

# From a closed world to the infinite Universe: Astronomy in prisons

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**Abstract.** For over a decade, some French astronomers visit prisons to talk and discuss about astronomy with prisoners. First we note the paradoxes which exist in the juxtaposition of the words “astronomy” and “prisons”. The importance and interests of these talks are reviewed, as well as the specificities of the audiences. Some material details about the organisation and a brief review of actions done in France today are given. As a conclusion, we emphasize the interest and the utility of these astronomy lectures and discussions.

**Keywords.** Prisons, teaching, society, observations

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Preliminary note: The title of the present paper is adopted and adapted from the book of the historian of astronomy Alexander Koyré “*From the closed world to the infinite universe*”. I hope that this borrowing will be forgiven. And this title corresponds exactly to my feeling when I am in a prison to speak about astronomy.

## 1. Introduction

For more than a decade, and using some various ways, some French astronomers, from Parisian region as well as from Midi-Pyrénées region, visit prisons to speak about astronomy to prisoners. Whereas prisoners are really interested – as it can be seen by numerous questions asked– this is also for visiting astronomers a very interesting and useful experience, from several viewpoints.

First, we explain how it appears paradoxical, at first sight, to speak about astronomy to prisoners, then we detail some reasons for visiting and speaking about astronomy in prisons, after that we give some informations about prisons in France, some suggestions about processes to come in, finally we speak about what is done by astronomers in France now.

Let us note that, generally speaking, any intervention of “external” people in a prison is possible only during the daytime, and not during evening or night. So activities concerning astronomy can be only talks, courses and discussions. Only possible observations are solar observations, for example in case of special astronomical events as solar eclipses or planetary transits in front of the Sun, as it has already been done.

## 2. Some general and important remarks

Speaking about astronomy in prison presents at least two paradoxes:

- **First Paradox:** First of all, it is rather surprising that some people who have a often very painful past, a hard daily life, and a strong anguish about their future, are interested by a subject which corresponds to pure knowledge and does not present any direct utility.

- **Second paradox:** The second paradox is that the listeners are locked up as much as possible, whereas the aim of astronomy is to see farther and farther, to have access to a always larger and more distant space, and to understand the Universe in all its infinite totality. This apparent contradiction is specially striking in the case of lectures at the “Prison de la Santé”, which is located the next block from the Paris Observatory. However, audiences listen attentively, and are really interested, as it can be seen by questions asked.

A solution to these paradoxes is given by François Chouquet, a professor of philosophy, who was the director of lectures given by Paris 7 University at some prisons: “*It is certain, and I know that by my own experience, that somebody who is locked up in his own history, in his crime when it is the case, whatever his responsibility, is also a person inclined to open his mind to a thought about limits, to a memory of the past and the future, and astronomy is a way for that*”.

A very interesting example of connexion between astronomy and prisons is given by the book: “Eternity through the stars” (“*L’éternité par les astres*”) written in 1872 by the French philosopher Louis-Auguste Blanqui. This philosopher, who was a revolutionary, spent about half his life in various prisons. He wrote this book, which is both a science and a philosophy book, while being in jail under very hard regulations, in the Château du Taureau, a fortress built on a rock in a bay. The writing of this book certainly was a way for him to escape by mind, by imagination.

### 3. Astronomy in prisons

There are many reasons to justify to visit and speak about astronomy in prisons.

(a) First of all, there is a significant point for prisoners who are cut off from society, and who can sometimes have a feeling that they are forgotten from everybody and from everything, to see that professional scientists come for them, as for any other audience.

(b) It is important to use a “special” moment in the life of these people to organise some meetings with scientists. Actually, most of imprisoned people have had very rarely the opportunity to meet and to discuss with scientists when they were outside.

(c) It is also important to take advantage of this special moment to give them an opportunity to increase their knowledge. In some cases, the point is to increase a field of already acquired knowledge, whereas in other cases, it is to initiate in a new domain of knowledge, to open a door onto a new world.

(d) Life in prison can be very hard and distressing, physically as well as mentally. Access to pure and disinterested knowledge, uniquely connected to the pleasure of discovering a new field of knowledge or increasing it, can allow to escape ever so slightly of the awful daily life, and to keep one’s mind occupied with other things.

Our aim is to use constructively the prison time and to reduce its harmful effects.

(e) Of course, reasons which hold for any popular astronomy lecture for any audience, are still valid. Namely, astronomers being civil servants and it is quite natural to explain to the society the use of taxes.

(f) Last, but not least, let us not neglect the pleasure to speak about a subject which we are very fond of, with some people who are very interested.

Giving to prisoners any opportunity to think and learn can surely help them to be re-integrated in the society after they come out of prison, besides of the interest of the prisoners for science and the entertainment brought by any distraction which breaks the routine of the prisoner’s life. The more we give elements to think, the more people become clever and cultivated, and have tools to choose their way on their discharge from prison, and the more they will have chances to become reintegrated in society.

#### 4. Some special features of these lectures

As in any public lectures, the level of the audience corresponds to a very mixed group. A good example is given by a lecture that I gave on the Venus transit in 2004, at the prison of Fresnes, near Paris. After my talk, three people asked a question. The first one asked some precise astronomical questions about my talk, so I assumed that my talk was all right and had the right level. The second questioner was an African, and laughingly said: “*You said that Earth is rotating, but in this case, Africa blows off !*”. The third question was: “*The next time you come, tell the prison officers to avoid keeping us, thirty people together, during one hour in a small and very hot room before transferring us to the lecture hall.*” Actually, what could I do with that ?

Questions are often very clever and documented. The relevant and judicious questions show that a non negligible rate of the prisoners use part of their prison time to study and read carefully some scientific matters. It would be possibly more difficult to do the same outside, where they would have a smaller motivation, but these studies and readings are also a way to avoid the fear of their future. Actually, prisoners who attend the lectures are volunteers, and have to make a special demand for this attendance. They were selected because demands are more numerous than possibilities. So the audience is specially motivated. In return, it is important that they are not disappointed. The subjects of the lectures sometimes are chosen by the prisoners themselves. As an example, I prepared a talk, for an audience of women, about “astronomy in daily life”, concerning movements of the Sun, seasons, movements of the Moon and so on. However, they were not interested at all by this subject and during lecture time asked questions about the Big Bang and the origin of the Universe.

We have to note an important difference as compared with usual audiences: more often an audience of prisoners shows metaphysical concerns. Questions about God are asked more often, in a sense or in another, and depending on religious feelings. For example: “*It is impossible that an astronomer believes in God.*”.

We can also observe a special interest for the notion of time, that can be understood for people submissive to their imprisonment times. Thus, while I was explaining that the end of the Sun’s life will happen in 5 billion years, the audience really tried to imagine what does it mean. And to those who were thinking and looked very preoccupied, some other ones said, laughing: “*Don’t worry, you will be outside by that time!*”.

However, there are some subjects that I would avoid to speak about:

- I would not describe, as I do during other lectures, constellations that can be seen in the sky. A woman said to me “*There are no stars in the sky of Fresnes*”, Fresnes being the place of the very prison where we were.
- Some astrophysical terms are unfortunate, such as “escape probability” or “escape velocity”.
- When I show a design of an ambulance with its alarm system working, to explain the Doppler effect, all the audience thought that it was a police car.

#### 5. Technical details and organisation

Among the problems we meet are the organisation of these lectures and the way to obtain the authorisations. We can say that there is here an additional paradox: it is complicated to go **into** a prison.

##### 5.1. *On prisons in France*

Today, there are more than 63000 prisoners in France, which corresponds approximatively to an incarceration rate of 1/1000, that is the number of prisoners over the number of

inhabitants. This number is increasing at the moment, as well as in many other European countries. Reasons for this increase in France include new laws as well as political will. Women represent about 4% of imprisoned people. The number of inmates is higher than the available prison space. Today, the overpopulation rate is about 125%. Besides the inconvenience to be locked up with several people in one small room – with a total lack of privacy, showers, etc– times in yards and sport activities are limited. Moreover, the prison overpopulation implies additional work for prison officers, which means that activities implying some external people are limited and restricted, and permissions to access the prisons are complicated to obtain.

Several types of prisons exist in France. They are mainly: remand homes (usually accommodating offenders in custody before trial and convicted prisoners whose time remains under one year); prisons for short times or for prisoners whose prison time is nearly finished; and prisons for long imprisonment times. Mixed prisons exist as well. Prisons for prisoners with long-term sentences are subject to the hardest régime and to very strict security measures. Rules are different in every prison. The available teaching is also very different in the various prisons.

### 5.2. *Some ways to lecture in prisons*

The best way for an astronomer who wishes to talk about astronomy in prisons is to contact the teaching team or the cultural service of the prison, and asked all the necessary authorisations to the prison administration service. Another possibility is to belong to an existing organisation which gives lectures on various subjects. All the authorisations have to be asked to the prison authorities, and this is more or less complicated depending on places and circumstances. The prison overpopulation complicates even more the process, because the organisation of any activity for inmates is more and more complicated and this corresponds to additional work for prison officers.

### 5.3. *Some organization elements*

It is generally accepted that safety measures and the way of life in prison can vary with moments according to politics and circumstances, in a rather pendular movement. The basic principle is that nothing can never be taken for granted: an authorisation renewed for years can be suppressed. Authorisations are sometimes really complicated to obtain. As an example, for some large prisons, the teaching team of the prison prefers to organise only lectures with a small audience instead of lectures with a large audience coming from the different sectors of the prison, so as to avoid so numerous permissions necessary to transfer prisoners from a sector of the prison to another.

The organisation of a lecture in prison is really different from the one “outside”. As an example, today, in some prisons that I know, it is forbidden to bring in computers and USB sticks. Before coming in, it is necessary to clear bags of USB sticks, mobiles and, of course, knives. If the prison has a videoprojector, the lecture is to be filmed on a CD. In other places, transparencies are to be used. In case where some documents are intended to be given to prisoners, an authorisation is necessary and it is forbidden to give hard cover books, or spiral notebooks.

As an example, let us compare how two solar eclipses were dealt with, in two different prisons in the Paris area: the August 1999 eclipse, and the March 2006 eclipse. Both eclipses were total but could be seen only partially in Paris. The eclipse of August 2009 could be seen totally from some parts of France, and was hugely spread by the media, newspapers, magazines, radios and televisions. This eclipse happened out of the time when some prisoners could go in the yard. As it was impossible that all the prisoners could be altogether in the yard, the administration choose to give no special permission, to avoid

any unfairness. Prisoners had to remain in their cells. Only the ones whose cells were conveniently orientated were able to watch the eclipse. However, for fairness' sake, special glasses for observing eclipse have been distributed to every prisoner. The only thing that we could do, was to record a lecture including a round table gathering contributors and some inmates. This movie was broadcasted in the internal TV channel of the prison. The total solar eclipse of March 2006 was also partial in France. It took place also out of the time where prisoners could go to the yard. We proposed to organise some observations of this eclipse in the Fresnes prison. We had a very good collaboration with the teaching staff and the prison officer who was in charge of the teaching centre was very helpful. She selected some prisoners who attended some lectures before. Those prisoners could stay in the very little yard near the classrooms, where we placed some instruments planned for Sun observations. We also brought special glasses and documentation for those prisoners. Actually, because of clouds, we could see the eclipse only very badly, but the inmates looked very amused by this experiment. Whereas the Fresnes prison has the reputation to have the hardest regulations, in this case it would seem that some authorisations were easier to obtain.

## 6. What is done now in France

As in many other domains concerning the popularisation of astronomy, the International Year of Astronomy presents new opportunities, first to increase what is already done, and second to create some new activities.

Several activities exist in the Parisian region. Lectures and courses in remand homes are made by some astronomers of Paris observatory, such as Régis Courtin and myself. Since 2005, meetings are being organised by Brigitte Gaaloul, who is the founder of the "bars des sciences", in the prison of Fleury-Mérogis, in which we are participating.

In the South-West part of France, a very good work of popularisation of astronomy in prisons is made by Didier Barret, astronomer in Toulouse. In 2004, he created the association "Stars shine for everybody" which includes about thirty scientists, among them astronomers, and who gives lectures and talks at, among others prisons, the remand home of Seysses and the prison of Muret, as well as in hospitals and retirement homes. He was able to take to the Pic du Midi observatory, a group of prisoners who had nearly finished their prison times, among them a man who had not come out of prison for thirteen years. Recall that the Pic du Midi observatory is at the top of a mountain, 2877 meters high, and only reachable through a cable car. It is certain that these visitors will never forget that day.

## 7. Conclusion

It is obvious that astronomy is today one of the most popular sciences, if not the most popular, and that at all levels of society. There are several reasons for that. It is possible to argue that the present discoveries of astronomy are very spectacular and that astronomical images are among the most beautiful existing images. However, the real reason is that one of the aims of astronomy is to answer to some fundamental questions of humankind, among them: "How does the world in which we have been thrown look like, and what is its origin? Is there life in other places in the Universe?". So we have to take advantage of these key questions to open the doors of knowledge to an audience who, for a large part, did not had access to this knowledge. Concerning those who have already some knowledge of this subject, it is important to give answers to their questions.

For these people who are kept out of the society and who can considered themselves to be rejected, the only way is to go and meet them.

As a conclusion, it is through the general knowledge, the general culture, that tools and elements are given to think, to clarify, and finally to help to take relevant decisions for what follows, after coming out of prison.

About lectures organised by the philosopher François Chouquet at the “Prison de la Santé”, some years ago, lectures to which I participated many times, a prisoner has written: “*After years in isolation quarters, I took tremendous comfort from this cultural activity, which is a real opening on the world of lights, because I had the impression to rediscover the beauties of civilisation.*”

When a former prisoner recognizes me in the Paris métro and discusses with me for a long time, I think that I did not waste my time when lecturing in prisons.

Lastly, an example of sense of humour: while I had been speaking about the missing mass of the Universe and I had insisted on the fact that nobody knows where this missing mass can be found, the audience said : “*We are not guilty, we did not stole it, M’aam, we are here, so we have an alibi, you can’t pin it on us.*”

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