Projects and Prospects

Virtual Symposium and General Assembly

April 23-24, 2021

Abstracts of Presentations

A1

Terminological changes of essential oils of selected pharmacopoeias

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The aim of the work is to analyse the historical development of professional pharmaceutical terminology used in official pharmaceutical standards – pharmacopoeias. For the analysis have been used selected Central European pharmacopoeias issued during the 19th and 20th centuries. The evaluation focuses on a specific group of herbal medicines – essential oils, and includes quantitative and qualitative analysis of their occurrence in the studied historical sources. The authors pay attention to the linguistic, botanical and pharmaceutical aspects of the topic.

A2

A women's job: getting science in each household(XIX - XX secolo)

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Despite the growing literacy rate, due to compulsory schooling introduced by Italian unification, scientific culture between the late nineteenth and early twentieth centuries in the "Bel Paese" was still the prerogative of a few, thus leaving the population at the mercy of charlatans and beliefs superstitious. To increase trust in medicine and pharmacy, many Italian pharmaceutical companies, such asAchille Bertelli & Co, Carlo Erba, Co.Fa, Manetti & Roberts, Magnesia S. Pellegrino and many others, began to publish information booklets aimed to people with few scientific literacy, to give to the buyers of their products. Although in the beginning these publications were designed for a male audience, in a short time it was realized that the main users of this "science at home" were mainly women, who were relegated to the role of wives and mothers, often forced to interrupt their studies, once able to read, write and count at a basic level. For them, the possibility of accessing small doses of culture was essential, especially in a historical period that saw the birth of the modern concept of cleanliness of family environments and of the person. Some series for children were also created, which not only dealt with scientific themes, but also allowed the dissemination of literary, historical, geographical and artistic culture. The widespread availability of these scientific publications also contributed to promoting the useof Italian as a national language. Often, in the most remote and closed areas of the peninsula, where access to education was fragmented and sporadic, the population expressed itself inregional dialects, ignoring the use of Italian. The fortune of these publications began to end with the strengthening of the fascist regime, whichhad little interest in the development of an objective scientific culture, but aware of theimportance that these objects had among Italians, tried, sometimes successfully, to bend them tothe will of the regime for propaganda reasons. At the end of the Second World War, publications revived, but the decline was inevitable. Culture was now accessible to all due to the spread oftraditional media, such as newspapers, books and radio, on which a new revolutionary means of information was becoming established: television.

A3

Apothecaries, charlatans and the manufacturing spectacle. Legal and illegal theriac preparations and other antidotes in Bologna in the Early Modern Period.

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A wide range of indications and the fame of two ancient electuaries, Theriac and Mithridate, made the preparation and distribution of those universal remedies to a lucrative business in Bologna in the Early Modern Period. The manufacturing process was supervised by the Medical College and financed by the Company of Apothecaries. As apothecaries associated in a guild were providing capital for all expenses carried to buy high quality ingredients, there were also forcing the theriac production in the city to be regulated. Other health practitioners or even sometimes apothecaries themselves were manufacturing their own teriacs illegally. Others, instead, were distributing their own antidotes, that could gain similar popularity. It was a challenge to obtain a licence for selling medicines for internal use. Vendors had to provide a list of the remedy's ingredients and signed testimonials confirming its virtue or licences issued by the Colleges of other cities. Once approved by medical authorities, an antidote could be sold legally in public squares. The most famous antidote, initially distributed by charlatans, that gained international popularity, was undoubtedly *Orvietano.* In Bologna similar attention but on a much lesser scale was given to *Mastro Martino's electuary against poisons* (*Elettuario contro Veleni di Martino Grimaldi napoletano*), sold on the territory of Bologna in 17th and 18th centuries.

A4

Prescriptions of Narcotics and Toxic Substances in German-speaking Countries from the 18th until the 20th Century. A Contribution to the History of Drug Safety.

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Within the scope of an interdisciplinary project, over six thousand historical prescriptions from the Early Modern Age until today have been digitized in order to create a research database. The project is supported by the German Federal Ministry of Education and Research and involves researchers of the RWTH Aachen University, the Universities of Münster and Marburg as well as the German Pharmacy Museum in Heidelberg.

Among the projects source material, there is a considerable number of prescriptions for toxic substances or narcotic drugs. An examination of these documents shows that long before the government started monitoring the circulation of narcotics, prescriptions for powerful drugs or the purchase of poisons required the compliance with certain regulations, such as the verification of the authenticity of the physician's signature, the declaration of quantity and type of applications. As a matter of fact, a few prescriptions from the project stock lead to the assumption of drug abuse, thus demonstrating the need of those regulations.

Taken as a whole, a trend to form- and content-based standardization as well as an increasingly strict documentation is evident, constantly targeting a higher level of drug and patient safety.

Based on selected examples, the lecture identifies reasons for the implementation of new regulations and outlines the centuries-long transformation process which prescriptions of narcotic drugs had to pass until today.

H1

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H2

Imaging Syriac Galen Palimpsest with Powerful X-rays

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Aelius Galenus or Claudius Galenus, also known as Galen of Pergamon, was a Greek physician, surgeon and philosopher in the Roman Empire. Arguably the most accomplished of all medical researchers of antiquity, Galen influenced the development of various scientific disciplines, including anatomy, physiology, pathology, pharmacology, and neurology, as well as philosophy and logic. Syriac is an Aramaic dialect that first appeared in the first century AD in Edessa, and later became a major literary language throughout the Middle East from the fourth to the eighth centuries.

The privately owned *Syriac Galen Palimpsest* was first catalogued in 1975 as "New Finds" in the Saint Catherine's Monastery (Sinai Peninsula). Partly erased and covered by writings of hymns, it contains a Syriac translation of Galen's work '*On Simple Drugs*' and others. Being able to decipher these Syriac translations of Galen's work provides scholars valuable information on how his work spread towards East, where he was very popular through the widely used Arabic translations.

As part of an integrated project of scholarship and conservation, we employed x-ray imaging to bring to light obstructed and partly erased passages of these Syriac translations of Galen's work. X-ray fluorescence (XRF) spectroscopy is a very sensitive technique to identify and quantify trace elements in any kind of object. Modern synchrotron radiation facilities can create powerful beams of fine, collimated X-rays that can be raster scanned over the object of interest to create a high-resolution map of the elements contained for example in the traces of the overwritten and partly erased iron gall ink. We used this technique at the Stanford Synchrotron Radiation Lightsource (SSRL) to image *Syriac Galen Palimpsest*. After describing the principle of XRF imaging, we will show examples of uncovered writings that are aiding scholars to gain a better understanding of this Syriac translation, which, in the case of '*On Simple Drugs*', is the only known link between the original Greek and the Arabic translations.

B1

A Historical Report on Preparing Sustained Release Dosage Forms for Addicts in Medieval Persia, 16th Century AD

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For several centuries, opium addiction has been a social problem all over the world. It has been prevalent in Iran from the Safavid era (1501–1736 A.D). During this period, HakimImad al-Din Mahmud ibn-Mas'ud Shirazi (1515–1592 A.D), also known as Imad was one of the Persian physicians who wrote one of the earliest books in the field of opium and addiction (called Afiounieh) in history. In this book, he introduced two sustained release rectal (suppository) and oral (pill) dosage forms for Muslim addicts who fast in the month of Ramadan. He aimed to formulate them for these people so that they could keep fasting by using the slow release drugs. In these formulations, his innovation has important impacts in the history of both addiction and pharmaceutical sciences.

B2

Ancient remedies against parasitic nematodes: an investigation on codices and pharmacopoeias

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Within a series of studies concerning the possible development of innovative medical and veterinary drugs based on traditional remedies, an investigation was conducted on ancient remedies against parasitic nematodes reported in codices and pharmacopoeias. Infestations by helminths (helminthiasis) have always affected humans and animals, seriously compromising their health, welfare and life expectancy. Along centuries, traditional and empirical remedies, more or less effective, have been used against parasitic worms. Modern pharmacological, medical and veterinary studies have developed effective anthelminthic drugs, targeted for many types of helminth infestation. Concerning parasitic nematodes, or roundworms (Phylum Nematoda), affecting as many as 2 billion people worldwide, mostly in developing countries, several vermicide and/or vermifuge drugs have been developed, among which benzimidazoles, abamectin and levamisole, registered in the World Health Organization list of essential medicines. However, in many economically deprived countries the eradication of nematode infestations is hampered by the development of resistance, especially when these drugs are used for veterinary purposes, and by public and private difficulties in meeting the costs of commercial anthelminthic drugs. For these reasons, the search for economical and easily available medicines of natural origin has recently increased. Ancient codices and pharmacopoeias could provide useful information, thus a bibliographic study was conducted about the most relevant traditional remedies reported against nematode infestations, verifying their efficacy based on published articles in peer-reviewed journals. In several cases, the results of this investigation supported the efficacy of raw materials contained in these remedies and therefore their possible use as active anthelminthic ingredients against parasitic nematodes.

B3

Remedies to seasickness: suggestions from ancient codices, herbals and pharmacopoeias

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This study aims to investigate the remedies used to prevent or heal seasickness on Italian vessels during the 15th-16th centuries. The investigation starts from a previous philological study of the 15th century manuscript ms. Schoenberg 473 held by the University of Pennsylvania. Written in Italian with shades of Neapolitan, the book was dedicated to the Senate of Venice.

Chapter XX of the third book contains a focus on the physical malaise that affected sailors during navigation and offers suggestions to give them relief.

The research focalises on remedies and preparations considered useful to soothe seasickness and builds a comparison with coeval codices, herbals and pharmacopoeias that illustrate the properties of natural ingredients.

C1

A (very) brief history of Tibetan Traditional Medicine

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Much is said and heard about Traditional Chinese Medicine (TCM) in Europe. More and more traditional Chinese medicines are available at pharmacies outside China and some even have specialised on them. But what about the teachings of the Traditional Tibetan Medicine (TTM, tib.: *sowa rigpa*)? Despite its deep roots in history, little is known to the majority of people outside Asia. The talk will take you to the high peaks of the Himalayas and shed some light on the origin of this century old art of healing, developed from ayurvedic medicines. Furthermore, an overview about the contents of the fundamental pharmacopoeias (*rGyud bzhi*, *shel gong shel phreng*, and *Vaidûrya sngon po*) and the big healers (tib.: *amchi*) who wrote them will be given. Finally, the healing methods of TTM and their comparability to Western medicine is discussed.

C2

Georg Joseph Kamel SJ (1661–1706):
Natural and Medical Knowledge in Transit Between the Philippines and Europe

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When stationed in Manila at the turn of the eighteenth century, the Jesuit pharmacist Georg Joseph Kamel found himself engaged in encounters between European and local traditions of knowledge. Based on his local experience, he produced the first comprehensive treatises of Philippine flora, which were later printed in Europe. Focusing on the practices involved in Kamel's knowledge production, this paper will explore Kamel's strategies in translating Philippine plants from local to European contexts. I will demonstrate that through building associations with plants described by canonical authors of the Old World, Kamel sought to 'Galenise' Philippine medicinal plants – that is, to incorporate them into the Galenic medical tradition. In this manner, he endowed plants with clear theoretical foundations comprehensible to European experts and customers and paved the way for their deployment on both local and global scales and markets. In this paper, I will focus on the global lives of the indigenous Filipino panacea locally called *igasud*, which the Jesuits rebranded and marketed as the St Ignatius bean. By providing an account that integrates the plant's indigenous uses, its appropriation and its reception in Europe and the Americas, I will demonstrate how a medicinal plant used by non-European communities became a globally consumed commodity.

C3

Penal hospital pharmacy in the penal colony in Guyana

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As part of development of colonial empires during the nineteenth century, France decided to establish a program of penal transportation in the colonies, specifically in French Guyana. It allowed the metropolis (France) to get rid of convicts in city ports while participating in the development of French colonial empire. French Guyana is located in South America and borders Brazil to the east and south and Suriname to the west. The dense rainforest and the tropical climate have been obstacles to growth. Penal colony of French Guyana received 70 000 convicts coming from France and French colonies from 1853 to 1952. They were either political opponents, « transportés » sentenced to hard work and « relégués » guilty of petty repeat offenders. This study aims to describe the penal hospital pharmacy operating and badly functioning. Archives of the colonial prison of French Guyana which management was under the control of the Colonial Office, has been the main source of documentation. They are available at the *Archives nationales d'outre-mer* (ANOM Aix-en-Provence, France).

Very early, there was a disastrous state of health due to epidemics, malaria, intestinal parasitosis and injuries worsened by undernourishment and lack of hygiene. Hospitalization and death were frequent. Furthermore, some convicts pretended illness just in order to have a rest in the hospital and avoid the prison life. Health system proved to be unable to face the situation. Medical officers aimed to improve physical and moral state of convicts, whereas penal administration wanted to develop the Guyana colony at low cost, and with a will to deprive the convicts ~~their~~ dignity. In addition, over-centralization of the French administration made more complicated local organization.

Pharmacists, as well as surgeons and doctors employed in the penal hospitals were military sailors depending on the Ministry of Colonies. Penal hospital pharmacists were responsible for the purchase and supply of medicines used in hospitals as mentioned in the hospital bylaw. Purchasing pharmaceutical products in Guyana was very complex. There was one command per year that took at least one year to be delivered. Request was prepared by the pharmacist, then analyzed by the medical chief and the Governor of Guyana before sending it to the Ministry of Colony in Paris. Here, the amounts of products and drugs were first validated or modified according to the cost, then orders were given to suppliers to deliver the products in Bordeaux harbor. Finally, medicines were transported to Guyana by ship. Calculation of quantities was based on the 3 previous years rather than on the number of ppeople, thus inducing a lot of missing products and worsening patient care. For example, quinine required to cure malaria, was very expensive and furnished in poor quantity. Drug delivery to patients was very uncertain because no register has been found. Moreover, unqualified convicts were employed in pharmacy as helpers. They took advantage of their position to steal and sell medicines.

In conclusion, penal hospital pharmacy worked like in France, without taking in account distance from France, turn-over of pharmacists, unqualified and dishonest employees, as well as the very special nature of patients. In such bad conditions, failure of the penal colony in Guyana was inevitable, but it took a long time before abrogation of penal colonies happened in 1938, and repatriations of the last convicts occurred only in 1953.

D1

‘Francis Bernard (1628-1698): A Seventeenth-Century Apothecary and Physician’

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I would like to propose a paper on the seventeenth-century apothecary and physician, Francis Bernard (1628-1698). What makes the case of Francis Bernard intriguing in the history of medicine is his role as both apothecary and physician in a time of escalating tensions between those two groups of practitioners in England.

I hope to use Bernard as a case study to explore the expanding role of apothecaries in the medical landscape, which, much to the chagrin of the Royal College of Physicians, was solidified in the 1704 Rose case. This famous case ruled that apothecaries had the right to practice medicine in London. How the apothecaries ended up in a position to challenge the Royal College of Physicians in the Rose case can be exemplified by two pivotal moments in the second half of the seventeenth century, both of which occurred during Bernard’s long career. The first was the increased public opinion of the apothecaries for their service during the great plague of 1665. The second were the quarrels between the apothecaries and the College of Physicians in the later 1680s following the latter’s decision to set up dispensaries, ostensibly to aid the poor but in reality, a tactic to undermine the apothecaries.

How Francis Bernard managed his roles as apothecary and physician during the great plague and the disputes surrounding the College of Physician’s dispensaries will provide a rare glimpse into a man who straddled the borders of warring medical factions. For Bernard, there was no definite practical division between apothecary and physician, but rather a finely walked line between his professions. I would like to explore his unique career in order to gain a clearer understanding of what it meant to be an apothecary in a rapidly changing medical world.

D2

The new academic degree for pharmacists during the Napoleonic Italian Republic (1802-1805)

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Before 1802, the apothecaries learned their theoretical and practical profession at the individual apothecaries from approved apothecary masters. To practice the profession, they were then subjected to an examination by the Guild of Apothecaries and by the Medical College.

With the end of the Ancien Régime, the Guilds and Colleges were abolished and with the law relating to public education, published in Milan on 4 September 1802 by the Vice-President of the Napoleonic Italian Republic, Melzi, a very important moment was sanctioned for the formation of the new Italian pharmacists: it was, in fact, decided that the pharmacist was among the six professions for which a degree and a qualification were required.

"*The Study and Discipline Plan for National Universities*" published the following year, more precisely on October 31, 1803, organized university studies into three classes: Mathematical and Physical Sciences, Moral and Political Sciences and Literature. The new course in Pharmaceutical Chemistry belonged to the first class and was intended to train "*talented pharmacists*".

D3

Establishment and activity of pharmacology department of Belarusian state medical university during 1922-1940

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The first higher institution on the Belarusian soil was established in the 1921 – Belarusian state university. There were three faculties, included medical one. Pharmaceutical and pharmacognosy department (David Naidus was the Head of department) and pharmacology department (Alexander Bestouzhev was the Head of department) were formed in 1922 at the medical faculty. Specialist research laboratory were at the each department mentioned above. They were used for scientific research and demonstrations for students. Insufficient funding was the reason of merger of the pharmaceutical and pharmacognosy department and pharmacology department in 1924. Twelve months' postgraduate course of advanced training for pharmaceutical assistants was organized in 1924 (David Naidus was in charge of the course).

Professor Valery Anischenko became the Head of pharmacology department in 1930. He had great experience in organization and teaching. New discipline appeared in the course of medical education – toxicology of chemical war gases. Postgraduate education on this discipline was formed, the first postgraduate student entered. Professor Valery Anischenko had been participating in the development of pharmaceutical education and in pharmacy generally. Postgraduate course of advanced training for pharmaceutical workers was organized at the pharmacology department. Those attendee who had 15 years in pharmaceutical activity and had completed the course could get the certificate about higher education. All that allowed managing a pharmacy or a pharmacy depot. Pharmacology department had consulted the specialists of Minsk chemico-pharmaceutical factory on some issues: development of formulations of medicinal forms (ointments, tinctures, powders, extracts), composition of medical agent nomenclature for the manufacture etc. Professor Valery Anischenko was the chairperson of pharmaceutical committee of People's Commissariat division for healthcare of BSSR. Conferences of Pharmaceutical Society and scientific seminars with pharmacy workers were organized at pharmacology department by its stuff. Based at Minsk medical institute chemico-pharmaceutical department was organized in 1932 for specialist training. These specialists were meant to be physician-chemist at the chemico-pharmaceutical factory. The Dean of this department was professor Valery Anischenko. The department was existing for half of year and was being included in the system of extra-mural studies.

Then and there, pharmacology department of Minsk medical university promoted the development of pharmaceutical education and pharmaceutical industry during 1920-1940.

E1

Using Optical Character Regconition For The Transcription Of A Handwritten Herbal

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As part of the three-week elective course in history of pharmacy students had to transcribe the plant descriptions and recipes in Johann Christoph Ende's "Sonderbares Kräuterbuch" and to try to identify the herbs. This manuscript from the late 17th century was recently digitized by the Staatsbibliothek zu Berlin (https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN1681164981).

The serverbased system Transkribus (https://transkribus.eu/), maintained by the European cooperative READ COOP SCE, was used to produce a transcription of the texts based on OCR (Optical Character Regconition).

Transkribus proved to be very suitable for the task. The 4 students, who had no previous experience in transcribing manuscripts, succeeded in transcribing the entire book of 860 pages and identifying 250 plants in the allotted time. It was very helpful that Transkribus offers a web interface and differentiated processing levels making distributed, location-independent work possible in 2020 under pandemic conditions. The presentation will show the basic features of Transkribus and discuss the results.

E2

Some publications from Romanian pharmaceutic literature from XIXth-XXth centuries

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Pharmaceutic Romanian literature from XIXth century is very rare and hard to find by the collector. Some publications from the personal collection will be presented due to the rarity and to the importance on history of pharmacy.

The first publication is edited circa 1835 in Iași, former capital of the Moldavian Principality. It is printed with Cyrillic characters because *the Cyrillic alphabet* was used in Romanian language officially until 1862. The title is *Short instruction about the principles of hygiene or the system of Morisson*. It is about old recipes that use some kind of powder which can cure all kind of disease. Of course, in this days it can be clearly seen that is a hoax. In those days this system of curing was allowed in Moldavia, but not in the other Romanian principality, Wallachia.

The second volume is written in French, published in 1930, by Helena Perticari-Davila, the daughter of Carol Davila (1828-1884), an important physician who organised the health system in Wallachia, and the in Romania. It is entitled ,,*General Dr. Carol Davila- his life and his works based on his correspondence*". It has the autograph of Helena Perticari-Davila and it also have some unique annotations, made by the family of the doctor.

The third publication from 1930s entitled *Formulation of medicines (drugs)* is a practical guide for pharmacists which has many examples for the common use of the Romanian pharmacist in interwar period. This work will be illustrated with other examples of books and photos regarding the Romanian History of Pharmacy.

In conclusion we presented some important and rare works that are describing a little-known history of Romanian Pharmacy.

E3

What kind of story bookplates tell. Some Viewpoints in the mirror of the Historical Library of Swiss Pharmacy

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On 25 November 2008, the foundation "Historical Library of Swiss Pharmacy" was established. The foundation was born out of the desire to preserve the archival material that was in the possession of the Swiss Pharmacists' Association pharmaSuisse and to make them accessible for research. The purpose of the Historical Library of Swiss Pharmacy is to acquire, preserve and highlight books, printed matter, images and archive material of historical interest to Swiss pharmacy. The collection comprises more than 6000 units and covers the entire spectrum of pharmaceutical sciences for five centuries.

The books in the library contain some exciting, informative and simply beautiful features that make them unique. One of them are the bookplates.

A bookplate is an artistically designed picture that is pasted or stamped onto a book to identify who it belongs to. And in a more tasteful way than would be possible by just writing in the name. The characteristic of an ex-libris therefore lies in its task of clarifying the ownership structure of a book. Bookplate XY means "from XY's library". It often contains the designation Ex Libris, the name of the owner and objects that have a special value or meaning for him.

Many of the works in the historical library are marked with bookplates from Alexander Tschirch, pharmacognosy professor from Bern, the former Pharmaceutical Institute Bern or the Swiss Pharmacists' Association. This reflects their origin and thus the composition of a large part of the library. Tschirch not only owned a beautiful bookplate himself, but also collected and researched Exlibris. He was even a member of the German bookplate association. In 1900 he published an article in the *Schweizerischen Wochenschrift für Chemie und Pharmazie*, in which he described these three bookplates in detail.

The three mentioned and other bookplates are to be presented and further explained in the lecture.

E4

„A difficult weapon to confiscate“ – Ethical Implications of Military Human Enhancement Reflected through the Science Fiction Genre.

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Human Enhancement is an increasingly discussed umbrella term on the improvement of the human condition. In the focus of military research, the main emphasis is on the improvement of the performance of the most important piece of equipment: the soldier. Modern discoveries in life sciences enable us to change the human condition. Among these technologies are new drugs, cybernetic implants and genetic engineering. Although some of these methods are ahead of our current capabilities, others have already been in extensive use during past conflicts, such as in WWII. Ethical implications of these new technologies and their impact on the human condition remain to be discussed in society.

The genre of science fiction presents possible future scenarios and shows how new technologies may alter social conventions. It provides us with notable examples of Military Human Enhancement (MHE) and therefore helps us to reflect its ethical implications and offers a particularly suitable basis for medical-ethical considerations. It does not only function as a social commentary, but is in dialogue with real life. Furthermore, ethical implications are already shown in the aesthetic genre, even before a technological realization has been completed, and when there seems to be no immediate need for social debate.

Science fiction proves to be a worthwhile medical-ethical object of investigation, anticipating possible technical developments – or even creating independent hypotheses – and outlining the resulting ethical implications. Through its wide distribution, the genre can thus contribute to a reflection in society.