

# Medical Assistance offered by Sociedad Anónima Minas de Riosa (Spain)

## Company archive as source to Social History

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**Abstract**—Sociedad Anónima Minas de Riosa was a mining company that developed its activity in Riosa and Morcín –Asturias–Spain– at the beginning of the twentieth century. It was founded in 1899, with Spanish capital, and the same year it bought, at public auction, the coal reserve of Riosa, the largest, and best, reserve of coal in Spain. Its relevance was determined by the quality of its coal and by its corporate and technological innovations. All documents generated in the course of their duties are preserved. There is a large volume of documentation. In its first year of operation, and prior to the establishment of the Law of accidents, the company exercised some protection to their workers. We study the medical leave and the prescriptions by Company's doctors, to know the medical care that Sociedad Anónima Minas de Riosa provided to its miners.

**Keywords**- Asturias, Riosa, coal, coal mining, medical assistance, time off sick

### I. METHODOLOGY AND METHODS

All documents generated in the course of duties of the Sociedad Anónima Minas de Riosa are preserved. There is a large volume of documentation, 45 boxes [1] for a short period of time, because the company only existed for 17 years. We revised all of them. The company became to have 310 workers on the payroll doing 38 different tasks [2]. In its first year of operation, and prior to the establishment of the Law of accidents [3], the company exercised some protection to their workers through a budget line dedicated to the aid of the sick [4] and wounded, something quite common in industries under paternalistic ideas [5]. In Spain there are some studies about health care that some companies offer to their workers, but this society never was studied, because all their documents were always hidden until now. We could find different elements of unusual interest to penetrate the healthcare policy of this Society.

We found the registration book with all the notes about the miners that were sick [6], and all the documents with the information about the time of those operatives did not work. There are 200 documents with information about the time off sick of the miners in the Sociedad Anónima Minas de Riosa. Those documents have the names of the doctors, and the miners that they visited, their address, and the salary. A lot of them have more details that help us to understand the formalities that in that moment the company did in case of time off sick. They have the age of the miners, and their marital status. All this elements are very interesting because we can

make patters of situation and demographic studies that complete the register book. Without doubt, el most important element is the reason of the time off sick, because this explication was not in the register book and it is fundamental for a good and rigorous research about the workplace accidents in this Company. Not all the forms were completed; some of them did not have all the information, but the references that we could obtain were enough to prepare a small statistics and improve our knowledge about the situation. The data were: name and surname of the worker, age, marital status, year and month of the time off sick, job (the specific occupation of each), daily salary, days that the miner did not work, cause of the disease and if there was a collective accident. Only four of this documents did not have the name and surname of the worker, and we do not know why, because in this cases we could know the age, salary and other information. We suppose that it was doctor's oblivion.

There were 24 forms that were considered a collective accident. That was 12% of the accidents in the Company [7]. In those cases, two witnesses had sign the document, because it was mandatory to be compensated by the insurance company. We studied, very carefully, the causes of the time of sick, because we tried to know and understood the more frequency reasons by the miners of the Sociedad Anónima Minas de Riosa were ill. We compared the parts of the body where this miners of the Sociedad Anónima Minas de Riosa had more wounds, with contemporary information of a very famous doctor in Mieres, called Nicanor Muñiz Prada. This doctor wrote a important book about the accidents and diseases of the miners in the end of the 19th century in Asturias [8]. In this way we could know if the labor conditions, relationship with the healthcare, in this mine were worst, equal, or better than in other mines.

In the archive of the company are conserved too a lot of prescriptions by the doctors Nicanor Muñiz Prada and Celestino Muñiz Prada, for the miners wounded, bruised or sick. It was a big work to find all of them, because they were disseminated in all boxes. Later, we made a table with the name of the medicine, and the number of times that this medicine was prescribed. In this way we could know the most commons health problemas that those miners had. At last we compare the prescriptions with the contemporary pharmacopeia. We consulted the 6th edition, called the Farmacopea–formulario universal, and published it in Madrid

in 1884 [9]. The 19th century was, without doubt, the biggest step in medicine and chemistry [10].

We study all the prescriptions –there are 131–, and in this way we can improve the knowledge of healthcare provided by the Company. They are dated between January 1st, 1901 and December 7th, 1901 [11], later on the Company selected its own doctor, called Ángel Bueres Escribano [12]. The information of those prescriptions is very important and interesting, because we can make a statistics about the more frequent medicines, and, in this way, we can know more frequent damages in the miner work.

## II. COLLECTION AND ANALYSIS OF DATA

There were some doctors who sign the documents with the causes of the time off sick. The most frequent was Ángel Bueres Escribano who, like we saw, was the Company's doctor, but before that he arrived, the doctors were Nicanor Muñiz and Celestino Muñiz. Both worked in Mieres, near of Riosa. Nicolás Real, Juan Velasco, and Arsenio Fraile attended to the sick miners too. The last only worked in the called "St. César Group", near Mieres, in 1904. We found 182 different miners in the documents. Some of the reasons that the workers told to not work were not very clear. For example, José García Cuba, said: *I was ill, and I could not go* [13]. In those cases, the enterprise could decided connived with the miner, because he was a good worker, and the boss did not want to discuss.

The average of the days that a miner did not work was 16,45. Of course, this number hide a lot of differences. Some patients were ill only three days (by a wound in one hand like Emilio Fernández or by a callus, like José Villoria). Martín Domínguez was ill during 85 days. We did not know the reason, but we supposed that he had a serious problem. Also there were four accidents very deep. In those cases the time that the miner did not work was more than one year, like Jesús Fernández or Pedro Villa [14]. There were a lot of causes: *detachment of coal*, like José Álvarez Villoria, *cutting by a hoe*, like Carlos Álvarez or *hiding with a wagon*.

In the next table we show the more frequent damages in the miners of Riosa and Mieres (a biggest place). We can see that they are very similar.

TABLE I. MORE FREQUENT DAMAGES

Part of the body damage	% Mieres	% Riosa [15]
Arm	36	37
Leg	32,4	25,5
Shoulders	7,2	1,5
Head	5,4	3,5
Thorax	3,6	7,5
Others	4,5	7,5
Face	4,5	5

Abdomen	0,9	2
Without information	5,4	10,5

Source: MUNIZ PRADA, Nicanor. Op. Cit. and ARIDEA/GF-MR. Personal. 1175/6

The average age of the workers was 29 years old [16]. This date does not allow any theory about if with more years, the miners have more time off sick than the younger ones. The younger was Ramon Fernandez, with 12 years old, or Cesar Salgado, with 15 years old. Both were injured after falling off scaffold. El oldest one was Carlos Suárez. He was 68 years old and he was damage in his right hand by a hoe.

We knew that 60 miners were married, and only 4 miners were widower. The number of married and single was very similar, so none of these groups are more likely to become ill. We studied very carefully all the documents, and we knew that the arms and the legs were the parts of the body most frequently damaged. January, February, November and December were the months with less problems. In that time there are few work in the farms, because the weather do not allow to do a lot of things. May, June, July and September were the month when more miners were ill. In that season there are a lot of work in the farms. We supposed that the miners in Riosa were *mixed workers*: farmers who had their homes and their lands, alternating their work in the fields with that in the mines [17].

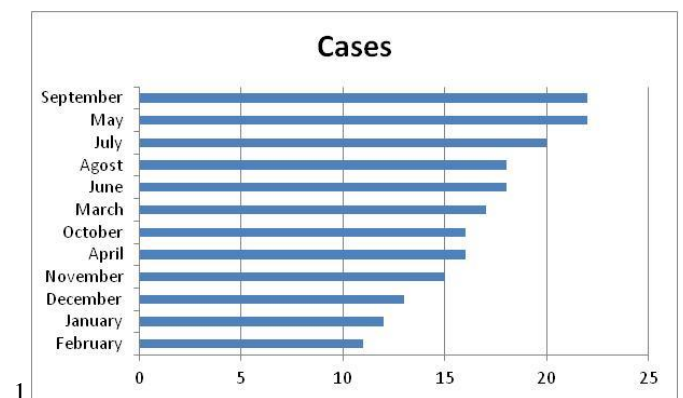


Figure 1. Cases of miners ill or damages for month

Source: ARIDEA/GF-MR. Personal. 1175/6 and ARIDEA/GF-MR. Personal. 1177/1

In the documents we could see that the place where there were more accidents were St. César Group, (70) and La Pereda, (65). This was not strange, because there were the places where more workers.

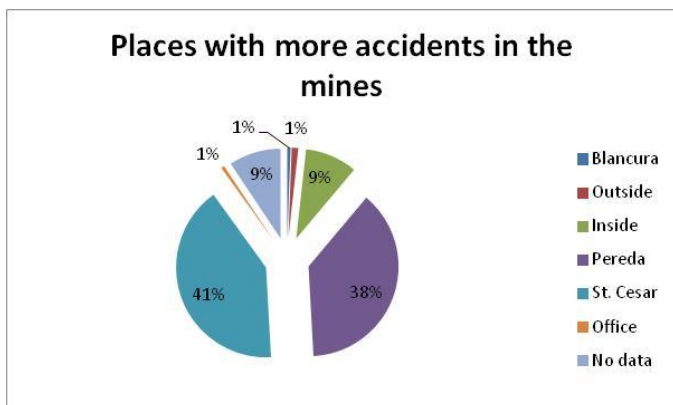


Figure 2. Places with more accidents in the mines

Source: ARIDEA/GF-MR. Personal. 1175/5.

*Farmacopea-formulario universal* has 34 of the 37 prescriptions medicines, except xeroformo, leeches and cocaine hydrochloride. In a table we show the medicine, the number of times that each element was prescribed, and its page in the pharmacopeia. The two doctors are working in the correct form. We suppose that medicines were bought, at the first moment, in a chemistry of Mieres. Later the official supplier was Jose Garcia Braga, from Oviedo [18].

In 131 documents there were 277 medicine prescriptions, with 37 different elements. Some of them are not medicines: we also found things like gauzes, cotton or bandages. Today we can find this type of elements in our homes, but, in that time, there were expensive, and few people could have them [19]. Leeches were a curious element [20], they were prescribed to Blas Cordero [21][22].

There is an average of 2 items prescribed per paper: 17 elements are prescribed once, (like leeches, Sydenham laudanum, water of Mondariz, quinine valerate, or cocaine hydrochloride), and 3 only have been recommended twice (mercurial ointment, belladonna ointment, and salicylic cotton). The cotton was recommended 59 times, carbolic acid 47, arnica 20, camphorated alcohol and gauze have been ordered 18 times each, and the xeroformo had 14 references. In fact, 8 elements, (the most prescribed), equals 199 references.

TABLE II. MEDICINES PRESCRIBED

Medicine	Times prescribed	Place in the pharmacopeia
Boric acid	6	I-57
Carbolic acid.	47	I-79
Water of Mondariz	1	III-234
Water Iodines	1	II-105
Distilled water	7	I-159
Distilled water (Red roses)	1	I-159
Camphorated Alcohol	18	I-171

Cotton	59	I-188
Salicylic cotton	2	I-107
Antipyrine	1	I-273
Balm Fioraventi	5	III-114
Balm opodeldoch	10	I-227
Steam calomel	1	II-282
Cocaine hydrochloride	1	Not found
Vigo's poultice	4	III-17
Turpentine Essence	1	III-112
Gauze	18	II-121
Gauze with iodine	1	II-121
Iodine	1	I-104
Iodol	10	I-127
Potassium iodide	1	II-527
Gentian syrup	1	I-754
Sydenham laudanum	1	II-389
Pilular mass of Cynoglossum	1	II-441
Belladonna ointment	2	I-360
Taneto ointment	3	II-492
Leeches	1	Not found
Carbolic solution	9	I-92
Corrosive sublimate of bichloride	8	II-261
Zinc sulfate	1	III-89
Arnica	21	I-282
Mercurial ointment	2	II-256
Quinine valerate	1	II-628
Boric vaseline	3	III-148
Carbolic vaseline	1	III-148
Xeroformo vaseline	12	III-148
Xeroformo	14	Not found

Source: ARIDEA/GF-MR. Personal. 1175/6

## Percentage of medicines prescribed

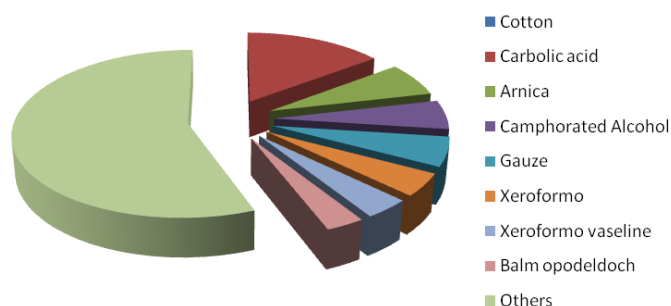


Figure 3. Percentage of medicines prescribed by doctor.

Source: ARIDEA/GF-MR. Personal. 1175/6

Cotton was very frequent; usually the doctor prescribed 50 grams (twice 100 grams). Usually was prescribed one meter of gauze, but sometimes a very accurate size was used, we assume that due to the need to economize bandages. The doctor recommended for wounds carbolic acid 1% in boiling water, or a solution of boric acid 4%. This were the cases of Leonardo Carrocera or Manuel Fernandez. Blas Cordero, Gumersindo Estrada and Antonio Rodriguez, were treated with balm opodeldoch [23], (it is the oldest magistral preparation of the prescriptions) [24].

For external use there were used 3 different types of vaselines, according to the active ingredient; boric, carbolic and xeroformo. Vaseline is used to desquamation and to improve dry and cracked skin. Also arnica was used in different doses; 60 grams for Nicanor Garcia, 200 for Jose Menendez, or 250 grams for Ángel Menendez [25].

The doctor recommended 8 times a solution of corrosive sublimate of bichloride (1/2000 in boiled water). This is a violent and energetic poison, but in a solution between 1/2000 or 2/2000 is an excellent antiseptic. The patients who received this element needed drugs more times, because their name appeared repeated in several prescriptions. They were Blas Cordero, Arsenio González Díaz and Manuel Fernandez, so we assume that they were who were the ones in worse conditions. Every time that this medicine was prescribed the document said: "dangerous poison", which gives us an idea of the toxicity of the drug if it was dissolved in the wrong way [26].

Other common preparations were antipyrine, as in the case of Ignacio Rodriguez, who was prescribed with 50 centigrams. This drug was used to relief pain and inflammation; quinine valerate [27], –generally in doses of 10 centigrams–, that in the nineteenth century was used in febrifuge.

Potassium iodide, used in medicine as expectorants, to increase the water content of respiratory secretions, and encourage effective coughing, it was also recommended in a number of 10 grams, and other 10 of zinc sulfate, used like astringent solution, for reducing secretions, and, of course, treating zinc deficiency.

The recommendation of the use of waters with specific characteristics was also remarkable. Although most of the time it appears that distilled water was used in an acid solution, it was prescribed alone also, in order to use it in outdoors washes. For example, rosewater was used as laxative and emollient. Manuel Fernández Iglesias consumed 900 milliliters of this water, and 3 bottles of Water of Mondariz [28].

In the section of analgesics we can see cocaine hydrochloride, –a single dose of six centigrams–, and pilular mass of cynoglossum, –which is the official formula of the aqueous extract of opium–, in this case it were recommended ten pills, in ten equal doses.

### III. CONCLUSIONS

We compared the individual document with the registration book to know if the Company had a strict control of accidents and diseases. We could check that the enterprise were very careful with that situations, but not all the miners that we found in the documents, were inscribed in the registration book. We think that it was because when a workers was ill few days, the Company did not reported to the insurance company, and only discount the salary of those days to the miner.

Part of the body that suffered more accidents were legs and arms. Those accidents in arms sometimes were mild and some of them could be pretext to did not work. Other damages, in the face or in the thorax, were more serious.

There was no relationship between time off sick of the miners by their age, marital status or salary. The only element that we saw was that most miners did not work during the summer season. We are sure that miners in Riosa were mixed workers: Farmers before than miners. Fields before than coal.

The study of prescriptions by Company's doctors are a key element to know the medical care that Sociedad Anónima Minas de Riosa provided to its miners. Those workers received a quality attention and appropriate of the times.

Prescribed drugs, and the sick leave, was clearly related. With the drug list we can see that, with general character, the most common elements were necessary for wounds and sutures; and we know that the most common injuries were cuts and bruises. The analgesics were very powerful, because the wounds were very serious and painful.

We checked other contemporary mining companies, and we knew that the healthcare in that enterprises was worse than in Riosa. We consulted the HUNOSA Archive (the best and largest mining archive in Spain), and we found several documents than permit us assure that this company was pioneer in the medical attention [29].

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