The hidden ambitions of the Chronospédia project

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1 Introduction

The Chronospédia project[1] by Francois Simon-Fustier and Konstantin Protassov is a project developed from a 3D modeling activity of tower clocks carried out since about 2012 by Mr. Simon-Fustier's workshop in the suburbs of Lyon and extended through the modeling of the horizontal clock described in Diderot and d'Alembert's *Encyclopédie*, the tower clock of the Vaux-le-Vicomte castle, the electromechanical clock of the Cluses town hall, the large carillon clocks of the Palace of Mafra, and several others. This project was expanded in 2020 with the help of K. Protassov and now aims to preserve horological know-how, primarily on clocks, by relying on 3D, but also by integrating a number of other types of data.

During the past years, this project has gained some momentum, first through its association with the project RESEED about the reverse engineering of patrimonial objects[2], then with several museums, in particular the

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[1] `https://chronospedia.com`

[2] `https://epotec.ls2n.fr/projets/anr-reseed`

Musée International d'Horlogerie in La Chaux-de-Fonds (Switzerland), and with the INIST,[3] a French academic centre of documentation.

I have been very critical of this project, because of my personal background on the one hand in the study of complex mechanism, in the documentation and preservation of horological heritage, and on the other hand in 3D modeling, having worked on these topics for about 25 years. I have come up to view the *Chronospédia* project as very dangerous and misleading, and will try to explain why I am viewing it that way, when so many others seem to endorse it. I have already written extensively about this project,[4] but I will try to summarize the problems here. I will first recall my personal encounter with the project, many years ago, and then I will try to unravel what is really behind it.

2 The first years and a personal history

I first heard of Mr. Simon-Fustier's work around 2015, when he put online some videos of his 3D model of the horizontal clock described in Diderot and d'Alembert's *Encyclopédie*. This was an interesting work, but I did not examine it further at that time. The model was actually made with the SolidWorks CAD software, not by Simon-Fustier, but by Sébastien Lucchetti, one of his apprentices.

In 2016, I was surveying tower clocks in Paris and around, I contacted the castle of Vaux-le-Vicomte, near Paris, in order to inquire about its great clock. I believe that the clock had been in the news, and I tried to find out more about it. I had been working on tower clocks since about 2003, and I had by then examined about 600 such clocks. The owner of the castle replied at the end of 2016 or early 2017, and directed me to Simon-Fustier who was going to restore this clock. I believe that Simon-Fustier sent me a few pictures of the clock, before I had even contacted him. These pictures were however reduced in scale, and he didn't send me the original photographs. After that message, I tried to know more about the problems of the clock, and about the reason for the restoration. This is part of my general enquiries, as I try to document as much as possible each clock that I examine, and the documentation of a clock is also that of recording its history, including its restorations. I also made some comments to Simon-Fustier about 3D modeling, based on my 15 years of experience working out solutions (and not making 3D models) for the modeling of clocks.

[3] Institut de l'information scientifique et technique, `https://www.inist.fr`

[4] See in particular `https://horloges.github.io/chronospedia-en.html`.

My comments were not welcome by Simon-Fustier. First, I was not allowed to ask about what exactly prompted the restoration of the clock. Simon-Fustier's response was astonishing: "Who are you to ask such a question?" "What are your credentials?" "What are your horological titles?" "I am the only one in France with an Advanced Master's Certificate (*Brevet de maîtrise supérieur*) in horology, what are your titles?" Yes, this is how our exchange started!

It quickly became clear that Mr. Simon-Fustier was totally obsessed by his title of *Brevet de maîtrise supérieur* and that he seemed to view himself as the first and foremost clock restorer in France. To those who don't know about these titles, I need to stress that the *Brevet de maîtrise supérieur* is not a title given for some extraordinary horological knowledge. Instead, it is a title about the management of a horological workshop. Here is for instance a description of what this title implies (my translation):[5]

> The Advanced Master's Certificate (*Brevet de Maîtrise Supérieur*) aims to provide experienced professionals with access to management positions in craft businesses, where six main activities are undertaken:
>
> - Definition and implementation of strategic directions,
> - Financial management of the business,
> - Definition of the business's commercial policy and brand image,
> - Organization and management of human, technical, and financial resources,
> - Organization and management of production,
> - Staff supervision and apprentice training.

So, this title doesn't have anything to do with horological know-how. And of course also nothing with 3D. So, we shouldn't be mentioning this title anymore. I don't have such a title either.

During our brief exchange, Simon-Fustier was also unable to accept any views on 3D, as he was convinced to be the only one to have ever applied 3D to tower clocks, and that he was far ahead of anyone else. In fact, any question directed to him was considered as an insult. He clearly was looking more for a reverence attitude, and it was impossible for him to converse with me. So, our exchange quickly came to an end, because I

[5] `https://www.intercariforef.org/formations/certification-31043.html`

was not having the attitude Simon-Fustier expected, namely that I wasn't in awe of his work.

In 2019, I heard about the restoration of the electromechanical clock in the Cluses city hall. I immediately recognized that this was the clock described in Poncet's book on clock strikings.[6] This was a very interesting clock, and I tried to know more about it. I contacted the city hall of Cluses and asked a number of questions. I was in particular looking to obtain a copy of the restoration report. I knew that Simon-Fustier had restored the clock, but for obvious reasons I did not want to direct my questions to him. Alas, the mayor of Cluses was not able to answer my questions. In fact, he knew very little about the clock, and he directed my demands to Simon-Fustier. Having had no answer, I reiterated my demands to Simon-Fustier, and eventually I was accused of harrassing him. Simon-Fustier did not want to answer any questions about the restoration, and the city hall did not want to provide the restoration report. Simon-Fustier even went so far as to write to the head of my workplace, in order to intimidate me, although my work on horological heritage is not related to my professional occupation. Eventually, I was able to obtain a copy of the restoration report, and this enabled me to write a preliminary description of the clock.[7]

But in the meantime, in 2019, Simon-Fustier was awarded another title, that of *Maître d'art*. He is now the only holder of this title in horology in France, and ever since he has used this title to claim a superiority in this craft.

But this title is in fact no different from the *Brevet de Maîtrise Supérieur*. Here are excerpts from the official description of this title:

> The title of *maître d'art* (Master of Arts) is awarded for life by the Ministry of Culture. It recognizes passionate women and men for the uniqueness of their expertise, their exceptional career path, and their commitment to the renewal of the crafts.
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> More than a recognition, the title of *maître d'art* is a symbol of commitment. Once appointed, each *maître d'art* has the duty to pass on their expertise to the student with whom they were selected. For three years, their workshop becomes the preferred place for this transfer.
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> The *maître d'art* candidate must be a practicing professional in the crafts field with significant professional experience and

[6] Ch. Poncet: *L'horloger. Tome II : Sonneries d'horloges et de montres*, 1938.

[7] See Denis Roegel: The electromechanical clock of the city hall in Cluses and its restoration, 2021, `https://roegel.wixsite.com/science/works`.

> possessing specific expertise for which training opportunities are limited or nonexistent. The *maître d'art* candidate must commit to passing on to his/her student, within their workshop, mastery of the most complex techniques of their craft.

Simon-Fustier and one of his apprentices applied for that title in 2018, but the only "expertise" that they claim is that of 3D modeling of clocks. And yet, the apprentice paired with Simon-Fustier was not even Sébastien Lucchetti. There are many clock restorers in France, and Simon-Fustier in fact doesn't have any exceptional qualifications. He has restored various clocks, as have done many other clock restorers, but he hasn't built any clock. And he has not much worked with museums, having had no particular accreditation for such employments.

Simon-Fustier's "project" for the title of *maître d'art* was to work with his apprentice (Robin Putinier) on actually reconstructing the clock described in Diderot and d'Alembert's *Encyclopédie* and modeled in 3D by Sébastien Lucchetti. This project was planned for 2019-2022, but we never heard anything about it, and it was likely abandoned. So, the *maître d'art* was committed for a project, and this project was not completed, perhaps not even started. Nobody seems to have worried about that.

The title of *maître d'art* raises another problem, namely that it was awarded by a jury made of people of which none was working in horology, and none in 3D.[8] This jury has therefore evaluated an application without having the qualifications to evaluate it. What then does that title mean?

When I questioned this attribution in 2019, I was quickly threatened by Simon-Fustier and late 2019, Simon-Fustier filed a lawsuit against me. He hired a lawyer and tried to eliminate me. Why? Because I was threatening his ambitions and telling the truth.

In 2020 or so, I also learned that Simon-Fustier was involved in the project of restoration of the Besançon astronomical clock which was constructed in the 1860s. I had been interested in this clock for almost 20 years and I had tried to gain an access to the clock in order to study it and better document it. Although much of the mechanism of the clock is easily accessible, no serious documentation has been produced in the last 150 years, to a great extent because the French heritage administration has been blocking research requests such as mine. In 2017 and 2018, I was fortunate

[8]The jury of the 2019 title is not secret and was composed of David Caméo (former director of the *Musée des arts décoratifs in Paris*), Isabelle Chave (curator and archivist), Marie-Hélène Frémont (a journalist who studied law), Florent Kieffer (professor of history), Hervé Obligi (sculptor and *maître d'art*), Elisabeth Ponsolles des Portes (professor of literature), Felipe Ribon (designer), and Alain Soreil (director of a fashion school).

to have had two meetings in Besançon about that clock, and it seemed that I would be part of the team that would assess the clock. I was looking forward to be able to improve upon the scientific documentation of this clock. Unfortunately, in 2019 I must have been sidestepped, probably because a restorer thought that I was not enough of a restorer to be involved. Instead, a new team was assembled, and Simon-Fustier was part of that team. When I heard of this new team, I wrote to all its members, again in order to insist on the importance of scientific documentation. I had little echo, except that Simon-Fustier vowed to make me the "next martyr of Lorraine." (Lorraine is the area where I work.) In other words, Simon-Fustier wished to kill me. And again, he was obviously viewing me as a threat to his ambitions. Simon-Fustier seems in fact so worried about reaching his goals that he is willing to resort to any kind of intimidation to get rid of those that he views as a threat.

We are now in 2025, and as far as I know, no real scientific documentation has been produced for the Besançon astronomical clock. This is so to a great extent because the team that was involved did not include researchers. Incidentally the same happened ten years ago in Lyon, where the astronomical clock was assessed, and then more recently restored, but without any progress on the scientific documentation. Restorers, and also curators, actually block research. They do not do it intentionnally, but they do it by ignorance. Restorers don't understand research, they don't understand researchers, and they don't want researchers to interfere with them. And French curators generally know practically nothing to scientific instruments, or astronomical clocks, and even the curators of well-known horology museums in France or Switzerland have usually no adequate technical background and have never published any technical work on clocks. There are exceptions, but they are rare.

Nowadays, the Chronospédia project puts forward the need to save horological know-how, and in particular the importance of 3D models for that purpose. Before having a closer look at the current activities and rhetoric of Chronospédia, I want to draw a picture of the horological heritage and its priorities. This will help us better appraise the Chronospédia project.

3 The priorities in horological heritage

Horological heritage is made of many things, in particular of horological knowledge and horological objects, such as clocks, instruments and tools. In general, as with any historical technology, we try to preserve the objects,

but we also try to know them better, how they were made, how they work, and in fact anything we can find out about them, their makers, or why they were made. We do not, in general, only store and display the objects, because there is more to do. The objects are subjects of research.

Horological knowledge covers of course the knowledge on objects, that often has to be reconstituted, but also the knowledge found in books, in archives, and elsewhere. There are also efforts to document the know-how, the unwritten knowledge of craftsmen, scientists and inventors.

Knowing more about objects, about clocks, about machines, about instruments, or about their makers, about a context, is usually interesting, and it is a contribution to scientific development. It is often possible to put an object in a new context and to discover things that were not even known by the makers of the objects. For instance, for some clocks, we can compute exact ratios that even the authors did not use. Or we can compare clocks from different places, and even different times. This all represents a progress in knowledge and science.

But time is also working against us, not only in horology. As time goes by, parts of the heritage vanish. Some clocks are destroyed, others are stoled, some are vandalized. Sometimes clocks are restored without being studied, and opportunities to advance science and knowledge are lost, sometimes for ever.

What then are the priorities of horological heritage? In my opinion, the first priority is to ensure that the clocks which are at risk of disappearing do not vanish and are documented. And those clocks which are the most in danger are the tower clocks. Many of them are abandoned and forgotten. They lie in the clock towers and elsewhere, often incomplete because those who for years have climbed the towers have often kept pieces of the old clocks for themselves. If nothing is done, with time, every clock in every tower will little by little fall in pieces. And this is unfortunate, because many of these clocks are interesting and have something to teach us.

The clocks kept in museums are of course safer and do not incur the same dangers as those in the towers, but most of them are still abandoned and unstudied. It should be a priority to inventory these clocks, and also to provide access to them for researchers, and not merely clock restorers. It is of utmost importance that there is a good communication between curators and researchers, and that whenever a clock is restored, that restoration involves researchers, and in fact takes into account the needs of researchers. This is very seldom the case, even in the greatest museums in France, such as the Louvre or the castle of Versailles.

Another priority is to ensure that whenever a clock is restored, not only in museums, it is thoroughly documented, and that this documentation is

made available to all. There is basically no such complete documentation available, and usually there does not even exist an adequate internal documentation. Restorers do not seem to document their work properly, and something should be done to improve this situation.

Another, lesser priority, is to document the know-how of clock restorers. Although there are many books on the restoration of clocks, I believe that there are not that many recordings of restorers, of restorers explaining how this or that tool is working, and so on. Much more could certainly be done in that area.

Books and archives are very important, but they are seldom at risk of vanishing. Researchers can still access archives, even when they have not been digitized. Of course, digitizing archives and books is great (if well done, which is not always the case), but if this comes at the expense of doing nothing to save the clocks which are at risk of disappearing, it is clearly not a good choice.

The same is true for the 3D modeling of clocks. Anyone who works on tower clocks knows that there is very little need to model such clocks in 3D, or at least it isn't a priority. It is nice to have a few 3D models, if these models can help understand and teach how a clock works, but the work on modeling a clock is so time consuming that it would be better spent doing surveys in church towers.

As far as I am concerned, I have examined and documented about a thousand tower clocks during the past 20 years. I have also worked on a number of astronomical clocks, and have studied many of them. I have been working in many archives and museums, and have also collected many books. I have also published a number of clock descriptions and others articles and I believe that I have a good idea of what is needed in horological heritage. As far as tower clocks are concerned, the greatest need is to inventory them, and to make inventories accessible to researchers. In fact, the access to researchers is often difficult, and eventually this contributes to the disappearance of the clocks. Another related problem is the access of researchers to museum archives, which are often very difficult. Curators and restorers often refrain from letting researchers access restoration reports, as if this was of no concern to researchers.

I happen to have been working on the 3D modeling of clocks since 2001. I have not done this work as a hobbyist using whatever CAD software, but as a computer scientist. In fact, I have even taught CAD programming in the early 2000s. I have therefore had a very different approach to those who are using programs such as SolidWorks, Rhino, etc., who almost always are very ignorant of 3D theory. The 3D models made by Chronospédia, for instance, are models that anybody can construct, with a little bit of

experience of SolidWorks. This is not what I consider being knowledgeable in 3D or CAD.

My work on 3D programming, but also my work as a lecturer and writer, have taught me that making 3D models is difficult, but also that in most cases they are not the solution to teaching something. Much more work is needed to teach something, and in most cases 2D drawings, as well as calculations and explanations are sufficient, and in fact even necessary. There are only rare cases where 3D models help visualize something, and even then, photographs can often be used for the same purpose. I am not saying that 3D is never useful. I know of cases where it is of great importance, but I also know that tower clocks are almost always very simple, and that there is little justification to make a 3D model to explain them. Museum curators may think otherwise, but museum curators are seldom scientists versed in horology.

4 The current situation

Now that we have a better idea of the inception of Chronospédia and of the priorities of horological heritage, it is interesting to consider what is the current situation with Chronospédia and what is its rhetoric.

As I mentioned earlier, I have had a bad experience with Simon-Fustier, the main author of Chronospédia. In fact, in the 2010s, Chronospédia was the name of part of Simon-Fustier's horology site, where he advertised his work, in particular in 3D.

But in 2020, Simon-Fustier teamed with K. Protassov, and they had the idea of expanding the 3D business and create an online encyclopedia called Chronospédia. At first, the idea was to have 3D models for a number of types of clocks, such as turret clocks, grandfather clocks, Morez clocks, etc. But then came the idea to add other materials, such as horological school archives, or clock sounds. For that purpose, Simon-Fustier and Protassov have contacted all the horology museums, in particular those of Besançon and La Chaux-de-Fonds and there have been contracts with each of them. Chronospédia gets an access to the clocks, and in return the museum gets an access to the 3D model, or perhaps to an interactive viewer of the model.

Chronospédia has also teamed with some technical schools, and this is a way to have students make 3D models for Chronospédia.

Another collaboration is the work of Vincent Commin, a PhD student who is working on the generation of simple clocks to fill some gaps, for instance when a wheel is missing. This idea here, or so they say, is to build tools (using AI) which will help students regain the knowledge of the

clocks.

Chronospédia has ventured in other directions. For instance, at the end of 2024, it had about 20 tower clocks 3D-scanned in the Musée Paul-Dupuy in Toulouse. The idea was, I believe, to speed up the making of 3D models, but of course these scans do not provide any animation, and a lot more work remains to be done.

Finally, the Chronospédia team has been trying to engage in communication with the various horological associations. It did so in France with the AFAHA association (Simon-Fustier and Protassov are now members of the board), but also with the smaller "horlogerie comtoise" group, about clocks in the Jura area of France. In fact, Chronospédia has been in touch with the groups in Germany, in the UK, in Italy, in the US, and elsewhere. I believe that in some cases the Chronospédia team has been able to coerce associations to participate to this project, by pointing out that the statutes of the associations entailed such a participation. The associations often have little choice and almost have to accept a collaboration, in particular because they seldom have the hindsight to assess the relevance of Chronospédia's work in 3D, or how it is taking into account the priorities of horological heritage.

Chronospédia has been working with the French INIST lab and put a new site online at the end of 2023. A few 3D models can be seen through viewers, but not much more at this point. In fact, during these last few years, the Chronospédia rhetoric has been about 3D models, and also about creating an "open-source" or "open-access" encyclopedia, whatever that means. At this point, though, most of the 3D models are not available at all (for instance the models for the *Encyclopédie* clock or the one of the Vaux-le-Vicomte castle), and those few that can be viewed online are actually only visible through 3D viewers. There is no way to get an access to the actual CAD model, whether as SolidWorks source files (so, no open-source!), or as interchange STEP files. The promises made by the Chronospédia team are not held.

A general feature of the Chronospédia team is that many promises are made, but few are concretized. And the team has been able to convince various actors using a mix of nice 3D models and talks about the *maître d'art* title, which actually has nothing to do with horological knowledge. We therefore seem to have some sort of a snowball, which is becoming bigger and bigger, and faster and faster. Titles are used to convince museums, and museum curators are let to believe that Chronospédia is going to save horology.

But the truth is otherwise. Chronospédia is doing absolutely nothing for the inventory of clocks. It is putting forward 3D modeling, but not one of

the 3D models has actually really be made available. The Chronospédia authors also claim to want to save the horological know-how, but there is not a single recording of a clock restorer, there is not a single description of a tool, and there is not a single restoration report available on the Chronospédia web site. This looks very much like a scam! The problem with restoration reports is in fact not limited to Chronospédia, but restorers are in general very reluctant to give copies of their restoration reports. Many restorers still have not understood what is research, what researchers are doing, and some restorers believe they they are the only ones doing research. And unfortunately many curators seem to believe the same, to a great extent because they are lacking a technical and academic background.

In fact, as far as research is concerned, things are even worse, because the authors of Chronospédia do not produce any horological research. Neither Simon-Fustier, nor Protassov, have ever published the slightest description of a clock, or the faintest historical work. This is very strange. There is not a single article on a clock by any of them in the AFAHA journal, and of course also nowhere else, and yet Simon-Fustier and Protassov are on the board of the AFAHA, which is the French equivalent to the Antiquarian Horological Society. There is something wrong here, I believe. In fact, how should we understand that two persons who have never produced any horological research, and who refuse to communicate with researchers, can claim to save the horological know-how and want to create a horological encyclopedia. Does this make sense?

5 The hidden ambitions of Chronospédia

In order to understand the Chronospédia project, we need to look at it differently. This project has an apparent aim, and a real hidden aim.

The apparent aim is the one it claims to have. Namely, that Simon-Fustier has had the clairvoyance to see that 3D can help understand the clocks, that it can help save the know-how, and also that it can help teach, and therefore contribute to encourage students enter in the traditional horology field. Simon-Fustier claims to have first applied 3D to clocks, and his "invention" is of particular interest to museum curators. Moreover, Simon-Fustier and Protassov want to transmit the good word to other countries, because only they can save them from the peril of archaeological horology. For, as Simon-Fustier puts it, if nothing is done, in 20 or 30 years, nobody will know to repair clocks anymore and we will only be speaking of horological archaeology.

This is the Chronospédia rhetoric, yet it is hard to understand why the

3D models from Chronospédia are not all made publicly available, and why Protassov, who is not really involved in horology, spends so much time to support this project, even as far as becoming a member of the AFAHA board.

The truth is that *horological heritage is not a priority for the Chronospédia team*. I am not saying that Simon-Fustier and Protassov are not interested in horological heritage, but it doesn't come first. If it came first, we would also see a real interest and support for research, which I have never seen in my interactions with Simon-Fustier.

The main drive for Chronospédia is the same drive that animates so many people, namely money. It is as simple as that. Chronospédia is an economic driven project. And it was so already before 2020, before the involvement of Protassov. If we roll back in time, everything becomes suddenly clear.

The first step in this development has been the Advanced Master's Certificate (*Brevet de Maîtrise Supérieur*) obtained by Simon-Fustier around 2010. This diploma gave Simon-Fustier the tools to develop his business, to think about better management, to become more efficient, and probably to start thinking for other ways to expand his reach. And of course to make more money. Most clock restorers only restore clocks. Sometimes they have one or two apprentices, but seldom more. Often, they work alone. Some clock restorers work for museums, and sometimes for greater projects such as astronomical clocks.

But in the early 2010s, Simon-Fustier was having apprentices and one of them, Sébastien Lucchetti, introduced Simon-Fustier to 3D. I believe that they first did a model for an instrument at the Besançon observatory, but I don't have any details on it. Around 2015, they decided to make a 3D model of the horizontal clock described in Diderot and d'Alembert's *Encyclopédie*. This work was published in the mid-18th century and has a set of plates describing a horizontal clock. One may wonder why Simon-Fustier chose to make such a model, given that it could hardly be sold? This was not a model made for a museum, and it is not the result of a contract. At first sight, it would seem that Simon-Fustier wouldn't gain anything from it. It looked more like a hobby, a gratuitous gift to the world. Some animations of the model were made and put on youtube.[9]

At about the same time, Simon-Fustier commissionned someone to create a new site as an advertisement for his workshop. The site contained in particular an analysis of the *Encyclopédie* plates as well as a horological

[9]See for instance `https://www.youtube.com/watch?v=VLbBtizPuqI`

dictionary, with various terms explained.[10]

With retrospect, the *Encyclopédie* models appears to have been an advertisement for museums and other places who would be interested in having a 3D model made of a clock. And this is undoubtedly why Simon-Fustier chose that clock instead of another. It is a relatively simple clock, good drawings were available, and it is part of a famous project of the Enlightenment. Another more common tower clock could have been chosen, but here there was the added benefit of recreating something that either did no longer exist, or perhaps even that never existed.

And this advertisement apparently worked, for in 2016 Simon-Fustier was hired to create a 3D model for the Borrel clock at the Vaux-le-Vicomte castle. This is in fact a very simple clock, and when I exchanged a few messages with Simon-Fustier in January 2017, he had not yet had this model made. Incidentally, in the following years, Simon-Fustier would often attribute the *Encyclopédie* clock to Julien Le Roy, and the Vaux-le-Vicomte clock to Wagner, both being unsubstantiated attributions. And as of 2025, none of these two 3D models has ever been made available, not even through a 3D viewer. On the current Chronospédia site, there are several models that can be viewed through a 3D viewer, but not these two.

After that came the electromechanical clock of the city hall of Cluses, and the two large carillon clocks of the Mafra palace in Portugal. In these two cases, Simon-Fustier had 3D viewers made. An interactive interface was made for Cluses and I believe that it was commissionned to someone else. It does use a `Three.js` export from SolidWorks. Once the 3D model was made, making the interactive interface was in fact not that much work.

Each project led to a new one, and the choice of the *Encyclopédie* clock was therefore excellent. But at that time, Simon-Fustier's rethoric was not yet about saving the horological know-how, or about viewing 3D models as a solution to many problems. Simon-Fustier was also neither active in the inventory of clocks, nor in any kind of research. By 2019, he had never published an article on a clock, and in fact no article at all neither in the AFAHA journal, nor in any other horological journal. He was clearly focused on developping his 3D activity of which he viewed himself as the leader. And it is true that he was probably the only one in France, and perhaps the world, to offer modeling clocks in 3D.

Things must have changed in 2019, because Simon-Fustier applied for the title of *maître d'art* and obtained it together with his apprentice Robin Putinier. Before that, in 2018, he had obtained another title for his work. So, at that time, his work on 3D caught attention, especially around Lyon, and

[10]The remnants of this site are at `https://horlogerie-ancienne.fr`

all of a sudden he obtained a national title. But as I already wrote earlier, this title is not a diploma for particular knowledge, although the jury aims at recognizing that a craftsman has a unique knowledge and should be helped to transmit it to an apprentice. It is however surprising that that apprentice is not the one who made the 3D model. This may also have been a subtle choice by Simon-Fustier, but it is also somewhat of a disgrace for Sébastien Lucchetti who did all the 3D work, and was not recognized for it.

In 2020, Simon-Fustier caught the attention of K. Protassov at the University of Grenoble-Alpes, and this also coincided with a time of still-stand. Simon-Fustier apparently had no other 3D project at the time, and he was wondering how to go on. Simon-Fustier and Protassov seem then to have worked hard at devising a new strategy. It may seem surprising that Protassov was so much involved in that project, given that he is not working in horology and hasn't published anything in horology. I believe that Protassov has understood that Simon-Fustier's project was viable but that it should be greatly expanded. Some kind of synergy seems to have occurred between Simon-Fustier and Protassov, and their project was to create greater aims and to involve many more institutions such as libraries, schools, museums. The core of the project was still the 3D models, but the purpose was to be more open, in order to expand as much as possible. Their purpose was also to have as much credibility as possible, and Protassov would obviously give an academic credibility to Simon-Fustier who lacks one. Protassov could also speak English (although not very well, let's tell the truth).[11]

There are some other noteworthy events that should be mentioned, but they tend to be forgotten. In 2020, for instance, Simon-Fustier complained about not having been chosen to restore the "horloge aux guignols" in Lyon.[12] This is a famous sightseeing, an animated tower clock with an automaton, and apparently Simon-Fustier was thinking that his newly obtained title of *maître d'art* would open him all the doors. Obviously this was not the case. Simon-Fustier was also not chosen to restore the mechanisms of the Lyon astronomical clock in 2023-2024. However, at the end of 2020, the Ministry of Culture seems to have paid Simon-Fustier to examine a French clock that did no longer work at the Citadel in Cairo. Simon-Fustier wrote a report that was never made available, almost no

[11]This is why he represented Chronospédia at the American NAWCC Convention in June 2024. However, Protassov said in his introduction that Simon-Fustier was too busy to come, and this was obviously not true. I believe that they chose to have Protassov come alone, so that Simon-Fustier could not be questioned by the members of NAWCC.

[12]Tribune de Lyon, 28 July 2020, `https://tribunedelyon.fr/culture/polemique-autour-de-la-renovation-de-lhorloge-aux-guignols`

information is known on that clock, but we know that Simon-Fustier was not chosen to restore it and that it was put in order by Egyptian restorers. It is unfortunate that all this information gets lost, especially about a French clock for which Simon-Fustier, who has only examined a few tower clocks, may not have been the most adequate person to give an opinion.

The Chronospédia project was first announced in 2021 and a first site was put online in 2023. It currently (May 2025) features five models viewable through viewers (actually as glTF files, but not as their original sources), and some animations based on several other clocks modeled earlier. The site currently appears to have very little content and is in fact very poor, although it claims to be revolutionary.

At this point, it is fitting to remind the reader that Simon-Fustier was in no case the first person to apply 3D to clocks. This actually goes back at least the the early 1990s, and perhaps even before, as I have shown in a timeline.[13] However, Simon-Fustier may be the first to have had the idea of making a business based on 3D models.

I also want to stress that because of my own background in 3D, I am very critical of the models put online. Not only are these models not as open as Chronospédia claims, they are also very poorly designed, are not parametric, and are currently of practically no use for researchers.[14] Simon-Fustier seems to have discovered the problems due to the lack of parametric design around 2019, but this has long been known and he hasn't made any big discovery. Incidentally, subcontracting the design of 3D models to high school students is certainly not going to help make state of the art 3D models, whether with SolidWorks (which is an excellent software) nor any other software. It requires more skills to design a model than merely to know where to click.

In addition, although the Chronospédia project has been announced four years ago, it is in fact not supported by any research. There are no technical descriptions of the clocks shown on the site, Simon-Fustier and Protassov have not published any historical or technical work anywhere. The only exception is an article by Vincent Commin on the automatic generation of clocks, of which Protassov is a coauthor, but one can only wonder what he did in this work.

As someone else put it, a general feature of the Chronospédia project is that it speaks of 3D to people who know very little about 3D, and this is a well known way to tell any story you want.

[13] `https://horloges.github.io/3D/timeline-en.html`

[14] For an overview of all that is missing in Chronospédia, see the page `https://horloges.github.io/3D/chronospedia-evaluation-en.html`

Around 2023, Chronospédia came in touch with Eliott Collinge who is a clock restorer specializing in 3D animations with the Blender software. Chronospédia was obviously impressed by the animations made by Collinge for the *Atelier Chronos* around 2019 for the Habrecht astronomical table clock in the Paul-Dupuy museum in Toulouse. In fact, Chronospédia now showcases this animation on the first page of its site, and Simon-Fustier and Protassov also use it for general presentations (such as at the NAWCC in 2024), even though the animation was not made by the Chronospédia team. Now, Chronospédia wanted to find out if Collinge could speed up the creation of animations, which is a bottleneck in Chronospédia's process. It gave Collinge an American Seth Thomas clock (obtained from Robert Frishman), and Collinge made a Blender model, which is now on the Chronospédia site. This model was in fact specifically made to be shown at the NAWCC Convention, and its first aim was to seduce the American horologists, and I believe that it succeeded. The problem, of course, is that Blender is not a CAD software. It is very good for creating animations, but it is not designed to be a CAD software, and all the objects created in Blender are meshes, not high-level smooth surfaces. Blender and CAD complement each other, but Blender is not the best tool to create 3D models, as Chronospédia has certainly discovered.

The *Atelier Chronos* just mentioned is headed by the restorers Marc Voisot and Emmanuel Aguila. It seems that Voisot has some involvement in Chronospédia, and at least he agreed the Habrecht animation to be showcased on the Chronospédia site. But this is quite strange and in fact a contradiction, because Voisot is a notorious opponent to the access of restoration reports to researchers. He has a very condescending attitude towards researchers, and he has blocked the access of several restoration reports, including the one made for the Joyeux astronomical clock in the Nancy museums, the great Passemant clock at the Louvre or the clocks he restored at the *Musée du temps* in Besançon. Now, given that his reports seem very shallow and full of errors, perhaps his choice of blocking their access was the right one!

Currently, the INIST is in charge of the Chronospédia site and takes care of its content. Someone at INIST is working towards providing a new 3D viewer. The currently used 3D viewer is in fact inappropriate and it is easy to devise a better one. It is surprising that as of May 2025 the Chronospédia team has not yet been able to put online a 3D model with animations and metadata such as teeth counts. This is something that I made in 2021 in an Android application for the Paris Notre-Dame clock that I modeled in 2020.

And I also made it in January 2025 on a simple web version.[15]

In 2024, Simon-Fustier and Protassov managed to become members of the AFAHA board, and obviously this may also help them get introduced to other foreign horology associations. The AFAHA is however very weak now, and it seems that there is for instance little editorial control about what gets published in its bulletin. It is in fact more some kind of fanzine than a serious horology journal.

In late 2024, Simon-Fustier had about twenty tower clocks 3D-scanned in Toulouse. It seems that Simon-Fustier has understood that making 3D models takes time and one way to speed up the creation of 3D models is to scan clocks. However, once you scan a clock, you get a monolithic object and this is far from what is needed to study the clock. The 3D scan can help get a general view of the clock, but there is still much work ahead and basically the clock will still have to be modeled in the traditional way.

It would therefore seem that the Chronospédia team is trying to accumulate as many clocks as possible, even though these clocks are not properly modeled in 3D. It is even possible that the Chronospédia team has been thinking that 3D scanning the clocks will replace the traditional modeling, but this is certainly not the case. A 3D scanned clock, even processed through sophisticated tools, will still have gaps and artefacts that will need to be corrected by hand, and it will not be able to dispense of a real CAD design.

The general strategy of Chronospédia is now pretty clear. Chronospédia is trying to work in all possible directions, it is trying to have ties with all the museums, with all the associations, even foreign ones, with the schools, but it is still providing no complete 3D model, it hasn't produced any historical or technical research in horology, and it is not working with researchers.

I believe that the main reason why the 3D models are not available is that Chronospédia does not want to make them available, because it fears that it may lose control upon them. Chronospédia does in fact strongly rely on its 3D models, and if it gives its 3D models away, it doesn't have much left. So, I am not expecting Chronospédia to provice the 3D models, either in SolidWorks source, or even as STEP file, anytime soon, even though Chronospédia has a rhetoric of "open access" and "open source." Most people, in fact, don't understand what is a 3D model, and they seem to believe the misleading and fallacious rhetoric of Chronospédia. Incidentally, some models are not at all on Chronospédia's site, not even through 3D viewers, although it isn't entirely clear why. The models of the

[15] `https://horloges.github.io/3D/notredame.html`

clocks in Cluses and Mafra have dedicaded separate viewers (to which the Chronospédia site doesn't link), but theses viewers are not on the main site. And the models for the clocks from the *Encyclopédia* and Vaux-le-Vicomte are nowhere viewable. Perhaps this is so that the Chronospédia team can have the exclusivity of their use. Is this "open access"? Of course not.

In general, it seems that Chronospédia only invests its time where there may be benefits, and opening up the 3D models, or even doing research or inventorying clocks, does not call for great benefits.

What Chronospédia plans to do is to deposit the 3D source files in the *Conservatoire National des Données 3D* (CND3D),[16] a repository for 3D data produced by scientific institutions. However, those who deposit the data can choose not to make them available to all, or only to let people view the files, not download them.[17] We may therefore have a feeling of openness, without an actual openness. Moreover, Chronospédia provides the 3D models on demand, for instance to schools, but this is also not an open access. It's all about control and Chronospédia is far from being as open as it claims. Chronospédia is far from having a scientific attitude and does obviously not accept free and independent research with its data.

However, we still do not clearly see the economic side of this project. It is very naïve to believe that Chronospédia is only about making 3D models of clocks or saving horological know-how. If Chronospédia were really about saving know-how, and address the priorities of the horological world, it would have worked towards a national inventory of tower clocks, it would have worked towards facilitating the work of researchers, and it would also have fostered research and the openness of restorers. It hasn't done any of these, even though Simon-Fustier has heard about research at least since I was in touch with him in 2017, and even though he knows that there are demands for the openness of restoration reports, or the participation of researchers to great projects such as the restoration of the astronomical clock in Besançon. Isnt' this strange?

I believe that what we see currently is only the first stage of a longer term project. It is a little bit like Google investing a lot of money in digitizing millions of books during the past 20 years that almost looked like a charity project. But in fact, Google benefits from the project, because it helped improve the search for information, and now it is even useful for the training of AIs.

So, with Chronospédia, we have to look further. Where is the money? The answer is probably in the contracts with museums, in restoration con-

[16] `https://3d.humanities.science`

[17] At this date (May 2025), there are no deposits from Chronospédia.

tracts and in teaching. Chronospédia certainly hopes to have the monopoly of horological 3D in museums, with the help of those making 3D models, but also those like Eliott Collinge who make Blender animations. It certainly also hopes to be involved in various restoration projects, in particular of well-known clocks or astronomical clocks. And regarding teaching, we can note that around 2019, Simon-Fustier's site had a tab for what he called the *Institut Français d'Horlogerie*[18] (French Institute of Horology, see figure 1), although there was no official University behind it, and although Simon-Fustier does not have any University diploma. He has in fact not even graduated from high school, his only diploma is that of a horology school in France.

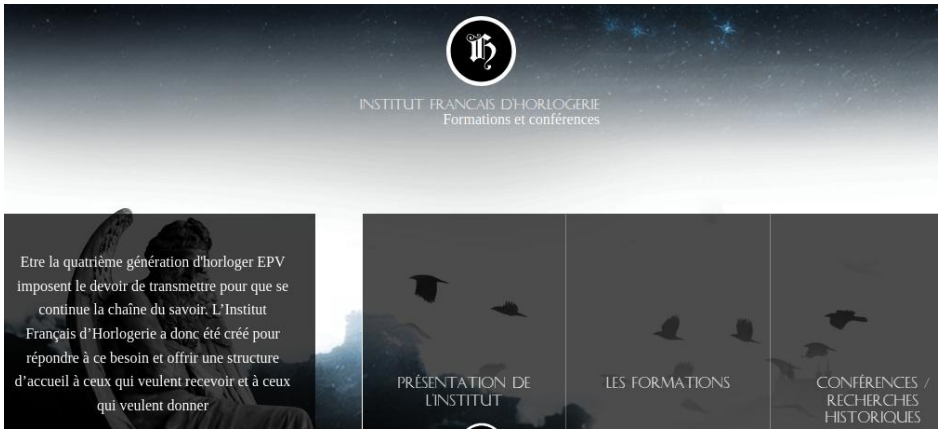

Figure 1: Simon-Fustier's "Institut Français d'Horlogerie."

Simon-Fustier was at that time looking for possibilities of developments, and besides making 3D models, he was also contemplating teaching horology. This has not yet been the case, apart from a few general conferences on the history of horology.

However, we know that Simon-Fustier claims or considers that the knowledge of horology will vanish, which may be true, and that one remedy is to have more students work in that craft, so that more clocks can be restored and not abandoned. This is partly true, but again, no effort is made to address the general problem of inventory and the access of researchers to tower clocks and clocks stored in museums.

I believe therefore that one of Chronospédia's real aim is to set up a teaching structure, based on 3D models and other sources, and to benefit

[18] `https://horlogerie-ancienne.fr/Institut-presentation` This site is no longer fully operational.

from it financially. That is a key part, and this is also a hidden part. I believe that in the long term, Simon-Fustier and Protassov hope to gain money (and fame) from this project, from the control of museums, of restorations and of teaching, and that this does explain the involvement of Protassov. I don't believe that Protassov is particularly interested in the history of horology, or in doing research in horology, or in saving horological know-how, but he sees that there is a possibility to make money out of it, especially if Chronospédia manages to have a monopoly. Moreover, Protassov heads the ICAT association,[19] which is an association fostering the use of time technologies. This is a small association incorporated in 2020, but I assume that Simon-Fustier and Protassov hope that it will grow and use the kernel provided by Chronospédia.

It is interesting to observe that there are a number of hidden people related to Chronospédia, people that have some role, but are never mentioned. In 2022, Simon-Fustier created the company Chronospédia (SIREN number 920 304 383), together with Maurice Gorgy and Pierre Louis Vacquier. Yet, Gorgy (president of Gorgy Timing and of ICAT, as well as a mentor of Simon-Fustier) and Vacquier (who is a former apprentice of Simon-Fustier and published a book on tower clocks in an area of France) do not seem to have any official role in the Chronospédia project. One wonders if they are perhaps not also interested by the future benefits promised by Simon-Fustier.

The Chronospédia project is currently "supervised" by a group of persons of which none has been working on the inventory of clocks, and none has published any technical work on clocks. In fact, those supervising the project seem to know very little about the priorities of horological heritage. And those who know a bit about 3D have also no experience about clocks, so that it is easy for them to believe that the Chronospédia project addresses real needs.

But the truth is that Chronospédia fails to address the priorities of horological heritage, its main focus is not horological heritage but the benefits it can reap from it. Its rhetoric is based on false claims or assumptions, like that of the knowledge associated to the *maître d'art* title, or about novelties which are not really novelties. Many statements by the authors of Chronospédia are false, whether on historical matters such as clock attributions, or on the decay of horological knowledge, of the supposed inaccessibility of resources, or of the necessity to have 3D models to learn about clocks. The clocks that have been modeled by the Chronospédia team have never been properly documented and in fact the work is not

[19]Centre International pour Technologies Avancées.

finished. It isn't finished for the *Encyclopédie* clock, it isn't finished for the Vaux-le-Vicomte clock, it isn't finished for the Cluses clock, and it isn't finished for the Mafra clocks. In fact, the purpose of Chronospédia is clearly not to do good work, but to accumulate as much unfinished work as possible, because most people (including horologists and museum curators) do not even notice that the work is not finished, in part because they are unable to comprehend technical descriptions. This is also a symptom of our life in a superficial world, a world that Chronospédia has obviously well mastered. And as far as 3D modeling is concerned, the Chronospédia team actually does not even have a specific 3D know-how (and this of course fooled the 2019 jury), and the models viewable online use well known and easy technologies such as glTF. I have myself put such a model online in January 2025, and it took me only a few days. I have also similarly put a model in AR (Augmented Reality) online. Chronospédia does not have a 3D knowledge of its own, it is merely using things which are already available to all.

In fact, Chronospédia does not have any legitimity to organize work on the horological heritage and it does it entirely the wrong way. No serious researcher will ever use the data from Chronospédia. Even in case someone would want to work say on the Mafra clocks, he or she should get an access to the actual clocks, and not waste his or her time with sloppy 3D models which are not even available as source files. The same applies to archives. In no case can Chronospédia be viewed as a legitimate source of anything.

It is therefore unfortunate that Chronospédia manages to fool so many people about its "openness" and its other lies and misconceptions, and it manages to infiltrate associations such as the AFAHA in order to foster its projects. But at the same time, no real work is done to address the priorities of horological heritage. When will museum curators understand what they have subscribed to and that Chronospédia is likely to do more harm to horological heritage than good? For me, Chronospédia is killing research, it contributes to the decay of horological heritage, and it only gives the illusion of knowledge.