

Non-Manipulable Things? Maintaining a Techno-Judicial Imaginary on Sealed Biological Samples in the French Criminal Justice

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Abstract

This article investigates the maintenance of sealed biological samples in the context of the French criminal justice. It extends maintenance studies to judicial objects and introduces the topic of maintenance in legal materiality studies. Our contribution to these two bodies of literature is to deepen understanding of the epistemic and material politics of maintenance in a judicial context where the issue of authenticity of objects is crucial because of their legal liability. Sealed biological samples, which are associated to a techno-judicial imaginary on cold cases, exacerbate this issue of authenticity. Once sealed, biological samples used to produce forensic DNA profiles are stored for a period of 40 years at the Central Service for the Preservation of Biological Samples – Service Central de Préservation des Prélèvements Biologiques (SCPPB), a dedicated facility, and interventions are no longer authorised on them. What then does it entail to maintain these objects which are non-manipulable, at least to some extent? What are the ‘sciences of maintenance’ mobilised and generated for this purpose, if they exist at all? This article addresses these questions, drawing on the archives of the technical committee of the Fichier National Automatisé des Empreintes Génétiques (FNAEG)—the French national forensic database used by national police—from 1998 to 2016 and on a six-hour interview with the lieutenant-colonel head of the SCPPB. It shows how sealed biological samples raise intertwined debates on their very nature and on the competences and responsibilities of genetic experts, the SCPPB and the judicial authorities on the maintenance of their technical quality and their judicial potential. It examines the knowledges and practices of maintenance of these objects, which are distributed all along the process from their manufacturing on the crime scenes to their preservation at the SCPPB. Finally, it contributes analysis of the temporality of maintenance and the objects to be maintained. By and large, this article offers reflections on the subtle ways of maintenance in the material ordering of the judicial world.

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Introduction

In recent years, the issue of maintenance has become topical in many social science disciplines. For STS, this topic opens an analytical perspective on our long-term coexistence with objects, and more broadly with living and inanimate materials. A great diversity of objects has been explored in this perspective, from mundane objects like vintage cars ([Hummel and Desaleux 2018](#)) or building walls ([Denis and Pontille 2018](#)) to large urban infrastructures ([Henke and Sims 2020](#)) and complex technological systems like the Cassini-Huygens spacecraft ([Cohn 2013](#)), in the Global South ([Houston and Jackson 2017](#); [Jackson 2014](#)) as well as in the Global North ([Strebel, Bovet, and Sormani 2019](#)). However, very few studies have focused on the maintenance of objects mobilised by, or present in, the legal and judicial world. Yet, these objects are interesting for digging deeper one issue that traverses maintenance studies: the issue of authenticity. Though this issue is critical for certain objects like art works – to what extent do interventions on one oeuvre maintain its authenticity? – it is exacerbated when it comes to legal and judicial objects because of the legal liability they are endowed with. This is the case for sealed biological samples: like any object, they deteriorate with time and require action to maintain their material integrity through which their legal power is incarnated; but in contrast to many objects, they must remain as they were at the time of manufacture to preserve their judicial value.

‘Seal’ (‘scellé’ in French) is the term used in the French Code of Criminal Procedures (Articles 56 ([\[1957\] 2020](#)) and 97 ([\[1957\] 2019](#)) of the French Code of Criminal Procedure) to designate any object, document or data seized by a criminal investigator *and* placed under seal before a judicial police officer. It refers to the act of closing and forbidding any further manipulation of the item unless permitted by the judicial authority. It is this procedure which turns the item into a judicial object, endowed with legal power. Seals are kept as exhibits and may be subject to counter-expertise at the requirement of the defence lawyers. Sealed biological samples are seals that contain biological material (for instance semen, blood, saliva, a strand of hair, a skin sample, etc.). Unlike other judicial seals, they are not stored in the court registries but at the Central Service for the Preservation of Biological Samples – Service Central de Préservation des Prélèvements Biologiques (SCPPB) once analysed by genetic experts. For the lieutenant-colonel, head of the SCPPB (hereafter, the lieutenant-colonel), his service is not a mere storage space for sealed biological samples. In fact, he imagines the use of DNA technologies that could be developed in the future to undertake further analyses of the sealed biological material in cold cases. This ‘techno-judicial imaginary’, to paraphrase Sheila Jasanoff and Sang-Hyun Kim ([2015](#)), is based on a progressive vision of technologies that carries with it a certain idea of the missions of justice. The lieutenant-colonel presents this imaginary as a

reality within reach, an ‘adjacent possible’.¹ On the technical side, DNA analysis has evolved considerably since the 1980s, so much so that today it is possible to analyse a single molecule, with all the uncertainties it entails. On the judicial side, even if there is a statute of limitations for criminal cases in France,² the re-opening of cold cases constitutes a horizon for criminal justice. Thus, in the context of the Bill for Confidence in the Judicial Institution ([Act No. 1729, 2021](#)), the French Parliament has recently voted the creation of a national judicial unit for serial crimes and for unsolved crimes.³

This techno-judicial imaginary is based on a strong assumption, namely that sealed biological samples remain unchanged from the time of manufacture at the crime scene and therefore constitute, at any time, witnesses of what probably happened. However, for the biological material it contains to be analysed, the experts must open the seal to extract it and then seal again the sample to send it to the SCPPB. Interventions on the seals are thus unavoidable to perform a DNA analysis. On the other hand, the SCPPB is not authorised to interfere with the seals it receives: its only prerogative is to keep them in the designated building, to return them to the judicial authority or to destroy them at their request. Yet, sealed biological samples not only undergo the ravages of time like any other object, but do not stay inert. It is this fiction that the seals and their contents have the virtue of remaining indefinitely in the same state that the lieutenant-colonel strives to combat to make the techno-judicial imaginary he projects come true. The issue of maintenance is core to his struggle. This issue arises here in an original form that contrasts with studies dealing with how objects are accompanied throughout their life. The maintenance of sealed biological samples reverses the arrow of time: it aims at locking them today in a state compatible with their potential use in the future, knowing that no further intervention will be allowed until then. Hence the questions we address in this article: what does it mean to maintain objects that, once made, can no longer be manipulated? What knowledge and practices are mobilised for this purpose and what is a ‘science of sealed biological samples’, if it exists at all?

To answer these questions, we will first situate our analytical perspective at the intersection of recent research works in maintenance studies and in legal materiality studies, with an aim at problematising maintenance issues, particularly the issue of authenticity, in a judicial context. We will then present our empirical material and methods which help us follow the lieutenant-colonel’s claims on the maintenance of sealed biological materials and the discussions these claims arouse. The two next sections display our empirical material to document two forms of maintenance that translate the critical issue of authenticity. The section titled *Maintenance 1: Crafting Objects Now for the Times Ahead* focuses on the practices and know-how for ensuring the maintainability of sealed biological samples before their storage at the SCPPB, and the controversies they arouse in terms of distribution of competences and responsibilities between the different actors of the forensic chain. The following section, *Maintenance 2: Preserving Non-Manipulable Things* looks

¹ We borrow this term from the literature on social innovation. ‘Adjacent possible’ means ‘the range of alternative social arrangements [...] just beyond the horizon of prevailing practice’ ([McGowan and Westley 2015](#)).

² With the exclusion of crimes against humanity since 1994.

³ This judicial unit was officially created on March 1, 2022.

at the practices and expertise for preserving sealed biological samples which are no longer manipulable at the SPCPB, and the unexpected role they confer on the latter. In the conclusion, we will recap our argument on the material and epistemic politics of maintenance in a judicial context and our contribution to maintenance studies and to legal materiality studies. Maintenance, in this context, does not consist in intervening on the object whenever needed to make it last, but to manufacture it in a state compatible with its use the day it will be seized by the judicial authority. The real life of the seal is in the future, and its monitoring during its conservation aims to keep alive one crucial question: will it be considered an authentic material witness of what happened at the crime scene, and will it lend itself to genetic analysis years after? In that sense, we argue, maintenance, in a judicial context, engages a specific work on the temporality of the things to be maintained.

Exploring the Material and Epistemic Politics of Maintenance of Judicial Objects

Maintenance always supposes intervening on the original object, an intervention that necessarily modifies it, while aiming at ensuring that the maintained object resembles the original one or keeps its main attributes. That maintenance makes an object the same but different entails a material politics. As Stephen Graham and Nigel Thrift put it: “What the ‘thing’ is that is being maintained and repaired. Is it the thing itself, or the negotiated order that surrounds it, or some ‘larger’ entity?” (2007, 4). Take the example of Vladimir Ilitch Oulianov Lenin’s body. Alexei Yurchak (2015) describes the work done by Soviet and Russian researchers to transform Lenin’s body into a living sculpture, emptied of its organs, regularly filled with various materials, whose outer shell is constantly patched up, and this to maintain the body’s shape and flexibility as if Lenin had just died. The author draws a parallel between the maintenance of Lenin’s body and the concomitant invention of Leninism by the Soviet authorities, which was exalted as an unchanging doctrine while being constantly reinterpreted: maintaining Lenin’s body as a living sculpture is maintaining the Leninist doxa in perpetual revision. Jessica Barnes (2017) offers another telling example in her study of the two forms of maintenance of irrigation networks in the Nile Valley and Delta: the first one, carried out on a regular basis by the State, allows it to reassert its power by solving problems throughout the entire system; the second one, carried out by the farmers, allows them to build ties of solidarity around water supply they collectively depend on. As the latter example shows, the material politics of maintenance engages a sometimes-contentious distribution of competences and prerogatives between different actors deemed responsible and accountable for the thing that is being maintained.

This material politics of maintenance also has an epistemic dimension: what sort of knowledge and know-how are mobilised or generated for and by maintenance? It may be tricks of the trade, in part invented as the action unfolds. For instance, in their study of the maintenance operations on the Paris subway signs, Jérôme Denis and David Pontille (2019) describe how maintenance technicians use newspapers to wedge a sign that has warped over time in its support. It may be knowledge produced *in situ* through manipulations and practices of trial and error like in informal repair workshops of obsolete computers (Callén and Sánchez Criado 2015). It may also be constituted of formalised bodies of expertise, sometimes controversial, such as those mobilised by restorers of heritage properties (Jones and Yarrow 2013). As the latter authors demonstrate, the epistemic dimension of maintenance raises an ontological question. In examining the restoration of the Glasgow Cathedral, they show the conflicts among experts over the politics of testimony

at stake: should the building be restored with the materials and techniques used at the time of its construction to preserve its authenticity, or should current techniques and methods be used to consolidate the building in the present time so that it bears testimony to the restoration itself as part of the building and its history? To put it differently, what is a heritage building? The issue of authenticity of objects therefore is part and parcel of a material and epistemic politics of maintenance.

Quite astonishingly, the maintenance of legal and judicial objects has been seldom explored in social sciences, while the authenticity of these objects is a critical issue. The conservation of notarial acts executed in electronic form is an example of the sort. Notaries must keep electronic writings identically to preserve their authenticity, but this supposes that their code be regularly updated so that they remain readable by future versions of word processing software.⁴ Pontille (2009) offers one rare example of the maintenance of legal documents: considering writing as a material practice and written documents as material objects,⁵ he studies the production and restoration of bailiff's documents if manufacturing defects or alterations are found, for asserting their authenticity.

On objects other than legal writings, maintenance is addressed only marginally in the social sciences literature on the making and the working of the law, despite a growing focus on its materiality. Susan S. Silbey, a prominent figure of 'Law & Society' scholarship, co-authored a piece with Ayn Cavicchi (Silbey and Cavicchi 2005), showing that the law 'passes' through objects of the ordinary world such as clothing labels, sale receipts, or traffic signs reminding us of the law. Though maintenance is not core to their argument, these 'legalfacts' (ibid.) as they call them undoubtably require regular restoration work to maintain their legal liability. In a slightly different vein inspired by STS, Hyo Yoon Kang and Sara Kendall (2019) propose a renewed research program on 'legal materiality' for addressing the problematisation and materialisation of certain issues as legal matters of concern; but here too, the maintenance of legal objects is not their main purpose. As part of another STS-inspired body of research works on the connections between law, science, technology, and society (Faulkner, Lange, and Lawless 2012), Javier Lezaun (2012) shows how European regulation on contaminants in foodstuffs like milk is enforced through legal material referents. Through an ethnography of the Institute for Reference Materials and Measurements, he documents the fabrication of these artefacts, and stresses the specificity of their maintenance: "The original condition of the material can never be preserved. It can, however, be reconstituted . . . The goal is not the maintenance of the source material in its unadulterated state but, rather, the production of a particular kind of verisimilitude" (ibid., 31). The intersections between STS and legal studies have thus highlighted the specific texture of the socio-materiality of the law. Maintenance is not core to these bodies of research

⁴This topic has triggered heated debates in France from 2000, when the article 1366 of the French Civil Code accepted that contracts concluded in electronic form had the same juridical value as contracts concluded on paper (Grimaldi and Reynis 2003).

⁵Bruno Latour (2005) proposes a description and analysis of the making of the law through the material handling of written dossiers examined by the State Council (Conseil d'État), the highest French administrative jurisdiction.

works, though they lend themselves to an exploration of the maintenance of the authenticity and integrity of legal objects as shown by the few exceptions mentioned above.

When moving from legal objects to judicial ones like judicial seals, including seals as critical as sealed bullet casings, the social sciences literature is even less talkative on their maintenance. In France, judicial seals other than sealed biological samples stored in court registries occasionally raise public concern with the lack of attention for their preservation which jeopardises the plaintiffs' rights.⁶ Because sealed biological samples are preserved in a dedicated facility, and because they partake to a new judicial horizon in the elucidation of cold cases, investigating their preservation offers a unique opportunity for delving in the specificities of the material and epistemic politics of maintenance of judicial objects. This is what we task ourselves to do in this article. Before going further, we present our empirical material and our methods of analysis.

Empirical Material and Methods

Our empirical material consists of the archives of the technical committee of the Fichier National Automatisé des Empreintes Génétiques (FNAEG), the French national forensic database, from 1998 to 2016, and of a six-hour interview with the lieutenant-colonel, head of SCPPB where sealed biological samples are stored.

The FNAEG was created under the 1998 law on the prevention of recidivism and the repression of sexual offenses, as well as the protection of minors ([Act No. 98-468, 1998](#)). Its purpose is to assist the Ministry of Justice in identifying the presumed perpetrators of an offense. Its management is assigned by the Minister of Justice to the Central Directorate of Judicial Police. For its part, the SCPPB was created by the law decree issued on May 18, 2000 ([Decree No. 2000-413](#)). It is affiliated to the Forensic Research Institute of the National Gendarmerie.⁷ A technical committee was set up at the inception of the FNAEG. Chaired by a magistrate from the Ministry of Justice's Directorate of Criminal Affairs and Pardons, it is formed by a dozen members of the Judicial Police and the Judicial Division of the Gendarmerie specialising in biology, forensics, databases, computer networks and judicial documentation. The heads of the FNAEG and the SCPPB are members of the committee. Its mission is to provide solutions to practical problems that actors face in the field (criminal investigators, magistrates, DNA experts, etc.). The committee also offers input to the elaboration of texts, including legal texts, which govern the implementation of the database.

The FNAEG technical committee meets between four and six times a year. Its archives (approximately five linear meters of files) include the minutes of its meetings, letters and various documents

⁶The French national and regional press reports on judicial seals piled up in damp and poorly ventilated basements, whose traceability sometimes leaves a lot to be desired, to the detriment of the victims ([Roparz 2011](#); [Agence France Presse 2021](#); [Combrousse 2017](#); [La Provence 2021](#)).

⁷The French security forces are made up of the police and the gendarmerie, under the jurisdiction of the Ministry of the Interior. However, the gendarmerie is a military body which carries out its military missions under the authority of the Ministry of the Armed Forces.

classified in chronological order, as well as files dealing with specific problems or procedures (findings of data entry errors, new genetic technologies, etc.). Having signed a confidentiality and security agreement with the Central Directorate of Judicial Police, we could only consult them on site and were not allowed to make copies. This constraint forced us to be resourceful in our approach. During our consultation, which lasted two years, we identified and took notes on the committee's discussion threads, also transcribing verbatim (anonymised in this article) that illustrate the topics under discussion within the committee. Sometimes we had to return to certain documents and correct our notes when new elements led us to revise our understanding of the events recounted. We then proceeded to a qualitative analysis of our notes on the various discussion threads,⁸ including the one on sealed biological samples. This discussion thread was particularly dense during the first years of the FNAEG and the SCPPB, without disappearing entirely thereafter, witnessing, as we will see, the lieutenant-colonel's intense efforts to include the issue of sealed biological samples on the committee's agenda from the outset.

Our interview with the lieutenant-colonel confirms the thinly veiled tensions within the technical committee over the issue of sealed biological samples. The lieutenant-colonel, a gendarmerie officer, PhD in biology and a former criminal investigator, stands as a defender of seals against most of the actors involved in the FNAEG and in the infrastructure it relies on, and for whom seals were initially minor objects. The lieutenant-colonel presented us with a theory and a politics of sealed biological samples: he dwelt at length on the operations of making and maintaining seals which he has tirelessly recommended, as well as his efforts to have these recommendations transcribed into legal texts. Thus, the main protagonists of our narrative are the lieutenant-colonel and the FNAEG technical committee.

Maintenance 1: Crafting Objects Now for the Times Ahead

The early days of the SCPPB dealt a severe blow to the lieutenant-colonel's techno-judicial imaginary. He remembered:

... once, we had a leaking tear gas canister ... the lab [had put it] with other seals and it had completely soaked the kraft envelope of the other seals. So, we called the lab and they said: "Oh yes, it was leaking, we noticed it and that's why we put it in a second kraft envelope ... we thought that ... you could then repackage it or do something".

Contrary to what the above-mentioned genetic laboratory assumed, the SCPPB is not authorised to intervene on the seals. Because of this strict limitation of the prerogatives of the SCPPB, the lieutenant-colonel believes that it is the responsibility of the laboratory experts to make and send the seals in conditions that allow to maintain their potential. It is the work that he has undertaken in this perspective, and the discussions that it has generated within the FNAEG technical committee, that we document in this section.

⁸The DNA sequences analysed to establish DNA profiles, the transnational exchange of DNA data between the European Union Member States, the revisions of the legislation relating to the FNAEG and the SCPPB, the cold cases, are some of the threads of discussion of the technical committee.

Maintaining the Authenticity of Sealed Biological Samples: A Material and Legal Problem

French law does not provide any substantial definition of judicial seals, the only quality expected of them being to be sealed by the criminal investigator before a judicial police officer. The lieutenant-colonel's first initiative was to define what he calls 'biological seals'. He admits to having given himself a 'maximalist' definition. He draws on the so-called Locard's transfer principle,⁹ which states that any perpetrators leave biological traces of their passage on the offense scene and take with them elements that will allow to determine their passage on the scene. It is this principle that the lieutenant-colonel extends to define 'biological seals':

Each seal must be treated and packaged *as if tomorrow it is going to be subjected to DNA analysis*. (emphasis by Rabeharisoa and Paterson)

From the lieutenant-colonel's perspective, the term 'biological seals' is not a mere shorthand for sealed biological samples. It rather conveys the idea that any object that the criminal investigator seizes at the offense scene has a biological potential and should therefore be considered a 'biological seal'. This definition triggers a series of material and legal problems.

Some seals, such as mattresses, are large, and the SCPPB does not have an infinite storage capacity. The lieutenant-colonel therefore requires the experts to pack the seals in A5 size envelopes, which imposes to "dismember", that is to cut, some of the seals. Such dismemberments immediately raised passionate discussions within the FNAEG technical committee: what would be the status of the different resulting objects? Can the "sub-seal" sent to the SCPPB be considered the same seal as the one sent by the criminal investigator to the expert? What about the "seal residue"? Within the FNAEG technical committee, the discussions drag on, especially since the committee's main concern is not the making of seals but the recording of DNA profiles in the FNAEG database.

Added to these considerations is the experts' reluctance regarding the very nature of the work of making the seals. As the lieutenant-colonel recognises, this task is not a work of expertise in the sense that it does not involve interpreting data, but of making objects that brings nothing to the experts. A trial of strength is thus occasionally engaged between laboratories and the SCPPB, the SCPPB sending back the seals that it considers too large to laboratories, whereas laboratories retort that if it is so, they will send the seals to the court registry! The lieutenant-colonel eventually accepted different formats (A5, A4, A3). While acknowledging his "failure", he indicated to us that his fight is broader: to a "cultural change" about the treatment of "biological seals" so that they become the object of a shared concern by all actors involved in the forensic chain.

⁹Edmond Locard (1877–1966) was a French forensic medical doctor who created the first French forensic laboratory in Lyon in 1910. However, the scientific, or merely empirical, nature of the Locard's transfer principle continues to be debated (see [Crispino 2006](#)).

The dismemberment of seals also has a legal dimension. The seal transmitted by the criminal investigator, once opened by the expert to extract the biological material and to proceed to the establishment of its DNA profile, loses *ipso facto* its status of judicial seal. For the unsealed object to regain this status, it is necessary, in all rigors, that it be sealed again in the presence of a judicial police officer. It is at this price that the object will be considered as a judicial seal if it had to be analysed again and presented before a court in the future. This is at least the reasoning of the lieutenant-colonel, who brought the issue to the attention of the FNAEG technical committee in the early 2000s. His insistence on restoring the judicial status of the seal then clashes with the usual practices of experts, who expressed their reluctance to proceed with a time-consuming operation that requires a reorganisation of their work if they must each time re-seal the object in the presence of a judicial police officer, not to mention the additional workload these officers would have to bear. Faced with the hesitation of the FNAEG technical committee, whose priority is the proper functioning of the database, the lieutenant-colonel hardens his tone. At the committee's meeting in March 2001, he stated:

A response will be needed ... because the SCPPB would be at fault and would risk a penalty if the preserved samples were not sealed.

The committee then called on the Ministry of Justice via the Directorate of Criminal Affairs and Pardons. In September 2001, the Committee reported the Ministry of Justice's decision:

It was clarified that there was no legal obstacle to experts placing samples of biological material from the dismemberment of an object under seal.

This decision explicitly maintains the usual practices concerning the manipulation of judicial seals and establishes the consistency between the original seal and the seal reconstituted by the expert.

The difficulties do not end there. Remember the indignation of the lieutenant-colonel facing leaking seals. For him, such practices jeopardise the future potential of the seals. He will not let up in proposing to the FNAEG technical committee recommendations for the packaging of the seals, not only intended for the experts but also for the criminal investigators. More than that, he insisted that the entire sampling kit used by criminal investigators be standardised, including the swabs used to collect the biological material, and even that the wax that could alter DNA be replaced with self-adhesive stamps for sealing the object. A large meeting of experts from all the laboratories was organised at the end of May 2001 to inform them of the standardisation, and the gendarmerie produced a video to train criminal investigators in the use of this kit. Here, our observation recoups the one made by Bertrand Renard on the transformation of practices at crime scenes following the upsurge of genetics in the arsenal of forensic techniques ([Renard 2008](#)). Between rigorism and pragmatism, the lieutenant-colonel has thus progressively, and not without difficulty, embedded his concern for the proper preparation of the seals into the practices of the criminal investigators and the experts.

Enacting the Responsibilities of the Different Actors vis-à-vis Maintenance into the Law

The lieutenant-colonel's efforts stem from a long-term commitment and work to ensure that his service and the seals are considered as a genuine actor and objects of the forensic chain. He took steps to ensure that his service had access to the same judicial information as the FNAEG Directorate, and that the seals were provided with identification sheets in the same way as the genetic profiles processed in the database. Article R53-11 of the 2000 law decree specifies the information on the DNA profiles registered in the FNAEG, and in particular: "the place, date and the number of the sealed biological sample" ([Decree No. 2000-413](#)). At this stage, the DNA profiles, and not the seals, were documented. This obviously did not seem to satisfy the lieutenant-colonel. Continuously working on the matter, he then sought to enforce the law decree issued on September 13, 2002 ([Decree No. 2002-225](#)), concerning the creation of an automated processing of nominative information relating to the management of biological samples by the SCPPB, which gives the beginning of a legal existence to the seals themselves. Its article 2 sets out the categories of information in question, including those relating to:

... the seal (number [of the seal, of the criminal procedure], service or unit that performed [the sampling, the seal], contents of the seal, date [of the analysis, of arrival at the Central Service for the Preservation of Biological Samples]), barcode identifier, samples (number, sample barcode, type of sampling, format), person (identity of the convicted person), date (breakage and reconstitution of the seal), storage (date, limit, location of the seal, of the sample and conformity, validity), conformity indicator ...

But old practices are hard to break. Despite the law decree, the SCPPB continued to receive mislabelled seals. The SCPPB complained about this to the magistrate in charge of the FNAEG in a letter dated March 19, 2003. The magistrate replied with a long letter, of which here are some excerpts:¹⁰

Sir,

... You have drawn my attention to the difficulties resulting from the absence of certain information on the seal sheets and you have asked for my opinion on what to do.

... It should be noted that if the provisions of the Code of Criminal Procedure – in particular articles 56 and 97 – define the general rules applicable to the seizure of papers, documents, or others as well as their placement under seal, no legislative or regulatory provision fixes the rules relating to the material preparation of seals, and particularly to the drafting of the identification sheets of the seals. ...

Therefore, it seems to me that you do not have to assess the regularity of the seal sheets. ...

... As regards the mention of the date of breakage and reconstitution of the seal by the expert on the seal sheet, I can only note that the only obligation imposed on the expert by article 163 of the Code of Criminal Procedure to mention in their report any opening or reopening of the seal is insufficient and unsuited to the requirements

¹⁰The agreement we signed with the Central Directorate of the Judicial Police permits use to use anonymised excerpts from the FNAEG archives for academic publications and communications.

specific to the preservation of DNA seals carried out in an institutional and autonomous manner with regard to the procedure that gave rise to the taking of the DNA fingerprint.

... I am transmitting this opinion to the Directorate of Criminal Affairs and Pardons, drawing its attention to the importance of defining the rules to be followed in these matters in a regulatory text ...

Please accept, Sir, the expression of my best wishes ...

The magistrate's answer is unambiguous: the law is the law. He concludes however that the sealed biological samples must be the object of specific treatments in terms of security and proposes to question the Ministry of Justice on this matter. One year later, the decree N°2004-470 of May 25, 2004, modifying the Code of Criminal Procedure (second part: Decrees of the State Council), relating to the National DNA Database, provides in its article R53-11 the list of information concerning the seals and not only the DNA profiles ([Decree No. 2004-470](#)). For the lieutenant-colonel, this article is a success insofar as it now enacts in the law the obligations that the different actors of the FNAEG infrastructure must fulfil regarding the maintenance of sealed biological samples.

What can we take from these multiple tensions raised by sealed biological samples? In her work, Corinna Kruse ([2016](#)) shows that forensic evidence has a social life upstream to the courtroom: she traces the reverse trajectory of forensic evidence and approaches them as knowledge whose interpretation triggers epistemic friction between all those involved in the legal chain from the tribunal to the forensic lab and the crime scene. The frictions that we have identified and analysed on sealed biological samples concern not only the episteme of forensic evidence but also their very materiality as revealed by the politics of maintenance of sealed biological samples that the lieutenant-colonel fights to establish all along the forensic chain.

First, these frictions show the continuous and sustained work of the lieutenant-colonel within the FNAEG technical committee to give a techno-judicial definition of the 'biological seals' on which their fabrication ought to be based. According to him, it is at the price of this work, both epistemic (what is a 'biological' seal?) and juridical (what is a 'judicial' seal?) that these seals will become key objects in the solving of cold cases. Secondly, at the heart of his project lies the problem of maintaining the authenticity of seals. The feature of sealed biological samples, as opposed to most of the objects examined in maintenance studies, is that once they reach the SCPPB, they can no longer be manipulated. Therefore, they must be manufactured and sealed in such a way that their technical quality and their forensic potential are maintained for the future. However, seals are 'unruly' objects to the extreme, to use Fernando Domínguez Rubio's expression ([2014](#)), in the sense that no one is accountable for their manufacture. Hence the new responsibility that the lieutenant-colonel demands from the experts: they must manufacture, package, label and send the seals in conditions that ensure that they could be considered, in the future, as technically and legally robust witnesses of what probably happened in the past at the crime scene. Maintenance is thus a form of actualisation, namely the creation in the present of an object for the future. Thirdly, the tensions surrounding sealed biological samples highlight the mundane nature of this actualisation work. For the

experts, the task of preparing the seals is not only an additional burden, but also far removed from their field of expertise. Making seals requires a form of vigilance towards materials, a meticulous attention, a gestural care to guarantee their technical quality and preserve their judicial potential, and not the sophisticated and specialised knowledge needed to establish DNA profiles. This accounts for their reluctance to accept the new role the lieutenant-colonel intends to assign to them.

But once the sealed biological samples reach the SCPPB, what happens? What skills does the SCPPB develop to preserve them while being unauthorised to manipulate them? This is what we now document.

Maintenance 2: Preserving Non-Manipulable Things

After our interview, the lieutenant-colonel offers us to visit the building where the sealed biological samples are stored. In this building of several floors, we pass after him several airlocks secured by codes. Here we are on one of the floors where we stay only a few minutes. It is with an undisguised pride that he tells us: “Here is my golden box”. The floor looks like a vast warehouse where packages of different sizes are arranged on shelves. He pulls some of the packages towards us on a rail system so that we can see them. We ask if it is possible to take pictures. The answer is courteous but firm: *no, security first*. We expect him to tell us what is in the packages, but there too, we will not know more: security first. We also note the presence of sensors, probes, and filters which he explains allow the regulation of air, humidity, dust, etc. We leave the building, a little disappointed.

However, our interview allowed us to discover some of the secrets of this ‘golden box’, and more precisely the knowledge and practices on sealed biological samples that the lieutenant-colonel intends to develop within his service. As we will see, this knowledge and these practices involve a certain relationship to non-manipulable objects. This non-manipulability will lead him to outline a politics of sealed biological samples, tightly linked to the techno-judicial imaginary that he projects.

Tracing the Life of Sealed Biological Samples: From Deterioration to Modification

Throughout our interview, we kept asking the lieutenant-colonel about the inevitable deterioration of the sealed biological samples and the actions that his service implements to counter it. To our surprise, he insists on talking of modification rather than degradation:

... I don't talk about deterioration... I talk about modification. An object, in the duration, is modified, it interacts differently with the trace [of biological material]. That is, if at time t , I was able to perform an analysis, it does not mean that at time $t+1$, I would be able to do it.

Interactions between materials that compose objects have drawn an increasing attention in maintenance studies ([Denis and Pontille 2022](#); [Edensor 2011](#)). Materials matter: they have a rich life, made of multiple mutual interactions, sometimes bringing new entities into being. But how can such phenomena be documented if it is not possible to intervene on the seal?

In his article, Yurchak ([2015](#)) shows the numerous scientific experiments carried out on corpses to develop materials and techniques allowing to preserve the form of Lenin's body. What the lieutenant-colonel proposes has similarities with what Yurchak describes. He informs us that research is being undertaken on what might be called ‘facsimile’ seals, the equivalent of the experimental corpses staged by

Yurchak, to observe the interactions, over time, between biological and various other materials. There is, however, a huge difference between the maintenance of Lenin's body and the maintenance of sealed biological samples: for the latter to retain their judicial value, they cannot be manipulated. As the lieutenant-colonel explains, his role is not to draw on the knowledge generated by experimentations on "facsimile" seals for intervening on "real" seals, but rather:

[to] raise questions and [to] run tests so that this science of the seal or the knowledge of the trace-object interaction ... enters our field of competence ... we want ... to be able to make recommendations to the laboratories that do not have time – you see I am diplomatic – to study these problematics of objects because their objective is the analysis at a given time t.

Thus, the 'science of sealed biological samples' the lieutenant-colonel is eager to develop is a science of the interactions, over time, between the material of a container or a support (plastic, glass, metal, wood, fabric, paper, etc.) and the human biological material it contains or on which it is deposited (blood, semen, tears, sweat, skin, etc.). The objective is to determine if, and under which conditions, the biological material will continue to be analysable, and the final recipient of this knowledge are the experts, who are invited to reflect on these interactions in their choice of containers and other supports they use in the making of seals.

The SCPPB's initiatives do not end there. To this knowledge of materials and their interactions, the lieutenant-colonel proposes to add to the skills of the "expert-technicians in sealed biological samples" a knowledge of the interactions between the seals and the "golden box" in which they are stored:

We have here a control system with probes, we know at any time, during 40 years, what the seal will undergo in terms of temperature, in terms of hygrometry. All these elements are electronically monitored with 24-hour alerts, as soon as there is a temperature variation, the telephone rings, and technicians intervene. With a seal that is 40-years-old, I can give you a list of the events and the life of the seal.

Here is a recurrent element of maintenance operations, namely the preservation of the object and its environment, or more exactly of the object within its environment as Domínguez Rubio (2016, 2021) has shown. Moreover, the seals, which cannot be manipulated by the SCPPB, are endowed with a particular dynamic that gives them, in return, a specific ontology: they are objects about which information on the events that punctuate their life in their 'golden box' is available at any time, allowing to know exactly what they are the day they are seized as part of cold cases. The lieutenant-colonel takes his demands a step further, suggesting that if not for DNA analysis, only the photographs of the sealed biological samples be presented in court because:

From the moment [the seals] come out, I no longer have any control over them.

Such a suggestion has very little chance of being implemented, as it would fundamentally call into question the prerogatives of the judicial authority. On the other hand, it demonstrates the lieutenant-colonel's will to outline a politics of sealed biological samples, which we will now examine.

From Maintenance to a Politics of Sealed Biological Samples

Remember that the lieutenant-colonel proposed that: “each judicial seal must be treated and conditioned as if tomorrow it will be submitted to a DNA analysis”. If, as we saw above, he had to revise his ambition downwards, it is also because of one major preoccupation with the cost of preserving the seals at the SCPPB. As he told us, the construction and equipment of the building we visited cost 7 million euros, and the preservation of a seal at room temperature amounts to 5 euros per month. In view of these data, it is unreasonable, according to him, to keep everything.

At this point, we need to have a look at the evolution of the DNA database. Over the years, the law has considerably extended its scope. Today, almost all crimes against property and persons are covered. Moreover, in addition to the profiles of unidentified traces of biological material and those of convicted individuals, which are recorded in the FNAEG database for a period of 40 years, the profiles of persons against whom there are ‘serious or concordant evidence’ that may justify their indictment may now be recorded in the database for a period of 25 years, making the FNAEG the second largest European forensic DNA database after the British database, with nearly 3 million recorded profiles. Initially, the SCPPB was to constitute a sort of material copy of the FNAEG, but the exponential increase in the number of profiles made this project undoable under reasonable conditions. After intense discussions within the FNAEG technical committee, the decision was made to only preserve the sealed samples of unidentified traces of biological material, which represents to date nearly 230,000 seals ([IRCGN-SCRCGN \[2017\] 2023](#)).

However, the material and financial feasibility of preserving all the seals is not the only motive for this decision. As the minutes of the June 2003 FNAEG technical committee meeting indicate:

In the current state of our law, a new analysis of the samples collected in proceedings that can be time-barred or amnestied would violate the general principles of the right to be forgotten and pardoned.

During our interview, the lieutenant-colonel went on with his legal reasoning, this time concerning the sealed samples of unidentified traces of biological material. According to him, it is unsustainable to store seals related to petty crime which, over the years and due to the extension of the FNAEG’s scope, constitute most of the cases for which the DNA database is used. In fact, he adds, the penal response to these minor offenses is almost non-existent. Thus, the SCPPB receives numerous seals which, from his point of view, have no criminal relevance, but have been made to respond to the security politics that is now embodied in the FNAEG. Because of this tension between penal politics and security politics that may obscure the mission of the SCPPB, the lieutenant-colonel believes that a politics of sealed biological samples is needed and requires a “societal choice”. He wishes that only the seals related to the most serious crimes and the “top of the criminal spectrum” be preserved, to which he suggests adding the seals of convicted individuals and suspects according to the seriousness of the cases. Here we find again the techno-judicial imaginary that has inspired him from the outset.

What can we conclude from this immersion in the preservation of sealed biological samples at the SCPPB? First, notice the continuity of the lieutenant-colonel’s concern for maintenance, which extends from the

making of the seals on the offense scenes and their manipulation by the experts, to the control of their life in the 'golden box' of his service. By problematising the storage of seals, he drives attention to their material fragility ([Rabeharisoa and Paterson 2023](#)) that should be considered if their analysability, and therefore their judicial power is to be maintained. Second, the sciences of seals that he intends to develop, and which focus is on the interactions between biological material and various containers on the one hand, and on the events throughout the life of the seals on the other hand, design a form of observational research¹¹ for objects that are non-manipulable, at least in part. In this case, maintenance, and the knowledge it draws on and produces, imply staying at a distance from the real objects and deploying surveillance remotely in order not to interfere with their endowed legal status. This observational research mobilises and generates not only knowledge about seals, but also about objects such as the 'facsimile' seals that we have mentioned, or the seals at times t , $t+1$, $t+2$. . . , that the multiple sensors of the SCPPB allow to trace. Third, the status of these 'sciences of sealed biological samples' is quite particular: they are bodies of empirical knowledge whose purpose is first and foremost operational, since, as the lieutenant-colonel proposes, the point is to better inform seal-making practices. If this situation is not unique, it is nevertheless an invitation to question the great variety of what could be called the sciences of maintenance. Fourth, these sciences of sealed biological samples map out a politics in a twofold sense of politics: it involves defining the knowledge and the responsibilities of all the actors of the forensic chain regarding the maintenance of seals; it involves, in the same movement, defining the seals worthy of being preserved and the penal politics that it would be necessary to introduce for this purpose.

Conclusion

In addressing sealed biological samples, this article first extends maintenance studies to objects mobilised by, or present in, the legal and judicial world. It also introduces the issue of maintenance to legal materiality studies. We have shown that the maintenance of sealed biological samples entails a specific material and epistemic politics because of the judicial context in which their manipulations are drastically restricted to guarantee their authenticity. This requirement is made even more critical when it comes to cold cases, for seals must remain the same over a long period of time if they are to continue to be robust witnesses of what happened years, and sometimes, decades ago on the crime scene, though they inescapably transform. For maintenance studies as well as legal materiality studies, sealed biological samples are thus interesting objects to think with for grasping the importance of maintenance in the material ordering of the judicial world, and for questioning its temporality. In this conclusion, we would like to expand on this issue of temporality, which stands at the core of the techno-judicial imaginary of cold cases.

Maintenance, as Denis and Pontille ([2022](#)) point to, consists in making things last. Time is not a given; it is shaped by maintenance. By distinguishing between maintenance consisting in crafting objects now for the times ahead (Maintenance 1) and consisting in preserving non-manipulable things

¹¹The distinction between observational and interventional research in the medical field applies quite well here.

(Maintenance 2), we show how, under which conditions, based on which knowledge and in which hands the temporality of sealed biological samples is produced, not only in the aftermath of their manufacturing but also upstream of their making. Denis and Pontille (2015) have highlighted the difficulties faced by maintainers when no consideration has been given to maintainability in the design of objects. Our case radicalises their argument: the lieutenant-colonel's demand is that the maintenance of sealed biological samples starts at their conception.

This work on and with time is core to the epistemic and material politics of maintenance for it implies a distribution of knowledge, responsibilities and accountability vis-à-vis the things that are to be maintained. Sealed biological samples illuminate how contentious this distribution might be. Our analysis has shown the fight that the lieutenant-colonel led to impose sealed biological samples, a fight that amounted to a power struggle with the experts, but also with the judicial institution on several occasions. By fighting for the clarification of the knowledge and material operations involved in the making and preservation of the seals, the lieutenant-colonel fights so that each actor in the forensic chain is literally faced with the seals and takes the measure of her/his responsibilities and accountability.

Our article also calls for reflection on the very notions of maintenance and preservation. The latter appears in the name of the SCPPB, thus clearly indicating the mission of this service: to protect, in security, the sealed biological samples from any unfortunate or malicious intervention so that the judicial authority can, in the future and at its request, seize them anew. The term maintenance is, in this article, an analytical tool to follow and describe the work performed to maintain the potential of the seals to be analysed and to make their seizure by the judicial authority possible in the future. The term 'maintenance' allows us to see the ambiguity of the operations intended by the lieutenant-colonel of the SCPPB, between the preservation of the seals in their current state – a legal and material imperative – and their manufacture and active observation to ensure that they will be able to convey something, both legally and materially, the day they are resubmitted to questioning. This ambiguity is what characterises the techno-judicial imaginary we mentioned at the beginning of this article, and what prompted the lieutenant-colonel to explain to us what a politics of sealed biological samples should be.

But there is another seldom mentioned dimension to this politics. It assumes that the legal action never stops, while the law is exercised over the limited period of an investigation and a trial. Preserving sealed biological samples for 40 years with such care boils down to looking forward to a world where justice would escape time, which would violate the principle of limitation of regal power, of which justice is one of the institutions in Western liberal societies. This opens a whole field of reflection, which goes beyond the scope of this article, on the balance between the rights of the defence and the rights of the victims. At a more general level, it raises the question of which things to be made last, and why.

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