova sarcophagus, this panel might depict some mushrooms too, specifically the already known fly-agaric (30) (Fig. 3)

A further evidence in favour of the presence of mushrooms (*Amanita Muscaria* and/or psilocybin mushrooms) in the Eleusinian rites is given by the Pharsalus bas-relief, dated from the second half of the V century B.C. and currently conserved in the Louvre Museum (14, 20) (Fig. 4).

Figure 3. Turin, Museum of Antiquities. Side panel of a sarcophagus with the *mystes* and the hierophant.

Figure 4. Paris, Louvre Museum. The Pharsalus bas-relief with Demeter and Persephone.

The stele was found in association with a burial of two sisters and in fact, in the past, some scholars had thought that the two female figures represented were the two entombed (32), while today the most accredited hypothesis identifies the two women with the Eleusinian goddesses Demeter and Persephone, portrayed in the act of showing or exchanging several objects, usually interpreted as flowers (14).

The didactic notes of the Louvre Museum quote that the two women would be holding in their hands poppy flowers or of pomegranate and maybe a bag of grains; actually, the object held by the young-looking figure on the right, probably Persephone, resembles definitely a mushroom as suggested by the way in which is held, i.e. squeezing the inferior part of the stalk between the two fingers (20).

The second object, in the right hand of Demeter, has the same form of the one held by Persephone and so it should be a mushroom too (both a *Psylocibe* or a *Panaeolus*) but, unlike the other, is inclined and seems to be shattered: according to Graves, the missing piece of the cap would have been intentionally omitted by the sculptor to indicate that Demeter had eaten it but Samorini, after observing personally the artifact, is sure that the now missing part was originally present.

If it seems ascertained that the two objects are mushrooms, what is held in the left hand of Demeter is still a mystery: if the two mushrooms symbolize a psychopharmacological key, it is likely that also the third element has psychopharmacological implications, but its strange form is hard to identify and therefore scholars have advanced numerous interpretations such as a flower, a rose, a phallus, a fish, a bag of seeds, a sheep's astragalus, a leather bag used to keep prophetic die, a leather saddle-bag to keep mushrooms and finally a particular form of bread (15, 20).

Furthermore, along the lower part of the stele, now badly damaged, were originally present also Persephone's forearm and left hand: this hand held another object (the fourth), of which only the upper part is conserved and so it is difficult to understand what it really is; according to Samorini, it could be the representation of a flower from above with a circular centre surrounded by large petals.

If Samorini's hypothesis were correct, it would be tempting to identify this object with the narcissus (!5,

20), one of the floral species Persephone was picking before being kidnapped by Hades: the Greeks believed that the noun *narkissos* originated from *narke* (numbness), in virtue of the supposed intoxicating properties of its perfume, and so it is possible that it could have had a role in the Eleusinian rituals as entheogen and consequently it is not to rule out its presence on the bas-relief.

Alternatively, Ruck sees in this object and in the one held in the left hand of Demeter the representation of two food pouches from which the two goddesses would have taken out the aforementioned mushrooms (32).

In conclusion, the Wasson and colleagues' hypothesis, even if it is blamed by many scholars, remains still plausible and the archaeological artifacts analysed seem to offer a real confirmation that in the Eleusinian rituals were present entheogens, at least psychotropic mushrooms (*Amanita Muscaria* and/or psylocibinic mushrooms).

In the meanwhile the Secret of the Mysteries is yet to be unveiled, and only a real synergy between classical and ethnobotanical studies might shed some light on one of the most fascinating enigmas of the Classical Antiquity.

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Medicina Historica 2018; Vol. 2, N. 2: 94-98

A case of Concha Bullosa and potentially related evidences. Concha bullosa discovered in the bones of a medieval skeleton from Brentonico, northeast Italy: a case report

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Abstract. The pneumatization of the middle turbinate, called Concha Bullosa, is one of the most frequent variations of the ostiomeatal complex. Although in literature there is no clarity regarding the role of Concha Bullosa related to the onset or complication of other paranasal area disorders, it is not rare to find the latter in co-occurrence with Concha. The study we present, which was carried out on an archaeological sample, shows the simultaneous presence of Concha Bullosa and pneumocele and their possible correlations. Finally, this contribution acquired importance from the moment in which it was presented as a direct attestation of the evidence discovered in the ancient world.

Key words: Concha Bullosa, middle turbinate, anthropology, paleopathology, pneumocele

Introduction

Middle turbinate are anatomically identified as offshoots of the ethmoid bone occupying the nasal cavity of both sides of the nasal septum. They consist of an upper laminar and a lower bulbous segment covered by hypervascularized spongy tissue and mucous membranes that are rich in glands and cilia, they have the function of purification, humidification and heating inspired air. The middle turbinate may be subject to a hypertrophy of the bone structure attributed to its pneumatization, a condition commonly known as Concha Bullosa (CB).

Its etiology is not to be connected to a pathological condition, whereas, on the basis of studies on twins, it is possible to involve a genetic-component (1).

It is one of the most frequent anatomical variations of the ostium-meatale complex, with an incidence between 14% and 53% in the contemporary population (2) and it is variable in populations depending on the different regions of the world and the different climatic conditions influencing the affected subjects (3).

A classification of CB types was proposed based on the location of pneumatization (4). Three variants have been identified: the first involves the upper portion of the middle turbinate (Lamellar CB), the second involves the lower portion (Bulbous CB) and the third a combination of the two parts (Extensive CB).

In the paleopathological field, CB and its implications on ancient populations has not been considered effectively. Exceptions are Mays' contributions to the English cases of Castle Mound cemetery in Huntingdon (3) and Warram Percy (5). On one hand the anatomical variations of the nasal district, including CB, may predispose individuals to sinusitis (6), in fact many studies in literature suggest that CB plays an important role in the aetiology of inflammation of

the paranasal sinuses (7, 8). In the other hand the correlation of CB with sinusitis is very discussed, morover abnormally expanded, aerated frontal sinus, attested in the subject, may not be linked with sinusitis or other nasal diseases (9).

The case reported here is of particular relevance as it represents further evidence of the presence of this conditions in ancient times, usually attested with difficulty due to the poor conservation of the archaeological record of the bones of the nasal district (10).

Materials and methods

The analyzed osteological material comes from the rural archaeological context of the 16th century church of Saints Peter and Paul of Brentonico, Trento (northeast Italy).

Below the area inside the church and the bell tower, following the archaeological investigations carried out between 2003 and 2004, several architectural phases were highlighted, the first of the 8th-11th centuries. The bones are chronologically placed on a stratigraphic basis between the 8th and 13th centuries; the tomb was identified as a secondary deposition, containing the fragmented remains of a minimum of 4 sub-adults and 18 adults. The skull under our examination is in an excellent state of preservation. Skeletal sex was determined by morphological analysis and evaluation of the degree of nuchal ridge dimorphism, mastoid process, supraorbital margin, glabella and frontal inclination (11). Age was estimated by analysis of the degree of synostosis of the cranial sutures (12). Due to the significant loss of dental elements, it was not possible to evaluate the degree of dental wear. The investigation of the nasal cavity, carried out also through macroscopic and endoscopic evaluation, allowed us to detect variation and to make a first diagnosis on a morphological basis thanks to the existence of stringent comparisons with other cases of CB present in literature (3,14) (Fig. 1a; Fig. 1b). To obtain the hypotheses originating from the macroscopic analysis and the possible involvement of a paranasal sinus disease like sinusitis, we used TAC investigations (Hitachi Eclos 16, 90-120 Kv, 100-400 mA. TeraRecon, software for image processing) and comparisons with specialistic literature.

Results

The skull belongs to a male subject of about 35 years. The nasal cavity presents hypertrophy of the middle right turbinate of the second type, which has a maximum anterior-posterior measurement of about 16 mm, distal-sagittal about 22 mm and medium-

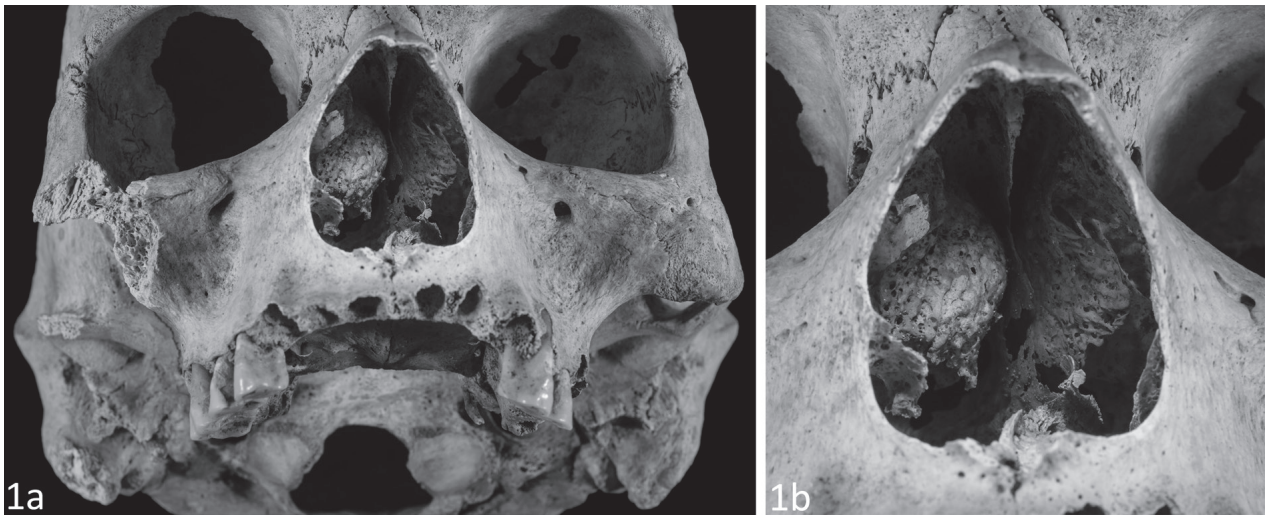

Figure 1. a) Frontal view of the skull; b) In detail, morphology of the CB.

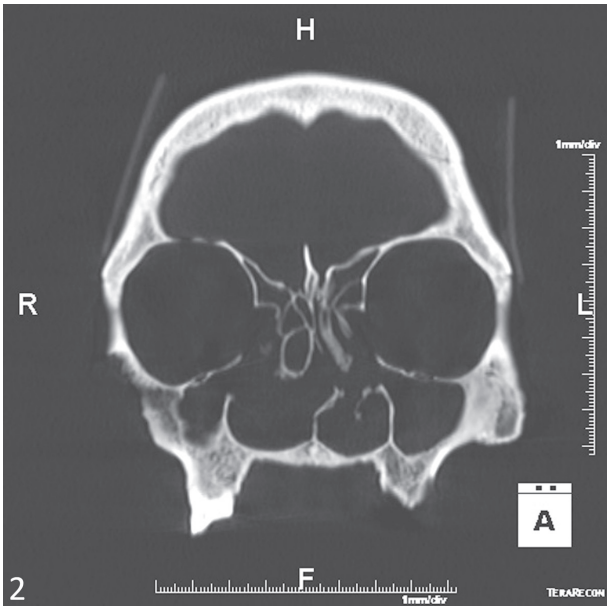

Figure 2. On the coronal CT image, the evidences of the CB.

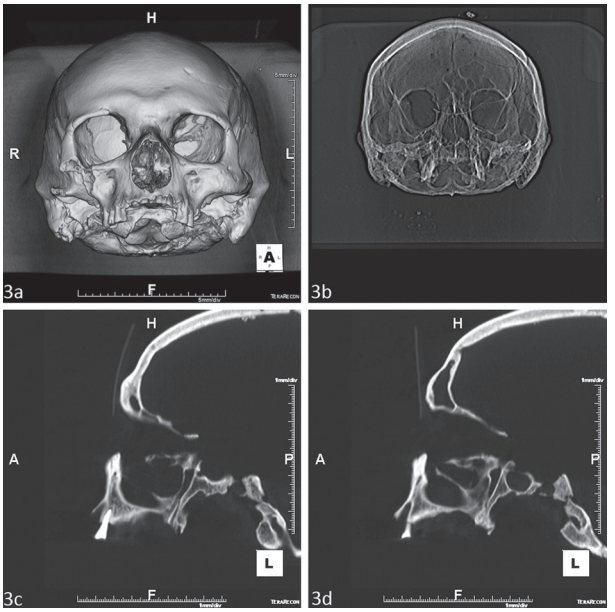

Figure 3. a) Frontal view CT skull reconstruction; b) Frontal projection CT of skull, aerated and large left sinus; c) On the median CT image, the right sinus and its tables; d) On the median CT image, the left sinus and its tables.

lateral of about 15 mm (Fig. 2). The cortical surface of the right middle turbinate has a spinous form of bone formation associated with a slight cribrosity (Fig. 1b). TAC analysis of the skull (Fig. 3a) allowed us to observe a large, aerated left sinus (Fig. 3b) with an abnormal anterior and posterior sinus tables (Fig. 3c; Fig. 3d). The absence of frontal bossing, intracranial extension, ethmoids or orbital encroachmnet with a generalized thinning of the bony sinus walls enable us to identify an example of pneumocele (9) that may be associated with sinusitis (15, 16).

The presence of anatomic variations of the middle turbinate can be related to contralateral septal deviation, this can also be connected the contralateral expansion of the frontal sinus.

Differential diagnosis

Morphological evaluation of CB is insufficient, since it is possible that the area of the nasal septum is affected by less frequent conditions that also cause hypertrophy and that may present a visual similarity. Pathologies such as fibrous dysplasia (17), benign neoplasms, hemangiomas (18) and ossifying fibromas (19) can be distinguished from CB due to the presence of internal structures. In our case, TC analysis revealed how the internal space of bone growth is empty, a condition that allows us to discard these pathologies from the diagnosis.

CB is an asymptomatic condition, however the developing complications of this can affect quality of life. As stated by Mays *et al.* this condition may increase the risk of infections of the paranasal sinuses and chronic sinusitis (5). The subjects in which CB caused airway obstruction areas and contact between the mucous membranes that line the turbinates (3, 20) and those presenting the type of CB that involves the bulbous portion of the bone structure (4) are considered to be more susceptible to these problems. The incidences of CB and the appearance of this pathology have been studied several times, but a direct link with anatomic variation has not always been noticed, as in the case of Stallmann *et al.* (2).

There appears to be a strong correlation between the presence of unilateral CB and the contralateral deviation of the nasal septum (2). Furthermore, in addition to those previously listed, CB can be considered a

basis for the development of particular conditions, it is in fact present in the literature and archaeological case of Mucocyefale, and without any doubt it is caused by the presence of the turbinate pneumatization (21). This condition is macroscopically framed by lesions affecting the walls of the maxillary sinuses, often connected with the destruction of the orbital roof. In our case, the lack of macroscopic elements of the bone can be correlated with the presence of the mucopyocele which makes it possible to discard these complications of the pathological picture of the subject. The expanded frontal sinus is not thoroughly understood in the literature, in fact this evidence is defined in many terms that include: pneumosinus frontalis, sinus hypertrophy, aerocele, pneumocele, hyperpneumatization, blistering and sinus ectasia (9).

The etiology is still not clear, and several causes have been proposed; spontaneous drainage of mucocele, presence of gas-producing microorganism, post-traumatic involvement, benign and malignant neoplasia, hormonal abnormalities and congenital factors (14). In this instance it is possible to define a case of pneumocele, according to Urken *et al.* (9), the clinical presentation of this evidence is sinus-dependent and varied and it may include headache, nasal obstruction, decreased visual acuity and sinusitis.

Conclusions

This contribution is important for both osteoarcheological and modern clinical literature because the coexistence of CB and pneumocele is rarely attested. Moreover, this article allows us to highlight the possible presence of CB and pneumocele in an ancient sample, thus attesting its antiquity (14).

Although these two pieces of evidence are not necessarily linked to each other and their implications at the pathological level are not yet completely clear, it is possible to suppose that their simultaneous presence has exponentially decreased the quality of life of the subject.

Acknowledgements

The authors wish to thank the Trentino Archaeological Heritage Department for consigning the osteological material studied herein to our laboratory. Thanks also to Paolo Chistè, photographer of the TeFALab at the Univeristy of Trento.

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Medicina Historica 2018; Vol. 2, N. 1: 99-100

The "powerful amelogenin": a peptide at the service of paleoanthropology

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Abstract. An international research group, from the Brighton (UK), São Paulo (Brazil), and Durham (UK) universities, has recently developed a versatile method for sex definition in human bioarchaeological remains by analysing the sex-specific isoforms of amelogenin drawn from dental enamel.

Key words: amelogenin, dental enamel, sex determination, osteo-archaeological remains

Dear Editor,

We are writing to propose the Italian Society for the History of Medicine (SISM) members, especially those who don't operate within the palaeopathology branch, a brief update on sex determination in human bioarchaeologic remains.

As is well known, determining sex of a dead body represents one of the main required parameters in an anthropological research. It can be done by a traditional procedure or by advanced DNA analysis techniques.

On the first case, given a sufficient and adequate amount of osteoarchaeological material, it is possible to determine sex by analysing morphological and metrical features in bones, which represent sexual dismorphism characteristics. Areas showing higher dismorphism characters, and therefore more versatile in determining biological gender, are the skull (for example supraorbital ridge, zygomatic arch, mastoid process, mandible, chin) and the pelvis (for example coxal bones, greater sciatic notch, preauricular sulcus, pubis), followed by other anatomical districts with less discriminating value such as the spine or femur (see Minozzi and Canci, 2015 pp 103-111) (1).

The second procedure is developed by DNA analysis, after its extraction, amplification and sequencing. The major limits of this technique are the specimen contamination, nucleic acid degradation and high economic costs.

For severely fragmented, deteriorated or contamined remains from which it is not possible to extract DNA it is hard, if not impossible, to identify biological gender. In those cases, dental elements, if present, may be useful to obtain the missing biological information.

Teeth, in general, are considered a research material able to provide several information: sex identification, age of death, health or disease status, food habits and stress and, in some occasions, job or cultural practices. It can also provide data on geographical origin, migrations, phylogenesis, taxonomy, and on population variability (Minozzi and Canci, 2015 p. 185) (1).

By the end of 2017, on *PNAS*, an international research team - from the Brighton (UK), São Paulo (Brazil), and Durham (UK) universities - published an article where they presented a method particularly versatile for sex determination by analysing dental enamel (Stewart et al., 2017) (2).

As is well known, enamel is the hardest tissue in the human body and, consequently, the most resistant to decomposition. By carrying out small abrasions with different acids (among which hydrochloric, for-

mic and trifluoroacetic acids) on enamel surface, it is possible to obtain amelogenin, a production protein for enamel itself. During enamel maturation stage, enamelin, ameloblastin and amelogenin are processed by proteases and certain peptide portions deposit in enamel.

Amelogenin processing eliminates the central portion, leaving C and N terminals instead. These peptide chains present different aminoacidic composition depending on sex, and they distinguish AMELX and AMELY isoforms, the chains conserved in enamel after proteolysis. Analysing these enamel extracted peptides through nanoscale liquid chromatography and mass spectrometry (nanoLC-MS) (3) leads to biological gender identification. Therefore, finding both AMELX and AMELY together indicates a male sample, while finding only AMELX isoforms indicate a female sample. It is not possible though to identify sexual aneuploidy.

Besides, the amelogenin analysis allows to identify gender in young individuals, an extremely difficult task when using traditional anthropometric methods.

Cost difference between DNA analysis and amelogenin analysis for sex determination is also noteworthy: the first one costs approximately 500 euros, while the second, around 20 euros.

For those reasons it is a reliable, minimally invasive and cost-effective method, able to give answers to a main query in anthropological research.

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Medicina Historica 2018; Vol. 2, N. 1: 101-103

The disease of a plague. A study proposal of the sample of individuals from the convent of S. Rocco in Merate

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Abstract. San Rocco in Merate is a hill town in which were hospitalized the victims of Plague epidemics of 1524 and 1576, which had hit Lombardy causing around 50,000 and 10,000 dead. According to the written sources, near the oratory dedicated to Saint Rocco were buried about five hundred victims. Today a huge granite column, erected around 1854, persists in correspondence of the common grave in which the dead of the plague were buried. This evidence is an important case study that allows to analyze a bioarchaeological context pertaining to documented episodes of epidemic, permitting to investigate the mortality rate and demographical data of the examined population, which reflect the nature of the crisis. The analysis of the sample allows also to highlight eventual selective compositions of the population, therefore to investigate the selectivity of death and whether it is linked to age, sex and the pre-existent health status of the individuals.

Key words: Merate, plague, epidemic, bioarcheology, paleopathology, anthropology, merate

S. Rocco is a small hill, located about one kilometer from Merate. The name originates from a deeply rooted folk tradition that called upon the saint to be the protector of the plague victims during their hospitalization in 1524 and 1576.

In the years between 1524 and 1529, the plague, known as Carlo's V plague, profoundly affected Lombardy, upsetting the life of its territories and causing many victims, a staggering 50,000 people died alone in Milan. We believe that in Brianza, the plague was a consequence of the raids of French troops during the war between France and Spain for the possession of the duchy of Milan. In 1512, French military troops settled in the castle of Trezzo and from here they would conduct their bloody raids in the Brianza and Bergamo areas (1).

During similar epidemics, it was customary to collect and isolate the sick in places far from inhabited areas. For this reason, the municipality, made available a plot of land of 50 perches, placed on a hill about a mile north of the town of Merate. In this place, initially nominated "Field of charity", the citizens of Merate built straw huts to support the sick and erected a small oratory dedicated to San Rocco, from which the place took its name. Many of the sick were hospitalized and eventually, many found a burial plot on the After the plague, the sanctuary of San Rocco remained forgotten for half a century until in 1571, when during a pastoral visit, Cardinal Borromeo passed by San Rocco and blessed the burials (2).

In 1576, the disease spread again in the Milan area causing more than 10,000 victims: this epidemic is known as the Plague of St. Charles, because the contagion occurred precisely during the episcopate of the bishop S. Carlo Borromeo, who did strived to help the plague victims. This wave was less bloody than the previous thanks to the extremely rigid quarantine to which all the Milan citizens were subjected.

During 1578, the disease spread also to Merate, the huts were rebuilt around the oratory of San Rocco to support the new wave of sick. According to written sources, there were about five hundred victims who

were buried on the hill, which was over a quarter of the entire population of the village and the nearby hamlet.

Shortly after the end of the plague, in 1578, by order of the archbishop of Milan, a Capuchin convent was built here. The history of the hill continues for another five centuries, from the original destination of lazaretto to the transformation into a convent; in XIX century it was transformed into a private villa, then into a nursing home and finally became a branch of the Brera Academy (3).

Today, in memory of the plague victims of 1524 and 1576 and of the Capuchin convent, a monument persists on the hill of San Rocco: a huge granite column surmounted by an iron cross, built around 1854. According to the inscription at the base of the column, the monument would have been erected in correspondence of the common grave in which the dead of the plague were buried: it is an important testimony, full of symbolic meaning, of the epidemic that caused thousands of victims.

In ancient times, the scourge of the plague disastrously appeared in different parts of the world, sowing an incalculable number of deaths: three major waves of Plague are known to have hit Europe and the Italian peninsula between the ancient times and the Modern era. The first is the famous Justinian plague, which struck Italy, raising from Egypt in 541 AD. The second and most famous began in India, China or the steppes of Russia, spreading then to Europe through Messina (Sicily) by the autumn of 1347. This second pandemic wave returned periodically and lasted for about five centuries in Western Europe, with peaks in different periods. The third pandemic originated in regions of China in the mid-nineteenth century, spreading around the world through steamship commerce (4).

The analysis of past epidemics is an interdisciplinary subject that encompasses and closely links archaeology, anthropology and documentary sources. The presence of burials in San Rocco in Merate, probable evidence of episodes of extra-mortality linked to the prior mentioned plague epidemics, have been hypothesized on the basis of historical data and documentary sources. Only a thorough excavation of this site and the study of the osteological sample would allow us to verify the thesis supported by the documentary evidences.

Through systematic study, which associates taphonomical excavation and bioarchaeological analysis, it is possible to reconstruct the stratigraphy of the site, the organization of the cemetery spaces, the phases and time spans of the depositions and to build the biological profile of the buried individuals. The latter phase is strictly necessary even to construct the mortality profile of the individuals in analysis and to identify possible anomalies in the demographic data, which could reflect the nature of the crisis that affected the population (5). By the fact a pandemic crystallizes the health and morbidity status of the individuals, shown by the absence or presence of any skeletal lesion reflecting exposure to physiological stresses, we are able to highlight possible selective compositions of the sample and compare it to contexts of a plague-type epidemic, allowing us to verify the initial thesis.

Comparison should be also done with a non-pandemic sample, possibly from the same geographic area and dated back to prior to the crisis, to assess the differences in mortality rate and selectivity of death in normal conditions and during epidemics. Sharon DeWitte previously conducted a study on selectivity of the Black Death on the East Smithfield sample in London, compared to a non-epidemic, pre Black Death assemblage, to verify the relationship between mortality and age, sex and pre-existing health conditions of the individuals. At last, she verified that the plague was selective in respect to age and pre-existent health status of the individuals and then to their frailty (6, 7).

In summary, archaeological and bioarchaeological approaches are needed to verify the hypothesis of a probable epidemic burial site, based on reliable documentary sources, and to confirm the nature of the crisis; furthermore, they allow investigation of the reaction of the population to the pandemic and the way to manage burial spaces in front of an episode of rapid surmortality. The anthropological study, in particular, is necessary to examine the pre-existing state of health of the buried individuals, and the way it has influenced their resistance to the disease, in the light of studies that have shown a close connection between frailty and the increased risk of succumbing to an epidemic.

At last, we have to keep in mind that only molecular analysis are able to establish whether an indi-

vidual died from a plague and to fully explain the epidemiology of the disease, reconstructing the genome of *Yersinia pestis*, as previously done by Bos et al., and Duchemin et al. (8, 9), and elucidating the mechanism of pathogen evolution. Although this specialized analysis is highly recommended, also through a systematic study that connects bioarchaeological and anthropological approaches it is possible to understand the behavior of the epidemic at the time of the crisis.

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Medicina Historica 2018; Vol. 2, N. 2: 104-108

From the concept of "good death" in the ancient world to the modern concept of "euthanasia"

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Abstract. *Introduction:* This article was born with the intention of analyzing the concept of "good death" and more specifically that of "euthanasia" within classical literature and early Christianity, in order to understand the term's evolution during the course of history and how it is understood today. *Methods:* The first part of this article will analyze the concept of "good death" in epic poetry and respectively the ideal of *Kalokagathia* in epic poetry and in historiography. This research will cover many centuries. The focus of the central section of this research will be on the concept of "good death" in Plato, as well as in two of the most important philosophical schools of antiquity: Epicureanism and Stoicism. Related to this last aspect, our attention is directed to Seneca, the representative of Roman Stoicism under the emperor Nero. An interesting article on the comparison between the Gospel of Paul, Stoicism and the fourth book of the Maccabees about the concept of "good death" gave me the incentive to deepen an agonistic metaphor deriving from the sporting environment in the ancient world. The study of "good death" conducted by the Church Fathers allows a better understanding of how the treated concept has assumed a value from Christianity through many changes. The third and final part analyzes how the concept of death is used in our day and starting from when the term "euthanasia" appeared. *Objective:* This study aims to clarify how some modern concepts are often linked to the ancient world; for example, the concept of today's euthanasia and of assisted death did not exist in antiquity in the same sense as modern interpretation. *Conclusions:* The end of life analysis reveals a variety of values about the concept of "good death" in different time periods and cultures. The research on "good death" and on assisted death is well linked to the theme concerning the quality of life. This is one of the most important topics in palliative medicine, a field that is becoming increasingly important and is related to the well-being of the patient.

Key words: good death, euthanasia, graeco-roman times, palliative medicine, spiritual care

The concept of death in the ancient Greek culture was deeply connected to the ideal of *kalokagathia* as a mix of beauty and solidity, an inner firmness which had to characterize every Greek fighter.

The Greek hero struggled for his own country, his community and his glory yearning for the death in the battle as the best destiny he could have (1).

The defense of one's homeland represented the primary aim of the Homeric warrior as the examples of heroes like Hector, Sarpedonte and Achilles show – with the exception of the last one being demigod – feature that marks him considerably from others.

The figure of the warrior who fights moving with a cry of struggle clashes with the figure of the dead fighter, whose body, static, lies lacerated in the shadow, deprived of his role and identity.

Both epic poetry and elegy, a form of lyric poetry, enhance the ideal of *kalokagathia* as an ideal of physi-

cal and interior perfection of the hero or of the warrior who, handsome (καλὸς) and brave/virtuous (ἀγαθός), meets his death on the battlefield.

The burial ritual plays a big role because it allows the fighter to retrieve his figure restoring him his "*physiche du rolé*" (1).

This aspect emerges clearly in a passage of the *Iliad* in which Priam goes in Achilles' tent imploring to give him the body of his son Hector back.

The scenery reveals a deep humanity and shows how in the burial ritual it was of fundamental importance to give the dead body its brightness of living back (1).

The ancient ideal of *good death* as a death in battle is also traceable in historiography, which begins with Herodotus.

In the speech between Croesus and Solon, Herodotus shows how only those who lead and conclude life in a good way can be defined lucky.

What emerges is the concept according to which a *good death* is equal to a good life. The two aspects are closely related – life and death merge with one another.

To Croesus' questions about who can be considered lucky, Solon answers with three examples, two of them come from myths: the one of Tello of Athens and the one of the brothers Kleobis and Biton.

The first had a good spawn, which he saw grow, and he found a good death – that of a hero killed in battle – on the contrary, the two brothers died out of drudgery, carrying their mother for 25 stadium and giving proof of great vigor and strength.

Solon concludes his speech to Croesus telling him that a man can be defined fortunate when he is in good health, feels no pain, has descendants and has a good death.

Good death is intended as fulfilling, the *exitus* of a life marked by health and vigor (2).

A more specific definition of death can be found in Plato's *Phaidrus*, in which the philosopher describes this event as the separation or detachment of the soul from the body, incorporating the consideration of a *good death* in the State's interest (3).

In a society that rewarded vigor and strength, sick people weren't given any regard or respect (4).

Acting in the State's interest was a fundamental aspect of the Greek *poleis*' societies in the fifth century B.C., aspect which is well outlined in the written works of Plato as in those of Aristotle and that can be also underlined when speaking about suicide.

Regarding suicide, Plato and Aristotle submit different ideas: while the first accepts it only in case of an incurable disease, the second sees it as a weakness which would take away from the State its wealth and of its valid citizens – and therefore he doesn't accept it (5, 6).

The concept of "*good death*" is widely faced by two philosophical movements: that of Epicureism and that of Stoicism.

The epicurean maximum "as long as we exist, death is not here and once it does come, we no longer exist" shows how life and death are two conditions which cannot coexist.

According to Epicurus, only what shall be experienced can be terrible or bad, so death, as a condition that is experimented only when it happens, cannot be defined *per se* neither good or bad (7).

The concept of death in Epicurus' philosophy, as a non-negative condition *per se*, does not differ too much from stoic concept: a liberation and relief from all evil.

In Crisippus' fragments we read that a wise stoic man keeps away from his friends and his homeland, even when he is victim of serious pain, disabilities or terminal diseases because he does not fear death (8).

Greek Stoicism's conception of death finds its own continuation in roman Stoicism, of which Seneca is the main exponent.

According to this philosopher, also known as emperor Nero's preceptor, death represents a true *exitus*, a necessary way to "get out of life", especially when life has become a prison or a chain, that prevents the subject to conduct a life of virtue.

The connection between virtue and happiness represents the core around which Stoicism spins: only by being virtuous a precondition of happiness can be assumed, and when one cannot achieve virtue, one should give up on life. Therefore, suicide is right, as we can read in Seneca's works regarding the topic.

With the coming of Christianity, the concept of *good death* shifts from the concept of dying in battle and becomes that of dying for God and in God.

An interesting article that shows a comparison between Paul's gospel (in particular, the Second Let-

ters to the Corinthians), Stoicism and the Maccabees' fourth book– a text included in the Apocrypha –using a metaphor taken from the world of sportive competition (the Greek *agon*) shows how the concept has endured a radical change from the development of Jesus' *euaggelion* and moreover from the birth and diffusion of the first Christian communities.

As a matter of fact, if such a metaphor is conceived by Stoicism only towards virtue and knowledge, in Paul's gospel it is pictured as a difficult battle, full of pain, in which an apostle feels supported by God's power, then indicating, in the Maccabees' fourth book, "agonizing pain" which is pain related to martyrdom and death (1).

The Maccabees' fourth book represents the perfect synthesis between Hellenistic philosophy and Jewish beliefs and is focalized on martyrs that find death under Antiochus' persecution and under the Hellenistic aristocracy before the first success of their military compatriots (as de Silvia has pointed out) (9).

Compared to the considerations expressed by Epicureanism and Stoicism, a new aspect emerges: Christians, that were condemned to death and fed to ferocious beasts in an arena, accepted their fate as "good", perceiving it insight of a life in the kingdom of the heaves.

This concept finds its theorization in the thought of the Fathers of the Church, among which I will talk about Ignatius and Origen.

According to Ignatius, Jesus' Christ duo of death and *true life*, only true life triumphs over death: a believer must follow the example of Jesus as the one who exceeded death by conquering it forever.

Birth on this earth coincides with the beginning of dying and because of this, according to Origen, death represents the opposite of life, a "type of darkness" in relation to light (10).

The philosopher of Alexandria distinguishes three types of death: the death of sin that coincides with true life, a full and total communion with God – this is God's friendly death; death by sin which is configured as hell and is a condition of distance and separation from God, Logos' enemy par excellence; biological or physical death also defined as median death, which can be good or bad according to the moral point of view (10).

Death's inescapability is, according to Origin, a good thing because it allows us to achieve true life.

All three of these deaths can be organized as follows: bodily death, indicating a separation of the soul from the body; spiritual death as a separation of the soul from God and the Holy Spirit; and finally blessed death, true abandonment of sin "to live in God" (10).

The advent of Christianity radically changes the way of understanding death and, consequently, voluntary death, as we can see in Augustine - one of the main Christian intellectuals of the first millennium (11) - whose suicide stance contrasts with that of Seneca described above.

In the *De Civitate Dei* Augustine fights against suicide, claiming that whoever kills himself is killing a person and isn't less responsible than those who kill another man and therefore commits homicide (12, 13).

Since the beginning of time, fear of death has been of interest to human beings. Myths and legends have tried to give dying and the end of life an explanation, questioning the possibility of a *continuum* after life.

It's useful to remember Ovid's myth of Orpheus and Eurydice, which can be found in the tenth book of *Metamorphoses*: it is a metaphor regarding death's inevitability and how it marks in a definite way the passage from "*being*" to "*not-being*" from which there can be no return (14); the myth of Asclepius, handed down by Pindar, is also a symbol of the human desire for a return from death, "a resurrection" that comes from the profound suffering experienced by the loss of loved ones (15).

The two myths, though set on different stories, have a fundamental common teaching: death is a definitive condition that does not rule anyone out and from which nobody can return.

While in some cultures death is seen as an event that affects everyone's private and social life, in ours there is a privatization and regression of death as pure action, a real obstacle and a disturbance factor in a society filled with "have to" and "to do" (16).

Death has become the most scrupulously guarded taboo of our time, that creates anguish, especially in western society and for this reason it must be concealed (16).

The right to a *good life* is increasingly bound with the right to *good death*, which raises an increasing in-

terest to the theme of allowing death or, more broadly, "euthanasia" (16).

The lack of any record of the word "*euthanasia*" in antiquity as a technical term, indicating a voluntary death with the assistance of a physician, shows how such a concept only belongs to modern times and how, in common use, is falsely and unduly sought in the ancient world (17, 18).

Despite the examples seen for the ancient world, the use of the word euthanasia dates to the British philosopher Francis Bacon, which distinguishes between external euthanasia and internal euthanasia. With the first, he conceives practical relief and concrete help in the final phase of life, while with the second he means a true preparation for a *good death*.

This is the concept that will characterize the idea of *good death* in the seventeenth and eighteenth centuries: the dying must prepare in time to die, because this is the only way to access the Kingdom of the Heaves where they may live, eternally, in God.

Thus, for Francis Bacon, euthanasia is a way to help, both, the body and the soul to die (19, 20) and, above all, a way to make life more bearable (16), unlike today's intense prolongation of life.

He does not accept any violent act, even if originated from an explicit request of death that is issued by expressed consent or pity, believing that a physician should not make judgments - which could be judged "tyrannical" - and should recognize the absolute value of the divine providence (16).

The analysis of the concept of "*good death*" from antiquity to our days, through various ages, draws attention to what is to be understood today with that expression.

This is why palliative medicine is such an important support.

Developed in the 1960s with the birth of the Hospice movement, it was recognized as a practice in 1987 seeing as its pioneer nurse, social worker and physician Dame Cicely Saunders; it is also defined as a "discipline" or philosophy that can heal through taking over a patient as a whole, even when something cannot be healed (21).

Since 1980 the pain relief principles that had been described by Cicely in her works, such as *Care of Dying* (1960), *The Management of Terminal Disease* (1978) and *Living with Dying* (1983), have become standard principles in the care service and, in 1987, they contributed in the recognizing of palliative medicine as a real discipline (22).

Although there is no explicit example of *good death*, works regarding palliative care converge with some specific features that contribute in defining death as good: 1) controlling symptoms 2) careful consideration of the social and relational context in which the patients find themselves 3) preparation towards dying 4) existential well-being 5) dying in accordance with one's own values, wishes and preferences (23, 24).

Therefore, healthcare should be centered on the patients' choices and desires (25), an aspect that shows how palliative care is oriented towards the respect of the patient's autonomy and how the concept of "*good death*" drives committed healthcare professionals to accept holistic and individual-oriented approaches, focused on autonomy and control towards terminal patients (26).

Conclusions

The article shows how the word *euthanasia* is often subject to undue references to the ancient world. As a matter of fact, the concept of "*good death*" (the etymological meaning of the word "euthanasia") did not imply the current idea of the term, which is the request by a subject to a third person (usually a physician) to be helped to die in a worthy way, without pain; a good death was a heroic and valiant death in the battlefield whilst looking for one's glory.

With the birth of the polis many things changed and the concept of "good death" is perceived as a noble death for ones' homeland with the help of compatriots and not as the heroic death of one individual (27, 28).

Acknowledges

The author would like to thank Reverend Maurizio Chiodi for his valuable suggestions on the authors of ancient and Christian time, Dr. Alessandra Gasparetto for the accurate text reading and for the comments, Dr. Martina Roneker and Dr. Daniel Russo for the translation of the text.

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Medicina Historica 2018; Vol. 2, N. 1: 109-110

Letter to the editor

Think and rethink Lombroso

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Abstract. From the centenary of the celebration of the death of Cesare Lombroso, it is necessary to have an up-to-date look at the his figure and to analyze also other academics who have followed his teaching over the course of time.

Key words: Lombroso, De Blasio, criminal anthropology

In the last few years, a significant amount has been written about Lombroso. Even we, medical historians, have contributed something. Through the jagged chorus of many voices we understand, however, that Lombroso represented a certain conformist vision, while different aspects of his life and work will always remain in the background of the dominant questions for which man is known.

Here we see some of the other topics of interest to us.

An up-to-date look at the figure of Cesare Lombroso in 2009, in the centenary celebrations of his death, made it necessary to consider also those who had immediately and confidently continued his teaching.

And if the most important students were already well known, we saw the emergence of the hidden wounds of the history of Abel De Blasio (1-2)or Pasquale Penta, which also had a notable importance in scientific literature between the late nineteenth and the middle of the twentieth century (3). But, in 2009 we had to consider the circumstances of two other important anniversaries: two hundred years of Darwin's birth and fifty years since the death of Agostino Gemelli, on which there were no opportunities for meetings and studies in recent months. We certainly can not afford to say with superficial simplicity that the life and work of Lombroso the physician has been placed between those of Gemelli the doctor and Darwin who trained in medicine. But, we suggest that, in a certain speech, the figure of the man who brought his criminal anthropology to the attention of science could almost assume a centrality between the other two, both in what Darwin can be seen in the Lombrosian poligrafia, and in the decidedly dry and perhaps unpleasant judgment of Gemelli who, in the aftermath of the funeral, gave the pages of the severe libellus Cesare Lombroso to the press. The funeral of a man and a doctrine (Monza, Tipografia Artigianelli 1910). Funeral of man and also of his doctrine? When, in 1911, he published the expanded third edition in a volume of almost 200 pages, the good friar Agostino Gemelli was certainly not yet a celebrity, but compared to the first edition, keeping his negative judgment unchanged, he nourished the already thriving band of detractors of Lombroso (4-5). He did so in the light of a new spiritual flourish, but also in the face of advances in science, chemistry and genetics, or mechanistic medicine. The early twentieth century mechanism in medicine certainly resulted from the positivism that had dominated much of the medical biology of the second half of the nineteenth century, but it differed from it in some cardinal points.

So much so that a certain scientific orientation proposed to break away from the statements of Darwinism to return to the root of an evolutionary thought that originated from Lamarck. Thus, we were witnessing the integration of new and old ideas. In historiographical terms, we must reflect on the title of the initial libel and the subsequent large volume of Gemelli and ask how to evaluate them. Do we have to consider that the funeral of the man did not correspond to the funeral or the definitive burial of his doctrine? Then we must also look into the history of medicine. A certain lombrosianism continued to flourish and if this is quite evident in the superficial layers of a culture we would say "spreading" on large issues of problematic impact that are always present and persistent in society, even within a part of medicine the quotations of Lombroso continued, as authoritative and convincing (6).

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