

Celtic Immigrants in Ancient Peru?

**The merits of Professor Warren Church for the understanding of Chachapoya culture,
Eurocentric ideologies and dogmatism at universities
and new evidence for a pre-Columbian immigration to South America**

(Source: academia.edu/HansGiffhorn)

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Abstract

First, the author presents information about his professional background, his relationship to the question of the origins of Chachapoya culture, and the intention of the article: It is a case study which addresses fundamental issues of science. The critical analysis of the argument of the archaeologist Warren Church, a leading expert on the pre-Columbian culture of Chachapoya in Peru, serves as an example. From it results evidence for the effectiveness of an irrational dogma. This dogma characterizes large parts of archaeological research at universities and can partly be explained by the influence of Eurocentric and racist ideologies of the 19th century. Furthermore, the author presents some results (with photos and text) and the main stages of his research on the origins of Chachapoya culture. These results demonstrate how productive research can be if it is not limited by dogmas. Do we need revolutions to save science?

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Introduction

In the wild mountain forests on the eastern slope of the Andes of Northeast Peru, researchers came upon the remnants of a fascinating ancient civilization. It originated long before the Inca and left behind a wealth of impressive ruins, including the mightiest monument constructed before Columbus in America: Kuelap. The Incas called the creators of these buildings "Chachapoya". Nobody knows their original name.

Outside of Peru, their culture is hardly known even among experts. The website of the British Museum notes: “One of the least understood ancient cultures in South America, the Chachapoya lived in a vast territory stretching between the Huallaga and Marañon rivers within the headwaters of the Peruvian Amazon.” (British Museum 2019)

The question of the origins of the Chachapoya culture has been discussed extremely controversially for decades until today.

But the reason for this article is something different: The debate about the origins of this culture is particularly suitable as a case study for more general issues of science.

Society finances science and research, and it expects science to try to discern the truth, for mistakes and misapprehensions prevent reasonable decisions.

This case really is important: Will science fulfill its tasks? The questions that need to be dealt with are likely to play a role in many other research projects too. Thus, this case can be taken as an example, and has relevance far beyond the Chachapoya culture.

The trigger to write this article was the publication of a remarkable book: "¿Qué fue Chachapoyas? Aproximaciones interdisciplinarias en el estudio de los Andes Nororientales del Perú." (What was Chachapoyas? Interdisciplinary approaches in the study of the Northeast Andes of Peru). The archaeologist Prof. Warren Church, Columbus State University, has edited it in collaboration with the young archaeologist Anna Guengerich, Vanderbilt University, Nashville, Tenn. (Church/Guengerich ed. 2017).

The chapters of this book, like most of his works, have been published by Church on his page in the academia.edu portal. I also uploaded the article you are reading to academia.edu (on my page). This facilitates a fair and productive public discussion: one of the goals of my article.

Warren Church is probably the most competent expert of the archaeologists who study Chachapoya culture. He has been conducting research in Northeastern Peru since the 1980s and is today regarded as the most influential expert on this culture in the international archaeological world.

In the introduction to the book, he and his co-editor write: "The... lack of scientific knowledge leaves the door open to countless pseudoscientific narratives." (Church/Guengerich 2017, p.5) As an example, Church names the first edition of my most extensive publication to date on the Chachapoya (Giffhorn 2013) in this category. All my research on the Chachapoya has, over the years, led to this assessment: Virtually all professional archaeologists who have published hypotheses on the emergence of cultural phenomena in the Chachapoya area, in essential aspects claim something wrong. This applies also to the publications of Church.

What entitles me to this statement?

I'm not an archaeologist and I do not want to become one. I'm not interested in archeology or the American colonization history any more than the evolution of orchids, the future of Venezuela, the intelligence of the dinosaurs, the reasons for the beauty of the hummingbirds, the consequences of climate change, etc. etc. What interests me more is philosophy of science, and I am always involved when I have the impression that power structures, paradigms and ideologies limit rational thinking.

That's why I started research on the Chachapoya in 1998 and that's why I'm releasing this article now. Since hardly any reader knows anything about me, some information about my professional background and my relationship to Chachapoya culture are necessary in advance.

As a student of art education, I came across references to dogmas that made reasonable art education practice difficult. My research on this topic started. This turned into my PhD thesis "Criticism of art education: about the social function of a school subject", (Giffhorn 1972) and resulted into my professorship at the Universities of Goettingen (Art Education) and then Hildesheim (Cultural Studies).

During the 35 years of my professional activity at those universities and also in my second profession, documentary filmmaker, my "specialty" has always been interdisciplinary research, e.g. on the emergence and change of cultural traditions – in Latin America too (see the page "Hans Giffhorn" in wikipedia.de). In Latin America, I've been working on issues such as the threats to biodiversity and to the cultures of Native Americans.



In connection with a documentary project I happened to arrive in northeastern Peru in March 1998.

There I got to know the Chachapoya researchers Peter Lerche and Sonia Guillén, They informed me about the relics of Chachapoya culture and the available specialist literature. They also told me that the archaeologists' discussions on the origins of the Chachapoya culture have not led to an agreement, but to a hopeless dissension. In principle, this has not changed until today (see, for example, Church / Guengerich 2017 p.6, Church 2018 p.280f).

I could not be convinced by any of these theories which also mutually excluded each other. Instead, I was astonished by the helplessness regarding Kuelap. The concept of Kuelap differs from any of the other large buildings of pre-Columbian America that I know of but bears a clear resemblance to a lot of ancient fortresses of the Old World.



Because of my knowledge of ancient seafaring I knew that it cannot be excluded that the Atlantic was crossed over before Columbus and the Vikings and that there were many great seafaring nations in antiquity, e.g. the Carthaginians.

I was also stumped that all of my interviewees described the particularly striking combination of enormous walls (often with intricately carved rectangular stones) and circular stone buildings (mostly with a different wall structure) as a typical feature of the Chachapoya culture. And nobody could tell me about other cultures in America with this combination.



But I had seen fortress walls as in Kuelap in ancient buildings of the Old World, and already at that time I knew that in some regions of the Celtic cultural area there were similar circular buildings.

I also knew that ancient authors have described Celts as blond or red-haired. Additional experiences were complementing this information: Dr. Peter Lerche, a German-Peruvian ethnologist living in the Chachapoya region, has encountered reports by Conquistadors about European-looking Chachapoya. He also showed me photos of Gringuitos ("little gringos", in the Chachapoya area the nickname for natives with blond or red hair). He said that Gringuitos are mostly living in remote old villages with Indian names, that they are considered a special peculiarity of the Chachapoya area and that there is no explanation for their appearance.

I visited the villages and talked to the families and the schoolteachers of the Gringuitos. All confirmed that their origin was unknown, that the families were very old and that nothing was known of any former inhabitants of villages from Europe or the USA. Could they be descendants of the Chachapoya?



Gringuitos photographed by Peter Lerche



Gringuitos filmed in Limabamba



Gringuita filmed in Huancas

Thus, a first tentative hypothesis emerged: Some phenomena in Northeast Peru could be explained due to an immigration that took place in ancient times and had something to do with Celts.

But the obvious question of the possibility of early connections to the Old World was fundamentally ruled out by all the archaeologists I met, without anyone being able to give me arguments that refuted that idea.

This peculiarity triggered my interest. I wanted to know if there was some merit to my ideas. First, I looked for further arguments that refuted all such ideas – among experts of the Old World and on further travels to Northeastern Peru. Then I would have had peace. But I did not discover such arguments back then and not up to now. Therefore, I came to the conclusion that a dogma blocked the discussions of the experts and began to look for further evidence that supported the hypothesis. I did not want to prove its truth but trigger open and unbiased discussions and research. That would, I hoped, help the experts find a way out of the research deadlock.

It quickly became clear to me that the scientific literature that was accessible to me and also the results of my many subsequent research trips to the Chachapoya region were not sufficient for this purpose, not even the very helpful information of Peter Lerche, the mummy expert Sonia Guillén and the archaeologist Rocío Pas Sotero. She was the archeologist at the National Cultural Institute of Chachapoyas, the provincial capital, responsible for local research.



Rocío Paz Sotero and the author

I also needed information from experts of various disciplines in the Old World.

For clarification of my initial questions, I especially lacked information from worldwide archeology, paleopathology and genetics. With a lot of luck, I met experts who were extremely competent for those fields, who were also open-minded and curious and who found it worthwhile to examine my ideas: the archaeologist Dr. Karin Hornig, University of Freiburg, the paleopathologist and archaeologist Prof. Dr. Michael Schultz, University of Goettingen (skull trepanning and tuberculosis) and the geneticist Prof. Dr. Manfred Kayser, Erasmus Medical Center Rotterdam (see the photos at the end of the chapter "Results of unbiased research"). Years later, in January 2012, I was lucky again: I came across a very open-minded editor of a huge publisher specializing in history research: C.H. Beck, Munich, one of Europe's largest and most respected publishing houses.

In January 2013 my first book on the topic (Giffhorn 2013) was released, had a lot of press response and quite successful selling numbers. But it did not fulfill its purpose: the German archaeological experts consistently ignored it. (Church, by the way, refers to this first issue in his accusation of "pseudoscience", although he knows or should have known that by now revised and corrected publications are available.)

Several months later, I gave up hope that some expert would critically review the evidence presented. I myself began to systematically review its probative value, using Church's publications, as well as the knowledge of other experts, especially Old World archaeologists (see chapter "Results of unbiased research").

As necessary with such questions, I checked my hypotheses by trying to refute them. During this work I encountered some genuine surprises and had to correct the hypothesis in details repeatedly. For example, some historical details turned out to be wrong, and some of the cultural parallels I had presented as evidence didn't have sufficient probative power. But other facts and contexts emerged that made the whole hypothesis clearer and more convincing.

In January 2014, I published a first update of the research results – in the second revised edition of the book (Giffhorn 2014/2) published by C.H. Beck.

After that, the TV-station Spiegel-TV produced a three-part TV documentary with my material and my help (Giffhorn 2015). Unfortunately, compromises with the wishes of the editors were inevitable. I would design a TV documentary differently.

In January 2016 I released a DVD (Giffhorn 2016) – with the Spiegel-TV documentary and further video material (altogether 190 minutes). In addition, the DVD contains a comprehensive PDF file with recent research results, not contained in the revised edition of the Beck book. Today I would do some things differently on the DVD as well. But at least here newer research results and the expert statements on which I based my argumentation, were documented.

The revision of hypotheses based on new insights and research is a day-to-day scientific activity – as well as the publication of intermediate results for discussion.

Now we get back to the question of the origins of Chachapoya culture and the dispute with Warren Church's arguments.

Let's start with the similarities. There are a lot.

For example, soon after starting to deal with the topic I no longer believed in the tale of "the" Chachapoya as a uniform ethnic group and culture. A look at the phenomena in Northeastern Peru quickly made it clear that this was a rich and diverse mixed culture. It is obvious to me that the Chachapoya culture, as well as the cultures of Europe and the United States, are the result of a variety of different influences and immigrations at different times and from different directions, also partly from far away regions. Perhaps Church sees things differently, but only in this way can the research results of Evelyn Guevara and her colleagues presented in the book by Church and Guengerich be interpreted: Genetic information is not transmitted through trade contacts. For example, the authors state in the study of the "DNA of the modern Chachapoyan descendants ... the genetic affinities of the Chachapoya and populations from Andean and Amazonian pools" (Guevara et al. 2017 p.127). However, Church never names immigrations as a factor in the emergence of Chachapoya culture: a strange contradiction that I will discuss later.

The article by Evelyn Guevara and her colleagues also reports on the research method: "Through this study we have been able to identify unique native-American genetic diversity in this region of the cloud forest, particularly in the case of mitochondrial DNA" (ibid. p.145). The particular diversity of maternal DNA can best be explained by the fact that the immigration occurred early, long before the arrival of the conquistadors. In many publications, the authors also stress that immigrants came in some cases from very distant regions and that those immigrations could

have happened already long time before the Inca: "The first possibility would be that the Chachapoya group has harbored high levels of genetic diversity since before the Late Intermediate." – this period is dated between 1000 AD and 1476 AD (ibid. p.145). "The most likely scenario may have involved the constant enrichment of the local genetic pool over time." (ibid. p.148). This enrichment could have started quite early. The finds of Church in the Manachaqui cave (Church 1996, Church/von Hagen 2008) and also remarks from earlier publications by Guevara and her colleagues support this (e.g. Guevara/Palo 2011, p.91).

If one sees my hypothesis as being realistic, it would be conceivable that long ago European immigrants and some native women, with whom they had joined in the course of the long journey through South America, arrived in the Chachapoya area at the Crossroads described by Church (e.g. Church/von Hagen 2008) – as one of many factors that have produced the diversity of the Chachapoya and the richness of their culture.

The investigations of Evelyn Guevara and her colleagues cannot prove this scenario – for the following reasons: The history of the great discoveries shows that on expeditions into the unknown almost always only men took part and then mingled with native women. The first trips of the conquistadors to America were not different, and probably neither the immigration of my scenario. However, male ancestors can only be recognized by the Y-haplogroups. And since in this scenario all the descendants of the first immigrants had native mothers only their mtDNA is inherited to later offspring. The mtDNA of all surviving descendants of Chachapoyas must always be native American – and Guevara et al. have based their investigations essentially on mtDNA.

This also applies to Chachapoya mummies. The few known genetic test results of mummies only report mtDNA (e.g. Schjellerup 1997).



In addition, if one wants to check the hypothesis using genetic research, only very large-scale, regionwide studies of Y-DNA remain as an option. Descendants of European immigrants would certainly have represented only a small minority within the indigenous population of the Chachapoya region.

Therefore, the published information on genetic investigations that I know of does not provide any clear confirmation, but also no refutation of my ideas.

Two further remarks:

First, some statements by Church and Guengerich are inexplicable to me (even knowing and taking into account their sources). In these cases, I am forced to interpret them. I might be wrong in doing so. This is another reason why their participation in an open discussion is important. There they can correct wrong interpretations.

Second, Church seems to have problems with the terms "Chachapoya Culture," "Chachapoya Region" and "the Chachapoya," as he and his co-editor emphasize in many of the book's contributions. They stated, that one of the main reasons for this is the diversity of culture and its different origins. But, as stated above, that has been clear to me for a long time as well, and I also know that such terms, like any collective term, fray around the edges. But it is simply more practical to use these terms in the context of the discussion of origins. That's why I'm doing this in my arguments below.

Merits of Warren Church for the understanding of Chachapoya culture

The new book by Church and Guengerich is an important book – in part because it presents a rather comprehensive cross section of the current state of Chachapoya research and provides many suggestions. E.g. the investigations of Klaus Koschmieder (Koschmieder 2017) and Marla Toyne and Armando Anzellini (Toyne / Anzellini 2017)

confirm earlier findings, suggesting the widespread absence of hierarchies in the Chachapoya society, and thus also supported my understanding of the Chachapoya society and the genesis and function of Kuelap. Most helpful to me, however, were the many publications by Church. He probably is the archaeologist who has done the most for a realistic understanding of the Chachapoya culture. Without his research results, my investigations would perhaps have long since ended in a dead end.

The fact that clay sarcophagi and the clay constructions of many tombs appeared far too late in Northeastern Peru to be of importance for the testing of my hypothesis had already been explained to me by Lerche on my first trips to Peru.



Clay sarcophagi

Ornaments on Chachapoya buildings

But that this also applies to the friezes, I learned in 2013 from Church. He also asked for a translation of my research results. I'm working on it, but I don't have contacts to American publishers.

One of Church's most significant contributions is connected with the history of Chachapoya research. In the 19th century, when researchers discovered the ruins of the Chachapoya buildings, they could not imagine that this impressive and formidable building tradition had arisen "by itself" and locally, especially as they did not discover any convincing preforms there. So, they started looking for regions where this tradition could have originated – practically everywhere in America. Thus, a mountain of different theories about the origins of Chachapoya culture emerged.

Church was, as far as I know, the first to systematically examine all these theories. And he was able to prove that none of the theories was conclusively substantiated – see especially his PhD thesis (Church 1996 pp.61-128).

Church also examined the new work of the two archaeologists, whose theories (in addition to his own theory) are still discussed today: Federico Kauffmann Doig and Klaus Koschmieder.

Particularly convincingly he refuted or invalidated the arguments of Kauffmann-Doig in connection with his in 2013 updated and diversified theory (mountainization of the forest) and the claim of immigration from the West, from the Central Andes (Church/Valle Álvarez 2017 pp.65ff). This also applies in principle to the very different immigration theory of Koschmieder, according to which the ancestors of the Chachapoya immigrated as a whole ethnicity from the East, from Amazonia (see *ibid.*, pp.81,84f, p.62 for both archaeologists).

Church also commented on the topic in 2018 (Church 2018 pp.280f): Previously, there had been virtually no real discussions between the opponents. "Only in recent years have Kauffmann (Kauffmann y Ligabue 2003) and Koschmieder (2012) expressed their opposition to the interpretations of autochthonous origins that we have presented from the analysis of the data that have come out through research in the PNRA, but are opposed for theoretical reasons with anachronistic evolutionary assumptions, and not in accordance with the rigorous comparisons of available data and radiocarbon dates."

Church refuted all the arguments for theories that accept immigration from an American region. However, outside of America, as far as I know, not a single archaeologist has ever searched for precursors of the Chachapoya culture.

Another significant merit of Church's work is that it disproves the widespread notion that the Chachapoya lived relatively isolated. Instead, they had early trade contacts with other Andean regions and also to distant areas of the Amazon. This was proven by excavations in the south of the Chachapoya region, especially the excavations of Church, which he had already carried out as part of his doctoral thesis (Church 1996), "... in the Manachaqui cave. The latter produced evidence of long-distance transport and a series of dates that go back to the Preceramic Period." (Church/Guengerich 2017 pp.27f)

By this he had also proven that the south of the Chachapoya region was already inhabited millennia ago. Ancient immigrants would not have had to colonize an empty jungle area but could have teamed up with locals.

As early as 2008 (Church/von Hagen 2008), Church published evidence by excavation results from the Manachaqui

cave, that “mounting evidence shows that, far from being isolated, the Chachapoya thrived at a cultural crossroads that once connected distant Andean and Amazonian societies.” (Church does not mention, however, that these crossroads led also to the island of Marajó in the Amazon estuary on the Atlantic coast.)

In 2018, Church provided an overview of all the related research and a list of relevant publications (Church 2018 pp.281f).

These works – to a large extent already known to me – contributed significantly to the fact that I could create a plausible hypothesis about an ancient immigration to Northeastern Peru via the Amazon and that I understood why ancestors of the Chachapoya settled just in the wild Amazonian headwaters area.

Let's summarize: Of all the many theories discussed by experts about the origins of the Chachapoya culture, there is only one that Church did not expose as an error: With the help of his investigations using stone tools and ceramics he pointed to a gradual cultural development in the Chachapoya region that started many millennia ago with primitive stone tools and led to the typical ceramic tradition of the Chachapoya, which was alive until the end of the Chachapoya culture. That's his theory, which he consistently advocates.

Is every riddle cleared up by this?

No.

Irritations – and only one solution?

Church himself names some things which irritate him. He states: “Few archaeological regions of the Peruvian Andes are as famous and at the same time as little understood as the northeastern end of the mountain range, where the Chachapoyas region is located.” (Church/Guengerich 2017 p.5) – despite all his many, extensive researches. He wonders: “At present, Chachapoyas archeology has not reached a consensus on basic aspects such as chronology, sociopolitical organization, livelihoods, regional and inter-regional interaction and the geographic origins of populations.” (ibid. p.6). Apparently, Church's theory about the autochthonous development seems not to convince many researchers, although he propagates it since 1994 (e.g., Church 1994, Church 1996) and again and again today. He attributes the fact that his thesis does not have the expected success to the claim that other researchers believe the reports of the chronicler Garcilaso de la Vega (e.g. Church/Valle Álvarez 2017 pp.61f). Garcilaso grew up among the Incas. He was never in the Chachapoya area himself, but in Cusco, the Inca capital, he met Chachapoyas who had been relocated to Cusco during the Inca wars, and additionally he reported what the Incas had told him. Why should all this be wrong?

In addition, Church suspects another reason for the “stubbornness” of his colleagues: the fact that the region is relatively unexplored or that “the Chachapoya” were not a uniform ethnic group and that their culture was rich and diverse (e.g. Guengerich/Church 2017 p.314).

But if it were only because of that, his theory would surely have been accepted long time ago. It is easy to understand and based on well documented archaeological finds – but only on the basis of his finds of stone tools and ceramics (see his doctoral thesis: Church 1996).

And that is the main problem: Church claims that his hypothesis of autochthonous development applies not only to the ceramic tradition, but also for instance to the construction tradition, and he pushes with his theory against all theories which try to explain the Chachapoya building tradition by an immigration, for example by this argument: “For more than one hundred years, archaeologists have attributed impressive monumental settlement complexes in the tropical montane forests of Chachapoyas to late pre-Hispanic population intrusions from neighboring regions, or to colonization by highland states and empires. The longevity and tenacity of these migrationist explanations is remarkable given the virtual obsolescence of verticality and population pressure models still invoked to support them. Archaeological data from Gran Pajatén and other sites in the Río Abiseo National Park in the southern part of Chachapoyas support a contrary interpretation, attesting to the autochthonous development of autonomous societies.” (Church/Valle Álvarez 2017 p.57). Other examples from 2017 and 1994: “Independent local development of groups that were smaller and more mobile before AD 900 provides the most parsimonious explanation accounting for the distinctive Chachapoya cultural attributes (Church, 1994)” (Matthews-Bird/Valencia/Church et.al. 2017 p.1709).

His opponents have developed their theories primarily on the most typical and spectacular examples of the construction tradition of the Chachapoya, and they researched the topic with this tradition in mind. They all came to the conclusion that there were no convincing predecessors of this element of Chachapoya culture in the Chachapoya area, and they concluded that this tradition originated elsewhere and was brought in by immigrants to Northeast Peru.

Church could not refute this general hypothesis through his research.

He refuted only some components of the discussed theories (e.g. time and route of the claimed immigrations or the composition of the immigrants). For example, he was able to refute Koschmieder's thesis that the ancestors of the Chachapoya immigrated as a whole ethnic group and that all elements of Chachapoya culture can be attributed to an immigration from Amazonia (Church/Valle Álvarez 2017 p.81). This also applies to Kauffmann-Doig's corresponding theory which claims an immigration from the Andes (ibid. pp.84f). Church has also convincingly refuted that significant elements of the Chachapoya building tradition originated in the Andes or in Amazonia, or that these elements emerged in the Chachapoya area after 800 AD (ibid. pp.62f).

What Church has not disproved, however, is the hypothesis that elements of the Chachapoya building tradition originated in a region outside of America and emerged in Northeastern Peru before 800 AD.

What remains for him to do if he continues to claim the validity of his hypothesis for the construction tradition?

He can only hope that no one takes note of an argument like mine. Or perhaps a new definition of Chachapoya culture could make sure that even the question of arguments for or against immigration does not arise?

The “reconstruction of Chachapoya” by Warren Church

One of the contributions to the book that triggered this article relates directly to the building tradition and was written by Church's co-editor (Guengerich 2017).

Even the title reveals its intention: “Local diversity versus ‘Chachapoya architecture’ in domestic architecture.” “This article critiques the notion that pre-Inka societies across Chachapoyas shared a common tradition of domestic architecture that distinguished them from neighboring regions.” (ibid. p.207). Guengerich wants to “problematize the cultural and analytical construction of the concept of «Chachapoyas»” (ibid. p.207).

The famous stone circular buildings make up by far the largest part of Chachapoya residential buildings and are considered by almost all experts to be a particularly distinctive mark of the Chachapoya culture, as Guengerich knows: She names some of the expert publications, for example: “various authors (e.g. Schjellerup 2005; Church and von Hagen 2008; Koschmieder and Gaither 2010)” (ibid. p.208). I could extend this list with a wealth of more reports from experienced researchers of the region and the Chachapoya culture. They were certainly not all victims of manipulation by the texts of Garcilaso or reports of the Inca, as Church claims again and again (e.g. Church/Guengerich 2017 pp.6, 9f, 16ff, Church/Valle Álvarez 2017 pp.61f). Guengerich presents for the most part the few exceptions and deviations in the building tradition, and these she usually discovers in marginal areas of the region which presumably were influenced by Chachapoya relatively late.

In her listing of circular buildings, she completely omits the region in the south, the National Park Rio Abiseo, which was most likely crucial for the emergence of Chachapoya culture. In that region she confines herself to naming the differences in the friezes, which adorn some houses (Guengerich 2017 pp.221f) - a fashion that, as far as it is known, occurred only in the Inca period. Also, in her reports on other regions she mostly presents details of buildings that provide only little information. The only clearly recognizable circular building is a 19th century photograph of the last inhabited Chachapoya circular building (ibid. p.211).

Guengerich is surprised that the circular building tradition in Kuelap is different and more consistent than in the surrounding area, the Luya region in the north of the Chachapoya area. She also presents this region as an example of the diversity and late development of the building tradition, and she refers to a finding by Narváez, when she claims that the tradition of circular building developed very late: “On the other hand, it is possible that these features represent a late development, associated with the Inca presence, since most of the circular buildings of this site were occupied during the Late Horizon” (ibid. p.219).



But Kuelap is at least 900 years older than the period she is referring to (see the statements of Narváez 2010 and 2015 quoted in chapter “Results of unbiased research”). There are many more than 100 older and younger circular buildings next to each other in Kuelap. The statement of Narváez only suggests that this tradition was deeply rooted. And the special position of Kuelap in the Luya region could be attributed to its usage by the early Chachapoya as something like an outpost at the northern edge of their territory.

Younger datings of the stone circular buildings in Kuelap usually stem from the fact that over the centuries the buildings have been renewed again and again, when the old walls were no longer stable, as it was customary in many ancient cultures. Church also describes this practice using the example of a stone Chachapoya circular building (Church 1988, 1994). And there are no indications of previous and different building traditions in Kuelap.

The fact that Guengerich even comes up with the idea that the circular buildings of Kuelap represent a late development, suggests that she wants to enforce the thesis at any price, that the entire construction tradition of Chachapoya is autochthonous and diverse and developed very late, and that especially the circular buildings are no special feature of the Chachapoya culture.

Guengerich and Church insist that in reality there is no "Chachapoya culture" that differs significantly from other cultures. Even the term "Chachapoya" they would like to remove from the language use (see eg. Guengerich/Church 2017 pp. 314f, 321f).

If readers would agree with this definition of Chachapoya culture, they would see no sense in discussing the origins of this culture, and there would be no danger of disproving the theory of autochthonous development of Chachapoya culture.

However, only readers who have little or no knowledge of the region and its culture will be persuaded by Church that "Chachapoya culture" is only a meaningless myth.

Presumably, Church himself also realizes that this interpretation has little to do with reality. In 2017, a very different publication, in which Warren Church was involved, was published (Matthews-Bird/Valencia/Church et.al. 2017). Here, e.g. the terms "Chachapoyas culture", "Chachapoya culture" and "Chachapoyas region" are used as they are used by all other authors, and its typical characteristics like "mountain ridge-top settlements with stone terraces and circular dwellings" are described (ibid. pp.1708f).

And in 2018 Church states: "Comparing the sites, especially the architectural features shared between the main buildings in Gran Pajatén and La Playa, we gain a glimpse of a society without a counterpart in the Andean territory, or in the Amazonian territory" (Church 2018 p.277)

Exactly.

But what results from Church's strange "reconstruction of Chachapoya"?

Research in a deadlock

The discussions about the origins of Chachapoya culture and the research on it are still, as they were decades ago, in a deadlock: "Throughout the history of the archeology of Peru, no Andean region has been characterized by so many different and contradictory hypotheses." (Church 2018 pp.280f). With the articles in their book, Church and Guengerich also contribute to this deadlock - by consistently trying to disguise all the facts that might lead to a constructive discussion, but also possibly refute their theory. For instance, they provide an allegedly complete list of all known dates (Guengerich/Church 2017 p.318), but they leave out not only a very significant dating (see the next chapter) but also just the information that could promote discussions: In the list of the dates of relics of settlements all information is missing, what the source of the date has been and under what circumstances (e.g. under a circular stone wall) the source was found.

This makes the list practically useless and prevents that any evidence, which might promote a discussion about immigration theories, is even taken note of.

There are many questions that are unclear among archaeologists investigating the Chachapoya. Ideas to answer those could help them out of the deadlock. For example: If there are no credible precursor cultures found in America, e.g. for essential elements of the Chachapoya building tradition, why are the experts not researching possible connections to regions outside America, e.g. to the Old World? And what about the references to European-looking immigrants, e.g. the report by Judge Nieto, the discoverer of Kuelap?

On January 31, 1843, the discoverer of the fortress of Kuelap, Judge Crisóstomo Nieto from the city of Chachapoyas, described in his report to the Prefect of the Department of Amazon, D. Miguel Mesia, what he found in the fortress: four mummies “with cut, thin, blond hair, and not like that of the Indians of today.”

Gregorio Ronguez, uno de los de la compañía, junto con una cantidad de algodón de distintos colores, habiendo quedado reses de los esqueletos de criatura i uno de gente grande por haberse deshecho los ligamentos de los huesos, mas todos constantemente tenían la misma postura, i el pelo de sus cabezas era bastante fino, cortado i rubio, no como el de los indígenas, teniendo la mujer las orejas horadadas con una arrolla de algodón torcido i grueso.

Posteriormente he sentido mucho no haber seguido mis especulaciones por este sitio, porque probablemente habría descubierto más; pero tuvimos que separarnos para tomar otra dirección i buscar un otro sitio donde me aseguraron había más objetos que especular.

En efecto, bajamos por el lado del norte, llegamos á la

Nieto's report [p.448]

de oro i plata, las piedras bonitamente labradas que se han encontrado en huacas i muchos usos i monumentos de nuestros aborígenes, han sido tomados, conservados ó transferidos por una nación ilustrada i grande que ocupó este territorio, i que vino en decadencia; de la misma manera que otras más modernas de que nos habla la historia, como es Babilonia, Balbu, las ciudades de la Siria i otras que han sido destruidas hasta quedar en el estado de aislamiento en que las encontró el gran Manco; i que por consiguiente la América es viejo mundo respecto de las otras cuatro partes que lo componen, como me propongo demostrarlo más largamente en la estadística que estoy formando del departamento, con datos oficiales i fidedignos; á la que servirá de apéndice esta nota que dirijo á US, para que se digne elevarla al conocimiento de S. E. el presidente de la república por el conducto respectivo.

Dios guarde á US.

Juan Crisóstomo Nieto.

Nieto's report [p.450]

From “Colección de leyes, decretos, resoluciones i otros documentos oficiales” Imp. de “La Opinión Nacional,” Lima 1905

The prominent archaeologist and Chachapoya expert Prof. Inge Schjellerup is especially often cited as the chief proponent claiming the complete absence of references to Old-World influences regarding the Chachapoya. However, in her doctoral thesis, Inge Schjellerup reported on investigations of skulls of Chachapoya ancestors from the Chuquibamba region southwest of Kuelap: “The Chuquibamba skulls are in an intermediate position between Eskimos and Polynesians on one side and European on the other.” (Schjellerup 1997, p.221). This evidence points to the early intermingling of natives and Europeans, as assumed by our hypothesis.

A school principal from a Chachapoya village has been researching the Gringuitos, his students, introduced in the chapter “Introduction”: Segundo Nicolas Diaz Ramirez, director of the secondary school No 18040 in Huancas, has been living there for a long time and has dealt intensively with the history of the village and the families of his pupils. He explained why these people are also called “Mushas”: “Because of their ancestors, that is something of their heritage. That means Gringo, colored hair, a very old name, Quechua.” (documented in Giffhorn 2015 and 2016).



We had not told Segundo anything about our assumptions on the origin of the Gringuitos; we did not want to influence the director. There have been no investigations into the origin of these families, he said, but these families are very old. Light-haired individuals emerge repeatedly over the generations. To my question, does anyone know from what part of Europe the light-haired ancestors come, perhaps from Northern Europe or North America, Segundo answers indignantly: “They are naturales – natives!” On my question: “So they have been here for centuries? Already before the Spaniards?” Segundo: “Yes – before the Spaniards.” “All Mushas from this region?” Segundo: “Yes.”

The final article in the Church/Guengerich book mentions tasks for Chachapoya research (Guengerich/Church 2017 e.g. pp.313,315f). None of our questions are even touched by those tasks – or by any of the scientists working in the Chachapoya area, neither archaeologists nor ethnologists nor geneticists.

And what about the unmistakable reports of chroniclers Cieza de Leon and Pedro Pizarro? In a TV documentary aired by PBS that interprets my theory, Church quotes Cieza de Leon (Gregor 2014, at timestamp 49:00), but why incomplete and misleading, and why doesn't he mention the reports of Pedro Pizarro (Pizarro 1987, p.240f, Cieza de Leon 1984, Vol.I, Chap.78, p.304 and Vol.II, Chap.63, p.183)?

In this respect too, Church is not alone among the Chachapoya experts – in their publications, such reports are almost always ignored or distorted.

Why does Church defend his theory of the autochthonous development of the Chachapoya culture so stubbornly that he risks his reputation as an unbiased scientist, who is honestly interested in gaining knowledge?

Perhaps this is why: I have been told from several sources that, especially in America, there is a consensus on how archaeologists should deal with immigration theories: “Archaeological theory regarding migrations is grounded in the assumption that the burden of proof of migrations (population intrusions) rests with those who wish to hypothesize and demonstrate them (with sound archaeological data and interpretation.)”

But especially the cultures of America and Europe show that virtually none of these cultures would have emerged without several waves of immigration at different times and from different regions. Therefore, the burden of proof would have to weigh on theories like Church's.

Apparently, the creation of this strange dogma has a different purpose, presumably facilitating the protection of an older dogma: the still powerful and famous “NEBC – No Europeans Before Columbus“ doctrine. In the age of globalization also of the scientific community one encounters this doctrine in Britain as well as in Germany or Peru and the USA – and everywhere it leads to the suppression of unprejudiced research. Just an example from an American newspaper article: “The ‘No Europeans Before Columbus’ crowd who controls what is taught in our public schools ...“ (Stroud 2009)

But how did this doctrine come about?

There is an explanation. It has to do with the history of science.

The roots of dogmatism within the Scientific Community of experts on pre-Columbian cultures

Since the discovery of America by Columbus over 500 years ago, scholars of Europe, e.g. the Spanish historian Oviedo (Oviedo 1535) and the German geographer Willibald Pirckheimer (Pirckheimer 1530), dealt with the question whether ancient cultures of the Old World could have left traces in America.



They relied on reports of Greek historians and the exactly matching experiences of discoverers such as Columbus or Cabral. They were convinced that the coasts of South America were reached, for example, by the Carthaginians of North Africa.

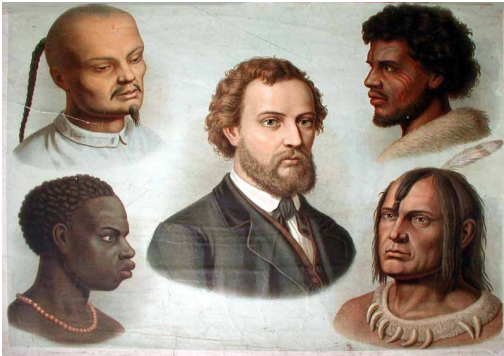
Sources: Internet

But in 1831, the famous philologist Julius Friedrich Wurm claimed without mentioning any arguments: “The presumption that America is mentioned here has little probability” (Commentary in: Diodor 1831, p.514: „Die Vermuthung, daß hier von America die Rede sey, hat wenig Wahrscheinlichkeit“).

At that time, about 150 years ago, the era of Eurocentrism, imperialism and colonialism had begun.

Suddenly, and without any verifiable evidence, it was claimed that only modern Europeans had been able to reach the Americas – first with Columbus.

Schoolchildren were educated with such pictures at that time:



From an exhibition in Germany about the history of racism

After all, Europeans, as the culmination of a long upward trend, are superior to all other peoples by nature. With this self-image, the ruling groups of the colonial powers such as Britain, Germany and Spain in the 19th and early 20th centuries legitimized the subjection and exploitation of foreign peoples. If they accepted the possibility that others, perhaps even North Africans, could cross the Atlantic much earlier than Columbus, their self-image would be refuted.

The respective white elites also ensured that their ideologies at the universities of the former colonies in South and North America determined the valid doctrine. From generation to generation the dogma at the often authoritarian organized institutes was passed on. And even today, scientists who publish evidence of pre-Columbian journeys to South America, must expect defamation and the end of their careers throughout the world (more evidence and sources on the subject in Giffhorn 2014/1, 2014/2 and 2016).

Today, only few scientists are still aware of such connections – and they will be careful not to comment on them publicly.

Of course, this scenario for explaining the dogma applies only to research on the emergence of pre-Columbian cultures in America. Although it is the most plausible explanation I have encountered so far, other factors can also contribute to mechanisms in the scientific community which block constructive research – also in many other contexts.

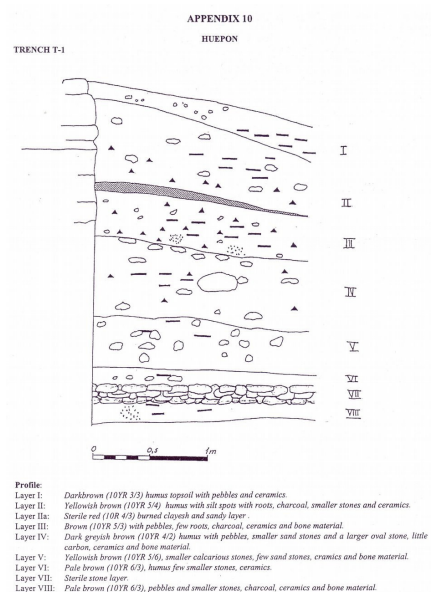
That's exactly the aspect that this article wants to draw attention to. Pre-Columbian cultures are not really important to me, and especially it is not to annoy Warren Church. All previous and also the following explanations serve only as examples. So let's continue.

Meanwhile the Peers are the guardians of the dogma. They ensure that no researcher interested in his career dares to publish facts that might question the untouchable validity of the paradigm. Many examples are evidence for that. Consider the problems encountered by the discoverers of the Viking Sagas and the North American settlement of L'Anse aux Meadows, Newfoundland (a Viking settlement was excavated there in 1961).

Examples can also be found in Chachapoya research.

In the literature published by the Peruvian authorities, the age of the Chachapoya culture unanimously is stated at the earliest in 800 AD. Of course this excludes any ancient immigration from the outset.

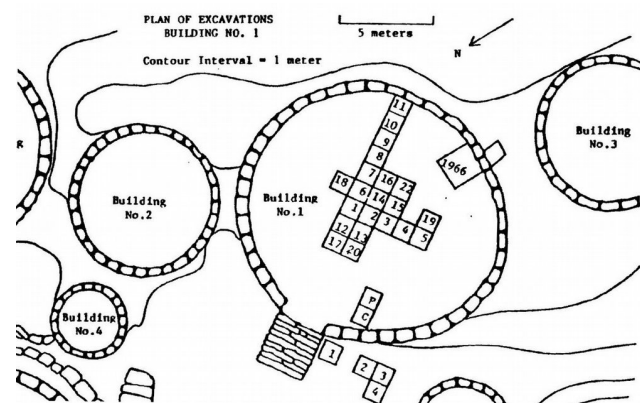
The Danish archaeologist Inge Schjellerup documented excavations in Huepon 1997 in the appendix of her extensive doctoral dissertation. Her dating is 10 AD: "The occupation of the site dates back to the Early Intermediate Period and has a continuous occupation to the Late Horizon, the Inca Period. The sequence is based on C-14 cal. analysis from the Vth layer and gives the date: 10 A.D. cal." (Schjellerup 1997 p.201)



Cross section: Trench T132
[Schjellerup p.299]

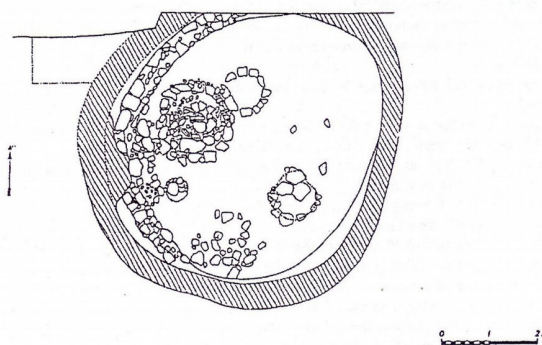
The layers of trench 1 in the structure H1 (a circular dwelling with stone walls) of Huepon have not been disturbed since the time of the earliest date and are therefore easy to separate from each other. The C14 dating was conducted by the most prestigious Danish Institute for C14 age determination. Schjellerup's dating is so reliable that archaeologists recognize it as the standard for other dates (Schjellerup 1997 p.202).

The documented facts and the excavation drawing show a stone circular building, but Schjellerup does not associate the dating with it, but with implausible and contradictory interpretations (for more information, also about the following example see Giffhorn 2014/2 pp.74f and Giffhorn 2016).



Gran Pajatén Building No. 1

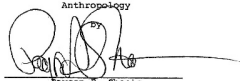
STRUCTURE H-1

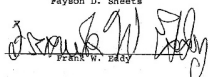


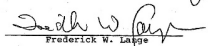
Huepon Structure H1

A second example: In 1988, Warren Church documented the excavations in Gran Pajatén in his master's thesis. In it, he described an elaborate excavation project, accompanied and reviewed by many internationally recognized archaeologists. The result: "Building No. 1," which formerly was dated to be from the 15th century, turned out to have been constructed above a much older Chachapoya circular building (see Church 1994). Church was able to determine the beginning of the construction based on C14-dated charcoal as well as a ceramic used as a "foundation stone": "The most precise construction date that we can give for Building No. 1 is after A.D. 73. [...] Thus, we might assume that the initial construction of the building took place not long after A.D. 73." (Church 1988 pp.277f)

This thesis for the Master of Arts degree by
Warren Brooks Church
has been approved for the
Department of
Anthropology


Payson D. Sheets


Frank W. Eddy


Frederick W. Lange

Date 4/25/88

The most precise construction date that we can give
for Building No.1 is after A.D. 73. However, the
Montecristo phase vessel smashed as a dedicatory
offering does tie the building construction
chronologically to the Montecristo phase ceramic
sample. Thus, we might assume that the initial
construction of the building took place not long after
A.D. 73.

Source: Church 1988 p.I

Source: Church 1988 p. 277

But Church never published this document. I had to invest some effort to get the original paper. Also, in later publications he concealed this important date, e.g. in the allegedly complete list of datings of settlements in the Chachapoya area (Guengerich/Church 2017 p.318).

The research project was generously funded and, of course, controlled by top-class experts and reviewers from the University of Colorado-Boulder and Yale University. Nonsense would not have passed. Church looks back in 2018: "The year 1983 marked the establishment of PNRA (Abiseo River National Park) and Gran Pajatén as Cultural Patrimony of the Nation. The first program of sustained research within the PNRA

and western border areas was undertaken two years later by the Abiseo River National Park Project sponsored by the University of Colorado-Boulder and then by Yale University.” (Church 2018 pp.280f)

The discovery must have been quite startling for Church. He knew due to his ceramic findings that around Building No.1 Indians had lived centuries before and that they continued to develop their ceramic tradition for a long time (see Pimentel/Church 2018 p.268). And suddenly a stone circular building, and no other or older remains of residential buildings! This surprised him too in his later research, documented in his doctoral thesis, which took place in the same region in the south of the Chachapoya region (Church 1996 p.161f).

The fact that the older ceramic tradition of the indigenous people has continued through time, fits with my scenario (more on this in the following chapter). The immigrants were men (see the discussion of the mtDNA in the chapter "Introduction"). The pottery they found in their new home was as good or better than that of their old home, and cooking was left to their native women anyway.

Church later looked for conceivable precursors of the circular dwelling tradition in other regions, but everything he proposed was so far away and so different that I cannot imagine that he seriously saw them as predecessors of the building tradition in the south of the Chachapoya region.

I'm trying to put myself into his position: When he discovered the basis of the dating of Building No 1 in the 1980s, he must have thought: “Wow, in the building tradition about 2000 BP a sudden break in the sequence and a cultural turnover happened.“

But in 2013, he asserted in a statement in a TV documentary broadcasted by PBS with an interpretation of my theory: “I didn’t have seen a break in the sequence, I don’t see a cultural turnover, I don’t see an invasion of foreign stiles, foreign elements, something that indicates to me wow, everything changed right here.” (Gregor 2014, at timestamp 54:30).

That would be true if the Chachapoya culture consisted only of the ceramic tradition. But Church knows that also the building tradition exists, and that this suddenly appeared around 2000 years ago – at the headwaters of the Amazon, at the crossroads of the trade routes that at that time connected the Andes with the Atlantic.

Since the 1980s, no one had been hiking as much through the forests of Northeastern Peru as the German-Peruvian ethnologist Dr. Peter Lerche. He wrote already in 1995 that suddenly “without any known precursor, a large ethnic group appeared.” (Lerche 1995 p.32) Of course, Lerche derived his thesis from what he had discovered in the woods, which above all were the relics of the building tradition.

Did Church forget his Master's thesis meanwhile?

No, he still relies on the results of these excavations and cites them (e.g. Pimentel/Church 2018 pp. 258, 260, 268 and Church 2018 p.281).

I am convinced that Warren Church and Inge Schjellerup have absolutely nothing to do with racist or eurocentric ideologies, and that they would prefer unrestricted research. But their dates alone would not only have disproved US paradigms, but everything that archaeologists in Peru claim as assured truth, and the dates would have exposed the archaeologists as unscientific dogmatists. Especially at that time, at the beginning of their careers, Church and Schjellerup were dependent on the archaeologists' goodwill.

Whether they are aware of it or not, Church, Schjellerup and Guengerich are victims of the traditions. The situation forces them to ignore all research which might refute the validity of the dogma.

And what happens if a scientist, who for whatever reason cannot be ignored, publishes research that disproves the dogma? In that case only one option is left to them: They have to defame this scientist – hoping that thus as few people as possible take into account his search results.

Perhaps we have encountered another Chachapoya-related example of the effectiveness of the dogma.

Church made his statement about “break in the sequence“ in a TV documentary, which was broadcasted by PBS (Gregor 2014). In the same documentary he also presented a misleading account of chronicler reports on European-looking Chachapoya (see the previous chapter).

What's up with this TV documentary?

Perhaps American readers think they know my theory by the TV documentary named “Carthage’s lost warriors”. Well, this is the documentary I was referring to. It received a lot of harsh criticism by experts.

These experts were right for many reasons.

The documentary was based on a state of research that was largely obsolete even when it was created, it does not provide any of the available conclusive evidence and contains many gaps in the argument. No wonder PBS finished the documentary – especially after Church’s statement – with the words: “So however, there are only suggestions to support the professors vision, but as yet no smoking gun” (Gregor 2014, at timestamp 55:05).

I had no influence on the completion of the documentary. But I had supported the production of the documentary because of course I wanted it to be as meaningful as possible.

So, I gave the producers limited broadcasting rights to the footage I produced in Rotterdam – with the geneticist Prof. Manfred Kayser, one of the world's leading experts on the relationship between appearance and genetic information.

Kayser had commissioned the collection of some samples of the Gringuitos DNA – in consultation with his Finnish colleagues Jukka Palo and Antti Sajantila, also working in Peru and co-authors of Sonia Guillén and Evelyn Guevara (see Guevara et.al. 2017). The samples were collected in the villages of Huancas and Limabamba.



Gringuito girls in Limabamba



Only the male Y-chromosome allows precise information about the origin of the tested persons. That is why the father of the blond gringuito girl gave his saliva sample. All other samples are from blond and red-haired male persons.





The samples were analyzed in the Erasmus Medical Center Rotterdam, Netherlands, in the laboratory of forensic medicine conducted by the molecular geneticist Prof. Dr. Manfred Kayser (see e.g. Kayser 2011).

In the PBS documentary, Kayser was shown reporting, that in the DNA of all tested males the Y haplogroup R1b was found. R1b is most prevalent in the Atlantic Celts region.

But the two most crucial statements were omitted in the documentary. Here they are. Manfred Kayser emphasizes: “So, one interesting question of course would be when the European admixture was introduced in these people. Was it thousands of years ago, was it hundreds of years ago, was it pre-Columbus, was it with Columbus?” Manfred Kayser knows a method by which DNA analyses can be used to show when an admixture of Amerindian women and European immigrants took place: “So we cannot really do this with the preliminary data we have. Therefore, for that, one has to look into many more individuals to use computer simulations to find out about the period of origin of a certain mutation. In principle, it is possible to do this, but you need larger sample size. We are therefore planning new sampling expeditions to these places where the Gringuito people are living to get more volunteers for this study. Then with more data we will be able to say more specific things including establishing the time of the original European admixture.” (documented on video in Giffhorn 2016, part IV).

Those expeditions never took place. The archaeologists who control the Peruvian research on Chachapoya have been able to prevent the realization of the expeditions until today. They know about Kayser's plans, our many years of cooperation and my hypothesis. A real thriller (see Giffhorn 2014, S. 238-254).

Of course, the dogma is also effective in Germany. But I am in a privileged situation. As a retired professor who conducts interdisciplinary research, I need not to be afraid of powerful peers. I can consider without bias all available facts to check my hypotheses. I do not have to respect traditional boundaries of scientific fields or submit to any dogma or adapt unclear published interpretations, and I do not have to decide in advance what results my research may or may not lead to.

This also shaped our research on the Chachapoya. In the following chapter, I will introduce some of its stations – again as an example, to give an idea of how different research can be if it is not limited by dogmas.

Results of unbiased research

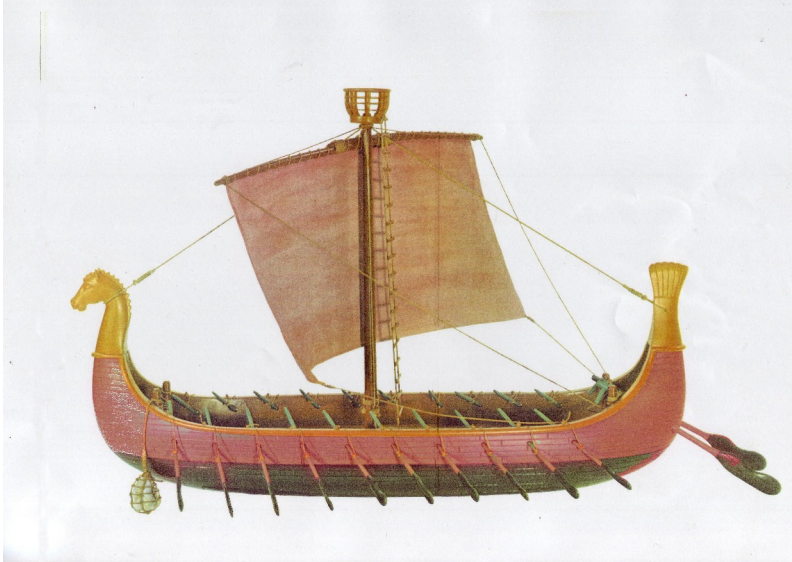
As early as 1998 my first experiences in the Chachapoya region and my previous knowledge of the ancient Old World gave rise to a first hypothesis (see Chapter “Introduction”).

I tried to refute the old-world hypothesis – initially because I thought so many experts cannot be wrong, but also because only this way hypotheses can be developed reliably.

In doing so, I was able to exclude more and more variants of the hypothesis. Competent experts from the Old World have refuted with their specialized knowledge many ideas which I thought were likely but provided new information that led to a corrected and more coherent hypothesis.

An expert on ancient seafaring, the archaeologist Dr. Karin Hornig from the University of Freiburg,

Germany, (e.g. Hornig 1997) informed me for instance about the fact that winds and currents on the Atlantic almost automatically drive sailboats from the coast of West Africa to the Brazilian Atlantic coast, that on the coast of West Africa the Carthaginian maintained colonies, that reports of Greek historians were interpreted as evidence of Carthaginian travels on this route and that by now all the arguments that excluded ancient Atlantic crossings were refuted by research.



Reconstruction of a Phoenician-Carthaginian merchant ship used for long distance trade (Source: archive Karin Hornig)

But how could a trip to Peru have happened?

The reports of the Spanish monk Carvajal (Carvajal 1960) and new archaeological finds have revolutionized my ideas of the ancient Amazon. Later, I learned from an archaeologist from the University of Sao Paulo (Prof. Eduardo Neves, Brazil's leading expert on ancient Amazon cultures – see e.g. Neves 2001) that the Marajó island in the Amazon estuary was the center of a trade network over 2000 years ago, which led from the Atlantic Ocean to the Peruvian Andes. Eduardo also told me about a 16th-century document that showed that even then it was possible to travel upstream the Amazon with simple means – a letter to the Portuguese king João III (in Bentes 2006). Indians from the Atlantic coast had escaped from a Portuguese landowner with their dugouts, and they had landed in the south of the Chachapoya area. Then I read in Church's publications that just there existed an important crossroads of trade routes thousands of years ago (e.g. Church/von Hagen 2008).

But even with this information, the initial hypothesis was far too broad to be refutable. For a further review, a more precise hypothesis was indispensable.

First, I asked: Which time periods are not an option? To answer that, I did not rely on the circular building dates given by Church and Schjellerup. Kuelap also provided information. Already in 2008, I received interesting information from Peter Lerche, which was later confirmed. The archeologist Alfredo Narváez was responsible for the research in Kuelap for many years. In a conference report from 2010 (Narváez 2010 pp.31-34) he reported: "The oldest dating we have dates back to the 6th century, that is about the year 500. But we suspect that the work started before, maybe around 400 AD."

Church now claims as the age of Kuelap 600 AD. He refers to a publication from 2013 (in Kauffmann-Doig 2013). But also in more recent publications Narváez indicates an earlier start of construction. In 2015, Narváez presented his results at an international archeology meeting in San Francisco, USA: "Our work in Kuelap has allowed digging a hundred circular structures, dense fillers, ceremonial structures and sections of the outer wall and the wall of the central elevated part of Kuelap. These excavations have refined a stratigraphic sequence supported by a dozen radiocarbon dating and facilitated the identification of different contexts ... The monument was begun approximately between the fifth and sixth centuries" (Narváez 2015). There also exists another, still more recent source: "The records of the human presence in Chachapoyas during the Early Intermediate period are relatively scarce. ... Arturo Ruiz (1972),

hypothesizes that the fortress Kuelap was built in that period; and in the investigations Alfredo Narváez (1988, 2013) and his colleagues have recovered materials dated for that same period.” (VanValkenburgh/Vega 2018, p.3) That is: some time before 600AD and after 200BC.

Like Church the ethnologist Peter Lerche has been researching in the Chachapoya area since the 1980s, but unlike Church, he has been living there ever since. He bases his argument not on archaeological but on ethnological arguments. He assumes that such a construction is only possible if certain social structures exist. And he concluded that the Chachapoya culture began much earlier, about 2000 years ago (he also reported this in an email to me from October 12, 2011).

If one follows Lerche's argument and applies it to my hypothesis, then the following scenario would be imaginable: The immigrants brought with them the technical knowledge for the construction of Kuelap and the circular-building-settlements and used them for constructions in their new homeland. However, it would have taken several more centuries before they were allied with a sufficient number of locals to start the huge construction. According to this, the immigration would have happened around 2000 years ago.

Other sources of varying reliability – palaeopathological findings in Chachapoya mummies interpreted by Prof. Schultz from Goettingen and discoveries on the Brazilian Atlantic coast (see e.g. Giffhorn 2014/2) all pointed to the time around 2000 years ago. If the Chachapoya construction tradition was triggered by an Old-World immigration, that would have happened about 2000 years ago, but not later than 10 AD (if we follow Schjellerup's dating). Subsequent information made it unlikely that the assumed immigration could have taken place earlier than about 50 BC.

This excludes the Carthaginians as participants in the expedition. 100 years after the destruction of their homeland – as archaeological and ancient historical research revealed – surviving Carthaginians had long since peacefully arranged with the Romans. They had no reason for such an adventure.

But who else would be eligible?

It would only be worthwhile to continue testing the hypothesis, if somewhere in the Old World existed people who between 50 BC and 10 AD had both a sufficiently strong motive and a realistic possibility to leave their homeland forever and to cross the Atlantic.

We started with the question for the motive. For the last two centuries BC, we found only one clear hint: the threat by the Romans.

But which groups with access to Atlantic ports can be considered for the period between 50 BC and 10 AD? At first, only the Atlantic Celts came to mind, the people from the part of the Celtic cultural area who lived in the west of the British Isles, in Galicia in Northwestern Spain and in French Brittany (see e.g. James 1999, Koch/Cunliffe 2013, Cunliffe 1999, 2012, Cunliffe/Koch 2010, 2019). But the west of the British Isles was largely free at the time, and French Brittany had been conquered by Caesar as early as 55 BC, and Caesar had enslaved all survivors. Only Galicia remained. Further research has revealed that Spain is considered the scene of the longest and bloodiest wars in the history of the Roman Empire.

However, relevant details could not be found in the usual scientific literature.

We sought contact with Spanish archaeologists and historians (see the list of our main experts at the end of this chapter). They pointed out that in Galicia the romanization was not totally completed before 19 AD and informed us that in the epoch in question people from two more regions possessed a sufficiently strong motive for emigration to the unknown: warriors from the Balearic Islands of Mallorca and Menorca and from the Celtiberian cultural area around the province of La Rioja in northeastern Spain.

But the Celtiberians had no Atlantic ports, and the boats of the Balearic Islands were unsuitable for an Atlantic crossing. However, people of both groups had had no problems in those very mobile times to reach the still relatively free Galicia.

Further research showed that regular trading journeys took place between the Atlantic Celts for many centuries – also crossing the wild Bay of Biscay and sailing on the Atlantic Ocean. Which ships were available for those journeys?

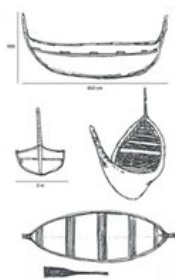
This question turned out to be one of the most promising opportunities to refute the hypothesis.

I owed my knowledge of the navigation of the Atlantic Celts above all to TV documentaries, BBC productions and especially a Spanish production (Portillo 2012), which showed very similar boats:



Crossing the Atlantic with such boats? No chance!

One day in the Archaeological Museum of the Galician port city of La Coruña, I discovered the reconstruction that served as a model for the filmmakers.



Construction drawings from the La Coruña museum's documentation

And in the Archaeological Institute of the University of Santiago de Compostela I learned that this reconstruction has nothing to do with the merchant ships of the Galicians and that further information is not available. (All important conversations with Spanish experts are documented on video – in Giffhorn 2015, 2016)

Only at the end of 2015 I hit upon a reliable antique document, which provided detailed information on what ships the Atlantic Celts in the 1st century BC used for their travels across the Bay of Biscay and on the Atlantic: large, stable, reminiscent of Viking ships and Carthaginian merchant ships and certainly seaworthy.

But why did the Galicians not, like the Vikings 1000 years later, sail by cold Iceland towards North America?

There was a better target area: Around 50 BC, the Greek historian Diodorus had published a quite precise route to a lush tropical paradise far west of Africa. At that time, this dream destination was certainly spoken of in all the Atlantic ports, including those of Galicia.

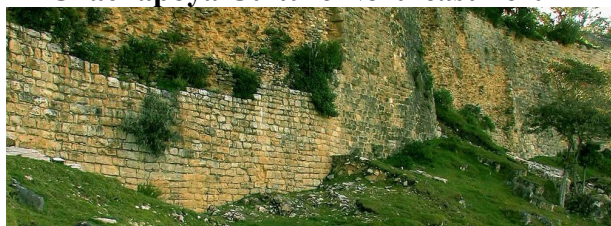
Thus, finally, a more precise hypothesis for the assumed immigration could be formulated: "In the second half of the first century BC, people of Mallorca and Menorca, Atlantic Celts of Galicia and Celtiberians of Northeastern Spain left their homeland and reached Northeastern Peru."

This hypothesis is so concrete that it can easily be refuted – in case it doesn't match reality.

The fact that the question of motive and opportunity had been cleared, doesn't mean that our hypothesis is suitable as a reliable basis for future research. If we cannot present convincing evidence which connects Northeastern Peru with the Old World the hypothesis would be useless. In a vast, wild and hardly explored region which never has been professionally searched for evidence of ancient Old-World contacts, we had to find traces of cultures which have been gone 2000 years ago in the Old World and which in the New World also were partly 2000, but at least 500 years old.

Often only coincidental discoveries yielded results. Here some appetizers:

Chachapoya Culture Northeast Peru



Kuelap – limestone wall

Celtiberian Culture Northeast Spain



Contrebia Leukade – limestone wall

**Chachapoya Culture
Northeast Peru**



Kuelap – limestone wall

**Celtiberian Culture
Northeast Spain**



Segontia Lank – limestone wall

**Chachapoya Culture
Northeast Peru**



Protection wall at building

**Celtiberian Culture
Northeast Spain**



Contrebia Leukade

Scenario of the emergence of Kuelap's concept of form



South of Spain, about 3000 BC.
(Reconstruction Los Millares)



Northwest Spain, about 10 BC.
(Reconstruction Castro de Coaña)



Kuelap (Reconstruction)

**Chachapoya Culture
Northeast Peru**



Dwellings with limestone walls

**Castro Culture
Northwest Spain**



Dwellings with limestone walls

**Chachapoya Culture
Northeast Peru**



Reconstructed by Peruvian archaeologists (near Chachapoyas)

**Castro Culture
Northwest Spain**



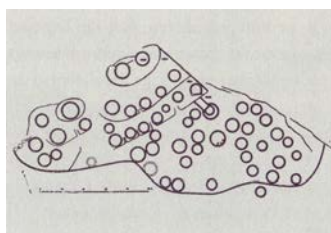
Reconstructed by Galician archaeologists (in Castro Sta. Tegra)



Dwelling with limestone wall



Dwelling with granite wall



Chachapoya-settlement



Castro-settlement



Dwelling on base



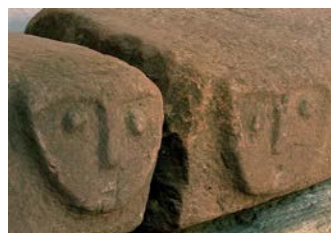
Dwelling on base



Head relief at a wall in Kuelap



„Cabeza cortada“ at a wall in Castro



Head reliefs as bricks (Chachapoyas)



„Cabeza cortada“ as brick (Lugo)

**Chachapoya Culture
Northeast Peru**



In a cave near La Jalca

**(Post-)Talayot Culture
Balearic Islands**



In a cave in Son Real (Mallorca)

**Chachapoya Culture
Northeast Peru**



Sling from Leymebamba

**(Post-)Talayot Culture
Balearic Islands**



Sling from Mallorca



Grave tombs above the Río Utcubamba



Grave tombs in Cales Coves (Menorca)



In the base camp in the Chachapoyas area



In a Museum in Ciutadella (Menorca)



At least 550 years old



At least 2000 years old



Grave tombs above the Río Utcubamba



Grave tombs in Cales Coves, (Menorca)

Chachapoya



Head sculpture (Leymebamba)

Castro Culture



Head sculpture (La Coruña)

Of course, the similarity alone does not make confirming evidence of such parallels. Checking the probative power of this evidence by trying to refute it, was an especially large and strenuous part of the research, and we needed the most competent experts for the different regions and subjects.

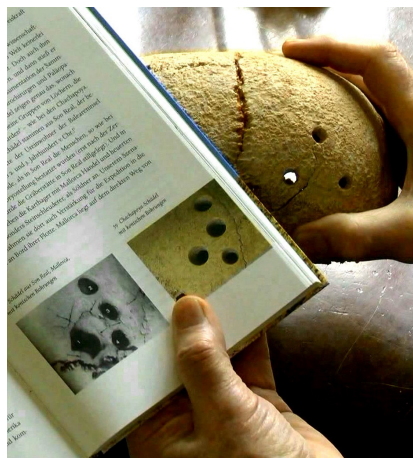
Sometimes results emerged that nobody of us had expected. One example: In 1998, I accidentally hit on a Chachapoya skull with an unusual trepanation. Later it turned out that this is a technique typical of the Chachapoya and that the skull stems from the time before the arrival of the Incas.



Prof. Dr. Michael Schultz from the University of Goettingen, specialized in the worldwide exploration of trepanations (e.g. Schultz 1994) with high international reputation (for many years president of the Paleopathology Association, the Society for Paleopathology of the USA, and co-editor of several international journals) found out, that this technique in America apparently was practiced only by the Chachapoya and, in any case, that up to now no older examples have been found anywhere in America.



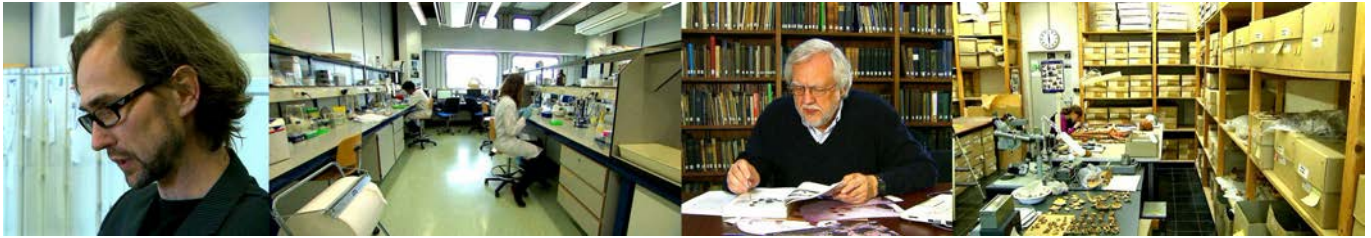
Prof. Dr. Domènec Campillo, University of Barcelona, Spain, is considered Spain's most important trepanation expert (see Campillo 1977, 2007). He marveled at the amazingly exact equivalent of the Chachapoya trepanation with trepanations, which he, like Prof. Schultz, from the Old World only knows from the Balearic region. There, this millenniums-old technology was also practiced 2000 years ago.



Prof. Campillo discussing trepanations with the author

It takes some power of imagination to find a different explanation for all that than 2000 years ago shamans from the Balearic Islands began practicing their home-grown trephining technique in Northeastern Peru.

All important conversations including the previous example were professionally documented on video (Giffhorn 2015, 2016). The photos below show a selection of our experts.



Prof. Dr. Manfred Kayser, The Institute of Prof. Kayser at the molecular geneticist University of Rotterdam

Prof. Dr. Michael Schultz, The Institute of Prof. Schultz at the paleopathologist and archaeologist University of Goettingen



Rocío Paz Sotero, archaeologist, Chachapoyas

Prof. Dr. Ann-Marie Pessis, archaeologist, Uni Recife, Brazil

Prof. Dr. Mario Tomazello Filho, Uni São Paulo, Brazil

Dr. Karin Hornig, University of Freiburg



Dr. Toni Puig, Dr. Jordi Hernandez, archaeologists, Mallorca

Felipe Arias, archaeologist, Museum Castro Viladonga

Prof. Dr. José Caamaño, archaeologist, University Santiago de Compostela

Gonzalo Meijide Carmeselle, archaeologist, Archeological Service of Galicia, Lugo

In the course of the years we hit upon an overwhelming amount of clear and compelling evidence – but, as the archaeologist Karin Hornig found out after a worldwide search in scientific literature and museum catalogues, only for connections with cultures, which had been left as the only ones with motive and opportunity.

A final remark: Church regrets “the production – both among researchers and among the public – of an idealized portrait of these populations as fierce warriors“ (Church/Guengerich 2017, p.5). Probably this remark relates among others to my publications. In fact, I often speak of warrior cultures – both in connection with the immigrants of my theory and with the Chachapoya. Only this has nothing to do with an unrealistic idealization. What the Spanish experts told me about the people from the regions, who eventually were left as immigrants after the process of excluding other hypotheses, reminds me a lot of what for example the chronicler Garcilaso de la Vega (Garcilaso de la Vega in "Comentarios Reales de los Incas" Book 8, chap. 2, p.285) reported about the Inca-wars of the Chachapoya, e.g. that they "would rather die than become vassals of the Inca." (see also on this subject Schjellerup 1997, p.60ff). But these features (wild, freedom-loving warriors) were and are nothing special on the eastern slope of the Andes. In my work I encountered several times such warrior cultures, e.g. in the "Tierra de La Canela" in Eastern Ecuador. I did a long and intensive research on the history of the Quijos (among others with the help of the habilitation thesis of the ethnologist Udo Oberem, University of Bonn, who is still famous in Eastern Ecuador), in Tena and in Avila Viejo (the hometown of the cacique Jumandi, who in 1578-1579 had led the Quijos to an almost successful revolution against the Spaniards - Oberem 1971, e.g. pp.67ff). Another example took place in the region of Alto Mayo in Eastern Peru. There I produced a documentary about the bloody conflicts of the Aguaruna with white settlers (Giffhorn 2002). These two projects, by the way, were never related to any hypotheses about pre-Columbian transatlantic contacts.

Conclusion: Do we need revolutions to save science?

In the introduction I wrote that this article was triggered by a “remarkable book” (Church/Guengerich 2017). This book is especially remarkable because it documents the change of a great scientist into a defender of an irrational dogma. Revealing this was necessary to give an impression of what kind of damage is done by the power of dogmatism in the scientific community.

I hope that the previous chapter gave an impression of what could result from unbiased research which is not restricted by dogmas: Many questions that were independent of each other in different areas and with different directions eventually led to a carefully checked, detailed and noncontradictory chain of evidence that so far has withstood all attempts to disprove it.

This chain could provide answers to many questions, which had not been answered satisfactorily by the experts before, and it would help them to find a way out of the deadlock, which was blocking their research all these decades.

But this article is not intended to convince anyone of the validity of my hypothesis. It is neither just focused on experts on pre-Columbian cultures. First and foremost, it is meant as a general appeal to all who care that science fulfills its obligation to society. Only if it is not determined in advance what may result and what not is research valuable. Within and outside the universities research should take place, which is unbiased and can always be checked by third-parties without dogmas and authoritarian structures blocking this.

Precisely for this, the philosophers of the Enlightenment in the 17th and 18th centuries risked their lives by rebelling against the power of the church and its dogmas.

It seems that their heritage has been lost in many institutions. To revive it, conflicts will be necessary. Those who publicly advocate more rationality in the scientific community must reckon with fierce resistance – not the least from scientists whose reputation and power depend on the inviolability of a dogma or who are simply afraid of change.

But of course, control is indispensable in the field of science as well. Too much fake news and too many charlatans camouflage themselves with the image of science.

However, the necessary control should always be transparent and under democratic control of other scholars, students and the critical public, and it should always be measured with the mentioned principles of science which were valid already in the Enlightenment philosophy.

Perhaps even today, changes can only succeed by small or larger revolutions. They could be triggered above all by people whose existence does not depend on the mechanisms of the scientific community – e.g. journalists and retired researchers. Especially to them the article is directed.

But maybe the article also encourages new discussions among Chachapoya experts. In any case, I would be pleased if Warren Church would be able to refute my hypothesis with verifiably documented facts. Then I would have learned something new again.

I informed Warren that I uploaded this article to my page on the internet portal academia.edu. I wonder if he or any other member of the scientific community risks to take part in a public discussion.

References

Bentes, Dorinethe dos Santos "Centro Cultural dos Povos da Amazônia, as Primeiras Imagens da Amazônia" Manaus 2006

British Museum – Website British Museum:

britishmuseum.org/explore/themes/lost_kingdoms_of_south_america/chachapoya.aspx, called May 25th, 2019

Campillo, Domingo (spanish for Catalan name Domènec) "Paleopatologia del craneo" Barcelona 1977

Campillo, Domènec "La trepanación prehistórica" Barcelona 2007

Carvajal, Gaspar de "Relación del nuevo descubrimiento del famoso río grande" in "Bibliotheca ecuatoriana minima" Band "Historeadores" Quito 1960

- Church, Warren B. "Test Excavation and Ceramic Artifacts from Building No. 1 at Gran Pajatén, Department of San Martín, Peru," master's thesis, Manuscript in Department of Anthropology, University of Colorado 1988
- Church, Warren "Early occupations at Gran Pajatén, Peru". *Andean Past* 4 pp.281–318 New York 1994
- Church, Warren "Prehistoric cultural development and interregional interaction the tropical montane forests of Peru. PhD Thesis," Yale University 1996
- Church, Warren "Primeros indicios de la Sociedad Montecristo: Excavaciones en Gran Pajatén y sitios del Parque Nacional del Río Abiseo" in Book "Parque Nacional del Río Abiseo: Memoria viva del paisaje cultural andino amazónico" pp. 274ff Lima 2018
- Church, Warren, Guengerich, Anna "Introducción: La (re)construcción de Chachapoyas a través de la historia e histografía" pp.5-38 in *Boletín de Arqueología PUCP / Núm. 23*, 2017
- Church, Warren, Guengerich Anna ed. ¿Qué fue Chachapoyas? Aproximaciones interdisciplinarias en el estudio de los Andes Nororientales del Perú" pp.1-334 in *Boletín de Arqueología PUCP / Núm. 23* (2017)
- Church, Warren, Valle Álvarez, Luis "Gran Pajatén y su contexto en el paisaje prehispánico Pataz-Abiseo" pp.57-93 in *Boletín de Arqueología PUCP / Núm. 23*, 2017
- Church, W., von Hagen, A. "Chachapoyas: Cultural development at an Andean cloud forest crossroads." In: Silverman H and Isbell W (eds) "Handbook of South American Archaeology" pp. 903–926 New York 2008
- Cieza de Leon, Pedro "Obras Completas" Madrid 1984
- Cunliffe, Barry "The Ancient Celts" London 1999
- Cunliffe, Barry "Britain Begins" Oxford 2012
- Cunliffe, Barry / Koch, John T. (ed.): "Celtic from the West. Alternative Perspectives from Archeology, Genetics, Language and Literature" Oxford 2010
- Cunliffe, Barry / Koch, John T. "Exploring Celtic Origins" Oxford 2019
- Diodor "Diodor's von Sicilien historische Bibliothek" (translation by Julius Friedrich Wurm), Stuttgart 1831
- Garcilaso de la Vega in "Comentarios Reales de los Incas" in Plackmeyer, Wilhelm "Wahrhaftige Kommentare zum Reich der Inka von Garcilaso de la Vega" Berlin 1986
- Giffhorn, Hans "Alto Mayo - Perus Wilder Osten", TV-documentary WDR 2002
- Giffhorn, Hans "Wurde Amerika in der Antike entdeckt? Karthager, Kelten und das Rätsel der Chachapoya," 1st edition, München 2013
- Giffhorn, Hans "Chachapoya. Wurde Amerika in der Antike entdeckt? – eine Beweisführung," in *Amerindian Research*, Volume 9/1 No. 31, 2014/1
- Giffhorn, Hans "Wurde Amerika in der Antike entdeckt? Karthager, Kelten und das Rätsel der Chachapoya," 2nd revised edition, München 2014/2
- Giffhorn, Hans "Die Rätsel der Chachapoya – keltische Einwanderer im antiken Peru" TV-documentary Spiegel-TV Hamburg 2015
- Giffhorn, Hans "Keltische Krieger im antiken Peru" DVD <https://www.amazon.de/Hans-Giffhorn-Keltische-Krieger-Chachapoya/dp/B015OOSVES> Hamburg 2016/2
- Gregor, Michael "Carthage's lost warriors" TV-documentary PBS 2014
- Guengerich, Anna "La diversidad local frente a la «Cultura Chachapoya» en la arquitectura doméstica" pp.207-230 in *Boletín de Arqueología PUCP / Núm. 23*, 2017

- Guengerich, Anna, Church, Warren B. “Conclusión Una mirada hacia el futuro: nuevas direcciones en la arqueología de los Andes nororientales“ pp.313-334
- Guevara, Evelyn, Palo, Jukka, Sajantila, Antti, Guillén, Sonia “Explorando dinámicas poblacionales ancestrales en el noreste peruano: marcadores uniparentales de ADN en los Chachapoyas modernos“ pp.127-15 in Boletín de Arqueología PUCP / Núm. 23, 2017
- Guevara, Evelyn, Palo, Jukka: “Genetic diversity and divergence in a contemporary Chachapoya population from Amazonas – Peru : aSTRs, Y-STRs and mtDNA evidence” in Guillén et al. 2011, p.91
- Guillén, Sonia et al. “Assessing the genetic diversity in the extant Chachapoya population from northeastern Peru using uniparental DNA markers (mtDNA and Y-chromosome)” presented at The 80th Annual Meeting of the Society for American Archaeology, San Francisco, CA 2015
- Hornig, Karin “Nutzungsweisen von Wasserfahrzeugen im antiken Wirtschaftswesen” in: Deutsche Gesellschaft zur Förderung der Unterwasserarchäologie e.V., pp.21-27, No.12, 1997
- James, Simon “The Atlantic Celts. Ancient People or Modern Invention?” London 1999
- Kauffmann-Doig, Federico (ed.) “Los Chachapoyas“, Banco de Crédito de Perú, Lima 2013
- Kayser, Manfred, de Knijff, P. “Improving human forensics through advances in genetics, genomics and molecular biology” in Nature Reviews Genetics, 12: pp.179-192, 2011
- Koch, John T. / Cunliffe, Barry “Celtic from the West 2. Rethinking the Bronze Age and the Arrival of Indo- European in Atlantic Europe,” Oxford 2013
- Koschmieder, Klaus “La organización sociopolítica de los Chachapoya: implicancias de la evidencia arqueológica de la provincia de Luya (Departamento de Amazonas)“ pp.95-125 in Boletín de Arqueología PUCP / Núm. 23, 2017
- Lerche, Peter “Los Chachapoya y los Simbolos de su Historia” Lima 1995
- Matthews-Bird, Frazer, Valencia, Bryan G., Church, Warren, Peterson, Larry C., Bush, Mark “A 2000-year history of disturbance and recovery at a sacred site in Peru’s northeastern cloud forest“ Research paper in The Holocene, Vol. 27(11) pp.1707-1719 SAGE Journals 2017
- Narváez, Alfredo “Breve historia de las intervenciones en Kuélap“ in “Antiguas civilizaciones en la frontera de Ecuador y Perú – Una propuesta binacional para la integración andina.“ conference report pp.31–34 Jaén, Perú 2010
- Narváez, Alfredo “Una nueva visión del rol de Kuélap en el Valle del Alto Utcubamba” presented at The 80th Annual Meeting of the Society for American Archaeology, (tDAR id: 395965), San Francisco, CA 2015
- Neves, Eduardo, Barreto, Cristiana, McEwan, Colin “Introduction” in “Unknown Amazon” ed. by Colin McEwan, Cristiana Barreto, Eduardo Neves, British Museum Press, London 2001
- Oberem, Udo “Los Quijos“, postdoctoral thesis, Madrid 1971
- Oviedo y Valdés, Gonzalo Fernández de “Historia general y natural de las Indias Occidentales, islas y tierra firme del Mar Oceano” Sevilla, 1535
- Pimentel S., Víctor A., Church, Warren B. “Una historia de las investigaciones arqueológicas en Gran Pajatén y el Parque Nacional del Río Abiseo“ in Book “Parque Nacional del Río Abiseo: Memoria viva del paisaje cultural andino amazonico“ pp.246-270 Lima 2018
- Pirckheimer, Willibald “Germaniae ex variis scriptoribus perbrevis explicatio” Nürnberg 1530
- Pizarro, Pedro “Relacion del Descubrimiento y Conquista de los Reinos del Peru” ed. by Universidad Católica del Peru, Lima 1978
- Portillo, Oscar “El legado Celta“ (“The Celtic Legacy“) TV-documentary produced by Explorafims for TVE, Spain 2012

Schjellerup, Inge R. "Incas and Spaniards in the Conquest of the Chachapoyas – Archaeological and Ethnohistorical Research in the North-eastern Andes of Peru" Göteborg 1997

Schultz, Michael "Trephination as a medical indication following trauma observed in the Middle Bronze Age population from Lidar Höyük (Turkey)" in "Homo - Journal of Comparative Human Biology" 45 (Suppl.), 1994

Stroud, Larry: in "Batesville Daily Guard" Batesville (Arkansas) Dec. 31, 2009

Toyne, J. Marla, Anzellini, Armando "Sociedad, identidad y variedad de los mausoleos de La Petaca, Chachapoyas" pp.231-257 in Boletín de Arqueología PUCP / Núm. 23, 2017

VanValkenburgh, Parker, / Rojas Vega, Carol G. "Informe final del proyecto de investigación arqueológica – paisajes arqueológicos de Chachapoyas, Cuenca del Río Utcubamba, Departamento de Amazonas, Informe oficial del proyecto arqueológico (PACHA-2018), mandado al Ministerio de Cultura del Perú, Lima 2018

Sources of images:

Unless otherwise stated, all illustrations are taken from the author's video footage

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