

DPI

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Issue 046: Computer Museums

July 4th, 2022

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Issue 046: Computer Museums



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Welcome to the forty-sixth issue of *De Programmatica Ipsum*, dedicated to the subject of *Computer Museums*. In this edition:

- Adrian visits four computer museums¹ in Switzerland.
- Graham reflects about the importance of memory and the role of museums².
- In the Library section³, Adrian reviews William Aspray's biography of John von Neumann⁴.

ISSUE 046: COMPUTER MUSEUMS

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Cover photo by ian dooley⁷ on Unsplash⁸.

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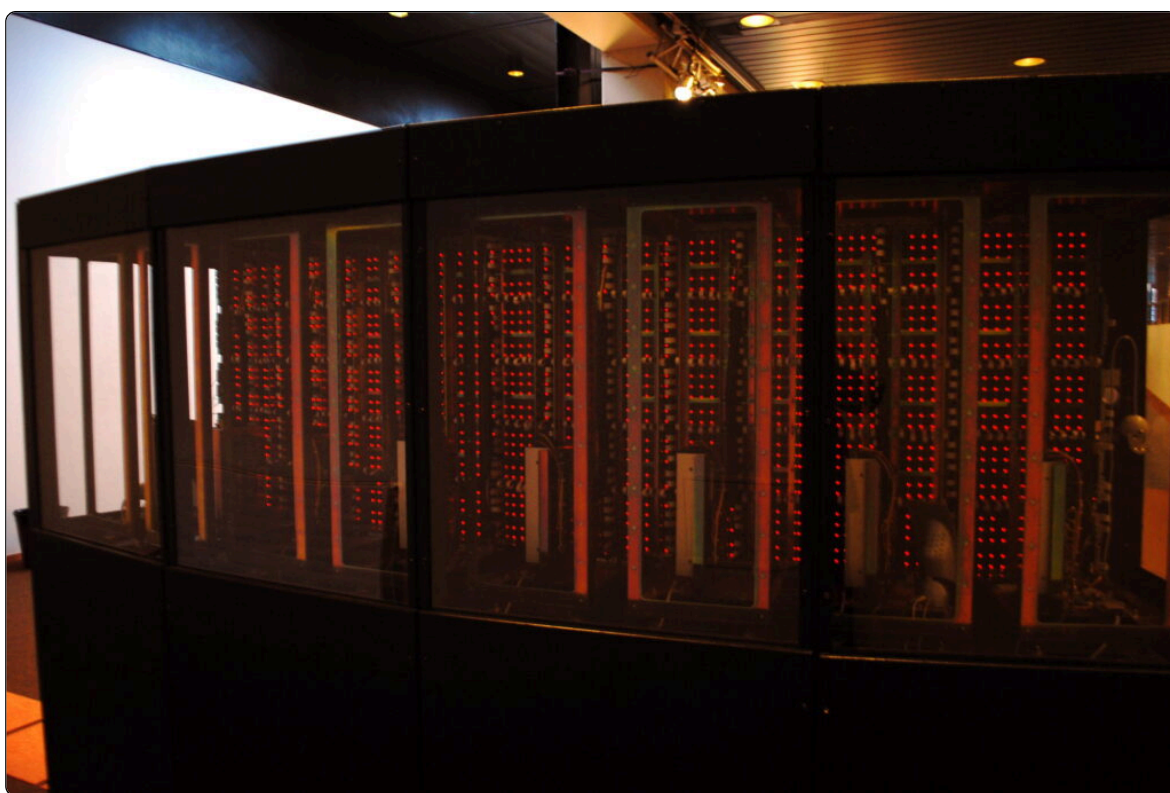
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(Computer) Museums In Switzerland



By Adrian Kosmaczewski

For such a small country, Switzerland has an extreme love for museums about the most incredible subjects, including some excellent museums dedicated to computer history. These museums feature fantastic collections, gathered and painstakingly maintained by state and private entities and, sometimes, even passionate individuals who devote their lives and budgets to a particular subject.

Hopefully, the following list will give you some ideas for a visit the next time you come to Switzerland.

Let us begin with some famous clichés that define Switzerland in the collective psyche: watches, chocolate, cheese, and Heidi. To start with, we have the Swiss National Museum¹ in Zürich, encompassing all Swiss things. There are (at least) two museums about watches: the Musée d’Horlogerie du Locle² and the Musée International d’Horlogerie³ in La Chaux-de-Fonds. There are at least two museums about Swiss chocolate: the recently opened Lindt Home of Chocolate⁴ in Zürich and the Maison Cailler⁵ near the Lac de la Gruyère, precisely the origin region of the eponymous cheese. Speaking about it, La Maison du Gruyère⁶ tells you everything about the most famous of Swiss cheeses (hint: it does not have holes, that one is Emmentaler; please remember). Speaking about Emmentaler, I could not find a museum about it, but there is an Emmentaler cheese factory⁷ you can visit. Another famous local cheese, maybe not that well known outside of our borders, the Vacherin Mont-d’Or also has its museum⁸. You can learn about the Appenzeller cheese in the Appenzeller Museum⁹. Finally, our dear national hero Heidi has a whole village¹⁰ dedicated to her.

Are you interested in Sports? We have the Olympic Museum¹¹ in Lausanne and the FIFA Museum¹² in Zürich. Toys and games? Visit the Swiss Museum of Games¹³, the Spielzeug Welten Museum¹⁴ in Basel, the Spielzeugmuseum¹⁵, ...and the Extraball flipper museum¹⁶.

For science and history, we have some epic ones: the Red Cross Museum¹⁷ in Geneva, the Musée d’Art et d’Histoire¹⁸ and the Musée d’Ethnographie¹⁹ also in Geneva, the Museo dei Fossili²⁰ in Meride, the Kulturama²¹ museum of human evolution in Zürich, the Electrobroc²² museum about energy, the Tibet Museum²³ near Gruyères, and the CERN exhibition²⁴ in Geneva, where you can visit not only the LHC²⁵ but also see the NeXT computer that served as the first web server.

We have a museum for Einstein²⁶ (in Bern, of course), for HR Giger²⁷ (the designer of Alien, in Gruyères), for Tolkien²⁸ (next to the Heididorf), for Napoléon III²⁹, and another for Tinguely³⁰, our local master craftsman of Rube Goldberg machines.

Do you like vehicles? Check out the Swiss Museum of Transport³¹ in Lucerne, the VolksWrecks Museum³², SwissMiniatur³³ in Melide, the Blonay-Chamby Railroad

museum³⁴, the Miniature Train museum³⁵, and the Energy Park museum's collection of gasoline pumps³⁶.

Enjoy art? Hang on tight, you are in for a ride: the Kunsthaus Zürich³⁷, the Museum of Fine Arts Bern³⁸, the Kunstmuseum Basel³⁹, the Zentrum Paul Klee⁴⁰ in Bern, the Fondazione Mecri⁴¹ in Minusio, the Fondation Pierre Gianadda⁴² in Martigny, the Fondation Martin Bodmer⁴³ in Geneva, the Museo d'arte della Svizzera italiana⁴⁴ in Lugano, Museum Rietberg⁴⁵ in Zürich, Museum Rosengart⁴⁶ in Lucerne, the Collection de l'Art Brut⁴⁷ in Lausanne, the Musei Comunali d'Arte⁴⁸ in Ascona, the Musée du Vieux Pays-d'Enhaut⁴⁹ in Château-d'Oex, the Musée Charmey⁵⁰ in Gruyères... and this list misses a hundred more.

Fan of Architecture? Check out the Swiss Architecture Museum⁵¹ in Basel, do not miss the Pavillon Le Corbusier⁵² of the Museum of Design⁵³ in Zürich, designed and commissioned by Heidi Weber⁵⁴, and visit the Teatro dell'architettura⁵⁵ in Mendrisio. Also, none other than Mario Botta⁵⁶ designed the Tinguely museum mentioned previously; how about that.

Some museums defy all classification: typewriters⁵⁷, bottles⁵⁸, illusions⁵⁹, torture devices⁶⁰, anarchism⁶¹, witches⁶², Polish culture⁶³, dinosaurs⁶⁴, and wallpapers⁶⁵; they all have their museums.

What about museums dedicated to computing? Once again, we have no shortage of those in this country. In particular, we will mention four significant collections open to the public.

First and foremost, the Musée Bolo⁶⁶ at the École Polytechnique Fédérale de Lausanne⁶⁷ is not only free, but it also has a collection of thousands of computers of all sizes and kinds since its inauguration in 2002. The Musée Bolo receives regular donations from private patrons, both monetary and in the form of old computing material (computers, peripherals, manuals, etc.), to increase their collection. The museum is open from Monday to Friday from 8 to 19. As a curiosity, this museum provided the NeXT machine used to restore the first WWW browser code⁶⁸ in February 2019, with a team⁶⁹ celebrating the 30 years of the creation of the World Wide Web.

This time on the German-speaking side of the country, the second computing museum we must mention in this article is ENTER.ch⁷⁰, an institution dedicated to the history of computer and consumer electronics. Located in Solothurn, but soon moving to new and larger premises in the nearby town of Derendingen with the new name of “ENTER Technology World.” It opens every day except Mondays and Tuesdays, in the afternoon during weekdays, and from 10 to 17 on Sundays. The museum features a collection of more than 10’000 objects, a flea market of old computer equipment on some Saturdays, and a vintage electronics shop where you could find that elusive PCMCIA card you have been looking for for ages. The entrance costs 18 Swiss francs, but the museum also depends on donations and patronage.

Not directly related to computers but worth a mention is the Museum of Communication⁷¹ in Berne. This museum has existed in one form or another since 1907, first as the museum of the Swiss Post, and has evolved into a more generic museum about information technology through the years. It shows the evolution of human communication in all forms, Tuesday to Sunday, from 10 to 17. The entrance costs 15 Swiss francs and features a very educational collection, particularly interesting for younger audiences.

The fourth and final Swiss collection of computing material we will talk about is the Erlebnisswelt Computergeschichte⁷² (in English, the “Computer History Experience World,”) a private collection started in the 1960s by Robert “Röbi” Weiss⁷³, an independent software engineer and consultant in the canton of Zürich. This collection of several thousands of objects includes not only devices (the oldest one being 4500 years old) but also components, special unique items, prototypes, software, pictures, films, and documents such as magazines, manuals, price lists, invoices, press releases, advertising, and more. The collection is open on demand to private groups, featuring a guided tour by Mr. Weiss himself and even a friendly “apéro” at the end of the visit. Mr. Weiss, founder of the CORIH⁷⁴ (Club Of Rescue IT-History), also published the “Weissbuch,”⁷⁵ a yearly report about the PC industry in Switzerland from 1989 to 2015, and last but not least, also offers a print-on-demand poster⁷⁶ about the history of computing, updated until 2019. His “Swiss Computer Museums” website⁷⁷ is, by the way, a significant inspiration for this section of this article.

Not all countries, however, benefit from such a love for museums.

As I write these lines, the neverending crisis has claimed another victim in my birth country, Argentina. This time is the Museo de Informática⁷⁸, the most extensive collection in Latin America of computing artifacts and history. As recently announced on their Instagram⁷⁹, they decided to close the exhibition permanently. A sadly logical conclusion for the bumpy history of computing in Argentina started in

1960. It was then when

Manuel Sadosky⁸⁰, professor and vice-dean of the Faculty of Exact and Natural Sciences of the Universidad de Buenos Aires, assembled and launched the first computer ever in Latin America before fleeing to exile after a series of military governments in 1966 and again in 1974. It is the sincere hope of the author of these lines that a patron will soon help this institution stay afloat despite all odds.

Computer museums play a critical role in an industry that pays very little respect to the work of those that came before us. They help us realize that the old Latin axiom *Nihil novum sub sole* applies to our craft in sometimes mysterious ways. They help us contextualize new achievements. They allow us to recognize the fundamental challenges ahead of our industry and society, and if anything, they provide valuable ideas about how *not* to solve them.

Visit your local computer museum. If you have old computing material, consider donating it to these institutions. If you are looking for an enjoyable post-pandemic activity with your work colleagues, book a group visit. In the meantime, check the online Old Computer Museum⁸¹, learn about design history⁸², watch videos from the Computer History Museum on YouTube⁸³, and download old software from the Internet Archive⁸⁴, Vetusware⁸⁵, WinWorld⁸⁶, or Bitsavers⁸⁷, and run it on virtual machines.

Cover photo by Abhijeet Rane on Flickr⁸⁸, showing the BioWall⁸⁹ in Musée Bolo⁹⁰.

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The Digital Dark Ages



By Graham Lee

There are three interesting things to do with a computing museum. Museum directors and curators should be aware of all three and design galleries, present information, and make archives available to address them all.

The first, and perhaps most limited, is *nostalgia*. Nostalgia is the least inclusive interaction with a museum of historical artefacts because you cannot teach anyone nostalgia: they either were there and remember the thing on display, or they do not.

Nostalgia is highly situated in both time and space. As a forty-year-old who grew up in a relatively well off and technology-accepting household in the UK, I remember the British microcomputers of the era: the one that I had access to, the ones that

friends had, and the playground discussions about which was the best and which games were available. To someone with a different context—Adrian grew up in Argentina and did not have access to a computer at all until 1991—a display containing gray box with a keyboard on top does not evoke the same emotions and memories. They need different cues to get something out of the artefact, and so must look to the other properties of a museum.

The *technological context* of the machine is interesting to technologists. Someone does not need to have recollections of a computer with a Z80 CPU to learn that this was how fast it was, and how much memory it could address. But that sort of information is more or less contextually irrelevant to anybody else: OK you are telling me about this little Z80 chip that was launched in 1976, but why could you still buy it in 1990; or for that matter, in 2022¹?

To answer that question, and in fact many of the interesting questions about the history of computers, we need to explore the *social context*. Who was using those gray boxes with the Z80 chips in? Did they commission them, or were they sold off the shelf? By mail order, or in a branch of Radio Shack? How were they advertised, and how did people learn how to use them? That sort of thing.

For people who were there, that sort of socially contextual information helps them to position themselves in the zeitgeist. Oh, we had one of those black cube computers in our psychology department back in 1992, I did not know there were only a few thousand of them, and I did not know that my watch is running a newer version of their software! Or wow, I thought it was a huge mistake buying that last Sinclair computer, I did not realise the creator of Linux used one!

And for everybody else, it provides the *relatable* information on how computers were used and perceived by society, and how they changed that society. Wait, I cannot imagine using a computer without the internet / waiting two minutes for an app to load from a tape / having to sit at a *desk* ugh what did people even *do* with these things? Being shown a box and told that you could play *Pong* on it is not interesting. Playing *Pong* is...well, maybe interesting, but certainly more of an insight into early video games.

There are many great computing museums in the world. I have helped out at a number in the UK (helped to fix a MicroVAX for the Centre for Computing History²; done some gallery design for the Museum of Computing³; archival work for the National Museum of Computing⁴; and donated hardware to the Retro Computing Museum⁵) and visited others on two continents. Part of their approach to communicating this social history is *immersion*: letting you experience computers as they would have been used in their right contexts.

To future historians—not just of computing, but of humanity—the current period will be a dark age.

How was Facebook used by students in the 2010s? We cannot show you, that version of Facebook is not hosted anywhere.

What correspondence did Vint Cerf have as president of the ACM with other luminaries of computing industry and research? We do not know; Google will not publish his emails.

What was it like playing *Angry Birds* on an iPhone 3G? We do not know; Apple is no longer distributing signed receipts for that binary.

What did the British cabinet discuss when they first learned of the Coronavirus pandemic? We do not know; they chatted on a private WhatsApp group.

What books were published analysing the aftermath of the Maidan coup in Ukraine? We do not know; we do not have the keys for the Digital Editions DRM. How was the coup covered in televised news? We do not know; the broadcasters used RealVideo and Windows Media Encoder and we cannot read those files.

The post-Roman period in Western Europe came to be known as the Dark Ages first because they were seen to be unenlightened, until Caesar Baronius retconned it: they were dark because of the lack of written records. In the Digital Dark Ages everybody is writing: posting to Reddit; sending e-mails; chatting in Telegram; producing Office 365 documents. But nobody will be able to read anything they write, and so knowledge of this time will be forgotten. Software has truly eaten the world.

Cover photo by Alexander Grigoryev⁶ on Unsplash⁷.

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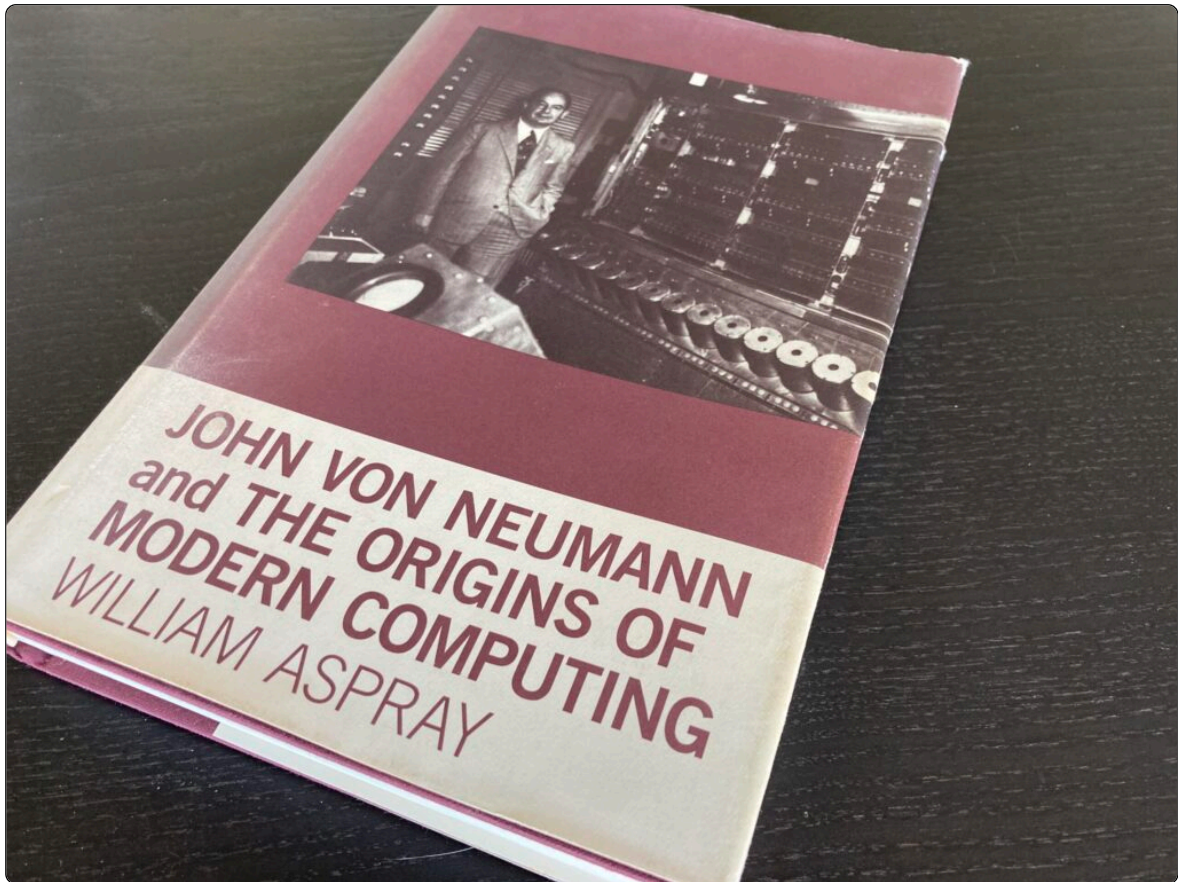
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William Aspray



By Adrian Kosmaczewski

There was a moment in which Kurt Gödel, Albert Einstein, and John von Neumann were all roaming the halls of the Institute for Advanced Study¹ in Princeton at the same time. Let that information sink in. Humanity experiences such gatherings of brilliant minds in a remote location of the space-time continuum only every so often; maybe the ancient Greeks and the men of the Renaissance witnessed such periods in time, as did the IAS staff at the end of World War II. How much will we have to wait for the next such event? One can only hope for a beacon of light in

these times of right-winged prosecution of women and non-Caucasian minorities, religious-driven regression, and overt genocide and war.

As I write these words, the United States is firmly engaged in a society-wide degenerative process similar to what Germany and other European powers committed themselves to during the 1930s. John von Neumann and Kurt Gödel were born in the Austro-Hungarian Empire, while Albert Einstein was in Germany. The three ended up working in the same institute on the other side of the Atlantic.

For some reason, “Einstein” became the antonomasia² of “scientist”; after reading this month’s book, I believe von Neumann’s name should have fulfilled that role. His name is not as well-known by the greater public, and even in computing circles, the preeminence of the eponymous architecture casts a long-lasting shade over all of his other achievements.

(And I, for one, would love to know the story of the hiring manager of the IAS at the time. Whoever was in charge there was a visionary. Or maybe it was just a coincidence, who knows.)

William Aspray³ has been in charge of the outstanding “History of Computing” series at MIT Press, overseeing the publication of various titles and contributing many of his own⁴. We have discussed some of those titles in this series in the past: Mar Hicks’ “Programmed Inequality”⁵ and Janet Abbate’s “Recoding Gender”⁶. Other remarkable books in this series are “Building IBM”⁷ by Emerson W. Pugh, its sequel “IBM”⁸ by James W. Cortada, and “The First Computers”⁹, a collection of papers edited by none other than Raúl Rojas and Ulf Hashagen.

In this case we talk about “John von Neumann and The Origins of Modern Computing,”¹⁰ a book published in 1990 whose title invariably makes me think of an adventure novel. Think “Indiana Jones and The Temple of Doom,” if you will.

And quite an adventure the life of Margittai Neumann Janos Lajos was. A child prodigy, he published his first paper in mathematics before age 20. He was the indisputable champion of applied mathematics in the 20th

century. His work yielded groundbreaking advances in theoretical mathematics, quantum mechanics, game theory, economics, fluid dynamics, artificial intelligence, electrodynamics, meteorology, and computing.

Many of the fields enumerated above do not feature awards of the caliber of a Nobel Prize; had they, we can be sure that von Neumann would have raffled all of them. He received a few military honors thanks to his involvement in the Manhattan Project, a rather dubious distinction.

In terms of his contributions in computing, once again, the existence of a “von Neumann Architecture” opaqued the many other ideas he brought forward: cellular automata, artificial intelligence, sorting algorithms, the theoretical possibility of computer viruses¹¹, ALU hardware design, and much more. Without mentioning the insight he provided towards the design of computers, some released during the 1950s and many after his death during the 1960s.

However, his proposal and work around applying computing power to solve higher-degree differential equations numerically were, by all standards, one of the most extraordinary contributions to the 20th century. Known for centuries but extremely difficult and labor-intensive to calculate by hand, solving differential equations with numerical methods opened the door to a new world, quite literally, the one we live in right now.

Thankfully, William Aspray does not limit his prose to merely enumerating scientific prowess. He is a raconteur of the daily life of a well-mannered polymath, a man interested in his time and his society, curious and funny, eternally dressed in a proverbial three-piece suit. His death at the (very) early age of 53 is a tragedy; we can only (selfishly) imagine all the science we did not learn from him.

Where will the von Neumanns, the Einsteins, and the Gödels of our age migrate after the SCOTUS overrules democracy¹² in 2024 and Gödel’s Loophole¹³ is proven to exist? At this time, the two major powers of our time, the United States and China seem unlikely locations for brains to settle and grow in the long term. Maybe this is the chance of a lifetime for the European continent; if not for all, at least for some countries therein: Portugal, Scandinavia, The Netherlands, and Switzerland, for example. Overseas, New Zealand, Israel, Japan, South Korea, and

Canada also seem like potential candidates to become major research powers in the near future.

The idea is to provide a safe haven and a fertile ground for the next generation of scientists to work in peace and freedom to solve the most significant challenges of our time; but the geopolitical argument will, as always, and sadly, prevail over other concerns. As Jorge Luis Borges said in his short story “Nathaniel Hawthorne” from his book “Other Inquisitions” (1952):

“The past is indestructible; sooner or later all things return, and one of the things that return is the project to abolish the past.”

Cover photo by the author.

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