

# The Institutional Framework for Work in the Mines of Greece: Occupational Health and Safety and the case of Lead Poisoning (1861-1940)

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EL MARCO INSTITUCIONAL PARA EL TRABAJO EN LAS MINAS DE GRECIA: SALUD Y SEGURIDAD OCUPACIONAL Y EL CASO DEL ENVENENAMIENTO POR PLOMO (1861-1940)

## Abstract

The article investigates the historical formation of the institutional framework for work in the mines in Greece, regarding occupational health and safety. In a second level, the article focusses on the medical discourse in Greece about the specific occupational disease of lead poisoning and the role played by the state, mining companies and doctors in the recognition of the disease.

The definition of lead poisoning as an occupational disease given to the miners by specialist doctors was a political issue, which was determined in historical terms. Doctors used their scientific knowledge not only as a tool for the political economy of health, but also as a mean to combat the social question by reforms and total intervention in everyday life, work and leisure of the miners. In the case of the recognition of lead poisoning, a cultural confrontation which characterized the conflict between the educated middle class and the working class in Greece, since the end of 19th century, is apparent.

The sources used are mainly the legislation, state reports by the Inspectorate of Mines and medical reports.

## Resumen

El artículo investiga la formación histórica del marco institucional para el trabajo en las minas en Grecia, con respecto a la salud y seguridad ocupacional. En un segundo nivel, el artículo se centra en el discurso médico en Grecia sobre la enfermedad profesional específica del envenenamiento por plomo y el papel jugado por el Estado, las empresas mineras y los médicos en el reconocimiento de la enfermedad. La definición de la intoxicación por plomo como enfermedad profesional dada a los mineros por médicos especialistas fue una cuestión política, que se determinó en términos históricos. Los médicos utilizaron su conocimiento científico no sólo como herramienta para la economía política de la salud, sino también como medio para combatir la cuestión social mediante reformas e intervención total en la vida cotidiana, el trabajo y el ocio de los mineros. En el caso del reconocimiento del envenenamiento por plomo, se evidencia una confrontación cultural que caracterizó el conflicto entre la clase media culta y la clase obrera en Grecia, desde finales del siglo XIX. Las fuentes utilizadas son principalmente la legislación, informes estatales de la Inspección de Minas e informes médicos.

## Keywords

Miners, occupational health, medical discourse, lead poisoning, Greece, 19th-20th century

JEL codes: N33, N34, N54, N54

## Palabras clave

Mineros, salud ocupacional, discurso médico, envenenamiento por plomo, Grecia, siglos XIX-XX

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# The Institutional Framework for Work in the Mines of Greece: Occupational Health and Safety and the case of Lead Poisoning (1861-1940)<sup>1</sup>

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## I. Introduction

Workplace health is an important aspect of the experience of workers, but its scholarly presence in the social sciences and history is hard to locate. Social historians initially showed an interest in issues such as housing, nutrition and the standard of living of workers, or they focused on the work process itself, without examining the effects of the work on workers' health. Since the 1980s, the history of occupational health has been a growing field in the USA, with more limited progress in certain European countries, initially in the United Kingdom and later in France, Germany, and Italy among historians of both social history and labour history, as well historians of medicine and occupational health<sup>2</sup>. It is perhaps no coincidence that the field expanded in the English-speaking world during the 1980s. This was an era that was marked by the governments of Margaret Thatcher in Britain and Ronald Reagan in the US, whose policies dealt a drastic blow to the welfare state and to health and safety at work<sup>3</sup>. The availability of funding in Britain and France from the 1990s onwards enabled the creation of multidisciplinary research groups with a focus on the history of occupational health and which sought to make these issues visible in the social sciences at the national, transnational and European levels<sup>4</sup>.

The subjects of this recent historical research have been the following: a) legislation for the recognition of and

compensation for occupational risk<sup>5</sup>. Such studies examine the complex conceptual questions that arise from the legal claims of employees, as well as the debate as to who is responsible for the accident or occupational disease; b) the regulation of 'dangerous' occupations. By focusing on the 'dangerous' occupations that came to be legally regulated from the end of the 19th century, historians have attempted to chart the origins, nature, consequences and importance of a series of parliamentary and administrative bureaucratic steps towards the reduction or, at least, control of certain occupational diseases that had officially been recognised as caused by exposure to occupational risks in the manufacturing sector<sup>6</sup>; c) the history of occupational disease at a national or supranational level<sup>7</sup>. As with the regulations of 'dangerous professions', the conflicting scientific discourses on the question of the definition of disease are of particular interest; d) the attitudes and practices of male and female workers and unions towards occupational health issues<sup>8</sup>; e) the strategies adopted by employers against occupational risks<sup>9</sup>; f) the category of gender has been adopted in studies that have demonstrated the different effects of work on the health of men and women, the participation of female workers in the struggles for occupational health, and the development of gender-based social policies on health<sup>10</sup>.

The resurgence of research on the history of mining in recent years is associated with the history of labour, social protections and public health, as well as the history of technology, oral history and environmental history. The history of occupational health has given rise to new questions in connection with the impact of mining activity on

<sup>1</sup> The author wishes to thank the two anonymous reviewers for their helpful comments. Special thanks are due to Judith Rainhorn for her comments on a previous version of the manuscript presented in the session "Health, environment and labour in mining" in the 3rd Conference of the European Labour History Network (Amsterdam, 19-21 September 2019).

<sup>2</sup> Mclvor & Johnston (2007:14-26); Omnès (2007: 7-9).

<sup>3</sup> Rosner & Markowitz (1991: xi).

<sup>4</sup> Omnès & Bruno (2004); Bruno, Geerkens, Hatzfeld & Omnès (2011).

<sup>5</sup> Omnès & Bruno (2004); Bruno, Geerkens, Hatzfeld & Omnès (2011a: 14-20).

<sup>6</sup> Indicatively: Bartrip (2002).

<sup>7</sup> Mclvor & Johnston (2007); Rosental & Omnès (2009).

<sup>8</sup> Mclvor & Johnston (2007:185-233); Carnevale (2007); Carnevale & Causarano (2008); Bruno, Geerkens, Hatzfeld & Omnès (2011a: 24-28); Rainhorn (2011).

<sup>9</sup> Moriceau (2009: 175-180); Bruno, Geerkens, Hatzfeld & Omnès (2011a: 20-24); Cohen & Fleta (2011).

<sup>10</sup> Cottureau (1983); Ellerkamp & Jungmann (1983); Gordon (1993); Bender (2001); Turner (2014).

the health of the workers, while studies have discussed the sound invisibility of the occupational health in mining communities<sup>11</sup>. Many studies are steadily deepening knowledge of the health of the miners, the reactions of the actors (state, employers, workers, specialists) and the entrepreneurial strategies<sup>12</sup>. Two recent volumes capture the dynamics of much of the new research, giving an international dimension to the subject of occupational health in the mines<sup>13</sup>. Silicosis has emerged as an exemplary occupational disease suffered by miners. The complexity of the process by which the disease came to be identified as an occupational disease is being understood<sup>14</sup>, as is its global dimension<sup>15</sup>. At the same time, the industrial risks and the unhealthy working environment in the mines are being examined alongside the new concerns of environmental history. In this way, the effects of mining activities on the environment, workers' health and public health are now being investigated<sup>16</sup>.

In Greek historiography, despite the late resurgence of labour history<sup>17</sup>, the history of occupational health remains a marginal issue. Interest is shifting primarily to the introduction of legislation and the institutions of social policy<sup>18</sup>, as they came to be specified in the institutional framework for health and safety in the workplace from the first period of Liberal rule onwards and with the enactment of the first laws on labour policy in 1910-1914<sup>19</sup>. Other approaches follow the debates among specialists for the improvement of social hygiene, focusing on the connection between public health and occupational pathology and highlighting the gradual, as well as contradictory, evolution of the field of occupational health in the late 19th and first decades of the 20th century, within the context of urban modernisation<sup>20</sup>. The impact of work on the health of workers in the various sectors of Greek manufacturing has not focused the attention of historians, the only exceptions being in the areas of textiles<sup>21</sup> and mining<sup>22</sup>.

In addition to the thematic expansion, at the theoretical level several new studies owe much to a *problématique* that challenged the biomedical model, considering it rigid and associated with biological determinism<sup>23</sup>. This alternative *problématique* explored social institutions and practices with the aim of understanding social control as a fundamental social process that has typified modernity in Europe since the 18th century<sup>24</sup>. Michel Foucault's contribution to the study of the idea and practice of social con-

trol, as exercised through the use of medical discourse, was decisive. Foucault showed that, from the end of the 18th century, the emergence of a new technology of power, that of biopower and biopolitics, intervened scientifically and politically to regulate the reproduction, birth rate, morbidity and mortality of the population. Biopolitics also intervenes in a whole range of phenomena (for example, ageing, accidents and disabilities), which result in both the incapacitation and erasure of individuals. The new technology of power intervenes through the production and expression of medical discourse, it establishes welfare institutions and regulatory mechanisms for the biological and biosocial processes of the population<sup>25</sup>. This power consists of the simultaneous emergence of a "medical police" and the medicalisation of the social body, centred on the creation of hospital institutions as well as on the extension of medical rules to within the family, so as to combat morbidity and mortality<sup>26</sup>. The Foucauldian term of governmentality, by which is meant 'the *ensemble* formed by the *institutions, procedures, analyses, reflections, calculations and tactics* that allow the exercise of this very specific albeit complex form of power', enriches the theoretical consideration of the relationship between power and modernity<sup>27</sup>. Drawing on Foucault, a number of historical studies explore the formation of "health policy", surveillance, and control of the health of the population – for example, Maria Korasidou's study on the "medical police" in 19th-century Greece<sup>28</sup>. The investigation of the creation of scientific networks, such as that by Sevasti Trubeta on medical networks between Germany and Southeastern Europe, enables the various scientific connections to be integrated into the wider framework of the rise and diffusion of medical power, as well as to correlate modern science with politics<sup>29</sup>. Other studies on European history approach workplaces as spaces in which multiple techniques, discourses, ethical rules and scientific knowledge are articulated, the aim of which was to define the body of the worker in relation to his or her productivity<sup>30</sup>.

This article investigates the historical formation of the institutional framework for work in the mines in Greece, regarding occupational health and safety. In a second level, the article focusses on the medical discourse in Greece about the specific occupational disease of lead poisoning and the role played by the state, mining companies and doctors in the recognition of the disease. I will present in the part II the main points of the European political economy of the workplace health and safety. In the third part I will explore the formation of the regulations on health and safety in the mines in Greece from 1860 to 1940. In the fifth part, I will examine the social insurance for the miners, while on the fourth section it is examined the implement of labour legislation in the mines in reference with the Labour Inspectorate and the Mines Inspectorate. On the sixth part, I will study lead poisoning as a specific pathology for mines

<sup>11</sup> Indicatively: Rainhorn (2014a: 26-28); Rainhorn (2014: 129-130).

<sup>12</sup> Indicatively: Dolan & Blanc (2012); Van den Borre & Deboosere (2018).

<sup>13</sup> Rainhorn (2014); Actes du colloque international (2020).

<sup>14</sup> Rosental (2009); Devinck & Rosental (2009); Geerkens (2009).

<sup>15</sup> Rosental (2017).

<sup>16</sup> Indicatively: Pérez (2016); Chastagnaret (2017); García & Pérez (2020).

<sup>17</sup> Papastefanaki & Kabadayi (2020: 9-15); Papastefanaki & Potamianos (2021: 12-22).

<sup>18</sup> Indicatively: Liakos (1993); Avdela (1989); Avdela (1997).

<sup>19</sup> Drivas & Rachiotis (2008); Drivas & Rachiotis (2011).

<sup>20</sup> Papastefanaki (2005); Papastefanaki (2008); Papastefanaki (2011).

<sup>21</sup> Papastefanaki (2009: 310-357).

<sup>22</sup> Papastefanaki (2017: 226-237).

<sup>23</sup> Nettleton (2002: 23-24, *passim*).

<sup>24</sup> Trubeta (2013 : 27-33); Korasidou (2013: 183-187).

<sup>25</sup> Foucault (2002: 294-310).

<sup>26</sup> Korasidou (2013: 186-188).

<sup>27</sup> Foucault (2007: 108).

<sup>28</sup> Korasidou (2002).

<sup>29</sup> Trubeta (2014).

<sup>30</sup> Bluma (2014); Bluma & Rainhorn (2020); Bluma (2020); Luks (2020); Uhl (2020).

and metal works. I will focus on the role of medical thinking in the shaping of concepts and definitions as regards occupational health. In order to trace how medical thinking evolved, I employ two medical studies, of which the first was published in 1919, the second in 1935. In the end, I draw some conclusions. Not examined in the study are the reactions of the workers and their unions in the face of illness, and in the face of the policy of the employers and the state on working conditions. The sources used for the research are mainly the legislation, state reports by the Inspectorate of Mines and medical reports.

## II. A political economy of workplace health and safety in Europe

From the last third of the 19th century, a political economy of workplace health and safety, within a national and supranational framework, emerged in the countries of Europe, with the rise of a scholarly and political interest in workers' health, state intervention and the gradual institutional acceptance of the concept of occupational risk. This political economy sought to secure the necessary labour force that industrial capitalism needed yet, at the same time, to reduce the costs of the treatment of and stresses to the labour force. The acceleration of industrialisation from the mid-19th century and the progressive industrialisation of production processes gave rise to new concerns about the risks posed by an industrialised society, in particular the risks associated with work in mining and industry. A new culture of hygiene and safety was being born. This new interest was expressed through industrial hygiene and concern for the treatment of accidents at work, which were no longer considered an unavoidable necessity for workers. This debate took place in all European countries, within the public sphere and the circles of social reformers, lawyers, doctors and other scientists, and led to the emergence of the triptych: prevention; compensation for workers who are unable to work (because of the occupational risks); and improved working conditions<sup>31</sup>.

In the last third of the 19th century, and until 1914, the three pillars for the protection of workers' health and safety were set at a European level, with a different pace being followed in each country: labour inspection; legislation on accidents at work and occupational diseases; and industrial hygiene regulations. The recognition of and compensation for occupational risk, in the form of accidents at work and occupational disease, were an essential part of this interventionist policy. In the late 19th century, many European countries passed legislation on compensation for accidents at work, which held employers legally responsible and ensured compensation for those injured

(Germany 1884, France and Italy 1898, Greece 1914). This legislation, in contrast to the prevailing liberalism of the 19th century, represented a decisive shift in legal history and in the construction of a system for the prevention of and compensation for occupational risks, replacing the concept of *human error* with that of *occupational risk*. This was followed by the legal recognition of occupational diseases (and the employer's obligation to compensate the injured). Gradually, by 1930 the legislation in the European states had been tailored to specific workplaces, while certain illnesses that were evaluated as occupational began to be equated in insurance terms with accidents at work. Thus, initially and through the concept of occupational risk, industries in which the performance of the work posed a particularly high risk (mining, shipping, rail, explosives) came to be covered. The principle of occupational risk was gradually broadened, to cover not only accidents at work, but also an ever-increasing range of occupational diseases<sup>32</sup>.

Alongside these interventions in the areas of industrial hygiene and compensation for occupational risk, state intervention was also extended to the field of industrial relations, with the adoption of a social protection policy, which was based on gender and age discrimination. This protective legislation for prohibiting or restricting women and children from work in mines and industry was introduced in this same period and throughout Europe provided an opportunity for the first state interventions in the free functioning of the free labour market. These interventions essentially aimed to provide a specific solution to the problems that women's and child labour had created in the adult male labour market<sup>33</sup>.

More than any other form of labour, that in the mines was carried out in exceptionally difficult conditions, with great risk and insecurity. For mining enterprises, the concept of safety was associated chiefly with the safety of the installations and the investments, with the safety of the mining work, which had to go ahead for as long as the vein was yielding. The safety of the workers was also a source of concern, but rather a secondary one, for the enterprises and for the state. This concern arose gradually and was the product of social relations and conflicts that can only be understood within their historical context. Everywhere in Europe and beyond, the legislation regarding the regulation of working hours, insurance against accidents at work, occupational diseases, and the special protection of women's and children's labour was introduced first as to the mining and metallurgy branch, and then, at a subsequent period, was made general for all branches and categories of workers. This priority relates, of course, to the particularly harsh and adverse working conditions in the mines, which accelerated the erosion of the health of those working there<sup>34</sup>. The same phenomenon can be observed in the Greek case. This prioritisation is obviously due to the particularly harsh and adverse working conditions in the

<sup>31</sup> Omnès, Bruno (2004); Omnès (2007: 6-21); Bruno, Geerkens, Hatzfeld & Omnès (2011); Papastefanaki (2013).

<sup>32</sup> Omnès, Bruno (2004); Omnès (2007: 6-21); Bruno, Geerkens, Hatzfeld & Omnès (2011); Papastefanaki (2013).

<sup>33</sup> Wikander, Kessler-Harris & Lewis (1995); Avdela (1989: 339-360); Riginos (1995: 91-99).

<sup>34</sup> Trempé (1983).

mines, which hastened the deterioration of the health of the workers.

This new interest in working conditions and workers' health was linked to moralistic demands, particularly around women's maternal duties. These demands resulted in limits on the hours women worked and protections being put in place to improve their working conditions, which were regulated by legislation. In 1842, the Mines Regulation Act in Britain introduced such gendered protective legislation, while in France, the law of 1874 prohibited women and girls from working underground<sup>35</sup>. Gradually, almost every country in the world adopted laws that prohibited women from working underground and placed restrictions on women's labour in surface mining too. In the interwar period, the International Labour Office raised the issue of women working in underground mines of all kinds, attempting thus to introduce an international regulation<sup>36</sup>.

### III. Regulations on health and safety in the mines in Greece

In Greece, the 1861 law "on mines" foresaw a tax of 1% on a company's net production, in order to create a reserve fund to provide care and assistance to workers and their families in the event of an accident. A special decree was to regulate how the capital reserve was to be managed<sup>37</sup>. By 1882, however, no such decree had been issued and the funds had not been allocated. With a Royal Decree of 1882, a special fund was set up "to provide assistance and care for the workers in the mine and their families in the event of accidents"<sup>38</sup>. The fund's resources were to come from annual deductions of 1% from the mining companies, as foreseen in the 1861 Act. A year later, in 1883, the "Regulation to verify the accidents involving miners that take place in mines" regulated the data required in order to verify accidents and the time within which the verification was to be completed<sup>39</sup>. The Regulation, which had been prepared by Panayiotis G. Vouyoukas, a mineralogist and member of the management committee of the fund for the care of miners, specified that the miners and their families who were to be the beneficiaries of this care were: "a. the worker who is injured at work in the mines and who is incapacitated, in this case temporarily; b. the worker who is injured and is permanently incapacitated and unable to do mining work; c. the worker who is injured in the mine and as a result of the injury dies; and d. the worker who works in the mine

and who is killed during an explosion or fall"<sup>40</sup>. A notification of the accident had to be made in writing and sworn in the presence of the competent justice of the peace within eight days, by the engineer or head of the operations in which the injured party worked and by the doctor closest to the site of the accident. The injured worker requesting care was to submit his application within twenty days to the care fund, along with the necessary supporting documents, while, in the event of a fatal accident, the family of the deceased was to do the same<sup>41</sup>.

The high frequency of accidents at work in the mining area of Lavrion, in the mines of the Compagnie Française des Mines du Laurium (CFML) during the years 1892-1893, several of which were fatal, led to an intervention by the government of Charilaos Trikoupis, and an investigation was ordered into the reasons for so many accidents at work<sup>42</sup>. A new ministerial circular issued in 1896 noted that the service run by the heads of the administrative authorities was not performing seamlessly, "whenever there is an accident in the mines either, because this is not announced in good time, or because the Police Authorities sometimes come into conflict with the representative who has been sent by the Inspectorate of Mines to make an inspection as to which measures should be taken in order to prevent another accident"<sup>43</sup>. The circular attempted to distinguish between the limits of each of the above authorities jurisdiction, giving instructions so that "in order to protect the lives of the workers in the mines, only the absolutely necessary measures are taken to prevent further accidents"<sup>44</sup>. Despite the government's attempts to delimit the boundaries of the jurisdictions between the Inspectorate of Mines and the local police in the case of mining accidents, the situation was infinitely more complex, given that most mining companies not only provided, at least until 1912, "remuneration to the organs of public safety, but monthly allowances to police officers and soldiers have also been established"<sup>45</sup>.

The systematic remuneration of the police authorities by the mining companies was, as minister Andreas Michalakopoulos pointed out, far from "contributing to a belief in the good intentions of the Companies, in compliance with the laws, or in the strict performance of their duties on the part of the police officers and hoplites". Henceforth, criminal law would apply in this case, both for the party receiving the remuneration and the one paying it<sup>46</sup>. We can reasonably assume that the practice of systematic remuneration provided by the companies to the police authorities acted so as to prevent the central government from being informed in a timely and correct manner about working

<sup>35</sup> Humphries (1981); Lehrer (1987); Bordeaux (1998: 45-59).

<sup>36</sup> Romano Barragán & Papastefanaki (2020: 8-17).

<sup>37</sup> Law «Περί μεταλλείων» (1861), art. 31.

<sup>38</sup> Royal Decree «περί συστάσεως ειδικού ταμείου προς βοήθειαν και περίθαλψιν των εν τοις μεταλλείοις εργαζομένων εργατών και των οικογενειών αυτών εν περιπτώσει δυστυχημάτων» (1882), in Liakopoulos (1898: 116-120).

<sup>39</sup> Government Gazette (Greek initials: FEK), 14.4.1883; Liakopoulos (1898: 121-124).

<sup>40</sup> Liakopoulos (1898: 122); Papastefanaki (2017: 53).

<sup>41</sup> Papastefanaki (2017: 53).

<sup>42</sup> Papavasileiou (1893); Uffner (1893).

<sup>43</sup> Circular no. 6, 29.1.1896 «περί του τρόπου της ενεργείας των Διοικητικών Αρχών εν περιπτώσει δυστυχήματος εν μεταλλείοις», in Liakopoulos (1898: 33-34).

<sup>44</sup> Ibid.

<sup>45</sup> Papastefanaki (2017: 54).

<sup>46</sup> Ministry of National Economy, Circular no. 25659/42, «περί μη παροχής εις το μέλλον μηνιαίων επιδομάτων εις τους αξιωματικούς και οπλίτας της αστυνομίας υπό των μεταλλευτικών εταιρειών», 13.8.1912, in Ministry of National Economy (1917a: 86).

conditions and accidents at work, and, furthermore, must have created an atmosphere of pressure and constant surveillance over the workers.

#### IV. Social insurance for the miners

The Miners Fund was established with Law ΒΩΜΑ' (1901), which was introduced to parliament by the Minister of Economy Phocion Negrīs, a metallurgist and former director of the (Greek) Metal Works Company of Lavrion<sup>47</sup>. The 1901 law reformed the existing "Care Fund" of 1882, on the basis of the corresponding French law of 1898. In 1898, the Care Fund already had funds to the value of 525,379 drachmas, derived from the 1% deductions from the mining companies. Under Law ΒΩΜΑ', the Miners Fund received half the value of the pensions granted to those injured at work in mines, while in the corresponding French law the total pension was to be paid by the company owners. The rapporteur argued that the proposed measure of reducing the contribution paid by the owners by half, with the other half being paid by the Miners Fund, was fair, since the Fund had been established, in accordance with the 1861 Law, with contributions from the mine owners for the provision of care to workers in the event of an accident.

The most significant difference between Law ΒΩΜΑ' and the French law was the distribution of the pension. The French law granted pensions to the value of  $\frac{3}{4}$  of the earnings received by the worker injured in an accident, but the pension did not continue to go to the pensioner's family after his death. With Law ΒΩΜΑ', the pension of the injured person was reduced by half, but  $\frac{1}{4}$  was paid to his widow and children after his death<sup>48</sup>. The male children of the injured were entitled to receive the pension until they reached the age of 16, while daughters were entitled to the pension not only until adulthood, but until their marriage. Moreover, the day after their marriage they were eligible for a lump sum payment equal to one year's pension<sup>49</sup>. The legislative reform of the social insurance of miners in the following years made it possible for regular assistance to be given to workers who had been injured in the mines due to the truly great risks of their profession<sup>50</sup>.

The introduction of social insurance was based on the prevailing understanding of the gender division of work within the family and the workplace. More specifically, the arrangements for compensating miners injured at work took for granted the primary position of men as the head

of the household, and the secondary, auxiliary position of women, who were judged in these provisions as weak and in need of financial support. This gender hierarchy resulted in the payment of the pension of the deceased miner to his widow, in contrast with the French legislation, which the rapporteur of this law used as a model. There was also a differentiation in the payment of the pension to the children of the deceased according to their gender. Although male children were entitled to the pension until they reached the age of 16, female children would continue to receive the pension until their marriage, i.e., until they entered, according to the dominant ideology, another family and became subject to another male authority, that of their husband.

In that same year, 1901, the committee for inspecting mines in the Prefecture of Attica stated that the Ministry was not making available enough staff in order to carry out the mine inspections, calling for the number of inspectors to be duly increased and for the regular inspection of mines to be entrusted exclusively to the Ministry, because when "the Companies know that a continuous inspection is imminent, they are obliged to increase their oversight". Permanent, adequate and exclusive inspection could collect statistical data on the production of the mines and metallurgical products, the workers, and also "on any issue relating to the safety and health of workers and the true progress and prosperity of the Companies [upon which] the well-being of workers is primarily based, and hence the economic prosperity of the state"<sup>51</sup>. In the following year, the bill establishing a Ministry of Agriculture, Trade and Industry, introduced by the ministers of the Zaimis government, made mention of the protection of "industrial workers".

The new ministry was to undertake the preparation of legislation for the protection of industrial workers, "especially women and children (...) and for the care of those chronically sick owing to old age or physical injury, resulting from the exercise of the profession of the incapacitated workers". It was argued that "measures to strengthen and promote industry ought also to provide for the fate of the workers in the industry". Consequently, the provision in the law, introduced with Law ΒΩΜΑ' on miners and metallurgical workers the previous year, was to be extended to workers of both genders in other sectors, who are "each exposed to disease and penury and accidents, as care for the fate of those who have been incapacitated, the sick, the widowed, orphans is not alien to the duties of the State"<sup>52</sup>.

The first period of the government of Eleftherios Venizelos (1910-1914) was also defined in this area by the increasing interventionism of the state, as it was "in the view of the administration that in addition to the measures for the care of accident victims and their families, measures to prevent accidents and diseases are also required, as well as measures to secure the worker against exploitation, both

<sup>47</sup> Papastefanaki (2016: 99-104).

<sup>48</sup> Explanatory Report by Ph. Negrīs on ΒΩΜΑ' Law (1901), in Ministry of National Economy (1917b: 84-88); Liakos (1993: 378-382).

<sup>49</sup> Law ΒΩΜΑ' (1901), art. 7.

<sup>50</sup> Contractors are mentioned in the regulations of Law ΒΩΜΑ' (1901), but no mention was made of emery workers. The Fund for emery workers was created in 1932 with the Law 5376 "on the amendment of the provisions for the Insurance Funds and the establishment of an Emery Worker's Fund", FEK 106, A', 16.3.1932; Papastefanaki (2017: 55).

<sup>51</sup> Kordellas (1902:57). The committee for the inspection of the Attica mines that drafted the relevant opinion consisted of professor K. Mitsopoulos, Ph. Negrīs, A. Kordellas, the inspector of mines D. Soutsos, and the Ministry of Finance mineralogist, Ath. Livas. Papastefanaki (2017: 56).

<sup>52</sup> Historical Archive of the National Bank of Greece, Archive Alexander Thr. Zaimis, Report on the new bill establishing a Ministry of Agriculture, Trade and Industry, 11.2.1902, p. 5, f. 1.4.8.36.

in terms of work and of payment<sup>53</sup>. Such provisions first appeared in Law ΓΦΚΔ' "on mines" in 1910, on the basis of which the *Regulations of mining operation* was issued in 1911.

Law ΓΦΚΔ' specified the obligations of the mine owners, one of which was the obligation to operate the mine "in accordance with the rule of the trade, in such a way as to ensure the lives of the workers working in the mine. To this end, if over fifty workers are employed daily, they must be led by a qualified engineer from an accredited school"<sup>54</sup>. In a new circular issued by the Minister of National Economy to the country's Prefects at the end of 1910, he drew their attention to the need to comply with article 28, so that in all mines that employed over fifty workers, the work would have to be managed by qualified engineers, who would always be present and would supervise the work from up close and not be limited to inspections at infrequent intervals<sup>55</sup>.

The same law prohibited the recruitment of girls, and women in general, in underground or night work in the mines, while it also determined that children aged 12 and under could be used only in the sorting of the ores, "except for those the fumes of which may be harmful for their health". From the ages of 12 to 16, children were not allowed to carry a weight of over 10 kilos, and from 16 to 18 a weight of over 15 kilos<sup>56</sup>. Law ΓΦΚΔ of 1910 was then the first law to contain protective provisions for the work done by women and children, while its provisions were followed by the main labour legislation, which was also applied in the mining industry<sup>57</sup>. According to the chemist and deputy director of the Metal Works Company of Lavrion, Ioannis Doanides, already in 1904:

*women and children are no longer accepted in underground work, for reasons of morality and decency, and also because their tender organisms only with difficulty can withstand the harm of work in the mines, and they do not have the strength to be as useful as they could<sup>58</sup>.*

Although I was unable to locate the legislative decree from the early 1900s, which would have prohibited women's and child labour underground, it appears that there had been a debate on this issue some years prior to the legislative reform of 1910.

The legislative framework for child and women's labour of 1910 was supplemented by Law ΔΚΘ' "on the labour of women and minors" (1912), which a) prohibited the labour of children under 12 in quarries, mines and open-pit mines of every kind; (b) prohibited night work in mines for women and children up to the age of 18; and (c) prohibited the labour of children up to the age of 15 and women in underground mines, quarries and open-pit mines. From

an urban reform perspective, which took the form of state intervention in industrial relations, the social issue was clearly related to the state of the health and the morale of the working family, while women's work was seen as complementary to men's work and should not jeopardise women's primary physical and social function of marriage and motherhood<sup>59</sup>.

The *Regulations of work in mines* was prepared in 1911 by Elias Gounaris, an Inspector of Mines. The Minister of Agriculture, Trade and Industry, Emmanuel A. Benakis, approved the Regulations and gave the order for their implementation<sup>60</sup>. The Regulations primarily sought to prevent accidents, establishing the rules for the exploitation and technical supervision of the work, in particular for the correct use of ovens, and the opening of tunnels and wells. According to Gounaris, "a stop was put to uncontrolled exploitation and responsibility began to be sought for every accident that occurred"<sup>61</sup>. Furthermore, the hours of work and the way it would be performed were established. The jurisdiction, responsibilities and competencies of every supervisor of mining operations were determined, and safety measures to prevent accidents were sought. The recruitment of qualified engineers-managers was made mandatory for mining operations by companies that employed more than fifty workers a day. The qualified engineer had to supervise the "proper" application of the detailed provisions of the Regulations and to implement every mandatory measure for the prevention of accidents. The engineer, as well as the owner of the enterprise, came under the oversight of the Inspectorate of Mines, which was also entitled to issue directly to the miners the necessary instructions for the safety of the operations and the workers, and it could also order the cessation of the mining operations. Violation of the precautionary provisions was punishable by fine.

The "very thorough and detailed" legal reforms of Law ΓΦΚΔ' and the *Regulations* for the prevention of accidents did not stop accidents at work from remaining, in proportion to the number of workers, at high levels until the interwar period, far exceeding such accidents in England, France and Germany<sup>62</sup>.

As for the duration of the work, the *Regulations* for the first time established the eight-hour day at a workplace in Greece, introducing the eight-hour shift as the longest period for underground work and a ten-hour shift for surface work. An exception could be made for work in the washing plants and surface work, where the shift could last for as long as twelve hours with permission from the Minister of Agriculture, Trade and Industry<sup>63</sup>. The strike action in many professional sectors in 1923-1924 had as its central demand the eight-hour day, while employers' organisations, in contrast, insisted on the postponement of its implementation<sup>64</sup>. Amongst the sectors that went on strike were the miners. In July 1923, the miners of Lavrion went

<sup>53</sup> Ministry of National Economy (1917b:4).

<sup>54</sup> Law ΓΦΚΔ' (1910), art. 28, in Ministry of National Economy (1917b:7).

<sup>55</sup> Circular «περί προσλήψεως διπλωματούχων μηχανικών διά την διεύθυνσιν των εργασιών των μεταλλείων...», 30.10.1910, in Ministry of National Economy (1917b: 7-8).

<sup>56</sup> Law ΓΦΚΔ', art. 50-51, in Ministry of National Economy (1917b:10).

<sup>57</sup> Lixouriotis (1992: 206, 215); Riginos (1995: 94).

<sup>58</sup> Doanides (1904: 84).

<sup>59</sup> Avdela (1989: 341).

<sup>60</sup> Inspectorate of Mines (1911).

<sup>61</sup> Ministry of National Economy (1911: 6).

<sup>62</sup> Papadimitriou (1921: 168).

<sup>63</sup> Ministry of National Economy (1911), art. 3.

<sup>64</sup> Liakos (1993: 253-267); Papastefanaki (2009: 320-328).

on strike, their sole demand being the eight-hour day. The eight-hour day was eventually implemented at Lavrion in 1924, and in the following year it was expanded to all underground mining companies<sup>65</sup>.

The Law ΒΩΜΑ of 1901 was supplemented in 1912 by Law 3981, which provided for, amongst other things, the mandatory creation of mutual health funds by all the mining companies, for the provision of assistance “for those incapacitated by illness, old age or long-term work”<sup>66</sup>. Subsequently, a Royal Decree regulated the way in which the mutual health funds of the mining companies operated, stipulating that the assistance given could be free medical treatment, medicines, hospital treatment or financial assistance<sup>67</sup>. Until 1920, the Miners Fund only offered compensation to those injured in accidents at work. Underground mining operations were seen, more than any other type of work, as extremely stressful and unhealthy, but, as the lawyer Solon Papadimitriou wrote:

*Unfortunately, our mining labour legislation has not proven to be perfect, because it is limited to the protection of the worker only when he has a “violent accident” and not when he departs having grown old at work in the mines, carrying away with him in any case clear symptoms of chronic disease, which makes death come even sooner, but, worst of all, makes the rest of his life one of great suffering filled with sighs<sup>68</sup>.*

With Law 2114 of 1920, protective care was expanded to those suffering from “the lack of atmospheric air or because of fumes, asphyxiating or poisonous gases (such as lead)”<sup>69</sup>. The law was supplemented in 1923: “for those with apparent and proven incapacity during mining and smelting work from the lack of atmospheric air or because of fumes, asphyxiation or the inhalation of poisonous gases and harmful powders, such as arsenic, lead (lead poisoning, saturnisme)”<sup>70</sup>.

In this way, in 1920 (and later in 1923) with the legislation for the insurance of workers in the mining sector, there appears for the first time in a legal text, an expanded definition of “occupational risk”, with the concept of “occupational disease”. Until then, Law 551 of 1914, “on responsibility for the payment of compensation to workers and employees injured in accidents at work”, the basis of which was the French law of 1898 and the Italian law of

1904, was the first general law to regulate issues relating to accidents at work in accordance with the principle of occupational risk<sup>71</sup>. The 1914 Law, which referred to the principle of occupational risk, did not, however, include occupational diseases, namely those diseases which gradually appear during the practice of the profession and which are due “to the progressive, slow and often latent effects either of the unhealthy workplace, or the adverse climate conditions, or the particular exhaustion of certain parts of the body, but mainly through the use of caustic or poisonous substances”<sup>72</sup>. In both the French and the Greek laws, occupational diseases were excluded from liability for compensation. Although it was acknowledged that such exclusion was unfair, the difficulty in identifying occupational diseases precisely, the reactions of the employers and the inadequate insurance system delayed the inclusion of occupational diseases among the occupational risks that were insured<sup>73</sup>.

The inclusion of occupational disease in the Greek insurance system should be linked to the 1920 specialisation of the legislation of insurance in the mining sector, with the reference to lead poisoning (and later, in 1923, to inhaled powders that can cause damage to the respiratory system). In this same period, Law 2868 in 1922, “on the compulsory insurance of workers and private-sector employees”, which required all companies that employed more than seventy workers to establish insurance funds for their staff, with contributions paid by both employers and employees, provided a generalised and vague definition of occupational diseases as regards the risks for which the worker was to be insured: “compulsory insurance in the event of illness at work, death, old age and, in general incapacity, to work”<sup>74</sup>.

The social insurance laws of 1932 and 1934 contained sickness and pension benefits for all insured workers, for accidents at work and occupational diseases resulting from lead poisoning, mercury poisoning and carbon contamination, in a variety of sectors and not exclusively in mining<sup>75</sup>.

Until the 1930s, the protection offered to miners who had been victims of accidents at work or of lead poisoning was insignificant, because of the inadequacy of the funds in the Miners Fund<sup>76</sup>. Although it was understood that “the occupational risk in these [mining] enterprises is greater than in every other enterprise”, it was stressed that “an increase in resources would be impossible, in particular for the interested enterprises, which have been undergoing a period of financial distress for a number of years”. It was further argued that protection for miners would reach a satisfactory level when “they would be insured along with other

<sup>65</sup> Royal Decree «περί εφαρμογής του οκτώρου της εργασίας κατά εικοσιτετράωρον και 48ώρου καθ’ εβδομάδα εις τας μεταλλευτικές και μεταλλουργικές επιχειρήσεις του Λαυρίου» (1924); Royal Decree «περί εφαρμογής του οκτώρου εις τας υπογείους μεταλλευτικές και μεταλλουργικές επιχειρήσεις» (1925), in Kritikos & Zarras (1929: 108-110).

<sup>66</sup> Law 3981 «περί τροποποιήσεως του ΒΩΜΑ’ νόμου...» (1912), art. 19, in Ministry of National Economy (1917b:121).

<sup>67</sup> Royal Decree «περί εκτελέσεως του άρθρου 19 του νόμου 3981 της 7 Ιανουαρίου 1912 «περί τροποποιήσεως του ΒΩΜΑ’ νόμου περί περιθάλψεως των εν τοις μεταλλείοις και μεταλλουργείοις παθόντων και των κατ’ αυτό ταμείων αλληλοβοηθείας μεταλλείων, μεταλλουργείων και ορυχείων» (1912), in Ministry of National Economy (1917b: 122-125).

<sup>68</sup> Papadimitriou (1921:160-161).

<sup>69</sup> Law 2114 «περί τροποποιήσεως και συμπληρώσεως του ν. ΒΩΜΑ’», FEK 67, Α, 18.3.1920, art. 1.

<sup>70</sup> Decree «περί τροποποιήσεως και συμπληρώσεως των νόμων περί Ταμείων Μεταλλευτών», FEK 380, Α’, 26.12.1923, art. 1; Kritikos & Zarras (1929: 296-311).

<sup>71</sup> Roilos (1928: 7-18, 23-24); Troupakis (1929); Papastefanaki (2008: 265-288).

<sup>72</sup> Roilos (1928: 45-46).

<sup>73</sup> Papastefanaki (2017: 60-61).

<sup>74</sup> Law 2868 (1922) «περί υποχρεωτικής ασφαλίσεως των εργατών και ιδιωτικών υπαλλήλων», art. 1. In each case, the liability of the employer for compensation remained intact under the common criminal law when these conditions were met (for example, lead poisoning due to the bad construction of the underground tunnels, i.e., at the fault of the employer). Roilos (1928: 18, 47).

<sup>75</sup> Law 5733 «περί κοινωνικών ασφαλίσεων», FEK 364, Α’, 11.10.1932, art. 47; Law 6298 «περί κοινωνικών ασφαλίσεων», FEK 346, Α’, 10.10.1934, art. 41; Liakos (1993: 508 – 518).

<sup>76</sup> Tzatzanis (1937: 354 -357); Roilos (1928: 20-21).



larger categories of employees<sup>77</sup>. Indeed, the foundational law “on social insurance” of 1932 as well as that of 1934, which was voted for by the People’s Party, provided for the possibility of dissolving the Miners Fund, the benefits of which would then be paid by the newly created Agency for Social Insurance (*Ίδρυμα Κοινωνικών Ασφαλίσεων*, IKA)<sup>78</sup>. The Miners Fund was not dissolved, however, despite its financial difficulties, particularly in 1933, as has been argued elsewhere<sup>79</sup>. In 1950, the pensioners of the Mining Fund were compulsorily insured by the Agency for Social Insurance against illness. The merger of the Naxos Emery Workers Pension Fund with the Agency for Social Insurance took place in 1952, while the Miners Fund was merged with the Agency for Social Insurance in 1956<sup>80</sup>.

Until the 1950s, Law ΒΩΜΑ΄ of 1901, along with its supplementary laws, as well as Law ΓΦΚΔ΄ “on mines” of 1910 and the *Regulations of mining operations* from 1911 formed the applicable labour law in the case of mines. Law ΓΦΚΔ΄ and the *Regulations* contained provisions that were primarily preventative, for the avoidance of accidents at work, while Law ΒΩΜΑ΄ and its supplementary laws contained remedial or insurance provisions in favour of the injured miner<sup>81</sup>.

## V. Labour Law, Work Supervision and Mine Inspections

Supervision of the implementation of the labour laws in all secondary sector activities was assigned in 1912 to the Labour Inspectorate, which had been created for this purpose<sup>82</sup>. Supervision of the implementation of the labour laws in mines and quarries was, however, excluded from the duties of the Labour Inspectorate and assigned instead to the Inspectorate of Mines. Although the published annual reports of the Labour Inspectorate are a valuable source not only for working conditions in the areas of production, but also for the discourse used by the educated middle class for male and female workers, the annual *statistical bulletins* issued by the Inspectorate of Mines offer little such information. The only detailed information offered is on: a) the number of workers; and b) workplace accidents. Absolutely no information is given for: a) the number, type and time of the inspections; b) the implementation of labour legislation in general; c) the application of the specific protective legislation for women’s and child labour; d) health and safety in the mines; and e) the

<sup>77</sup> Tzatzanis (1937: 356-357).

<sup>78</sup> Law 5733 (1932), art. 22, 7; Law 6298 (1934), art. 13, 7.

<sup>79</sup> Liakos (1993: 380, 511).

<sup>80</sup> Ministerial Decision «περί υποχρεωτικής ασφαλίσεως εις ΙΚΑ κατά της ασθενείας των συνταξιούχων Ταμείου Ασφαλίσεως Μεταλλευτών», FEK 115, Β, 24.7.1950; Papastefanaki (2017: 62).

<sup>81</sup> Papadimitriou (1921: 168).

<sup>82</sup> Avdela (1997).

“economic and moral condition of the working classes”<sup>83</sup>. This lacuna in the published reports of the Inspectorate of Mines is paradoxical, given that the Inspectorate of Mines was charged by law with producing six-monthly reports for the ministry, containing information similar to that which the Labour Inspectorate had to collect. The assignment of the supervision of working conditions in the mines to the Inspectorate of Mines, instead of the Labour Inspectorate, underlines how distinct mines were as a workplace in relation to other workplaces in the secondary sector, both in reality but also in the perception of the public employees who proposed the legislation. Moreover, it reveals the strength of engineers as a professional body in the period when the two inspectorates were created within the Ministry of National Economy.

While the Labour Inspectorate was staffed by social scientists, engineers and at least one doctor, the Inspectorate of Mines was staffed exclusively by engineers, who compiled the technical reports and collected statistical data, but they do not appear to have been distinguished by any social sensitivity. This lacuna is evident in their reports.

## VI. A specific pathology for mines and metal works: lead poisoning and the medical experts

Given the lacunae in the sources of the Mines Inspectorate, we shall examine lead poisoning, a specific pathology of occupational risk in mining and metal works, by using two medical reports.

Lead poisoning is poisoning with lead, the pathological state caused by an increased absorption of lead. The lead is absorbed by the respiratory and digestive system, by the breathing in of dust and vapours which are formed during the processing of the minerals, from foodstuffs, and from water. The characteristic of poisoning with lead is that it acts in very few doses. Absorption is favoured by many conditions (e.g., warmth, kinds of food, acidity of the stomach juices). The disease of referred to for the first time by Hippocrates, who describes it in a person working in the extraction of lead, whereas the clinical picture of the disease was described in detail by a French physician in 1839. The disease evolves in three stages: a) absorption / simple impregnation with lead (a small increase of lead in the blood and slight haematological disturbances); b) pre-clinical stage (further increase of the lead in the blood and the urine with more marked haematological disturbances); c) the principal stage of poisoning /clinical stage (appearance of clinical symptoms). The first subjective complaints of the disease are not characteristic. To begin with: headache, joint pain, muscle pain, then depression, constipation.

<sup>83</sup> Papastefanaki (2017: 62-63).

Characteristic symptoms of the disease: anaemia, panic, colics, paralysis of the extremities, and, finally, kidney and brain damage, manifested in its acute form with epilepsy, paralysis, and coma, and in its chronic stage with loss of memory, deafness, dementia, reduction of the field of vision, atrophy of the optic nerve. In the advanced form of the poisoning, the kidney damage is accompanied by damage to the lungs (which ends in asthma and tuberculosis), neurological disturbances, and paralysis<sup>84</sup>. Post-War medical knowledge held that it was better for the disease to be prevented, as it is not curable from the point when the clinical symptoms declare themselves. Regular medical monitoring of employees exposed to lead, with clinical examinations, will permit the timely diagnosis of the degree of impregnation of the organism with lead and the removal of the workers from the dangerous jobs. By the constant transfer of staff from areas which involve danger to areas which do not, it is possible to safeguard workers' health and industrial production at the same time. The maintenance of a healthy workforce also means the avoidance of a direct and indirect financial burden resulting from the appearance of the disease.

Particularly exposed to lead are those working in lead mining / metallurgy, but also other categories of workers, since lead is in extensive industrial use (printing, pipe manufacture, paint manufacture, glassworks, etc.).

The interest of doctors in the working conditions and state of health concentrated on the CFML, a mining and metallurgy enterprise, which had been operating at Lavrion, in the east coast of Attica, since 1875. At its highest point, the company employed approximately 3,000 – 3,500 workers – in the early twentieth century; it employed 1,500 in 1917. After the First World War, the CFML went through a crisis, since the prices of lead in the markets fell, and gradually the seams which were mined were exhausted, resulting in a reduction in production and the staff employed: there were some 300 workers in 1925 – 1935. Work at the CFML was divided into two parts: a) the extraction of the minerals (lead sulphide – galena, lead carbonate – white lead, zinc carbonate – calamine), and b) the processing of the minerals at the lead works for the production of lead and of the secondary product, arsenic acid, whereas zinc carbonate, after calcination, was sent off for further processing in European metal works.

In 1919, the first medical study *Concerning the public health state of the mines and metal works of the Compagnie Française des Mines du Laurium* was published<sup>85</sup>. Its authors were three doctors: Panayiotis Manoussos [1852-1929] and Kyriakos N. Kyriazidis [1887-1938], on the staff of the Public Health Service of the Ministry of the Interior, and Constantinos Savvas [1861-1929], Professor of Microbiology at the University of Athens and court physician who had studied in Athens, Vienna and Berlin. Savvas was the person who, in 1900, introduced the new branch of medicine – hygiene – into Greece<sup>86</sup>.

Hygiene, the teaching of which Constantinos Savvas inaugurated at the University in conjunction with micro-

biology, seemed to be the science which would bring about “social improvements” at the dawn of the twentieth century. Through the sciences of hygiene and microbiology it was now possible to deal with and prevent infectious diseases, and to make a significant reduction in the mortality rate. “This gain in terms of life and vital power saved has not only a boundless moral and philanthropic value, but also an incalculable economic value, (...) because a very large human population is kept alive and engages in work. But apart from the profit arising from the saving and lengthening of the life of so many people, another most important economic factor is the lowering of the mortality rate necessarily occurring as a result of the reduction of the number of diseases”<sup>87</sup>. Scientific hygiene, therefore, served as a political economy of health, since it secured the necessary labour force for industrial capitalism, at the same time reducing days and expense of medical treatment. For these reasons, the strict implementation of the rules of scientific hygiene had to be in Greece the principal concern of governments, just as in “civilised countries”, Savvas maintained<sup>88</sup>.

In the university textbook which Savvas published in 1907 for the needs of the subject of Hygiene at the University, he explained what is this science. Its object is the recommendation and implementation of any measure which contributes to the maintenance and promotion of human health. Thus the science of hygiene examines the significance of all those factors which influence human health and formulates rules by which man should organise his life, not only so that he can develop in a healthy manner physically and mentally, but so that he can maintain his health and increase his resistance and his ability to work. The object of hygiene is therefore a very broad one; it is the study of the environment, both natural and artificial<sup>89</sup>. Hygiene is represented as being an overall science which supplies the greatest benefit to society, since “it does not belong only to medical science, but is also an important branch of public economy whose main aim is to combat social malaise”<sup>90</sup>.

The study *Concerning the public health state of the mines and metal works of the Compagnie Française des Mines du Laurium* (1919) describes the dangers to which those working in the mines and metal works of the CFML were exposed from accidents, heavy work, forms of poisoning, and lead poisoning. Although there are reports by engineers on accidents at work at the CFML mines and metal works from as early as the 1890s, the 1919 study is – as far as we know – the first to concern itself with all the other risks of the mines – metal works. In general, the proper and adequate ventilation of the underground galleries of the mines by shafts and the cleanness of the atmosphere are confirmed<sup>91</sup>. As to lead poisoning, it was established that “those working in the Company’s mines, if mining lead minerals, are, of course, subject to the danger of lead poisoning. This danger, however, is relatively small

<sup>84</sup> Aggelis (1973:197-206).

<sup>85</sup> Savvas, Manoussos & Kyriazidis (1919).

<sup>86</sup> Papastefanaki (2011: 167-171).

<sup>87</sup> Savvas (1900: 13).

<sup>88</sup> Savvas (1900: 24).

<sup>89</sup> Savvas (1907: 8).

<sup>90</sup> Savvas (1907: 18).

<sup>91</sup> Savvas, Manoussos & Kyriazidis (1919: 5-6).

and the workers can easily avoid it by taking precautionary measures<sup>92</sup>.

The danger was not great because, on the one hand, the greater part of the minerals mined consisted of non-toxic lead sulphide and zinc carbonate, and, on the other, because the poisonous minerals, such as lead carbonate, because of the moisture which they contain, did not give off dangerous dust, either while being transported or being crushed, and the dust which was produced on the explosion of the blasting-charges did not have a deleterious effect on the workmen, because it is "very coarse" and thus "falls rapidly to the ground, and since, because of the smoke from the gases developing at the moment of the explosion, the workmen are forced to withdraw from this area for at least ten minutes; in any event, they are supervised as to the observance of this by the contractors for these sections"<sup>93</sup>. Finally, although the hands and the clothing of the workmen were dirtied by the dust of the lead minerals, the danger arising from this was minimal if they carefully implemented the general rules of cleanliness before taking any food and at the end of their duties. "Unfortunately, however, as we ourselves have observed, these workers, because of occupational apathy, have not been persuaded to apply these very simple measures"<sup>94</sup>.

The Company, by means of large and expensive installations, had reduced the amount of manual labour and these installations allowed it, in general, "suitable protection" of the workers from the various harmful effects of their work<sup>95</sup>. By the use of furnaces "of the latest system", it had succeeded in "virtually eliminating the dangers which all the workers in metallurgy plants are subject to from light, air, and fire and which were very great for workmen employed in furnaces in older systems"<sup>96</sup>.

In the processing of lead, it is claimed that the minerals used (lead sulphide and zinc carbonate) are not toxic, while lead carbonate is toxic; it was, however, kept moist in all the stages of its processing, so that the giving off of the very least dust was prevented. Almost all the jobs in which a certain quantity of dust developed were carried out chiefly out-of-doors, so that this small quantity of dust was very rapidly dissolved. In those areas in which "any dust is produced in an enclosed space (and these instances are very few), the company has taken care that this is totally removed by special extractor machinery"<sup>97</sup>. Thus, for the above reasons, the workers at the CFML were not exposed to risk by breathing in poisonous dust. Of course, the hands and clothes of those who were engaged chiefly in the transporting and loading of the minerals took on dust from those containing lead, with which they came into direct contact, and it was possible for this to enter the body with food. But this dust was not very dangerous because it was usually derived from non-toxic lead sulphide and the workers could easily take precautions by observing the relevant conditions of cleanliness (washing their hands, changing

their clothes after they had finished work and before taking food). And to this end, the CFML "not sparing expense, but with a view only to the protection of the health of its employees"<sup>98</sup>, had installed in all the departments of the metal works washbasins for the hands, and it had recently built for the use of those working in the furnace area a special paved room, soon to come into use, which fulfilled all the requirements of hygiene, equipped with a row of washbasins with running water and with a canteen. The senior staff of the company never ceased to advise and oversee the workmen as far as was possible so that they would observe the rules of cleanliness<sup>99</sup>. Thus

*it can be said generally that the Company on this issue also has taken every care and provided its workers with all the means for the protection of their health from the harmful effect of dust. The suitable use of these means, so that they safely escape the danger from the dust of the minerals is now a matter for the workers alone<sup>100</sup>.*

But unlike the dust, the gases and vapours produced during the calcination and removal of the metals from the furnaces at the plant were in most cases the main cause of the poisonings observable there. The hygiene of the premises indicated that the employer should see to it that the workmen remained at a distance from the point where the poisonous gases were given off by the use of appropriate installations<sup>101</sup>. Particularly as concerned the smoke and gases produced in the furnaces of the CFML, these, both in terms of their chemical composition and of their gaseous state, were dangerous and it was possible if they were inhaled over a long period, for them to cause lead poisoning. This danger had been completely neutralised by the CFML by the installation of the "most perfect" system of furnaces<sup>102</sup>.

This is followed by a detailed description of the departments of the metal works. In the washing sheds, all the jobs involving separation and enrichment of the minerals were carried out "in dampened form" with the aid of machinery. Very few workers were employed in this department, in which, however, no dangerous dust was generated, and so the workmen, by observing the rules of cleanliness were in no immediate danger of poisoning<sup>103</sup>. The calcination of the minerals containing sulphur took place in furnaces with an opening which closed hermetically with a valve, from which it was not possible for gases and vapours to escape. Furthermore, the furnaces were installed in a well ventilated location. There was also an air-extractor, while the chimney was also at a much greater height than the working area. In the whole of the calcination area, the workers were in no danger from vapours, gases, and dust, and if the relevant cleanliness measures were taken, they completely escaped the danger of lead poisoning<sup>104</sup>. Where

<sup>92</sup> Savvas, Manoussos & Kyriazidis (1919: 6).

<sup>93</sup> Ibid.

<sup>94</sup> Savvas, Manoussos & Kyriazidis (1919: 7).

<sup>95</sup> Savvas, Manoussos & Kyriazidis (1919: 9).

<sup>96</sup> Savvas, Manoussos & Kyriazidis (1919: 9).

<sup>97</sup> Savvas, Manoussos & Kyriazidis (1919: 10).

<sup>98</sup> Savvas, Manoussos & Kyriazidis (1919:11).

<sup>99</sup> Ibid.

<sup>100</sup> Ibid.

<sup>101</sup> Ibid.

<sup>102</sup> Savvas, Manoussos & Kyriazidis (1919: 12).

<sup>103</sup> Ibid.

<sup>104</sup> Savvas, Manoussos & Kyriazidis (1919: 13-14).

the ore was made into bricks, very little dust was given off, and this was absorbed by a powerful extractor. Recently, a machine had been installed in this section, which was not yet in use, by which the bricks would be automatically loaded on to the trucks, without the involvement of the workmen's hands. Thus the very few workers employed here, mainly to supervise the machine, were not in any danger of poisoning<sup>105</sup>. In the furnace area, the minerals rich in lead were smelted in two furnaces, from which the lead metal resulted. The construction of the furnaces from a health point of view was faultless; the vapours and gases produced during removal from the furnaces were drawn off safely and methodically. The furnace doors closed automatically, the area was adequately ventilated, and there was also, "if needed", an extractor, pipes which channelled the gases to the chimney, etc. "These furnaces protect only the worker from the poisonous vapours and gases", while here too there were facilities for the workmen to wash<sup>106</sup>.

The CFML had constructed three terminal drains for the final removal of the smoke and gases from the furnaces. These were cleaned every two years with water from manual water-pumps by workers wearing special clothing. By means of these, the further production of injurious gases and vapours was rendered entirely safe, and the workers were completely protected from lead poisoning<sup>107</sup>.

Other health measures taken by the CFML were: the daily wage of those working in the furnace area was higher than that of other employees. All were provided with healthy residences, and for that reason the Company had built whole settlements of workers' housing "fulfilling all the demands of public health"<sup>108</sup>. Those working in the furnace area were provided by the Company with frequent leave of absence to visit their place of origin for two to three months; it supplied medical supervision of all its employees with its own doctors, who monitored the workers in case they showed symptoms of lead poisoning, in which case they were immediately removed from the dangerous jobs, given leave, or moved to jobs in which they were not exposed to the injurious effect of lead<sup>109</sup>.

Thus, according to the lengthy study of 1919, it is apparent that the CFML, "having incurred major pecuniary expenditure for the protection of the workers' health, has employed installations for the extraction and processing of the ores which neutralise all the risks which workers employed in jobs of this kind run, and which can to a large extent be regarded as a model for the metallurgy of lead, from both a health and an industrial point of view"<sup>110</sup>. Furthermore, the CFML provided its workers with

*all the means of implementing the rules of cleanliness and correct care, because water installations for purposes of cleanliness [...] are to be found in all the departments of the metal works, and it provides healthy homes for the workers, but what is of the greatest im-*

*portance is that it grants them in rotation and for whole months leave of absence from the dangerous work<sup>111</sup>.*

If, then, the workers implemented the necessary measures of hygiene, since they were provided with the appropriate means, they were in no danger of lead poisoning. "Unfortunately, however", the employees at the CFML,

*ignoring and underestimating the risk to which they are exposed, seek by every means to evade these rules, thus rendering themselves responsible for the harmful effect of the lead on their organism. As to this last point, we ourselves were convinced during our stay, when, making a sudden visit to workers' houses, we caught them eating with unwashed hands and wearing their working clothes, thus introducing dust containing lead with the food into their gastro-intestinal tract. We consider it worth noting in this context that in those houses where the workmen had been warned of our visit, they were found to have very clean hands and clothing<sup>112</sup>.*

The general manner of guarding against lead poisoning, as proposed by the medical study, has two dimensions: (a) the use of methods and installations which preclude the spreading or production of dust and gases – the most perfect methods were employed at the CFML – and (b) protection requires the careful application of special measures by the employees themselves: the use of a uniform, careful physical cleanliness, etc., and the implementation of rules of hygiene on the part of the workers. The probable averting of infection is in the hands of the worker, by the observance of general health rules (adequate nourishment, a healthy home, cleanliness). By the implementation of these measures, only a few individuals, because of "individual make-up" or general diseases of the organism are "very susceptible" to lead poisoning, in spite of the taking of the appropriate measures. Alcoholism is considered to play a role in the pathology. Also, syphilis, tuberculosis, malaria render the organism less capable of coping with lead poisoning. Consequently, only alcoholics and persons suffering from serious diseases are not safeguarded, in spite of the hygiene precautions, from this form of poisoning. The minimal quantity of vapours which rarely and irregularly escape from the furnaces of the CFML do not seem capable of causing poisoning, except "in persons very vulnerable to lead"<sup>113</sup>. If the worker uses correctly the means with which he is provided for his care (pay, housing, baths), he will prepare his organism in the proper way to "cope with the danger threatening him", because the manifestation of the disease depends upon the "resistance of the individual", which, of course, is assisted by the appropriate life being lived by the worker<sup>114</sup>.

Fifteen years later, in 1935, a new medical study concerned itself with the lead poisoning of those working in the Lavrion mines and metal works, but this time it was

<sup>105</sup> Savvas, Manoussos & Kyriazidis (1919: 14).

<sup>106</sup> Savvas, Manoussos & Kyriazidis (1919: 15-16).

<sup>107</sup> Savvas, Manoussos & Kyriazidis (1919: 16-17).

<sup>108</sup> Savvas, Manoussos & Kyriazidis (1919: 17).

<sup>109</sup> Ibid.

<sup>110</sup> Savvas, Manoussos & Kyriazidis (1919: 17).

<sup>111</sup> Savvas, Manoussos & Kyriazidis (1919: 18).

<sup>112</sup> Ibid.

<sup>113</sup> Savvas, Manoussos & Kyriazidis (1919: 20-21).

<sup>114</sup> Savvas, Manoussos & Kyriazidis (1919: 23-24).

a publication of the Labour Inspectorate. The Labour Inspectorate was instituted in 1912 within the Ministry of the National Economy as a state instrument for controlling the operation and enforcement of labour legislation of 1910-1914<sup>115</sup>. The data registered by Labour Inspectors in the Inspectorate's published *Reports* between 1913 and 1934 provide systematic information regarding illness among the working population and occupational pathology in workplaces. The Labour Inspectors, educated civil servants who belonged to the circle of social reformers, compiled their reports in the light of the scientific criteria of the time (using systematic description and statistical documentation), imbued with a positivist faith in the objectivity of the data<sup>116</sup>.

Author of the study on *Lead poisoning and other occupational diseases in the mine and metal works at Lavrion* was the physician Georgios Papadopoulos<sup>117</sup>. He had studied at the University of Athens, and specialised in Labour Hygiene at the Paris School of Medicine; he was inspector of occupational hygiene at the Labour Inspectorate in the period 1926 – 1947. In the inter-War years, he took part in the preparations for the introduction of social security in Greece, while he was for many years the country's representative at the international conferences on Labour Hygiene at the League of Nations. A supporter of the liberal politician Eleftherios Venizelos up to 1920, after the First World War he turned towards socialism (in the circle of Alexandros Papanastasiou and Alexandros Svolos), while after the Metaxas dictatorship, he acceded to the communist Left<sup>118</sup>.

Papadopoulos' study is marked by a social scientific approach. Papadopoulos recognises that the dangers of lead poisoning are smaller or greater depending upon the composition of the minerals, their solubility, the state in which they are during the course of processing (dry, moist, etc.). He here stresses, nevertheless – and here, for example, there is a significant difference from the 1919 study – that although the dust of lead sulphide (galena), when inhaled, is less easily absorbed than lead carbonate (white lead), “nonetheless the danger is always serious”<sup>119</sup>, even if the symptoms by which the absorption of galena by the organism is accompanied are less apparent. It is argued that the quality of the mechanical installations is of primary importance in reducing and avoiding the dangers; however, even in the most perfectly equipped metal works “there is no section in which the danger of lead poisoning is not to some degree always present. The workers exposed to lead poisoning are in fact numerous and are met with in all departments”, since instances of lead poisoning are observable, for instance, among staff engaged in the removal of ash, in the transporting of clinkers, in the cleaning of the furnaces, in crushing the ore, in loading and unloading it, in calcination, the furnaces, etc.<sup>120</sup>.

This is followed by an extensive and detailed account

of the pathology and symptoms of lead poisoning<sup>121</sup>. The clinical symptoms of lead poisoning resemble those of syphilis, whereas the damage caused by it to the organs is entirely different. *Lead poisoning heredity brings into the world degenerate, idiot, epileptic, hydrocephalous beings ... thus lead poisoning is a real danger to society, if we take into account the fact that apart from metallurgy and mining, a host of other jobs involve the danger of lead poisoning*<sup>122</sup>.

The part played by the (breadwinner) father in the causation of these manifestations is proved by the fact that when the father is removed from the dangerous environment, miscarriages and premature births stop. But lead poisoning is more dangerous for women and has a disastrous effect on pregnancy. Women and minors have less resistance to lead poisoning<sup>123</sup>.

Papadopoulos accepts that the improvement in the methods of processing achieved in the 1890s significantly reduced risks at work, while the technical improvements which the CFML introduced from the first decade of the twentieth century significantly lessened the forms of poisoning observed at other times among the staff. As the premises of the CFML were laid out in December 1930, the greatest danger of poisoning lay chiefly in the absorption of the dust of the lead ores and not in the inhalation of lead vapours (brick-making department). At the CFML there were “near perfect” installations: extractors worked well, the smelting furnace was in a shed. In the brick-making section, lead carbonate dust was formed, and this is more poisonous because it is dissolved and absorbed more easily<sup>124</sup>. The study differs from that of 1919. The workers took rudimentary precautionary measures, blocking their nostrils and mouth with cotton wool, because they could not tolerate the mask which they had to wear, particularly in summer, because it was a nuisance, heavy, and hot. Papadopoulos recognises that the phenomenon of distaste for the mask and the difficulties which all the workers had in wearing it for any length of time were observable among all the workers of the world, because the masks then in use were not light and were not easily tolerated<sup>125</sup>.

But there were also effects on the environment: the smoke emitted from the chimneys was still rich in lead, and when it cooled, it fell as dust on the surrounding vegetation, and so could harm the animals which fed on it, and even sometimes cause poisoning of the pets of nearby houses<sup>126</sup>.

It was established that many workers showed symptoms of lead poisoning: these symptoms were not always marked enough for the patients to stop work<sup>127</sup>. But up to the early 1930s no microbiological examination had ever been carried out to trace lead in those working at Lavrion – an examination which is of capital importance for diagnosis and to determine the extent of the disease and for

<sup>115</sup> Leon (1978: 5-28); Avdela (1995).

<sup>116</sup> Avdela (1997).

<sup>117</sup> Papadopoulos (1935).

<sup>118</sup> Papastefanaki (2009: 346-351); Papastefanaki (2017: 234-235).

<sup>119</sup> Papadopoulos (1935: 5).

<sup>120</sup> Papadopoulos (1935: 6).

<sup>121</sup> Papadopoulos (1935:6-9).

<sup>122</sup> Papadopoulos (1935: 9).

<sup>123</sup> Papadopoulos (1935: 9).

<sup>124</sup> Papadopoulos (1935:12-13).

<sup>125</sup> Papadopoulos (1935:13).

<sup>126</sup> Papadopoulos (1935:16).

<sup>127</sup> Papadopoulos (1935:18).

the protection of the workers<sup>128</sup>. Nor, up to the beginning of the 1930s, had the enterprise's doctors kept statistics. However, since the Miners' Fund subjected to a laboratory test those who addressed themselves to it to claim compensation for lead poisoning, it was calculated that those showing "sure signs" of lead poisoning amounted to 25% of the workers in the mines and metal works. Those working in the mines should have formed a greater proportion of those suffering from lead poisoning, because of the dust, but these were made up principally of internal migrants who moved each year to agricultural jobs, which protected them from the risks of poisoning. In addition, the female workforce which had until recently been employed here was also shifting and temporary, and so "characteristic anomalies" were not observed among them, or exceptional morbidity, or abnormal pregnancies and births; their children were born normal, although infant mortality could be considered somewhat high<sup>129</sup>.

In general, morbidity among the workers at Lavrion was high, and many had precarious health (chronic malaria, rheumatism, digestive disorders, trachoma). The life habits of the workers considered for the most part bad. Many of them were given to drinking, and listened with distrust to the assurances of the doctors that drink was fatal for the health, because it accelerated and intensified the poisoning. Furthermore, their diet was exceptionally poor, they ignored the elementary rules of hygiene, they did not observe the physical cleanliness indicated, and they ignored hygiene of the body and teeth<sup>130</sup>. Meticulous individual hygiene, a prohibition on eating in the workplace, a prohibition on smoking, the keeping of the outdoor clothes of the workers in lockers away from dusty places of work, the wearing of masks and goggles closed at the sides, to cover the whole of the eye, head covering, rubber gloves, alternating in dangerous areas, not having always the same people working there, working fewer hours (four hours a day at the most) in areas which involved exceptional risks – these were some of the main precautionary measures. They should take frequent sulphurous baths, they should take potassium iodide and sulphur pills, and they should as far as possible take better nourishment (fatty foods, milk). This, of course, was not possible when the workers were badly paid. For this reason, the dangers of lead poisoning were always proportionate to the way of life of the workers, their diet, and the habits of their private life<sup>131</sup>.

Alcoholism it was considered that it had a significant effect on the pathology of lead poisoning. Alcoholics, like syphilitics, succumbed more rapidly to the effect of the poison. Women and children were more susceptible to lead and should be excluded from lead metallurgy: women because of the difficulty, because of their clothing, of always taking a bath after work, because of their household duties with which they were burdened in addition to factory work, and because of pregnancies, which exhausted them; and young people, because they had a lower resistance to the poison. For these reasons, over and above

any precautions, the question of the selection of workers at the time of their engagement was particularly pressing. This measure was of fundamental importance and should be implemented with care and strictness by the doctors responsible. All sick persons, all showing symptoms of tuberculosis, those suffering from hysteria, neurasthenia, or any neuroses, epileptics, any showing a predisposition to mental illness, alcoholics, those suffering from rheumatism or kidney disorders, etc. should be excluded, because lead poisoning would have particularly grave consequences for all of these<sup>132</sup>.

Equally necessary was the periodical medical examination of the workers – every three months – so that the early symptoms of lead poisoning could be identified in good time. Any worker suffering from this should be moved to other – harmless – departments of the plant. Threat of dismissal: it was, however, likely that some workers should cease work at the plant altogether, not only because of lead poisoning, but also because of "the carelessness and indifference of the workers as to precautionary measures", "habitual neglect of and indifference to cleanliness of the hands, teeth, etc."<sup>133</sup>.

Papadopoulos considered necessary the dissemination of knowledge of hygiene among the workers, in order to protect them from lead poisoning, the pointing out of the risks from indulgences and the use of alcohol, the cultivation of a love for the open-air life and sport, and briefing on the dangers threatened by the careless observance of the precautions called for (lectures, wall posters with regulations).

## VII. Conclusions

From the 19th century, the Greek state gradually established institutions, created services and developed a series of legal arrangements through which it aimed, at least formally, at both the exploitation of the national mineral deposits and the protection of the mine workers. In order to exploit the public mines, the state had to choose between two methods of exploitation: operating them directly or contracting. It appears, however that, in many cases of the exploitation of public mines, the inadequate technical management and the state mechanism did not sufficiently defend the interests of the public sector.

In the private sector, to the extent that the state mechanism could not or did not want to control the activity of the mining companies as regards working conditions, the gendered protection policies for specific categories of workers ultimately created a protective net for the male labour market in the mines, through the exclusion and demotion of the "secondary" work of women and children. The particularly arduous working conditions were a sufficient pre-

<sup>128</sup> Papadopoulos (1935:19).

<sup>129</sup> Papadopoulos (1935: 18-19).

<sup>130</sup> Papadopoulos (1935: 19).

<sup>131</sup> Papadopoulos (1935: 19-21).

<sup>132</sup> Papadopoulos (1935: 21).

<sup>133</sup> Papadopoulos (1935: 21-22).

text to introduce specific arrangements for the “weaker” categories of women and children, whose work was jointly treated as an object for protection. The labour legislation that was introduced in the first decade of the 20th century, even before the aims of the Liberal governments were enshrined in law, established, amongst other things, restricted working hours for women and prohibited women from working in certain jobs. Thus, during the same period that the state was becoming more interventionist in the field of industrial relations, the implementation of this social policy was based on gender discrimination.

At the same time, the inability to deal effectively – through a welfare state – with the serious health problems of the miners resulting from their work made the desire of the medical profession to intervene in every aspect of life, during both work and leisure time, stronger and more and intense. Furthermore, the gradual introduction of the concept of “occupational risk” at the beginning of the 20th century, with all that it encompassed (accidents at work, occupational diseases) presupposed the development of specialised scientific knowledge, the availability of specialists, as well as the development of regulations that defined risk at work. Through this process, accidents at work and diseases resulting from the work environment were transformed into technical and medical problems that required a technocratic scientific approach, while preventive methods and various disciplinary measures were gradually imposed. Indeed, given that the welfare state was unable to provide effective medical and pension assistance to those workers in need, and given that the workers themselves did not come forward regarding the health problems they faced in the workplace, in this case the mines, the preventive measures and various disciplinary methods exercised by the experts and employers, in combination with the gender-based health and maternity protection policies, created a stifling framework of control for the workers in the mines. This stifling framework attempted ultimately to transfer the responsibility for the maintenance or loss of health to the male and female workers themselves, by disconnecting salaried and dependent work from the social relations that produced it.

In the 1919 medical study – though this is not expressly stated – the efforts of the doctors were to find arguments for the benefit of the CFML to enable the latter not to pay compensation to those workers who claimed it as sufferers from lead poisoning. The legislative framework after 1914 had rendered possible a claim for compensation not only for accidents at work, but also for infection with lead poisoning, even though it did not recognise occupational illnesses overall. The expediency of the specific study explains the insistence of its authors on the investments which the CFML had made and on the efforts to shift the responsibility on to the workers themselves. According to this approach, the employees were themselves responsible for the disease, since they did not observe the rules of hygiene and live their lives with self-restraint.

The medical study of 1935 emanated from a state control service which operated within the framework of the Greek welfare state which was taking shape at that time. Its author was himself a champion of social security and argued in favour of substantive prevention and a therapeutic

handling of lead poisoning. His approach, however, is also marked by specific, historically determined, conceptions: by the belief in the degeneration of the species through illnesses and by the view that women and children belong to “vulnerable” categories of labour which need protection. The beginning of this protective policy towards the “special categories” of those working in mines – metal works in Greece coincides with the inter-War crisis in this branch of the economy and a reduction in jobs. The reduction in the workforce also entailed a policy of selection of what would thereafter be the necessary personnel on criteria relating to gender.

In the two medical texts, an attempt is made to regulate the workspace through observation and surveillance. The workplace becomes a site of intervention for the doctors working with occupational risks and their prevention. Medical discourse controls and regulates the workplace. It attempts both to control the work and the bodies of the workers, as well as the private lives and free time of the workers and their families.

In both medical texts the cultural confrontation which characterised the conflict between the educated middle class and the working class in Greece in the early twentieth century is apparent. Also apparent is the struggle over the working hours of the employees: on the one hand, the refusal of the miners and metallurgy workers to use the baths provided by the company must be linked with their demand that the time needed for cleanliness should count in working time; on the other, the doctors seem to have wished to have total control over the free time and the private life of the workers, in order to safeguard public health.

The debate on occupational and public health in Greece involved not only an improvement of the infrastructures and a reduction in morbidity and mortality rates of the working population, but raised more general issues of the remediation of Greek society – both literally and metaphorically. In this debate, various issues of the incorporation of the masses, forms of social exclusion, supervision of social behaviours, and confinement of the “unhealthy” were brought out. The views, which were expressed, were not neutral, neither from the point of view of social class nor from that of gender; on the contrary, they promoted new social and gender values and advanced to a renegotiation of social relations of power.

Gradually, accidents at work and diseases caused by the working environment were dissociated from the content itself of waging-earning work and converted into technical and medical problems which required technocratic handling by experts, thus imposing the development of preventive techniques and of a variety of forms of disciplining. The knowledge of the experts insinuated itself and mediated in the negotiations of workers – employers – the state, and of international corporatist organisations, such as the International Labour Office. For example, the imputation of responsibility to employees for accidents at work or for illnesses on the grounds of a wrong way of life and refusal to use the protective measures was a part of medical discourse which, on the pretext of “scientific observation” or of “objective recording”, mediated in power relations.

The definition of occupational health and occupational

diseases (more generally, definitions of health and disease) given to the workers by expert doctors is, in the end, a political issue, which is determined in historical terms. Doctors used their scientific knowledge not only as a tool for the political economy of health, but also as a mean to combat the “social question” by reforms and total intervention in everyday life, work and leisure of the working classes.

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