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Johann Christoph Gatterer and History as a Science

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Johann Christoph Gatterer was the best known German historian in the 1760ies and 70ies. He was Professor of History at the leading German enlightened University of Göttingen from 1759 till 1799. He established the Institut der historischen Wissenschaften, the first institute ever to be dedicated to history. He issued two already modern historical journals – the Historische Bibliothek and the Historische Journal – and he published the back then leading compendia of the auxiliaries: from Numismatics, Heraldry, Diplomatics up to Chronology, Geography and Statistics. Gatterer treated Universal History, the core of early modern historiography, with no less than ten compendia. His motto was “History in the full scope” and he desired to bring historiography up to the level of the flourishing natural sciences.

I have just finished a book on Gatterer a year ago. So, I am especially thankful for this opportunity to give some insights into the book and into the scientific character of Gatterers historiography.

Basically, my book expands three theses.

To start of, historiography was first a matter of construction and not of narration during the Early modern period. It consisted of compiled lists of noteworthy facts.

Secondly, Gatterer introduced scientific methods into the field of history, especially to strengthen the links between civil and natural history, but above all, to make the noteworthy facts precise. Historiography should become a proven copy of history, which would allow to conceive the development of history and its causes at a glance.

Thirdly, Gatterer divided history in epochs that he distinguished by immanent historic reasons as a consequence of his approach. Using historic reasons instead of formal divisions was not less than the starting point of historiography as an autonomous discipline.

I will confine my paper to Gatterers attempts to combine science and history, nature and culture, and to his use of scientific tools. I divided the paper into five points. They outline the basic features of Gatterer’s approach to construct historiography as science – in almost the way we use the term today.

1. The Frame: Space and Time
2. Tables: The Evolution of Writing - Culture
3. Tables, Maps, and Diagrams of Nature: Climate and Civilization
4. Tables, Maps, and Diagrams of Culture: History as the Development of Power
5. The Introduction of History

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1. Space and Time

Historia magistra vitae is the best known motto of Early modern historiography. But there is an other one, which was in fact more important for those historians who taught history not only with rhetorical background as the *ars historica* did: This motto was: Geography and Chronology are the two eyes of historiography. Time was the first eye. In order to merge the calendars into one history, the synchronization of the various calendars of the different empires was indeed an absolutely basic endeavor of historiography pursued by historians such as Eusebius and Hieronymus up to astronomers as Kepler, Scaliger and even Newton. It is not astounding insofar, that Gatterer taught his pupils in his handbook of chronology to compute time as a basic skill of historians, in the example the transformation of Chaldean Helakims into minutes.

8 **Th. I. Allgem. Zeitkunde**

* **Beispiele:** 4 St. 48', wie viel sind es Tagesminuten?

$\begin{array}{r} 1) \text{ 4 St. 48' } \\ \times 60 \\ \hline 240 \\ + 48' \\ \hline 288 \\ \times 60 \\ \hline 17280 \end{array}$	$2) \begin{array}{r} 17280 \\ 1440 \overline{) 12} \end{array} \text{ 12 Tagesminuten.}$ <p style="text-align: center;">Also 4 St. 48' = 12 Tagemin.</p>
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Ferner: 5 St. 49'. 15". 0''' . 48'''' : wie viel Tagemin. ic.?

$\begin{array}{r} 1) \text{ 5 St. } \\ \times 60 \\ \hline 300 \\ + 49' \\ \hline 349 \\ \times 60 \\ \hline 20940 \\ + 15'' \\ \hline 20955'' \end{array}$	$2) \begin{array}{r} 20955 \\ 1440 \overline{) 14} \\ \hline 795 \\ \times 60 \\ \hline 47700 \\ + 0'' \\ \hline 47700 \end{array}$
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$3) \begin{array}{r} 180 \\ \times 60 \\ \hline 10800 \\ + 48'''' \\ \hline 10848 \end{array}$	$4) \begin{array}{r} 768 \\ 1440 \overline{) 7} \\ \hline 10848 \\ 1440 \overline{) 33} \\ \hline 46080 \\ 1440 \overline{) 32} \end{array}$
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Also: 5 St. 49'. 15". 0''' . 48'''' = 14 T.m. 33'. 7'' . 32''''.

* * **Beispiele zur Übung:** 4 St. 0' = 10 T.min. 0''; ferner
4 St. 53'. 18". 7'' . 12'''' = 12 T.min. 13'. 15'' . 18''''.

§. 12.

Chaldäische Minuten oder Helakim (§. 8) werden in Stundenminuten, Stundensekunden ic. (§. 7) verwandelt, wenn man 1) sie mit 18 dividirt. Alsdann gibt der Quotient Stundenminuten; der Rest aber, wenn er 2) mit

Figure 1 :Transformation of Chaldean Helakoms into minutes. Umrechnung von Tagesminuten und Helakim. Johann Christoph Gatterer, *Abriß der Chronologie* (Göttingen: Dietrich, 1777), 8-9.



Geography was the second eye of history. To establish the order of the historically noteworthy facts meant to position them geographically. In fact, geography, especially Universal geography, was seen as an auxiliary of historiography in Early modern time. Gatterer did not only publish two compendia of universal geography, in which he described the political as well as natural boundaries of the countries followed by outlines of the natural resources, economy, cultural characteristics and the political constitution of the states, he also drew historical maps to clarify the development of states and nations by coloring the maps in different ways. The outcome was on the one hand one of the first sequential historical atlases of which only one map has survived, and on the other hand maps, that contrast the natural and political development of civilization. These maps compare the old world with the new world in form of east – and west – hemispheres; in the presented example, they compare the civilization around river valleys with the development of states, first for the eastern and than for the western hemisphere.





Figure 2: Gatterer's western hemisphere. Comparison of river valleys and political boundaries. Johann Christoph Gatterer, *Atlas I.* (s.l. 1789) [collection SUB Göttingen].

Having constructed the time and the space frame, the next task was to bring all the noteworthy facts into their historic position. Gatterer used tableau's of historical tables for that task as some 200 other historians did in the Early Modern Period. Illustration 3 shows a page of Gatterers historical tables, which he divided into columns for state history, church history and historia literaria and into boxes of a 100 years each.

2. Tables: The Evolution of Writing - Culture

Gatterers approach to research culture scientifically was as ingenious as – in our eyes – weird. He wanted to decipher writing in a botanical way. The development of the letters of all alphabets of the world should be recorded and be brought into genera and species to clarify the evolution of writing. Gatterer hoped, to specify the age and origin of any text in this way but also to classify cultural idiosyncrasies of the people who used the writing in question. The different levels of writings, notably if they were based only on icons, syllables or letters, should be used to measure civilization.

The underlying general idea was that culture as well as nature fulfilled a God given plan, whose design was accordingly composed of a certain form of a text. The world consisted in the book of culture and the book of nature, which could be read, if one possessed the appropriate alphabets. Actually, already Francis Bacon had insisted on discovering the alphabet of nature in order to pursue science and Linné believed that he had found it for botany by constructing 24 botanical letters according to the sexual organs of the plants (stamen and pistil).

CAROLI LINNÆI CLASSE S.S. LITERÆ.

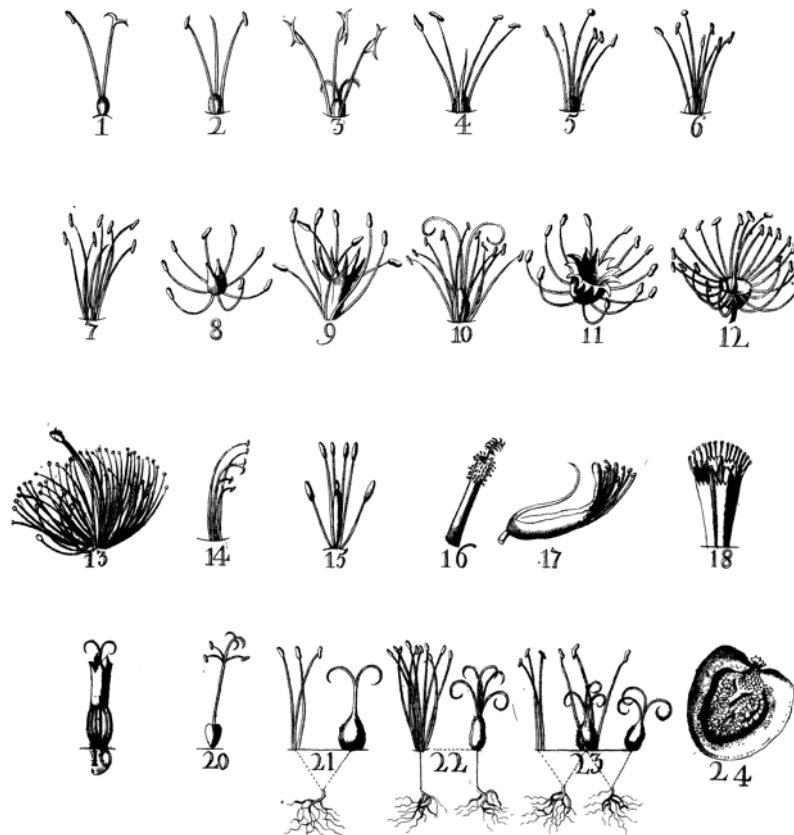


Figure 4: „Caroli Linnaei Classes S. Literae“. Carl von Linné, *Genera plantarum eorumque characteres naturales. Secundum numerum, figuram, situm, proportionem omnium fructificationis partium* (Leiden: Wishoff, 1737), annex.

The principle was assumed by leading scholars of Diplomatics, especially by pupils of the Benedictine Jean Mabillon. Two of them, Charles François Toustain and René Prosper Tassin, published huge tables stuffed with 5000 letters each, chosen from allegedly 400.000, in order to reconstruct the history of the Roman writing. Their tables show the age as well as the national origin of the letters in form of their evolutionary development. If you have a close look on the given detail of one of Toustain’s and Tassin’s maps – the map compares the Italian, French, German, British and Spanish cursive – you find Roman and Arabic numerals. The Roman stand for the centuries, the Arabic for certain series in the development of the letter.

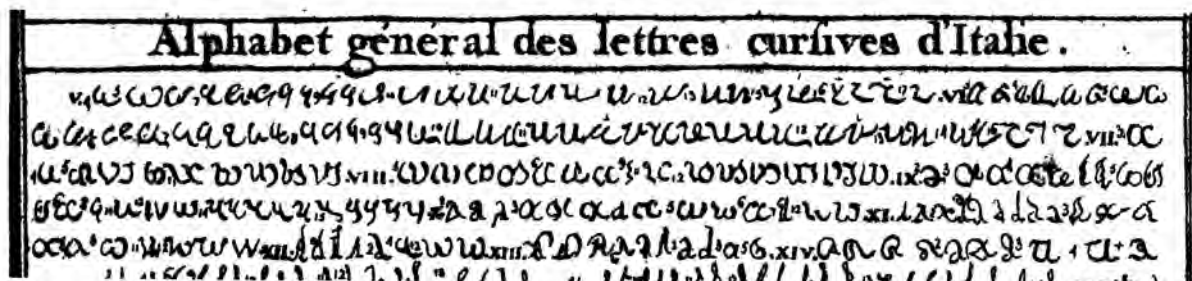


Figure 5: Table 23 of Toustain’ and Tassin’s *Nouveau Traité*, enlarged part. Charles François Toustain and René Prosper Tassin, *Nouveau Traité de diplomatique, où l’on examine les fondemens de cet art par deux religieux Bénédictins de la Congrégation de S. Maur*, vol. 2 (Paris: Desprez & Cavelier, 1755), 340.

Gatterer was enthused and tried to systematize the work of Toustain and Tassin by bringing their letters into genera and species which could be used as a tool to analyze writing. Linné’s botanical method is of undeniable use to comprehend the realm of plants, Gatterer maintained. Transferred to the realm of writings, its use would even be greater. While the botanists would only embrace the number, characteristics, and system of the plants with it, it could be used in diplomatics to describe even the history of writing. One could trace the evolution of the letters.

3. Tables, Maps and Diagrams of Nature: Climate and Civilization

The sciences of the 18th century were not only obsessed with categorization and alphabets but with the climate as well. The climate was imagined to be the basis of civilization. The climate was, as Montesquieu stated, the first founder of an empire. There was a broad consensus, that the characteristic of a people and in consequence the institutions of a state derived from the weather conditions. No wonder, then, that Gatterer regarded meteorology

as an important occupation for a historian. In fact, he measured temperature, air pressure and humidity in Göttingen at hourly intervals painstakingly for an entire year using the newest instruments. Gatterer dreamed to discover the laws of the weather, to establish a calendar of the weather besides the calendar of the stars. He hoped to merge time and environment into a kind of a natural calendar of civilization in this way. Gatterer started this certainly optimistic enterprise by stating a general theory of climatic zones. He divided the surface of the earth along the mountains. He added the winds, oceans and river valleys to mark regions as systems of water cycles. The outcome was a division of the world into so called climatic quarters (Witterungsquartiere).



Figure 6: Johann Christoph Gatterer's climatic quarters (Witterungsquartiere). Johann Christoph Gatterer, *Atlas II. Kleine Special-Chärtchen. Zur Verwendung im Kolleg zur Universalhistorie* (s.l., s.a.) [collection SUB Göttingen].

The next step was to explore the actual weather. For that purpose, Gatterer developed twenty tables, in which all kind of parameters not least concerning the solar radiation and the phases of the moon should be filled in. Connected with the weather measurements, it would be easy to detect the relevant pattern by comparing the resulting data, he believed. Gatterer was certainly wrong. Nevertheless the weather charts, which he produced for Göttingen, were the most exact of his time and it was highly innovative that he completed his geographical descriptions of countries with tables of the main climatic factors. It brought Geography one step further towards an empirical science.

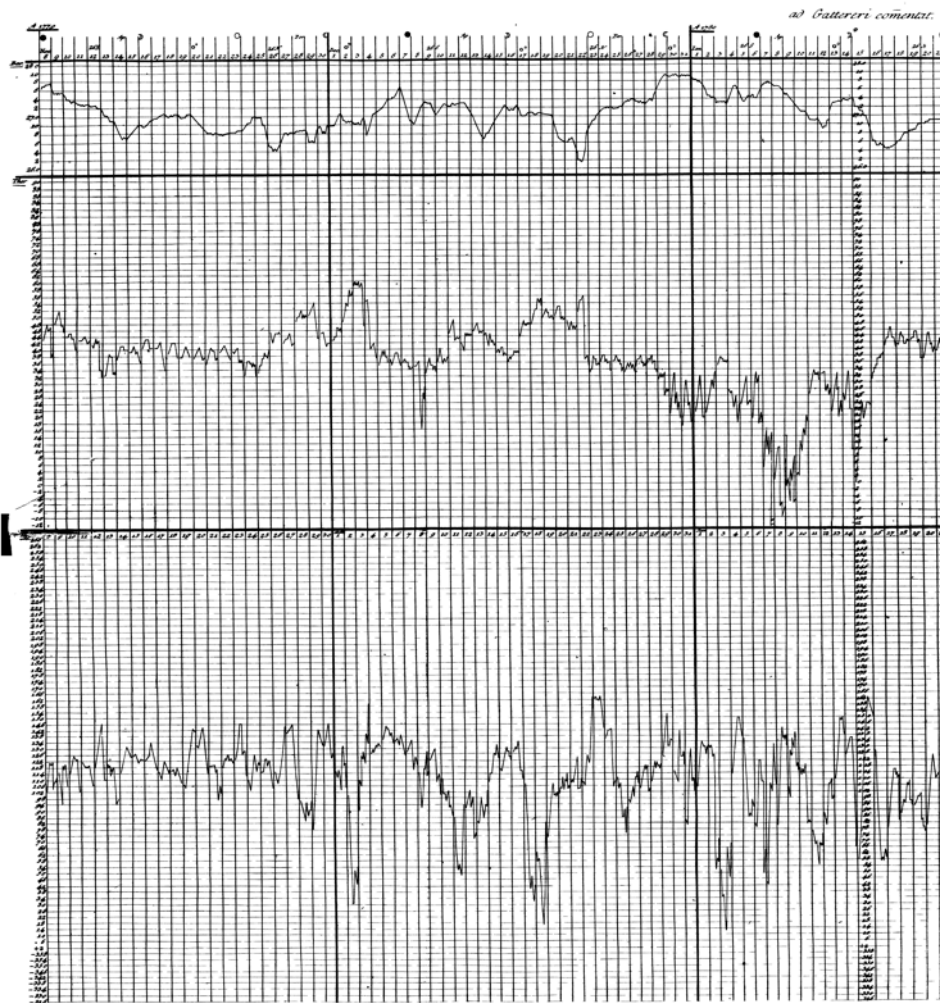


Figure 7: Air pressure, temperature, humidity, Göttingen December 1779, January 1780. Johann Christoph Gatterer, “De anno meteorologico fundamentali commentatio lecta d. 18. Nov. 1780,“ *Commentationes Societatis Regiae Scientiarum Gottingensis recentiores. Commentationes classis physicae* 3 (1781), diagram after 120.

4. Tables, Maps, and Diagrams of Culture: History and the Development of Power

History needed a backbone, if it should become more than just a collection of data. It needed a general line to become dynamic. This backbone was to write history as a history of states and power. To compile a history of states and power was the old tradition of universal history. New was the way in which Gatterer constructed it. He ascertained the beginning and the end of all known states and arranged them in a chronological as well as geographical order. Then, he specified the power relations between the single states and colored them accordingly: the leading empire red, competing states green, dependent states yellow, states still outside of main history black. The visual outcome was two diagrams, which depicted the timeline of history. The theoretical outcome was the idea of systems of power as the core of history. Gatterer called these systems systems of

submission (Systeme der Unterwürfigkeit) and systems of confederations (Systeme der Bündnisse). Lets have a look on Gatterers downsized diagrams.

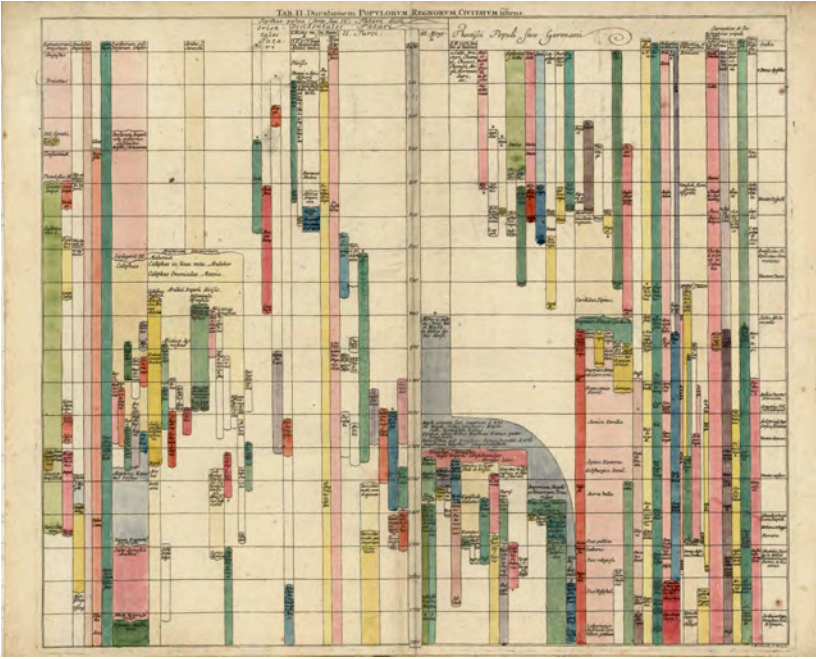
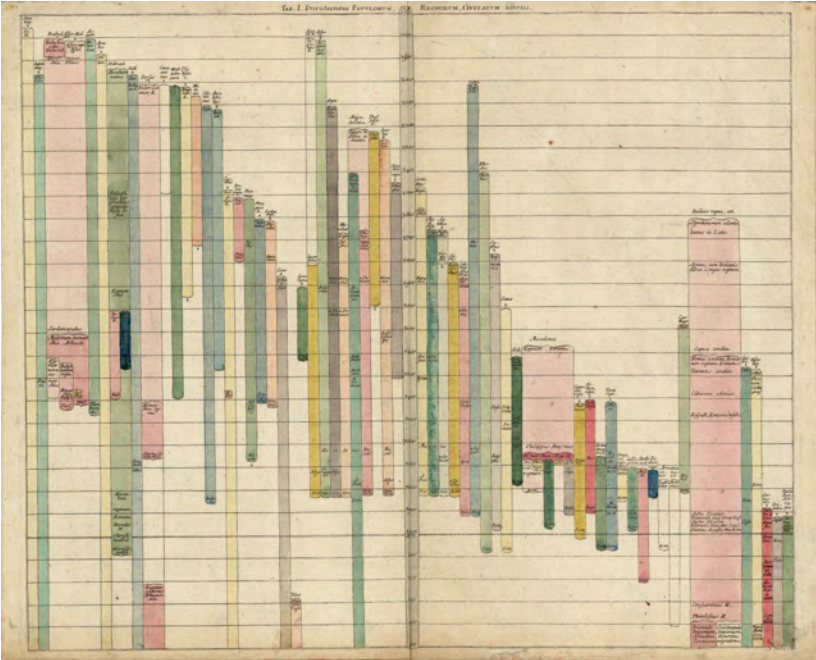


Figure 8: „Durationem Populorum, Regnorum, Civitatum sistens. Tab. I“. Gatterer, Synopsis, table 1 and 2.

The first bar chart mirrors the ancient history. The diagonal running from the left to the right shows the chain of leading empires starting with the Babylonians, followed by the Persians, Greeks and Romans. Connected with



the respective system of states, a timeline emerges which depicts the migration of power and culture from the east towards the west.

The timeline of the second chart is divided into two diagonals. The first frayed one belongs to the East Roman Empire, the Ottoman Empire and the Mongolian Empires, the second coherent one depicts the advancement of the European states.

The achievement of depicting history in form of a chart can hardly be overestimated. Gatterer solved two basic problems of historiography in this way. For one thing, he broke up the continuous timeline that connected history traditionally with the bible. The ancient history of the Old World was set apart from a modern history of the New World and the newly formed middle ages bridged the gap between the two. Gatterer secularized, more unconsciously than willingly, history and, this is the second point, he dynamized history, which became an evolutionary process of power.

By constructing history as a chain of determinable facts, history could even be measured. There is no general difference between the chart of temperature and the timeline of power. Each consists of a chain of specified events. The chains of little or big events generate the timeline of history as well as the one of the weather.

Almost parallel to Gatterer's graph, actually one year earlier in 1766 and three years later in 1769, Joseph Priestley, the Theologian, Historian and Physicist, who discovered oxygen, published his "Chart of Biography" and then his "New Chart of History", the former consisting of 1200 little lines each depicting the birth and death dates of scholars or statesmen, the latter depicting the states in the way Gatterer had done. Interestingly enough, Gatterer used a kind of a doubled time system, depicting the existence of the empires on the y-axis and the development of power on the x-axis, while Priestley remade the old historical tables by replacing the time line onto the x-axis. The charts of Gatterer und Priestley mark a little revolution: Charts of timelines would become one of the favorite means of the natural sciences and they became almost emblematic for the social sciences in the 19th century.

5. The Introduction of History

I can not go into the details of Gatterer's ten universal histories, here, and I can not describe the methods and practices Gatterer used in the field of the auxiliaries beyond the glimpses into his way of pursuing diplomatics and geography, that I have tried to give. I use the table instead, Gatterer published as a kind of a roundup of his construction of history from 1771 onwards repeatedly, to outline the historical concept that resulted from his approach. He called it "Synchronistical overview over the whole history".

Keine Nationen, keine Königreiche.	<p style="text-align: center;"><u>I. Schöpfung J. d. W. 1.</u></p> Sündenfall J. d. W. 1. Künste *900 – 1000. Sündflut 1656.		I. Zeitalter der historischen Not- mittel: Tempus ἀθροῦν et μυθι- κόν.
Acht herrschende Nationen oder Systeme der Un- terwürfigkeit.	<p style="text-align: center;"><u>II. Ursprung der Nationen J. d. W. 1809.</u></p> Assyrer 1874. Perser 3425. Macedonier 3648. Römer 3833. Parther 3828 und seit A. C. 926 Perser.		II. Zeitalter der biblischen und clas- sischen Geschicht- schreiber: Tempus μυθικόν et ιστορι- κόν.
Systeme der Bündnisse und Systeme der Unterwürfigkeit zugleich.	<p style="text-align: center;"><u>III. Völkerwanderung Saec. V.</u></p> Deutsche und Slaven Saec. V. Araber 622. Mogeln und Tataren 1788.		III. Zeitalter der Chronisten und Ur- kundenschreiber.
	<p style="text-align: center;"><u>IV. Amerikens Entdeckung 1492.</u></p> Reformation 1517 und Triden- tin. Concillium 1545 – 1563. Europäisches Gleichgewicht Saec. XVI. und Westphäl- scher Friede 1648. Neue Philosophie Saec. XVII. XVIII.		IV. Zeitalter der Sammler, Criti- ker, Aesthetiker und Pragmatisten.

Figure 9: „Synchronistische Uebersicht der ganzen Historie“. Gatterer, *Einleitung*, p.2, 3.

In this table, Gatterer divided history in epochs. In the main two columns in the middle you find Gatterers epochs, which he named after their ground breaking revolutions “Creation”, “Origin of the Nations”, “Migration period” (Völkerwanderung), “Discovery of America”. The epochs are characterized by idiosyncratic events, which specify their cultural status. In sum, history is divided in general, particular and little revolutions: It consists of the epochs with their main events and the little noteworthy facts which led to these events.

In the left column of the general table of history, you find the development of the systems of power: no nations first, than systems of submission, which are divided into the system of the old history and the new Ottoman, Mongol and European systems in the Middle Ages. In the last stage, you find the systems of submission and confederations distinguishing the Early Modern Period.

Of particular interest is the right column, in which Gatterer connected each epoch with a certain form of historiography: the dark and mythic age first, then the age of the biblical and classical historiographers, then the age of the chroniclers, at last the age of the collectors, aestheticians, critics and pragmatic historians, that is the

age of the historians who explored the causes of history. Thus, every epoch was defined in regard of its political as well as its cultural system by its internal, historic characteristics. To define history and its epochs by immanent reasons rather than by formal, theological or philosophical divisions was not less than the invention of history as an autonomous subject and, in consequence, the invention of historiography as an autonomous discipline.

The 19th century eagerly devaluated the historical achievements of the 18th century. Narration became the core of historiography instead of construction. Gatterer was still well known in the first 20 years of the century, but he was outdated and teased for his *Linnaeismus graphicus* as a freak. And it is true, Gatterers attempt to construct history scientifically opened up only a limited access towards the immense complexity of history. But there is a but and it is a quite important one: Gatterers approach established the still valid external architecture of history with its ancient, medieval and modern floor – not by transforming philosophical or moral evaluations into the field of history but by dynamizing the old cabinet of historical facts with scientific tools. And it is not yet decided, if our attempt to tell the past in more and more sophisticated ways brought real innovations or just diversifications and redecorations of the old historical division.

Beyond the question of failure and success, Gatterers history as a science gives proof of something else, which is, at least in my eyes, even more important than that. Gatterers historiography shows that history could be different, because it already had been completely different.