History of phthisiology until 1882, when Robert Koch (1843—1910) discovered the causative agent of tuberculosis (TB) was very dramatic, and therefore attracted the attention of writers and poets more than doctors. At first glance, the experience of 200 years ago may appear to be of little use to a modern doctor. Nowadays, a physician without laboratory and instrumental techniques would feel helpless, because the modern standards for diagnosing pulmonary tuberculosis in Europe during the first half of the 19th century, based on a partial reconstruction of Chopin’s medical history. We have studied: the correspondence of Frédéric Chopin and his relatives, the memoirs of his contemporaries, the works of the most authoritative Chopin’s biographers, and treatises on the diagnosis of lung diseases by leading doctors of the first half of the 19th century.

It has been established that during that time, the true nature of tuberculosis was not yet understood. Consequently, the ideas in medical science regarding the etiology and pathogenesis of the disease were far from accurate. Chopin’s doctors believed that tuberculosis was linked to a hereditary or acquired predisposition. However, in France the technique and methodology of physical examination (percussion and auscultation) had already reached a high level of refinement. Detailed descriptions of physical signs indicating bronchial obstruction, lung tissue consolidation, and damage were found in medical treatises. Due to various objective and subjective factors, many practicing physicians did not use percussion and auscultation at all, or had insufficient skills in these techniques. Meanwhile, the most advanced European physicians were capable of diagnosing the infiltrative and cavernous forms of tuberculosis, based on a complex of the specific signs revealed during the medical history taking and physical examination.

Keywords
History of medicine, physical diagnostics of pulmonary disease, pulmonary tuberculosis, Frédéric Chopin’s medical history.

The renowned Polish composer Frédéric Chopin (1810—1849) suffered from pulmonary tuberculosis for most of his life, ultimately succumbing to it at the age of 39. Throughout his life, Chopin received treatment from by prominent European physicians who possessed advanced knowledge and diagnostic methods of their time. The aim of this study was to gain an objective understanding of the capabilities of diagnosing pulmonary tuberculosis in Europe during the first half of the 19th century, based on a partial reconstruction of Chopin’s medical history. W e have studied: the correspondence of Frédéric Chopin and his relatives, the memoirs of his contemporaries, the works of the most authoritative Chopin’s biographers, and treatises on the diagnosis of lung diseases by leading doctors of the first half of the 19th century.

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The aim of the study is to analyze the effectiveness of diagnosing pulmonary TB in Europe in the first half of the 19th century on the example of the clinical case of the famous Polish composer Frédéric Chopin (1810—1849), who suffered from pulmonary tuberculosis for most of his short life. Among Chopin’s numerous physicians were the real luminaries of European medicine of that time, the authors of the most advanced treatises on the diagnosis of internal diseases, the recognized experts in the diagnosis of pulmonary TB. A tool for achieving the goal is a comparative analysis of treatises on the diagnosis of TB in the first half of the 19th century and the medical biography of Frédéric Chopin (based on the study of the composer’s correspondence, memoirs of his contemporaries, and the works of the most authoritative biographers). Such analysis showed how the achievements of medical science of that time were implemented in practice. This made it possible to objectively evaluate the effectiveness of diagnosing pulmonary TB, based on the physical examination and history taking.

Physical examination in the first half of the 19th century. By the time Chopin arrived in France in 1831, Paris had become the centre of creation, improvement, and dissemination of physical examination of the chest organs. These methods were revolutionary in the diagnosis of internal medicine. Until that time, the diagnosis was determined on the basis of complaints and visual inspection. For example, the diagnosis of pulmonary TB was made by the symptoms described by the ancient Greek physician Aretaeus Cappadocian in the second half of the second century AD. The founder of the mediate auscultation method René-Théophile-Hyacinthe Laennec (1781—1826) noted in his treatise: «Cough, dyspnoea, puriform sputa, hectic fever, haemoptysis, emaciation, — the complete reunion of symptoms of which the frightful picture has been so faithfully delineated by Aretaeus» [16, p. 303].

Physical techniques opened up new possibilities for doctors. A distinguished Scottish physician John Forbes (1787—1861), an adherent and popularizer of new methods, who translated all the treatises about percussion and auscultation into English, described in 1821: «Hitherto, unquestionably, the attention of nosologists has been too exclusively fixed on mere external symptoms without reference to the internal conditions of which these were the sign. It is true that there are many diseases with the pathology of which we are unacquainted, and in distinguishing which, we must, therefore, content ourselves with the external symptoms merely, without any constant and direct reference of these to some organic lesion as their source» [16, p. XI]. John Forbes chose words that very accurately conveyed the doctors’ impression about Rene Laennec and his method at the time: «He not only traces the progressive change of structure in the organ, but connects every successive step of the change with external signs indicative of its existence. In short, (if his new diagnostics are as certain as he affirms) he may be said to have realized the wish of the ancient philosopher, and to have placed a window in the breast through which we can see the precise state of things within» [16, p. XIV]. The words «if his new diagnostics are as certain as he affirms» show that even such a progressive doctor as John Forbes had certain doubts at the time of his acquaintance with the new methods. What could be expected from the majority of doctors known for their conservatism, often bordering on rigidity?

The history of modern physical examination begins with the creator of percussion, an Austrian physician Leopold von Auenbrugger (1722—1809). He found out that, by applying his ear to the patient and tapping lightly on the chest, one could assess the density of underlying tissues and organs. Auenbrugger published his work in Latin in 1761 under the title «Inventum Novum ex Percussione Thoracis Humani Interni Pectoris Morbos Detegendi» (from Latin to English: «A New Discovery that Enables the Physician from the Percussion of the Human Thorax to Detect the Diseases Hidden within the Chest»). It seems that Auenbrugger did not expect enthusiasm and gratitude from his colleagues, this is evident from the preface to his treatise: «I have present the Reader with a new sign which I have discovered for detecting diseases of the chest. This consists in the Percussion of the human thorax, whereby, according to the character of the particular sounds thence elicited, an opinion is formed of the internal state of that cavity. In making public my discoveries respecting this matter, I have been actuated neither by an itch for writing, nor a fondness for speculation, but by the desire of submitting to my brethren the fruits of seven years’ observation and reflexion. In doing so, I have not been unconscious of the dangers I must encounter; since it has always been the fate of those who have illustrated or improved the arts and sciences by their discoveries, to be beset by envy, malice, hatred, detraction and calumny. This the common lot I have chosen to undergo; but with the determination of refusing to everyone who is actuated by such motives as these, all explanation of my doctrines» [10, p. B 2].

Auenbrugger’s forebodings did not deceive him. Even his teacher, Gerard van Swieten (1700—1772), founder of the famous Old Vienna School of Medicine and President of the Vienna Academy of Sciences, did not support Auenbrugger. It’s worth noting that Gerard van Swieten was not opposed to progress. He implemented a transformation of the
Austrian health service and medical university education, founded a chemical laboratory, and introduced clinical instruction. Other prominent clinicians in Vienna did not support Auenbrugger, except for Maximilian Stoll (1742—1787). European physicians persisted in their opposition to the Auenbrugger percussion until 1808, when Jean-Nicolas Corvisart (1755—1821), a Professor of Medicine at the Collège de France and the primary physician of Napoléon Bonaparte published his French translation of Auenbrugger Inventum Novum.

Percussion began to spread gradually in France. John Forbes underlined in 1821: «Corvisart’s work was published in 1808; and by means of it, and through the example and lectures of this great man, the practice became extensively diffused over France; and for many years past it has been considered by every intelligent practitioner, more especially in Paris, as a common and indeed indispensable measure in studying diseases of the chest» [16, p. XII]. British doctors knew almost nothing about this technique until the publication of a treatise on percussion (in English translation) in 1824. James Clark, (1788—1870) a famous British physician, a prominent phthisiatician described in 1820: «a patient brought into any of the hospitals of Paris with any affection of the chest, is as regularly submitted to this process [examination by percussion and auscultation] as the English Physician would ascertain the state of the pulse» [6, p. 158—159]. James Clark was extremely popular in Europe, many celebrities turned to him for help. Chopin, who was no exception, was examined by James Clark in London in November 1848.

Corvisart’s pupil, René Laennec published in 1819 his De l’Auscultation médiate, ou Traité du diagnostic des maladies des poumons et du cœur, fondé principalement sur ce nouveau moyen d’exploration in two volumes. Laennec coined the term mediate auscultation (indirect listening), as opposed to the popular practice at the time of directly placing the ear on the chest (immediate auscultation). He named his instrument the stethoscope [16, p. 34].

John Forbes translated Laennec’s treatise into English in 1821, the book was published under the title «A Treatise on the Diseases of the Chest and on Mediate Auscultation». In the preface to the book, John Forbes expressed concern that the conservative medical community would not accept mediate auscultation: «That it will ever come into general use, notwithstanding its value, I am extremely doubtful; because its beneficial application requires much time, and gives a good deal of trouble both to the patient and the practitioner; and because its whole hue and character is foreign, and opposed to all our habits and associations. It must be confessed that there is some-thing even ludicrous in the picture of a grave physician, formally listening through a long tube applied to the patient’s thorax, as if the disease within were a living being that could communicate its condition to the sense without» [16, p. XIX]. John Forbes confessed in 1834, by which time the stethoscope had already spread confidently among the progressive physicians of Europe, that in 1821 he expected Laennec to suffer the same fate as von Auenbrugger: «Treatise was at first received by the profession with considerable distrust; and the new mode of diagnosis, and especially the instrument, was attempted to be turned into ridicule. Indeed, but for the admirable descriptions of the diseases contained in the work, which proved the vast industry and talent of the author, and rendered his volumes infinitely valuable, whether his diagnostics were true or false, it seems probable that the discovery of Laennec, like that of Avenbrugger, might have been allowed to fall into temporary oblivion. However, the pupils, with a warmth natural to their years, soon spread the practice of auscultation not only in France, but conveyed it, in some degree, into every country of Europe» [18, p. XXI].

François Broussais and his followers — ardent opponents of physical examination. The French physician’s reception to Laennec’s discovery was to some extent cool, and he was even treated with ridicule, with the resistance against the stethoscope organized mostly by François Broussais. An influential French physician of the time, François Broussais (1772—1838) was a fierce critic who labeled Laennec’s treatise as «obscure, sad, and cluttered with a mass of meaningless facts and useless peculiarities» [8, 256]. Broussais believed that diseases occurred when normal functions failed or were modified. Broussais’s theory, known as medical physiology, argued that some diseases result from irritation due to excitation or stimulation. This medical physiology became the most popular form of medical theory in Paris in the 19th century, and it was not entirely by accident. Broussais’s theory was based on advanced knowledge about the pathogenesis of diseases. It is believed that irritation caused inflammation, which primarily occurred in the gastrointestinal tract in most diseases. Then, this irritation would pass to other organs sympathetically. Broussais believed that mild bloodletting could heal every illness. He passionately advocated the use of leeches in bloodletting procedures, due to the belief that it was more gentle.

François Broussais was a brilliant teacher and orator; his lectures were very popular, the minister of police once had to close the lecture-hall doors to keep out besieging hordes. He was a representative of speculative medicine and the standard-bearer of the widely accepted philosophy that discounted the
importance of empirical evidence. He upheld that philosophical theorizing alone is sufficient to solve medical problems. Broussais had no problems in convincing the medical establishment of the correctness of his notions and the dangers inherent in Laennec’s suggestion. He taught physicians that auscultation with an instrument was unwelcome and wrong. He poked fun at the attempts to localize disease in specific organs. Diseases, he claimed, always involved the whole body. Thanks to the witty and charismatic Broussais, numerous caricatures ridiculing Laennec’s stethoscope began to appear in Parisian newspapers and magazines.

Broussais had many adherents who immediately became ardent opponents of the mediate auscultation. Envy, malice, hatred, detraction, and calumny of his colleagues hindered the spread of mediate auscultation no less than Auenbrugger’s percussion at one time. Rene Laennec and Francois Broussais were great rivals and during their «duel célèbre», waged in the amphitheatres and scientific publications, each accused the other of sloppy pathologies, plagiarism, and excessive self-love [8, p. 252]. Broussais had gained notoriety as a retrograde scientist in modern times for his excessive adherence to the use of leeches. This «fame» «by default» extended to his adherents. Even in the academic medical literature, there is often a low evaluation of the scientific achievements and medical professionalism of Francois Broussais, which completely does not correspond to reality. However, with leeches, there was a clear overkill. A French writer, politician, diplomat, and historian Francois Rene Chateaubriand (1768—1848), famous for his wit, joked in his The Memoirs (1820): «Broussais, my fellow-townsmen became my fellow-student at Dinan. The students were taken a bath on Thursday. Once Broussais was bitten by ungrateful leeches, which failed to foresee the future» [5, p. 83]. In the late 1820s, Broussais himself used 100,000 leeches in a single year. The strength of Broussais’ conviction of the value of bleeding, is shown by the fact that when suffering from indigestion he had himself bled six times to the amount of 20 oz. (600 ml per time), and had 15 applications of 50 to 60 leeches in the course of eighteen days [27]. When his treatment of victims of the 1832 Paris cholera epidemic ended disastrously, his techniques of bleeding fell into disfavor. Although Broussais tried to conceal the inefficacy of his therapy, the death of his most important patient, Casimir Pierre Perier (1777—1832), a prime minister under Louis-Philippe, discredited his theory [30].

The mystery of Frédéric Chopin’s diagnosis. Frédéric Chopin suffered most of his life from a chronic pulmonary disease, which was manifested by cough, dyspnea, fever, and hemoptysis. By now, discussions about the cause of Chopin’s illness and death have been discontinued and the diagnosis of TB is considered proven [32]. By the mid-1830s, Chopin’s disease began to progress steadily. By this time, the professional medical community in Europe was still divided into two irreconcilably warring camps, despite the fact that the star of François Broussais had already set, and Rene Laennec was no longer alive at all.

Chopin’s physicians included both Rene Laennec’s adherents and Francois Broussais’s supporters. Representatives of the two opposing medical schools used different diagnostic criteria for pulmonary TB, but the clinical manifestations of Chopin’s disease in neither of them should have raised doubts about the diagnosis. For the adherents of François Broussais, the external signs of Chopin’s illness were enough: «cough, dyspneoa, puriform sputa, hectic fever, haemoptysis, emaciation». The adherents of Rene Laennec had even more opportunities because they had physical techniques. However, neither revealed the diagnosis of pulmonary TB. This situation looks very strange, at least from the perspective of a modern doctor. Considering the extremely high prevalence of TB in Europe and especially in France at that time, this situation looks particularly unusual. Auguste Adrien Ollivier (1830—1894), professor of the Medicine Faculty of the Paris University, in his report De la tuberculose à Paris et sa prophylaxie (from French Tuberculosis in Paris and its Prevention) indicated, that in 1839—1950, out of 266,531 deaths from diseases, about 20 % (50,293) were due to pulmonary tuberculosis [24, p. 89]. This statistic was based on autopsy data. In most patients who died of tuberculosis, the correct diagnosis was not established during their lifetime. Such tragic statistics was associated with the absence of any anti-epidemic measures, based on the denial of the contagiousness of TB by the French medical school.

The high incidence of TB can be judged even by the number of sick persons in Chopin’s immediate environment. Chopin’s younger sister Emily (1812—1827) died of TB at the age of 14 after three years of illness. Frédéric Chopin wrote to his close friend Jan Bialoblocki: «We have illness in the house. Emily has been in bed for 4 weeks; she has got a cough and has begun to spit blood and Mamma is frightened. …All this time she has been eating nothing; she has grown so thin that you wouldn’t know her!» [12, p. 12]. Emily’s death forever instilled in Chopin’s heart a mortal fear of tuberculosis. Another sister, Ludwika (1807—1855), also suffered from pulmonary TB all her life and died at the age of 47. Chopin’s father, Nicolas Chopin (1771—1844), died of TB, although already in old age. Chopin’s closest friends died of
consumption: Jan Nepomucen Białołocki (1806—1828) at the age of 21 and Jan Edward Aleksander Matuszyński (1808—1842) at the age of 33. Chopin’s most talented students died of consumption: Carl Flictsch (1830—1845) at the age of 15, Paul Gunsberg (1833—1845) at 12, Caroline Hartmann (1808—1834) at 26.

A similar situation was observed in the environment of Rene Laennec (1781—1826). He died of TB at the age of 45 and also lost many of his loved ones to the disease. Rene was 5 years old when his mother succumbed to tuberculosis. His relatives died of consumption: two uncles, Bishop Michel-Jean-Alexandre Laënnec (1750—1802) and Dr. Guillaume François Laënnec (1748—1822) — Dean of the Faculty of Medicine at the University Nantes; younger brother Michaud Marie Bonaventure Laennec (1782—1810) at the age of 28. This list can be continued by people close to him, who died of TB: his bride Rene Marie-Anne Clarisse D’Arthigue (?—1799), two of his close friends and associates — Marie François Xavier Bichat (1771—1802), a French anatomist and pathologist known as the father of modern histology, and French pathologist Gaspard Laurent Bayle (1774—1816), author of treatise *Recherches sur la phthisie pulmonaire* 1810 (from French, *Research of Pulmonary Tuberculosis*).

Such a high prevalence of the disease with very characteristic clinical manifestations, obvious to any medical practitioner, should have formed a high index of suspicion for TB. Any practicing physician of that time saw among the people around him a huge number of sick people dying of TB. Naturally, doctors had to perceive as a consumptive patient any person with complaints of cough, shortness of breath, fever, and hemoptysis. However, in Chopin’s case, the high index of suspicion for TB did not manifest itself in any way.

Of course, in search of the reasons for this phenomenon, it is necessary to take into account the possibility of the influence of doctors’ ethical motives who knew about Chopin’s sensitivity. This hypothesis was indeed expressed by many of Chopin’s biographers: Adam Zamoski [33, p. 192], Franz Hermann Franken [11, p. 176], and Anton Neumayr [23, p. 67]. However, the reasons could be the most banal, because the opportunity to diagnose TB 200 years ago was much lower than today. To find out the real reasons why representatives of the warring medical schools denied the obvious diagnosis, it is necessary to analyze the level of their professionalism, as well as their theoretical ideas about the pathogenesis and diagnostic principles of pulmonary TB. Concerning Laennec’s followers, it is important to explore the possibilities of physical examination in diagnosing TB in the 1830s.

Adam Raciborski — a representative of the French school of physical diagnostics. In November 1835, Chopin was examined by physician Adam Raciborski (1809—1871). Chopin was forced to spend several weeks in bed and was sure that he was dying. Therefore, he wrote a will and a «mournful mass, as if for his death», according to his most authoritative Polish biographer Ferdynand Hoesick (1867—1941), who believed that «Chopin heard the sound of church bells sounding at his funeral» [13, p. 176]. However, Adam Raciborski diagnosed Chopin with «high fever flu, and simple severe chronic bronchitis with haemoptysis». He prescribed the patient bed rest, expectorant herbs, and during episodes of bleeding — apply ice to the chest and swallow pieces of ice. In addition, Chopin’s apartment contained vats of herbal scents and red-hot charcoal, which emitted, among other things, creosote, later known as a cough suppressant and sedative [23, p. 57].

What clinical experience did 26-year-old physician Adam Raciborski have in 1835? Perhaps, the reason for such a strange diagnosis (from the point of view of a modern doctor) lies precisely in his youth and inexperience: «a simple severe chronic bronchitis with haemoptysis». Adam Raciborski studied medicine in Warsaw. In 1831, he participated as a physician in the 4th Regiment of the Polish Army in the November Uprising, a Polish rebellion that unsuccessfully aimed to overthrow Russian rule. After its fall, he went to forced emigration to France and continued his career in Paris at the Charité Hospital under the guidance of professor Jean-Baptiste Bouillaud (1796—1881) — head of the Charité Hospital in Paris, Knight of the Legion of Honor, member of Royal Academy of Medicine [25, p. IV]. Jean-Baptiste Bouillaud was a follower and colleague of Rene Laennec, he became famous for describing different types of valvular heart diseases through auscultation and coined the terms endocardium (endocarde) and endocarditis (endocardite). Since 1822, the Charité Hospital served as a clinical base for practical training in mediate auscultation. Adam Raciborski studied physical techniques under Jean-Baptiste Bouillaud. In 1834 he was awarded a doctoral degree and shortly thereafter succeeded his teacher as head of the clinic at the Charité Hospital, and also headed the course of teaching mediate auscultation.

In 1835, Adam Raciborski published his treatise *New and Complete Manual of Auscultation and Percussion, Applied to the Diagnosis of Diseases* (in English), which he dedicated to his teacher and supervisor Jean-Baptiste Bouillaud. The English-language *Manual of Auscultation* by Adam Raciborski did not attract attention in France, since French physicians preferred medical literature in their
native language. At the same time, Raciborski’s treatise aroused great interest in England and the USA. Although three years earlier Rene Laennec’s cousin, Meriadec Laennec (1797—1873) published an English translation of his A Manual of Percussion and Auscultation in New York [15, p. 01—39].

A very extensive work entitled Syllabus of a course of lectures of the principles and practices of medicine, Application of auscultation and percussion to diagnoses of diseases, heart, lungs, and abdominal viscera was published in the issue of The London Medical and Surgical Journal in 1836. In this work, Raciborski’s Manual is quoted in the most enthusiastic tones more than 20 times, and Adam Raciborski himself is referred to as «the famous practiced auscultator» [26, p. 168—428]. Raciborski’s treatise was equally enthusiastic in the USA: «The manual of Raciborski is valuable as containing the existing knowledge, on the subject of which it treats, at the time of its publication. The French terms for the different bruits or ‘sounds or noises’, in respiration, circulation, gestation, & c, recur so repeatedly in the works which treat of the application of auscultation and percussion to the diagnosis and treatment of disease, that a glossary becomes necessary. This information is fully given in the manual of Raciborski. To Raciborski’s manual is appended a synoptical table of the signs of auscultation and percussion, applied to the diagnosis of diseases» [9, p. 132]. It is clear from the citations that by 1836 Raciborski had become a recognized authority in the diagnosis of internal diseases, including TB, not only in France but also in Britain and the USA.

Doctors from Britain and the USA came to Paris to master a new diagnostic technique under the guidance of «the famous practised auscultator» Adam Raciborski. These were the words of Dr. Louis A. Wolfley from Ohio described his teacher when he remembered how he took up the study of the stethoscope technique under Adam Raciborski in 1931—1836 [14]. Oliver Wendell Holmes of Boston, who was also trained at the clinic at the Charité Hospital in Paris under Adam Raciborski at the same time, in his dissertation (1836), shared his opinion about how long it takes to master the art of mediate auscultation for the diagnosis of pulmonary TB: «It is enough to say, that a degree of disease far short of that commonly found in declared phthisis, may be recognized by anyone with senses of common acuteness when percussion is properly applied by another, and that the art of practicing it with sufficient accuracy for common purposes may be acquired in a few trials. The author of a work on auscultation, Raciborski, when resident physician at la Charité, was in the habit of delivering a course of complete clinical instructions in auscultation and percussion, in about a dozen lessons. However insufficient this time may have been for the purpose, yet it may give some notion of the facility with which the ear appreciates the more striking phenomena; and among them none is more readily seized than a difference of sonorousness in the two sides of the thorax» [21, p. 202]. Thus, already in 1835, Adam Raciborski was considered an expert in the physical diagnosis of pulmonary TB.

Physical examination in the diagnosis of pulmonary tuberculosis in the first half of the 19th century. In the first half of the 19th century, the nature of TB was unknown, and effective methods of treating tuberculosis did not exist. However, percussion and auscultatory signs of the disease were described in books in much the same way as in modern medical textbooks. Physical methods allowed doctors to assess lung tissue consolidation and lower airway patency. However, it was impossible to identify small foci of consolidation and rarefaction of the lung tissue. Laennec described in his treatise: «In the early stage of Phthisis, neither percussion of the chest, nor auscultation in any of its forms, affords any means of detecting the disease in ordinary circumstances» [16, p. 300].

Laennec emphasized one of the auscultatory phenomena in the diagnosis of TB, which he called pectoriloquism. Pectoriloquism is the increased resonance of the voice through the lung structures, so that it is clearly comprehensible using a stethoscope on the chest. In his treatise, Laennec gave the following description of the phenomenon: «In following up my observations on the comparative resonance of the voice in several subjects, both healthy and diseased, I was struck by the discovery of a phenomenon entirely new to me. In the case of a woman, affected with a slight bilious fever, and a recent cough having the character of a pulmonary catarrh, on applying the cylinder below the middle of the right clavicle, while she was speaking, her voice seemed to come directly from the chest, and to reach the ear through the central canal of the instrument. I began immediately to suspect that this phenomenon might be occasioned by tuberculous excavations in the lungs. The subsequent death, in the hospital, of the greater number of the individuals who had exhibited this phenomenon, enabled me to ascertain the correctness of my supposition: in every case I found excavations in the lungs, of various sizes, the consequence of the dissolution of tubercles, and all communicating with the bronchia by openings of different diameters» [16, p. 297—298]. Laennec attached special diagnostic value to this sign, he noted: «I think we are entitled to conclude that pectoriloquism is a true pathognomonic sign of phthisis, and that it announces the presence of this disease sometimes in an unequivocal manner, long before any other symptom leads us to
suspect its existence. I may add, that it is the only sign that can be regarded as certain» [16, p. 303].

Nowadays we call a pathognomonic sign a characteristic symptom whose presence means, beyond any doubt, that a particular disease is present. The presence of a pathognomonic finding implies that the diagnosis is certain. A pathognomonic finding allows immediate diagnosing since there are no other conditions in the differential [20, p. 205]. Obviously, Laennec put a different meaning into the term «pathognomonic sign». Because, the phenomenon of pectoriloquism is found not only in patients with TB but if there is any cavity in the lung connected to the bronchus, regardless of its origin. Laennec was well aware of this, he wrote: «this phenomenon (pectoriloquism) may be produced under very different circumstances: 1) by the softening of tubercles (by far the most common cause); 2) by the decomposition of a gangrenous eschar; 3) by an abscess, the consequence of peripneumony; 4) by the evacuation of a cyst into the bronchia; and probably also by a fistulous communication between the bronchia and an abscess of the mediastinum» [17, p. 37]. In the 2nd edition of his treatise, Laennec singled out a section that he called Pathognomonic Signs. From Laennec’s explanations, it is obvious that he meant the differential diagnostic signs of the disease under the pathognomonic signs: «Auscultation, either singly or conjoined with percussion, furnishes us with several signs sufficient not merely to characterise the disease, but to point out its actual severity and to discriminate it from all others» [17, p. 99]. It follows from the quotation that Laennec used a combination of symptoms (syndromes — author’s notes) identified by various physical techniques for differential diagnosis. He points out in his treatise: «percussion... becomes most valuable when combined with mediate auscultation; and we shall find hereafter that the pathognomonic signs of several important diseases, and among others of pneumo-thorax, emphysema of the lungs, and the accumulation of unsoftened tubercles in the upper lobes, are derived from the contemporaneous employment of these two methods» [17, p. 22]. Laennec did not use the term «syndrome» in his treatise, even though the term «syndrome» was proposed by Ibn Sina (980—1037), commonly known in the West as Avicenna, and later Thomas Sydenham (1624—1689). The next quote explains how normal auscultatory phenomena can become differential diagnostic criteria (Laennec's pathognomonic signs): «The bronchial and the vesicular respiration can become a pathognomonic sign in several cases of importance. In peripneumony the bronchial respiration above the lung is one of the first indications of hepatization (consolidation), and commonly precedes the loss of the natural sound on percussion: it is likewise one of the earliest signs of an accumulation of tubercles in the upper lobes of the lungs» [17, p. 33]. Currently, the appearance of bronchial breath sounds in the lung fields is also regarded as a sign of massive pulmonary consolidation, and the combination of the symptoms given above by Laennec is called lung consolidation syndrome [18, p. 296].

Laennec described several varieties of pectoriloquism, which made it possible to detect not only cavities in the lungs but also massive seals in the lung tissue. One of the varieties of pectoriloquism — whispering pectoriloquy, is still practiced today and is listed in modern medical textbooks along with other physical symptoms [3, p. 905].

Adam Raciborski also noted in his Manual of Auscultation and Percussion (1835) the impossibility of diagnosing pulmonary TB at an early stage: «if the tubercles (tuberculous infiltrates) be as yet very small and few in number, they present no particular sign which is perceptible by percussion or auscultation. These small bodies do not compress the parietes of the vesicles to a sufficient extent to prevent, of themselves alone, the entrance of any considerable amount of air, and thus produce the souffle bronchique, bronchophonia, and dulness of sound. It is only when the tubercles acquire a considerable volume, and form large masses, that percussion and auscultation can enable us to presume their presence» [25, p. 186]. However, physical techniques made it possible to identify formations of the size of a walnut: a cavity [18, p. 105], a focus of ordinary inflammation of the lung tissue or TB infiltrate [18, p. 213]. This was more than enough for that time.

In the first half of the 19th century, the techniques of physical diagnosis reached an extreme degree of refinement and accuracy or illusion of accuracy. The masters of the art compared the various chest sounds to the sound of silk or wool, new or old leather, or other esoteric objects, and they related each of them to a particular disease process. Eventually, however, a reaction took place against these exaggerated claims of diagnostic acumen, and a famous Canadian physician, scientist, and educator William Osler (1849—1919) took malicious pleasure in quoting the physician who had written him in all seriousness «I am sending you a patient who has a cavity at the top of the right lung the size of a walnut without the shell» [6, p. 120]. Osler’s irony concerned only «the shell of a walnut», since percussion and auscultation made it possible to diagnose a cavity at the top of the lung the size of a walnut. Osler was well acquainted with Laennec’s treatise, which described dozens of cases of diagnosis using physical methods of various formations at the lung the size of a walnut, verified according to autopsy data [16, p. 20, p. 27, p. 58, p. 59, p. 67, p. 84, p. 94, p. 185, p. 231, p. 393, p. 396].
In 1835 Chopin had a cough, hectic fever, hemoptysis, and emaciation for several weeks, which he spent in bed. Therefore, the stage of development of pulmonary TB in Chopin cannot be considered the initial stage. He looked so bad that «the news of Chopin’s illness soon spread in Paris and reached Warsaw in the form of a rumor that Chopin had died» [31, p. 212]. Chopin had similar, although less severe disease exacerbations before, his first episode of hemoptysis had occurred four years earlier. Perhaps Dr. Raciborski, using percussion and auscultation, found symptoms that he interpreted as «severe bronchitis with haemoptysis». This means that he did not detect signs of consolidation (infiltrates) or rarefaction (cavities) of significant sizes in the lung tissue (the size of a walnut or more). From the point of view of a modern doctor, this is quite possible: dyspnoea was not mentioned among the symptoms of Chopin’s disease at that time, which excludes a significant decrease in the area of gas exchange in the lung tissue due to destruction or inflammatory edema. Acquaintance with Laennec’s treatise and Raciborski’s manual shows that the description of percussion and auscultatory manifestations of changes in the bronchi and lung tissue does not fundamentally differ from the modern one. Even the terminology of most auscultatory phenomena has remained unchanged. Laennec noticed: «I found that an attack of peripneumony… by condensing the texture of the lungs, give occasion to a sound analogous to pectoriloquism. This phenomenon, which I denominate accidental bronchophonism, is, as might be expected, most marked when the pulmonary induration has place near the roots of the lungs. This sign is one of those which serve best to measure the progress of a recent peripneumony» [19, p. 37]. Obviously, peripneumony near the roots of the lungs corresponds to the modern term bronchopneumonia. The term bronchophonism has changed little these days and is called bronchophony [3, p. 905]. Thus, Raciborski had a quite effective tool for diagnosing bronchopneumonia (peripneumony) in the roots of the lungs. Obviously, the doctor concluded that the inflammatory process did not go beyond the borders of the bronchi, that is, it did not spread to the adjacent lung tissue. The problem of differentiation of severe bronchitis and bronchopneumonia in the roots of the lungs is still relevant today. At the same time, ideas about the etiology, pathogenesis, and typical symptoms of pulmonary TB have undergone significant changes over the past 200 years. This means that the same physical symptoms from the point of view of the diagnosis in the time when Chopin lived could be interpreted differently than today.

Rene Laennec and his followers on the etiology, pathogenesis, and clinical manifestations of pulmonary tuberculosis. The infectious nature of TB had not yet been proven in the first half of the 19th century, so the development of phthisis among family members living together was regarded as a consequence of a genetic predisposition to the disease, and not the result of infection. Professor Gabriel Andral (1797—1876), co-author of the 4th edition of Laennec’s treatise noticed: «In France it (phthisis) does not appear to be contagious. We frequently observe, among the poorer classes, a numerous family sleeping in the same apartment with a consumptive patient, and a husband occupying, to the last, the same bed with his wife, without any communication of the disease. The woolen apparel and the beds of consumptive subjects are not generally even washed and yet I have never seen the disease communicated by them. It is well ascertained that a disease, not usually contagious, may become so in certain circumstances» [19, p. 349—350]. John Forbes (1787—1861) — a Scottish physician, associate of Laennec, and translator of his treatises agreed with Gabriel Andral: «The contagion of phthisis, like that of many other diseases, which are supposed to be conveyed by an invisible medium, will in all probability remain forever a contested point. The opinion of the great majority of medical men in this country (France) is opposed to contagion; and I think this opinion is justified equally by statistical facts, by the truths of pathology, and by analogical reasoning» [19, p. 350].

René Laennec and his supporters believed that TB occurs only in the presence of a predisposition: «If the question of contagion is very doubtful, the case is very different with the hereditary predisposition to tubercles. The universal and habitual experience of practitioners proves that the children of phthisical parents are more subject to this disease than others are» [19, p. 351]. «All good observers are of accord on this point — that they (tubercles) are in all cases the consequence of predisposition either congenital or acquired. It is of little consequence whether tubercles are or are not the consequence of inflammation, if it be shown that this consequence can only ensue under given circumstances. The only thing of importance is to know these circumstances, that is, to ascertain the predisposing causes of phthisis, as it is on this knowledge alone, that any rational treatment of this dreadful disease can be founded» [19, p. 318]. Raciborski described in his book: «Tubercles generally commence in consequence of bronchitis or chronic pneumonia. If it be bronchitis which produces the tubercles, the inflammation of the bronchi, either owing to the negligence of the patients, or the obstinacy of the affection, extends to the extreme ramifications of the bronchi and to the vesicles, and produces chronic hepatisation of the lungs» [25, p. 186].
Laenec in his treatise wrote about predisposition to tuberculosis: «The persons most disposed to this modification, are those whose organic development seems to be imperfect; those in whom the lymphatic temperament predominates. This is the most general predisposition to tuberculation (the process of tissue degeneration into tubercles), yet tubercles may arise without it» [18, p. 320]. To assess the temperament and constitution were used the criteria formulated by Aretaeus of Cappadocia back in the 2nd century AD: «The ancients, and especially Aretaeus, have carefully described this particular temperament or constitution. It is distinguished by the brilliant whiteness of the skin, the bright red of the cheeks, the narrowness of the chest, the projecting or winged configuration of the scapulae, and the slenderness of the limbs and trunk, which is however combined with a certain degree of adipose and lymphatic stoutness. This particular constitution is attributed by Aretaeus rather to haemoptysical than consumptive subjects; and the remark is worthy of this accurate and clever observer, as there can be no doubt that phthisical subjects possessing this configuration, are more subject to haemoptysis than others» [18, p. 351–352].

In the 18th century and the first half of the 19th century, most doctors considered haemoptysis not as a complication of pulmonary TB, but as an independent disease that created a predisposition to consumption. John Forbes reported: «Every English reader is aware of the opinion of Dr. Cullen (1710–1790) [a Scottish physician and professor at the Edinburgh Medical School], and many preceding writers, that consumption is the effect of haemoptysis, an opinion which would seem to be still the prevailing one in this country (Britain — author’s note)» [17, p. 328].

Dr. John Ware (1795–1864) — an American physician, and fellow of the American Academy of Arts and Sciences published his Medical Dissertations on Hemoptysis or the Spitting of Blood, and on Suppuration in 1820. Ware’s dissertations reflected the ideas of quite progressive doctors about the relationship between hemoptysis and phthisis pulmonalis. His work obtained the prestigious Boylston premiums for the years 1818 & 1820. John Ware emphasized: «Phthisis Pulmonalis so seldom goes through its course without the appearance of some blood from the lungs, that we are apt to look on Consumption as the inevitable consequence of Hemoptysis, and hence the terror which is almost universally excited by its existence» [30, p. 3]. In other words: it was believed that hemoptysis caused the development of phthisis pulmonalis, and not vice versa. At the same time, John Ware accepted that phthisis in turn leads to hemoptysis: «In hemoptysis the local tendency to the disease appears to be far more instrumental in producing it, than any circum-
stances relating to the general circulation. We cannot separate the predisposition to this disease, from the predisposition to phthisis pulmonalis» [30, p. 15].

Rene Laenec in the 2nd edition of his treatise put an end to the question of causality between phthisis and hemoptysis: «It is indeed true that the first symptom of an alarming kind in the greater number of phthisical patients is haemoptysis; but if we examine the chest at this time, we shall frequently detect the presence of tubercles in the lungs (phthisis). And when we consider this, and know that the haemorrhage will probably return again and again in the progress of the disease, we are justified in concluding that tubercles in the lungs are the most frequent cause of haemoptysis» [17, p. 327]. The most advanced doctors of France, who supported Rene Laenec, were also of the opinion that haemoptysis is the consequence and not the cause of tubercles [17, p. 327]. At the same time, Laenec still did not consider haemoptysis to be a pathognomonic sign of pulmonary tuberculosis: «Pretty frequently an haemoptysis, more or less severe, is the first sign of the disease (phthisis). This sign, however, is never certain; and in this stage of the complaint, the haemorrhage may return repeatedly, after an interval of weeks or months, without affording any positive proof of the existence of tubercles» [17, p. 346].

Rene Laenec and Adam Raciborski on the differential diagnosis between tuberculosis and ordinary lesions of the bronchi and lungs. Rene Laenec, based on the clinical experience of the doctors at the Hospital de la Charite and the Necker Hospital, concluded that the external signs of tuberculosis were unreliable: «Cough, dyspnoea, puriform sputa, hectic fever, haemoptysis, emaciation may exist in cases, which we see, nevertheless, recover, contrary to all expectation. We have shown that some of these cases may probably be truly cases of phthisis; but there can be no doubt that others are examples of organic affections simulated by nervous or mere functional disorder. On the other hand, we frequently observe in cases of true tubercular phthisis, that almost all the usual symptoms of this disease are wanting. Sometimes there is no cough whatever, or it is suspended for months together; and hectic fever is, in like manner, scarcely perceptible, or altogether absent, for as long a period. Even emaciation, which has given its name to the disease, is sometimes very trifling; and death may be occasioned by the mere effect of the tubercular disorganization before it be perceptible» [16, p. 303]. In 1821, John Forbes expressed the cautious hope that the stethoscope would help in solving the problem of differential diagnosis of TB: «However different bronchitis and the true tubercular phthisis are in their nature, it will readily be admitted by every practitioner of experience, that, in certain cases, it is
impossible to distinguish them by any or all the usual symptoms. This is acknowledged by almost all writers on the subject of these diseases. Of the great importance, however, of a distinction between these diseases there can be no doubt, when we consider their very different pathological character; and on this account, the new method of diagnosis of our author is unquestionably of the greatest value to these two diseases [16, p. 423].

However, it soon became clear that Forbes’s hopes were only partially justified. Rene Laennec explained: «I have adverted to the difficulty of distinguishing chronic catarrh from phthisis pulmonalis. In fact the most perfect similitude exists between the two diseases, in as far as regards the expectoration, the emaciation, and all the other general symptoms. Percussion gives no assistance in the diagnosis, since, in most cases, the chest sounds quite well in consumptive patients. The indications afforded by the stethoscope are much more to be depended on. In such cases we find neither pectoriloquism, nor the guggling sound of respiration over the whole chest, we have a strong presumption that the disease is merely the engorgement surrounding the excavation; and if the respiration is perceptible over the whole chest, we have a strong presumption that the disease is merely chronic catarrh; and if the same results uniformly have a strong presumption that the disease is merely chronic bronchitis is attended by haemoptysis so considerable as to attract attention. Whenever, during the course of a pectoral affection, respecting the sound of respiration continues very audible over the site of the excavations; but instead of being attended by the usual crepitous noise, it here resembles the sound of wind, as of a pair of bellows, or like that observed on applying the cylinder to the trachea, but still more distinct. In these circumstances percussion on the parts often elicits a dull sound, owing to the engorgement surrounding the excavation; and these two circumstances, — namely, the existence of a spot yielding very forcibly the sound of respiration without crepitus, in the centre of a portion of the chest which sounds badly, — may be considered as pathognomonic of this state of parts» [16, p. 308—309].

In the case of TB bronchitis or TB pneumonia, percussion and auscultatory phenomena did not differ from the corresponding diseases of nontuberculor origin. Adam Raciborski, who published his «New and Complete Manual of Auscultation and Percussion, Applied to the Diagnosis of Diseases» 12 years later, was finally forced to admit: «The acute or chronic march of the affections is then the only difference between pneumonia and tubercles. Whenever these signs persist during a sufficiently long time, and in addition the patient shows a predisposition to tubercles, we may presume the presence of these morbid productions. The chronic inflammation of the parenchyma of the lungs takes a character more acute, which facilitates the colligation of these productions (tuberculous infiltrates)» [25, p. 187]. In other words, in the case of a long-term (chronic) course of pneumonia, the presence in the patient’s history of a predisposition for TB increased the probability of consumption diagnosis.

By the end of the 1820s, Laennec and his followers concluded that haemoptysis could be used as a differential diagnostic criterion for pulmonary TB. Laennec indicated in the 2nd edition of his Treatise: «Whilst phthisis frequently supervenes immediately to a haemorrhage arising without any obvious cause, but which, no doubt, has for its real cause, tubercles which had previously, and perhaps for a long time, been latent in the lungs» [17, p. 327]. In the same edition of Laennec’s «Treatise» (1827), John Forbes quotes the opinion of Pierre-Charles Alexandre Louis (1787—1872): «The testimony of Dr. Louis is most strong in support of our author’s (Laennec’s) opinion that haemoptysis is the consequence and not the cause of tubercles. He adds that this symptom “indicates in a manner infinitely probable the presence of tubercles in the lungs”» [17, p. 327]. In the 4th edition of Laennec’s Treatise (1838), Gabriel Andral proposed the use of haemoptysis to differentiate between simple chronic bronchitis and TB bronchitis: «It is but rarely and by exception, that a simple chronic bronchitis is attended by haemoptysis so considerable as to attract attention. Whenever, during the course of a pectoral affection, respecting the nature of which any doubt remains, a haemoptysis occurs, there is strong presumption of the existence of tubercles (phthisis)» [19, p. 383].

Thus, based on the diagnostic criteria for TB used by Laennec’s supporters, Adam Raciborski should have regarded the clinical presentation of Chopin’s
Amandine Aurora Lucile Dupin, a famous French novelist, 1804—1876), with whom Chopin’s life was connected during 1838—1847, wrote about this situation in her autobiography: «His friends… thought he was consumptive» [28, p. 1089]. From the letter of Astolphe-Louis-Léonor, Marquis de Custine (1790—1857) a French aristocrat and writer, a great admirer and friend of Chopin, it is clear that the severity of Chopin’s illness was obvious to those around him: «You are ill: what is worse, your illness might become really serious. You have reached the limit in physical and spiritual suffering» [12, p. 147]. George Sand remembered in her autobiography: «Gaubert examined him and swore that he was not consumptive: You will in fact save him if you give him fresh air, exercise, and rest» [28, p. 1089]. Dr. Pierre’s recipe for Frédéric Chopin dated 22 April 1838, indicated opium tincture and belladonna tincture. In addition, Gaubert gave Chopin «soothing» chest patches. Opium and belladonna extract were applied to the basis of such a patch (Emplastrum Diachylon) [23, p. 67].

François Broussais on the etiology, pathogenesis, and clinical manifestations of pulmonary tuberculosis. Broussais’s «History of Chronic Phlegmasiae, or Inflammations Chroniques» (1831) allows us to understand what criteria Pierre Gaubert used when diagnosing Chopin’s disease. Like Laennec, Broussais believed that TB arises from the transformation of chronic inflammatory respiratory diseases: «The examination of the mode of action of all the causes of phthisis, has convinced me that the chronic pulmonary inflammations maintain in the respiratory organs a phlogosis analogous to catarrh, to pleurisy, and to peripneumony, or an irritation more or less resembling that of these phlegmasia, and that the production of tubercles is always its definite result» [4, p. XXIV].

Broussais repeated this idea many times in his treatise: «the peripneumony, the catarrh, and the pleurisy can engender tuberculous phthisis» [4, p. 253]. Broussais even pointed out the exact term in which chronic pneumonia usually degenerates into TB: «As every pulmonary inflammation may degenerate into phthisis, as soon as a catarrh, a peripneumony, or a pleurisy shall continue beyond the ordinary term of acute inflammations, from fourteen to twenty days, with symptoms of violent reaction, it will be necessary to think less of abscesses of the lungs, which rarely happen, than of tubercles which are of common occurrence» [4, p. 367].

Like Laennec, Broussais emphasized congenital and acquired predisposition in the pathogenesis of TB. «Every prolong catarrh may then become a cause of phthisis, when the lung is predisposed to tubercles» [4, p. 265]. Broussais’s ideas about the factors predisposing to the development of TB also had no fundamental differences. Broussais attributed a certain type of constitution and temperament to...
congenital predispositions: «If a portrait of those persons, who are the most exposed to tubercles, be now desired, we would point out to the observer of mankind, all the individuals of the human species who have a delicate form and soft skin (these two characteristics are the only invariable ones). Those with flaxen hair will be more liable to it than those with brown. The more excitable these individuals are, and the brighter their complexion, with an active, expanded, and frequent pulse, the more will they have to fear, and the less the time that will be required to reach the last degree of the disease. A contracted chest ought to add to their fears, and increase their precautions in proportion as they may be sanguine and irritable. Finally, those amongst them, who may possess in the least degree, nervous and sanguine excitability, and who may have been scrofulous in their childhood, would have, perhaps, less reason to fear external irritants, than others; but they will be exposed to dry tubercles, and to the most chronic and the most latent phthisis» [4, p. 366–367]. Broussais clarified: «All the phthises whose symptoms we have hitherto studied, may be considered as accidental, as they were excited by the action of an evidently external cause, and as there is nothing to prove that they would have taken place if this cause had not acted. In most of the cases this was solely cold; sometimes it was external violence, such as pressure, contusions, and concussions of the thorax, etc. The immediate consequence of its action was always a phlogosis excited in the sanguine capillaries of the lungs or of the pleura» [4, p. 300].

Like Laennec, Broussais considered haemoptysis a manifestation of lung TB, and not its cause: «It has been believed that haemoptysis could degenerate into an inflammation of the parenchyma and ulcerate it without having given rise to tubercles in it. Observation daily demonstrates the contrary» [4, p. 311]. «In all cases loss of blood ought not to be considered as the direct cause of phthisis, but rather as one of the phenomena of this disease» [4, p. 318].

Broussais believed that haemoptysis was an unfavorable prognostic sign: «Inflammation of the lungs, which commences by a haemoptysis without fever, constantly becomes transformed into tuberculous phthisis, and terminates fatally under the care of the most celebrated physicians, although it has been attended to from its commencement» [4, p. 408]. Broussais regarded haemoptysis as the result of lung tissue destruction: «There is an inflammation accompanied with ulceration which tends to destroy the lungs, and consequently induces marasmus and death. This is termed phthisis» [4, p. 68]. Like Laennec, Broussais considered hemoptysis to be a specific (but not pathognomonic) symptom of pulmonary TB, noting that it was significantly more common in people with a hereditary predisposition to develop TB: «In the frequency of haemorrhages, we can, moreover, recognise a bad condition, and a concealed weakness of the lymphatic system. Women of slight, graceful figure, and nervous temperament, and thin irritable men, are the most liable to haemorrhages, and it is from among individuals of these temperaments, that tubercular phthisis selects its victims» [4, p. 318].

Broussais in his treatise described the clinical signs of pulmonary TB: «From the examination of the individual. The pulse continues hard and expanded at a period when the inflammatory impulse should have terminated; there is no resolutive expectoration, or that which does take place, gives no relief to the chest. The cheeks continue to be of a deep red, bordering on purple, although the remainder of the body and even the other parts of the face, have become pale and assumed the appearance of white wax. The feverish action is extremely rapid, and so violent, that the exacerbations at night are scarcely perceptible; the heat of the skin is extreme; there is great restlessness and dyspnoe; the patient is constantly under the fear of suffocation; the colour of the cheeks assumes a violet hue; emaciation increases suddenly; in short, every thing announces a severe injury of the organs of respiration and the presence of a troublesome irritant in its tissue. The temperament of the patient sometimes strengthens the belief of the existence of tubercles» [4, p. 367–368]. Broussais was an opponent of physical examination; he relied only on interviewing and visual inspection for diagnosis.

Thus, from the point of view of the clinical school of François Broussais, Dr. Gaubert also had to diagnose Chopin with pulmonary TB. Symptoms such as deep red cheeks, although the rest of the body was pale, fever, haemoptysis, emaciation, great restlessness, and dyspnoe, the fear of suffocation fully correspond to the set of diagnostic criteria for consumption described by Broussais. At the time of his appeal to Gaubert, Chopin’s illness lasted much more than 20 days, released by Broussais for tuberculization of ordinary pneumonia (from February 1837 to April 1838). Chopin’s appearance and temperament were as if copied from the treatise François Broussais: «thin irritable man with a delicate form and soft skin, who have a contracted chest». However, Gaubert, without announcing any diagnosis at all, swore «that he (Chopin) was not consumptive». Gaubert’s refusal to provide an obvious diagnosis can be attributed to his desire to shield Chopin from a truth he feared more than death. This explanation is fully consistent with the opinion of Chopin’s biographers, as noted by Adam Zamoyski [33, p. 192], and Franz Hermann Franken [11, p. 67].
Clinical manifestation of Chopin’s disease from the point of current standards for the diagnosis of TB. Modern standards for diagnosing TB are based on patient complaints and anamnesis data (Standard N 1); bacteriological examinations, histopathological examinations, chest radiographic examinations (Standard N 2—6) [22]. Standard N 1 for TB diagnosis of the European Union Standards for Tuberculosis Care contains the following guidelines: «1) The most common symptoms of pulmonary TB are persistent cough with or without sputum production for more than 2—3 weeks, haemoptysis, fever, pulmonary TB: persistent cough with sputum production. These signs and symptoms are common in a wide range of respiratory conditions including acute respiratory infections and acute exacerbation of chronic obstructive pulmonary disease. It is also possible for patients to present with no signs and symptoms of disease. 2) It is important to investigate the history of the patient with regard to TB. For example, history of TB in the family context, history of previous contact with TB and previous TB diagnosis and/or treatment, and any condition attenuating the host immune system are common risk factors for TB that should be considered as relevant to guide the correct diagnosis. 3) In the EU setting, TB is not the leading cause of persistent cough and, thus, cough is not the leading sign or symptom of TB disease. Based on its expert knowledge and experience of the EU setting and the current evidence the expert group therefore adapted this first standard to better describe a patient who should be evaluated for TB disease in the EU-setting» [22].

Both Laennec’s and Broussais’s criteria for TB diagnosis described in their treatises do not differ fundamentally from EU Standard N 1 for TB diagnosis. Modern Standards for TB diagnosis are perceived as a logical continuation of Laennec’s and Broussais’s criteria for TB diagnosis, supplemented in the sections of laboratory and instrumental diagnostics. Given that the EU Standard N 1 for TB diagnosis does not use respiratory physical examination data; it is more similar to Broussais’s TB diagnostic criteria. The analysis of Frédéric Chopin’s clinical case in terms of the EU Standard N 1 for TB would make any modern doctor suspect pulmonary TB and carry out laboratory and instrumental studies. Chopin had «the most common symptoms of pulmonary TB: persistent cough with sputum production for more than 2—3 weeks, haemoptysis, fever, night sweats and weight loss». Curiously, Broussais also believed that TB should be suspected if similar symptoms persist from fourteen to twenty days [4, p. 367]. The study of Chopin’s history concerning TB in the family context, and history of previous contact with TB patients reveals many risk factors for TB (predisposition): family members, close friends, and students who died of TB. Obviously, if bacteriological, histopathological, and chest radiographic examinations were carried out on Chopin today, they would confirm the presence of pulmonary TB. It is equally obvious that nowadays a physician is not able to hide diagnosis of TB from Chopin, as this would be a violation of modern norms of medical ethics. At the time of Chopin, codes of medical ethics were just being created, and they were advisory, not legislative. Thus, the American Medical Association’s Code of Medical Ethics (1847) recommended by physicians «to avoid all things which have a tendency to discourage the patient and to depress his spirits; because the life of a sick person can be shortened not only by the acts, but also by the words or the manner of a physician» [1, p. 6]. Chopin’s doctors, aware of his phthisiophobia, hid the diagnosis of TB from him in order to adhere to the code of medical ethics of the time.

The possibilities of physical diagnosis are more objectively reflected in the case of René Laennec, who was diagnosed with phthisis by his cousin Meriadec Laennec in 1826. John Forbes remembered: «Before he (Rene Laennec) left Paris, Drs. Recamier (Joseph Recamier) and Meriadec Laennec (Rene’s cousin) discovered imperfect but evident pectoriloquium, under the clavicle, and in the supraspinal fossa of the left side; and at Quimper, Drs. Ambrose Laennec (another Rene’s cousin, brother of Meriadec Laennec) and Olivry observed the same in the infra-spinal fossa. There can, therefore, be no question that tubercles, in a state of softening, existed in his lungs» [17, p. XXII]. That is, four doctors discovered pectoriloquy, which René Laennec considered a true, pathognomonic sign of phthisis [18, p. XXIV]. In modern terminology, Meriadec Laennec identified a pathognomonic sign: the presence of two cavities in the lung communicating with the bronchus. There is no doubt that the pectoriloquy was accompanied by amphoric respiration (Laennec’s amphoric resonance) as well as a tympanic percussion sound. Laennec pointed out: «amphoric resonance or utricular buzzing strikingly resembles the sound produced by blowing into a flask or bottle. Where the resonance or buzzing exists alone, I have been led to attribute it either to there being more than one fistulous opening, or to the cavity in which it originates being very large and containing only a very small quantity of liquid» [17, p. 57]. According to Laennec’s criteria for TB diagnosis, when a patient presents with a complete set of specific complaints and an extremely unfavorable medical history (hereditary and acquired predisposition), pectoriloquy should be considered a decisive a decisive differential diagnostic sign for cavernous TB. Thus, Laennec’s
criteria for TB diagnosis were quite an effective and progressive tool in the first half of the 19th century.

Paraphrasing the current EU Standard for TB diagnosis, we can describe the achievements of French TB medicine in the first half of the 19th century as follows: based on their expert knowledge and experience of France setting and the current evidence, Laennec and Broussais therefore made the first standards to better describe a patient who should be examined for TB disease. Laennec’s criteria for TB diagnosis, through the use of physical examination, have greatly expanded the ability of practitioners to detect pulmonary forms of TB. Especially in cases where external signs such as cough, haemoptysis, fever, and weight loss were either absent or not pronounced. Of course, early diagnosis of TB was very difficult due to the limited «resolution» of percussion and auscultation (the size of a walnut). Rene Laennec already noted 1821: «We frequently observe in cases of true tubercular phthisis, that almost all the usual symptoms of this disease (cough, haemoptysis, fever, and weight loss) are wanting» [16, p. 303]. Thanks to René Laennec and his followers, the clinical diagnosis of pulmonary TB based on interviews, health history, and visual examination had reached a level of excellence by the middle of the 19th century, approaching the limits of what was possible. Laennec and his supporters used specific complaints and anamnesis data (identical to modern ones) as screening markers for pulmonary TB, and physical examination as a decisive diagnostic tool.

The results of the analysis confirm that Chopin’s doctors were able to diagnose, and diagnosed him with TB really, and also prescribed treatment appropriate to the diagnosis. Doctors did not announce the diagnosis for ethical reasons.

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Діагностика туберкульозу легень у першій половині ХІХ століття: випадок Фредеріка Шопена

Відомий польський композитор Фредерік Шопен (1810—1849) більшу частину життя страждав на туберкульоз легень, від якого помер у віці 39 років. Протягом усього життя Шопен неодноразово звертався до провідних європейських лікарів, які володіли найбільш передовими для того часу знаннями та діагностичними методиками. Метою дослідження було отримання об’єктивного уявлення про можливості діагностики туберкульозу легень в Європі в першій половині ХІХ століття на основі часткової реконструкції історії хвороби Фредеріка Шопена. Нами були вивчені кореспонденція Фредеріка Шопена та його близьких, спогади сучасників Шопена, праці його найавторитетніших біографів, провідні трактати з діагностики захворювань легень, надруковані у першій половині ХІХ століття.

Установлено, що у зазначений період справжня природа туберкульозу ще не була відома, у зв’язку з цим уявлення лікарів про етіологію та патогенез хвороби були далекі від істинних. Лікарі Шопена вважали, що туберкульоз виникає внаслідок спадкової або набутої схильності. Однак техніка та методика фізичних методів дослідження (перкусія й аускультація) у Франції досягли межі діагностичної можливості. Фізичні ознаки порушення прохідності бронхів, ущільнення або деструкції легеневої тканини були ретельно описані в клінічних посібниках. Із певних об’єктивних та суб’єктивних умов багато лікарів-практиків взагалі не використовували перкусію і аускультацію або не володіли відповідними навичками достатньою мірою. Водночас найпередовіші європейські лікарі впевнено діагностували інфільтративну і кавернозну форму туберкульозу, використовуючи набір найхарактерніших ознак, виявлених під час аналізу скарг, анамнезу та даних фізикального обстеження.

Ключові слова: історія медицини, фізикальна діагностика захворювань легень, легеневий туберкульоз, історія хвороби Фредеріка Шопена.

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