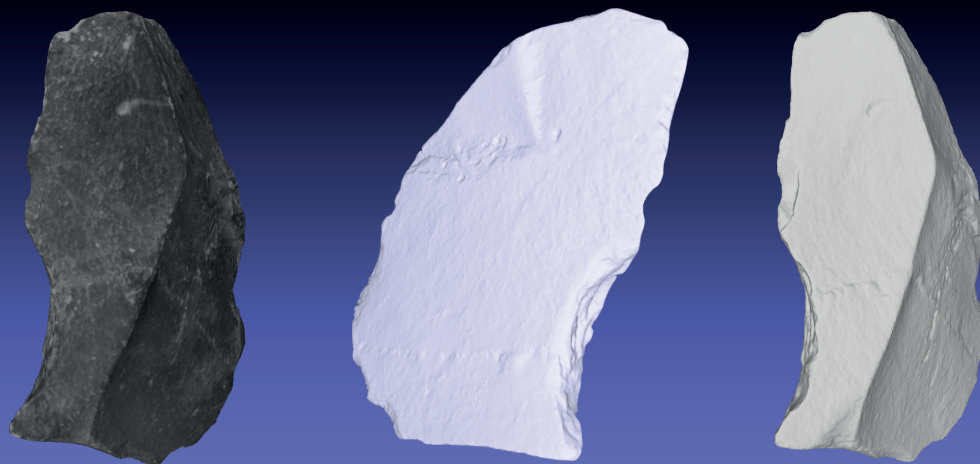


3D models of seventy-seven representative stone tools from Chiquihuite Cave, Zacatecas, Mexico



Open
Access



for MeshLab
and Ariadne Visual Media Service

Ciprian F. Ardelean

Alejandro Mitrani

José Luis Ruvalcaba-Sil

With the collaborations of:

Thomas J. Williams & Nancy Delchoff, Federico Ponchio & Marco Callieri

2022



OPEN ACCESS

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Table of contents

| | |
|--|----|
| 1. Preface. C. F. Ardelean | 1 |
| 2. Foreword. Th. J. Williams and N. Velchoff | 3 |
| 3. An introduction to the 3D scanning of artifacts. A. Mitrani and J.L. Ruvalcaba-Sil | 5 |
| 4. An introduction to 3D imaging visualization. F. Ponchio and M. Callieri | 9 |
| 5. How to use this digital catalog. C.F.A. | 12 |
| 6. Cited references. | 13 |
| 7. The seventy-seven 3D models of representative stone tools from Chiquihuite Cave. | 15 |
| 7.1 Artifact #5 | 15 |
| 7.2. Artifact #8 | 16 |
| 7.3. Artifact #9 | 17 |
| 7.4. Artifact #72 | 18 |
| 7.5. Artifact #115 | 19 |
| 7.6. Artifact #359 | 20 |
| 7.7. Artifact #373 | 21 |
| 7.8. Artifact #393 | 22 |
| 7.9. Artifact #408 | 23 |
| 7.10. Artifact #424 | 24 |
| 7.11. Artifact #457 | 25 |
| 7.12. Artifact #481 | 26 |
| 7.13. Artifact #482 | 27 |
| 7.14. Artifact #489 | 28 |
| 7.15. Artifact #490 | 29 |
| 7.16. Artifact #493 | 30 |
| 7.17. Artifact #500 | 31 |
| 7.18. Artifact #506 | 32 |
| 7.19. Artifact #508 | 33 |
| 7.20. Artifact #511 | 34 |
| 7.21 Artifact #517 | 35 |
| 7.22. Artifact #520 | 36 |
| 7.23. Artifact #521 | 37 |

| | |
|----------------------|----|
| 7.24. Artifact #524 | 38 |
| 7.25. Artifact #527 | 39 |
| 7.26. Artifact #528 | 40 |
| 7.27. Artifact #529 | 41 |
| 7.28. Artifact #540 | 42 |
| 7.29. Artifact #543 | 43 |
| 7.30. Artifact #547 | 44 |
| 7.31. Artifact #567 | 45 |
| 7.32. Artifact #568 | 46 |
| 7.33. Artifact #570 | 47 |
| 7.34. Artifact #572 | 48 |
| 7.35. Artifact #580 | 49 |
| 7.36. Artifact #586 | 50 |
| 7.37. Artifact #598 | 51 |
| 7.38. Artifact #603 | 52 |
| 7.39. Artifact #608 | 53 |
| 7.40. Artifact #609 | 54 |
| 7.41. Artifact #610 | 55 |
| 7.42. Artifact #898 | 56 |
| 7.43. Artifact #929 | 57 |
| 7.44. Artifact #937 | 58 |
| 7.45. Artifact #974 | 59 |
| 7.46. Artifact #976 | 60 |
| 7.47. Artifact #977 | 61 |
| 7.48. Artifact #980 | 62 |
| 7.49. Artifact #981 | 63 |
| 7.50. Artifact #989 | 64 |
| 7.51. Artifact #1003 | 65 |
| 7.52. Artifact #1006 | 66 |
| 7.53. Artifact #1013 | 67 |
| 7.54. Artifact #1016 | 68 |
| 7.55. Artifact #1021 | 69 |

| | |
|----------------------|----|
| 7.56. Artifact #1028 | 70 |
| 7.57. Artifact #1029 | 71 |
| 7.58. Artifact #1031 | 72 |
| 7.59. Artifact #1034 | 73 |
| 7.60. Artifact #1040 | 74 |
| 7.61. Artifact #1043 | 75 |
| 7.62. Artifact #1044 | 76 |
| 7.63. Artifact #1045 | 77 |
| 7.64. Artifact #1049 | 78 |
| 7.65. Artifact #1060 | 79 |
| 7.66. Artifact #1061 | 80 |
| 7.67. Artifact #1069 | 81 |
| 7.68. Artifact #1074 | 82 |
| 7.69. Artifact #1094 | 83 |
| 7.70. Artifact #1098 | 84 |
| 7.71. Artifact #1099 | 85 |
| 7.72. Artifact #1118 | 86 |
| 7.73. Artifact #1122 | 87 |
| 7.74. Artifact #1125 | 88 |
| 7.75. Artifact #1126 | 89 |
| 7.76. Artifact #1132 | 90 |
| 7.77. Artifact #1143 | 91 |

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As archaeologists, we love objects. We love touching them. At museums, we feel more comfortable and emotional when secluded in basement storage rooms, among old bags and forgotten boxes, handling finds from dusty drawers, sensing the textures and hidden clues one would never be able to appraise upstairs, in the public exhibit halls fenced by glass walls and rules of behavior. But, such a privileged romp is not always possible. The globalized *modus vivendi* in academia, with discoveries meant to vibrate across the planet and attract the reactions of peers and amateurs from all over the world, clashes with the improbability to have a chance to actually touch the objects we read about, to rotate them between our fingers, to acknowledge their origins and comprehend the artwork and craftsmanship of the ancients.

Much has been said about the limestone prehistoric artifacts from Chiquihuite Cave (Zacatecas, Mexico) since their first “monumental” publication in the journal *Nature*, a while ago (Ardelean et al., 2020)¹, or in recent follow-ups (Ardelean et al., 2022). Critiques, mockery, denials, skepticism, all partly born from the fact that the perpetrators had never seen the tools themselves, had never touched them, had never crooked over with a magnifying glass in their hands. And that is understandable; and, somehow, forgivable.

I have recently made an attempt to compensate for the distance that separated the stone tools from the experts who judged them from across the world: a complete catalogue of Chiquihuite lithic artifacts, armed with enough photographs, measurements, descriptions, and technological observations (Ardelean, 2022). And yet, for many of us, such editorial efforts, no matter how exhaustive, could not replace the satisfaction of handling the artifacts, grabbing them in functional positions, imagining the activities they were part of. Hence, this digital catalogue of tridimensional models created with the structured light technique was born as a mandatory complementary work, aimed at global outreach, and meant to generate the illusion of having the Ice Age stone tools spinning before our eyes.

This publication includes the 3D scans of a representative selection of 77 artifacts that covers the entire typological and technological spectra of the Chiquihuite Cave assemblage. The selection was made considering the representativity of the tools and the budget and time available for this technological endeavor. Forty-eight of them belong to the “younger” stratigraphic component B (SC-B), twenty-eight to the older component C (SC-C), while one is a surface find collected in 2011. This joint effort — masterfully completed between Mexico’s LANCIC laboratory and Italy’s Visual Computing Lab — will certainly contribute to soften doubts about the human origin of the tools.

¹ All bibliographic references mentioned in this publication are listed in a special section on the next pages.

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Anyone familiar with archaeological research into the earliest peopling of the Americas will likely be aware of the now firmly-deceased *Clovis First* paradigm. Science and research marches on (for the most part), but the specter of Clovis as a benchmark continues to hang like some sort of Dickensian pall. Perhaps the research is currently trapped in some form of paradigmatic interstadial. One of the lingering unfortunates is the perception that a stone tool is only recognizable as such if it conforms to a North American Clovis standard: a regularly flaked, sequentially reduced, bifacial projectile point. This is not necessarily a flawed concept; it is axiomatic that demonstrably human-made artifacts are a baseline for studying archaeology. This debate is as apparent today as it was when Monte Verde was first published, and with the debates that followed. This Clovis standard has set a dividing line across the continent, somewhere just south of the US-Mexican border, where Clovis occupations in Arizona continue down into Sonora. South of this, a lack of early projectile point technologies seems to relegate early sites to some form of archaeological purgatory. This is best highlighted in a comment at a recent conference from a group of South American archaeologists studying a well-known southern site. To paraphrase: if we show the artifacts to lithic specialists, they say the artifacts are good, but they don't believe the dating. And if we show the dates to dating specialists, they know the dates are good, but they don't believe the artifacts are human. How does science and archaeology move forward to resolve this?

The answer to this question can be found in this digital selective catalogue for Chiquihuite Cave. On the back of the recently published complete catalogue (Ardelean, 2022), it is one of the best solutions to presenting an assemblage to a global audience. It allows for researchers to "see" the artifacts for themselves. When viewed as an assemblage, using the high-quality photographs and the outstanding 3D scans, the consistency and pattern of the underlying technology appears. This consistency in stone tool shape and manufacture highlights a concept of design within these tools, a purpose to the flaking strategy, a human tendency. More than that, specific details from individual artifacts are revealed, the presence of sequential flaking, bifacial edge reduction, retouch/resharpening marks, shaping flakes, striking platforms, and hinge fractures. The overlaying of reduction techniques that demonstrate human

activity. This moves beyond simple tool recognition, and into more detailed analysis of the specific reduction strategies.

Of course, 3D scanning technologies and the sharing of such information are not new to archaeology, but providing printed and digital catalogues and making these data and the assemblage available to the world sets a new worldwide standard for archaeology. Ciprian Ardelean, his co-authors, the research team, and all those who helped him should be commended for their outstanding contributions not only to science, archaeology, and research, but also for their commitment to outreach and to sharing knowledge as widely as possible. Teachers and students alike can now be active participants in these debates. Critics can no longer hide behind the excuse of not being able to examine the artifacts. These data move the discussion to the genuine and critical debates concerning the technology, the site, and its wider implications for the Upper Paleolithic of the Americas. As our technology moves us forward, so must our debates and questions concerning this early period move forward, beyond simply timing, and towards a more complex understanding of this epoch.

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Since 2014, the National Laboratory of Sciences for the Research and Conservation of Cultural Heritage (LANCIC, by its Spanish initials) has integrated specialists in physics, chemistry, archaeology, art history, and conservation sciences, among others, into a “wall-less laboratory” that incorporates the strengths of each group to face the challenges dealt with in the material study of cultural heritage objects, from a multidisciplinary perspective.

In particular, the branch located at the Physics Institute of the National Autonomous University of Mexico (LANCIC-IF, UNAM) has systematically worked on heritage studies since 1997, specializing in the study of unique objects by means of non-invasive and non-destructive techniques, based on the interaction between radiation and matter. In general, the techniques employed can be divided into imaging, spectroscopic, and microscopic techniques, focusing on the use of portable equipment, allowing for *in situ* analyses without the need to transport invaluable materials to the laboratory. With such equipment, LANCIC-IF has implemented specific methodologies for the study of diverse collections across Mexico, working with materials like ceramics, lithics, metals, glass, paintings, among others, with ages ranging from prehistoric, pre-Hispanic, or Colonial periods, up to modern art. The analysis of these materials mainly allows us to address questions about the raw materials and technologies employed in the fabrication of the objects, as well as identifying degradation products for conservation purposes.

High resolution 3D imaging is one of the techniques employed at LANCIC-IF. This allows for the generation of three-dimensional models providing detailed registers of the objects for documentation purposes, which in turn may facilitate their study by people around the world. This documentation also supports the diagnosis of states of deterioration in cultural objects, providing means for their digital reintegration, or even their reproduction by 3D printing.

For the generation of these 3D models, LANCIC-IF employs a *structured light scanner*, which projects parallel line patterns onto the artifact to obtain depth information which is used to create the model. Thanks to the high resolution permitted by this equipment, it is possible to observe minute attributes of the object, which in turn enables their remote study without any significant loss of detail. In fact, these high resolution models may even facilitate the observation of certain features that would be difficult to detect with the naked eye. This is possible thanks to the large amplification one can perform on the 3D model on the computer screen, as well as the removal of its color, leaving a gray surface instead, from which certain morphologi-

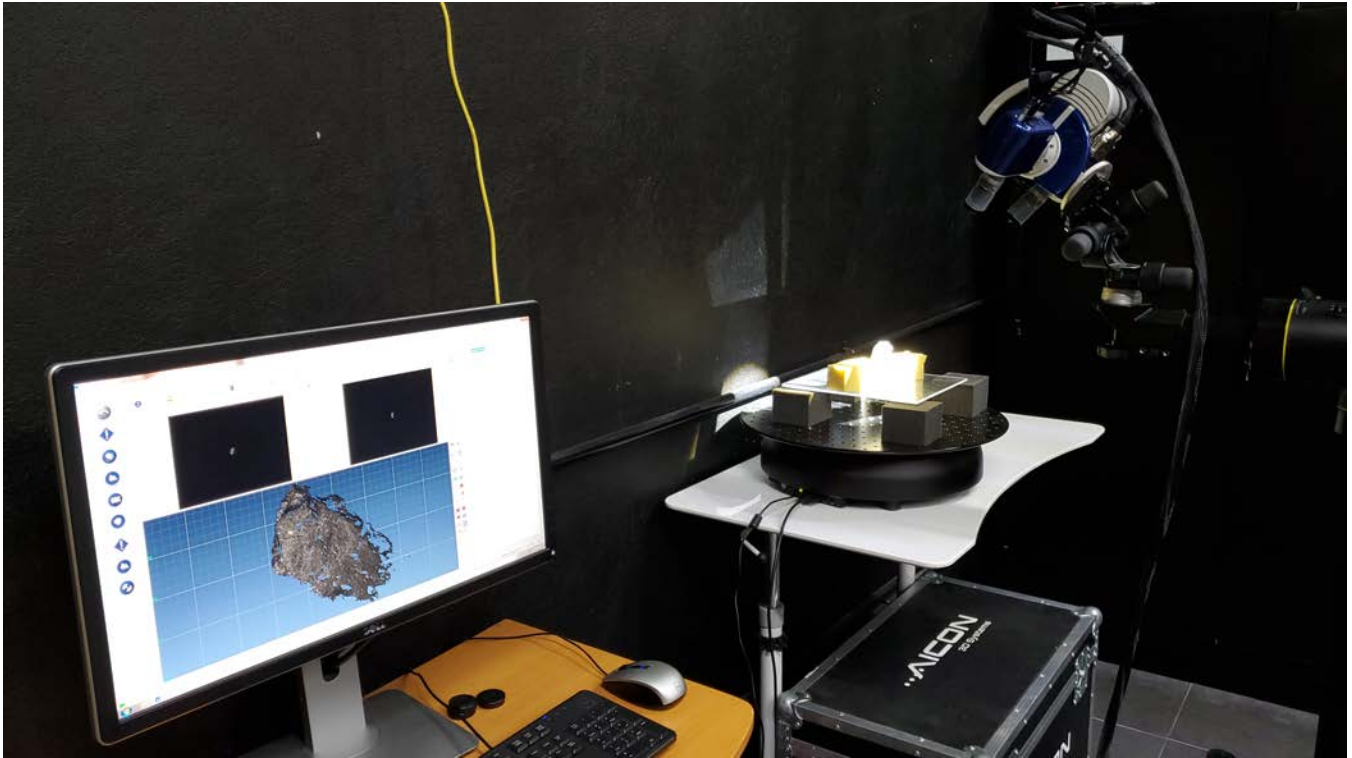
cal features can be better appreciated. Because of this, the technique can be employed for the measuring of small details and the identification of manufacturing and use-wear traces, with which one may determine certain aspects of the tools employed, and compare them with other collections of artifacts.

The 3D models presented in this work were generated with an AICON SmartScan (see pictures on the next page). This structured light scanner employs a ASN16000g-HEC8ALW-S-075 sensor with a 20 μm pixel size, and an OPTOCAT's 2015R2 software for acquisition and processing of the models. To reduce "noise", four images were obtained, in average, per scan.

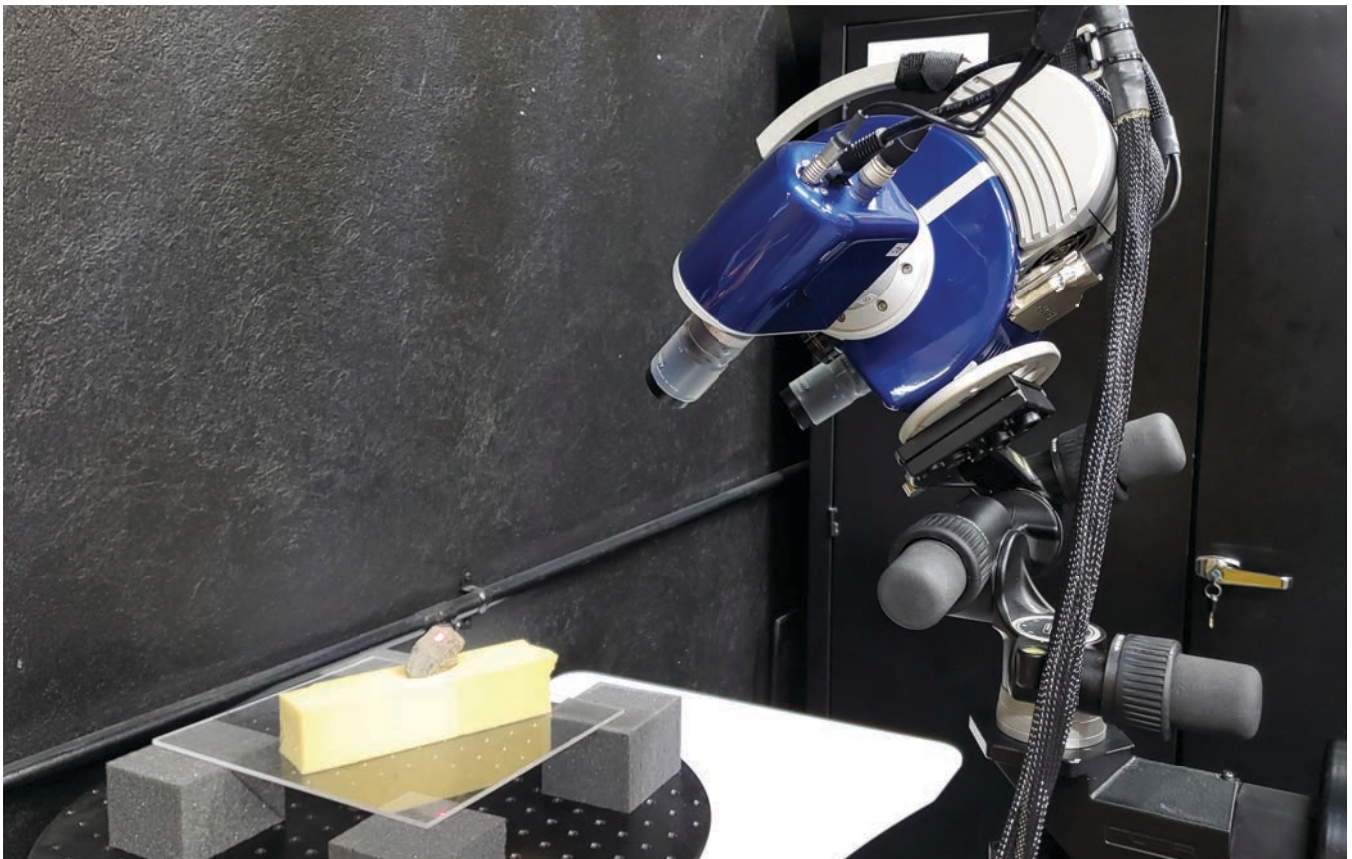
The procedure requires scanning different sections of the object, so that these images can then be merged together to generate a model of the whole item. Holes will frequently appear in the acquired images, among other things, due to shadows projected on the rugged surface of most objects. Thus, it is usually necessary to scan the same section from different angles. Once images of the entire object are acquired, they must be cleaned to eliminate the base on which the object was placed, as well as some small errors and noise that can be found in the images. Then, the images are merged, generating a model of the whole artifact. Lastly, small holes still left on the final model are manually infilled.

A problem frequently encountered in the generation of 3D models is related with the difficulty of scanning sharp edges, such as those found on many of the stone tools displayed in this publication. Since the shape of the cutting edge is particularly important for the study of stone tools, special care was taken in the acquisition of sharp edges, requiring the multiple scans at different angles, so that all holes could be filled in, and most errors eliminated. Another difficulty found in the scanning of these objects was related with the dark base that was used to hold some of the artifacts upright. While the base was always removed from the final model, it sometimes caused the final product to appear with darker tips (marking the areas from where the object was held). These, of course, are not observed when the user selects the grey-scale visualization modes. Luckily, the scanned objects did not present any highly reflective or translucent surfaces, which is a problem that could be encountered with the 3D scanning of some lithic objects.

The study of prehistoric materials is not an everyday subject for the specialists at LAN-CIC-IF. Hence, this particular project has offered us the opportunity to become involved with a challenging topic that has not been fully attended in Mexico. It has also allowed us to approach the matter of generating digital archives that would enable the remote study of artefactual assemblages and the management of cultural heritage collections.



The AICON SmartScan at work, in the dark room of the LANCIC-IF laboratory in Mexico City. The “head” of the structured light scanner projects patterns of light and shadow onto the artifact, guided by a red laser, while the puzzle of images conform the shape of the object on the connected computer.



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In recent times, the Web has become the ideal media platform for reaching wider audiences. This is also true for more technical applications, including 3D data in the field of cultural heritage. Following these considerations, our Visual Media Service project aimed to build up a web interface for the gathered 3D data, to make it available to scholars, experts, and the wider public worldwide, in order to promote collaborative work and research.

There are various libraries and software components that can be used to publish and display 3D models online, ranging from commercial to *open access* solutions, from simple single-object tools to complete web services. Among the available tools, *3DHOP* (a 3D Heritage Online Presenter) stands out as an open-source framework built for the creation of interactive Web presentations of high-resolution 3D models, oriented specifically at the field of cultural heritage (Potenziani et al., 2015). *3DHOP* was developed by the Visual Computing Lab of ISTI-CNR, in Italy. Since its first release in 2014, it has been available to cultural heritage communities through GitHub. It has been used in numerous international projects, supporting cultural heritage activities of restoration/conservation, teaching, and outreach to the general public. Thanks to the use of an advanced multi-resolution engine, *Nexus* (Ponchio and Dellepiane, 2015), *3DHOP* is able to directly manage the high resolution models received from digitization labs (like the *.ply* files we received from LANCIC-IF in Mexico). The 3D models are converted to a multi-resolution format, and then compressed and effectively streamed over the Web. This means that, regardless of the complexity of the model (even with low bandwidth available), the user is able to inspect the model on his browser interactively, without significant loading delays. The advantage of directly using high resolution models is the possibility for the final user to work with the best possible representation of the original objects.

One of the key points of the tool is the possibility to completely customize the appearance of the page, the tools for visualization and measurement, and the interaction with the 3D data. This makes it possible to create complex visualization and interaction schemes, designed to cope with the particular needs of a specific project or dataset. While *3DHOP*, due to its characteristics, is certainly a suitable tool for presenting data in an interactive way, it still requires to build the individual web pages for all the objects of a specific collection. To overcome this limitation and make the whole 3D dataset accessible in a more structured and uniform way, our

Visual Media project employed a web service to process and publish all the models in a single batch.

Ariadne Visual Media Service (Meghini et al., 2017) is a web service aimed at automating the process of publishing and sharing complex 2D, 2D+, and 3D digital products. The web interface allows to upload visual assets: the Service transforms these assets into compact and efficient web-streamable formats, and builds up a configurable viewer for them; for the 3D models, the viewer uses 3DHOP. The media is thus hosted by the service, and made available to final users via a standardized interface.

The Visual Media Service has also been developed by the Visual Computing Lab of ISTI-CNR, for the European Union (EU) project ARIADNE, and then further expanded into subsequent EU projects (PARTHENOS, EOSC Pilot, ARIADNE+). This is an *open access*, cost-free service maintained through EU funding, fit for research and cultural heritage initiatives, due to its non-commercial and institutional nature. Ariadne Visual Media Service provides access to each object individually. However, when dealing with a coherent collection, such as the Chiquihuite Cave dataset, the single-object arrangement may become a limiting factor. To support a more structured access, Visual Media Service has been adapted to managing collections in a way that would allow for the relevant objects to be presented to the users in a uniform way, while batch upload and configurations tools are provided to the hosts of the collections (in this case, the archaeologist who curates the collection).

After uploading, all models were processed using PyMeshLab, the Python-based scripting interface for *MeshLab*, another open-source software tool developed at Visual Computing Lab of ISTI-CNR. In this step, ambient occlusion information was added to the object, in order to increase the perception of geometric details, and improve the 'readability' of the artifacts.

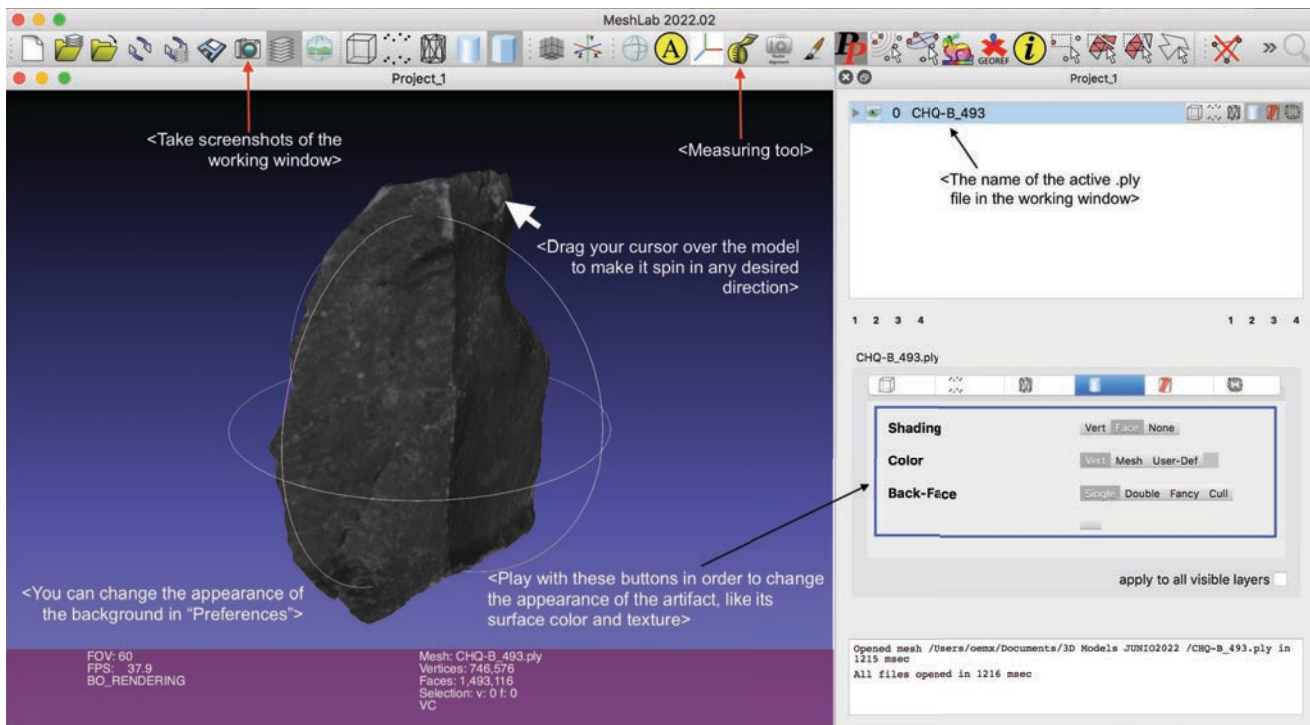
The result of this work is a Chiquihuite Cave Artifacts dataset available to the public via an uniform Web interface, making it possible for scholars anywhere in the world to browse the content of the collection, access individual 3D digitized objects with their relative metadata, and explore each one in detail, using a customized set of visualization and measurement tools.

This *open access* digital catalog of interactive tridimensional scanned models of lithic artifacts is meant as a working instrument, and has been being edited under the firm understanding that it will be used in permanent combination with the previously published complete catalog of Chiquihuite Cave lithic artifacts (Ardelean, 2022). For this reason, the present catalog does not repeat all the metric, contextual, morphological, and technological information already detailed in the mentioned preceding volume. The present product is an auxiliary instrument that comes to complement the data already provided with anteriority, and responds to the evident necessity for something resembling a hands-on experience.

In what follows, each page corresponds to one individual 3D model, accompanied by the minimal information needed for its appropriate identification, the page and respective chapter in the Ardelean (2022) catalog, as well as two side-by-side photographs: the left one is a reproduction of the three-sided view of the artifact as published in the previous catalog; the right one is a three-mode and three-sided view of the tridimensional model as it can be seen with the *MeshLab* software, so the users make sure they are looking at the correct model when accessing it online, or after downloading the original 3D file.

There are three options to access each one of the seventy-seven prehistoric stone tools selected for this virtual collection, and each one comes with a color-coded direct link and a color-coded QR code (QR's were created for free using www.qrcode-monkey.com). *Option A* (green-colored) The first option is to download the file itself, in its original *.ply* format, from the institutional repository of the University of Zacatecas. The downloaded files can then be easily visualized with a free and user-friendly software, *MeshLab* (<https://www.meshlab.net/#download>), which works fine for both Windows and iOS platforms; *B*) (blue) The second option is also to download the *.ply* file, but from an alternate source: a simple Google Drive route created through a personal Gmail account, as a backup; *C*) (red) The attractive interactive option to access the 3D model online, on the *Ariadne Visual Media Service* — thanks to a close collaboration with our Italian colleagues from the Visual Computing Lab (ISTI-CNR) in Pisa — an online universe aimed at the divulgation of 3D models of cultural heritage specimens from around the world, as presented by its creators in the previous pages.

Either downloading *.ply* files or deciding for the online experience will be equally helpful to colleagues from all over the globe, by gaining permanent access to the most representative Chiquihuite Cave lithic artifacts on their own computers (see next page for explicative screenshots). Yet, it is important to clarify that the *.ply* files provided here are not compatible with 3D printers. A different type of file is requested for that purpose, and we may be able to provide compatible copies upon reasonable request, but always subjected to the appropriate authorizations from the national heritage authorities in Mexico. We hope all the readers of this publication will have enjoyable experiences.



Screenshots showing artifact nr. 493 opened with MeshLab (*above*), and with Ariadne Visual Media Service, online (*below*), with a few annotations meant to ease the familiarization with the interfaces. For example, if the fake dark color of the MeshLab model shown above is removed using the buttons signaled to the right, it would look more like the version of the model seen in the image below.

Chiquihuite Cave artifact nr. 493 ready



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7

The seventy-seven 3D models of representative stone tools from Chiquihuite Cave

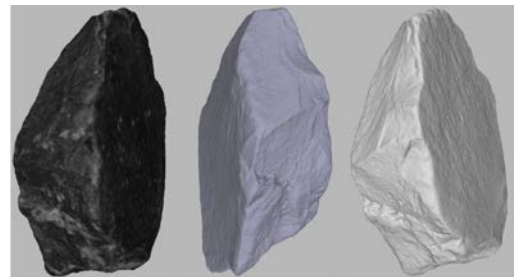
SC-B

post-LGM

7.1. **Artifact #5** (inventory: 1077-12490)

Context: Excavation X-12 (2017), stratum 1204A-B-C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 7, chapter I.1 (Taxon B, core tablet)



3D file name: **CHQ-B_5.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/2/CHQ-B_5.PLY



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1MVEMTFfmnQz5erE5NqIGHaorAcCF7aGm/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-5-0>



7.2. **Artifact #8** (inventory: 1541-12309)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 9-10, chapter I.1 (Taxon B, core)



3D file name: **CHQ-B_8.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/5/CHQ-B_8.PLY



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1F3o8rkHJCwwFwKTEi2p7dEWQDLIY1Brl/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-8>



7.3. **Artifact #9** (inventory: 1896-12318)

Context: Excavation X-12 (2017), stratum 1208, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 10-11, chapter I.1 (Taxon B, core tablet)



3D file name: **CHQ-B_9.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/6/CHQ-B_9.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1SDLdhS7wUvqYj3JaroPhvek41kkL9DZE/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

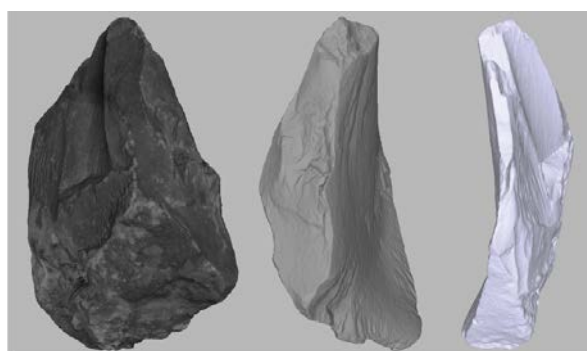
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-9>



7.4. **Artifact #72** (inventory: 1116-12998)

Context: Excavation X-12 (2017), stratum 1204, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 61-62, chapter I.4 (Taxon Dx, flakes with platforms)



3D file name: **CHQ-B_72.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/7/CHQ-B_72.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1IsNpyhaw29LkM1mFdEVTAcrvUmiJ6_E/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-72>



7.5. Artifact #115 (inventory: 1607-12590)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 94, chapter I.4 (Taxon Dx, flakes with platforms)



3D file name: **CHQ-B_115.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/8/CHQ-B_115.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1tRZsYxibShI58yScTCacumxdJLUI3OpC/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-115>



7.6. Artifact #359 (inventory: 1336-12820)

Context: Excavation X-12 (2017), stratum 1203A, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 307-308, chapter I.8 (Taxon F-D,Dx,Dt, modified/used)



3D file name: **CHQ-B_359.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/10/CHQ-B_359.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1zcGhUDq6e_czkrxOxjWPRoDUnLLkSwJU/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

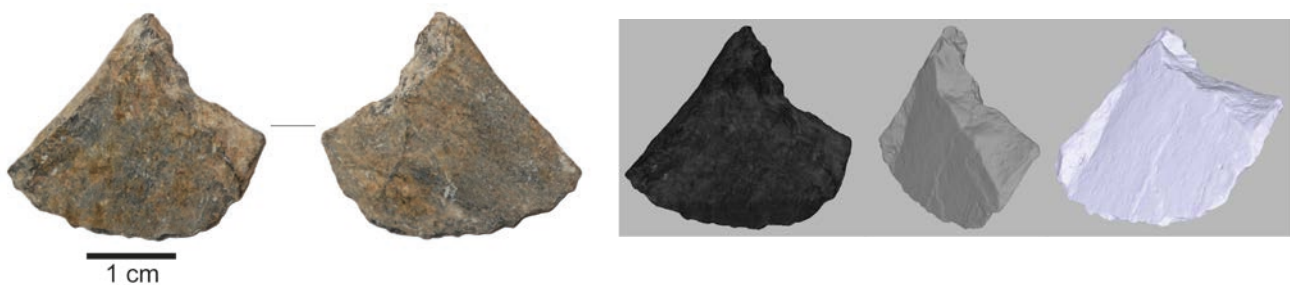
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-359>



7.7. Artifact #373 (inventory: 891-13252)

Context: Excavation X-12 (2017), stratum 1204, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 323-324, chapter I.8 (Taxon F-D,Dx,Dt, modified/used)



3D file name: **CHQ-B_373.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/11/CHQ-B_373.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1jelhRuGACF6y1XHd1frXILjVSCj2y2x4/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

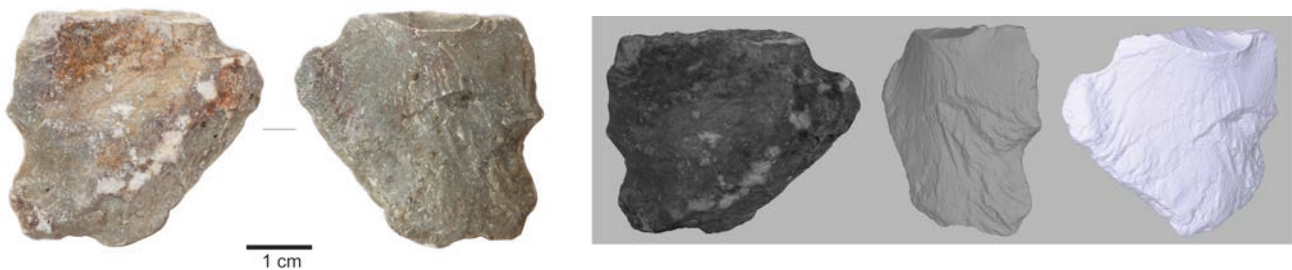
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-373>



7.8. Artifact #393 (inventory: 1184-12507)

Context: Excavation X-12 (2017), stratum 1204D, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 348-349, chapter I.8 (Taxon F-D,Dx,Dt, modified/used)



3D file name: **CHQ-B_393.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/12/CHQ-B_393.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1JR-GTQnJou_IKnnf1acvXmCx2dyJ7oJT/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

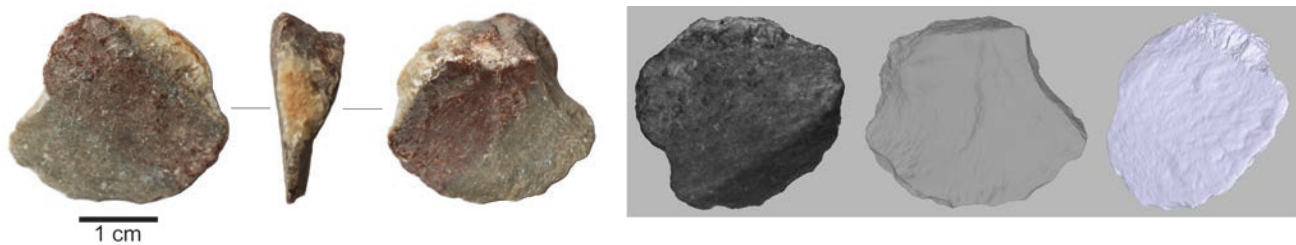
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-393>



7.9. Artifact #408 (inventory: 404-10916)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 366-368, chapter I.8 (Taxon F-D,Dx,Dt, modified/used)



3D file name: **CHQ-B_408.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/13/CHQ-B_408.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1_E2Jd9UD7xHx-4gbU8MxQyx7_1qsF_7r/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

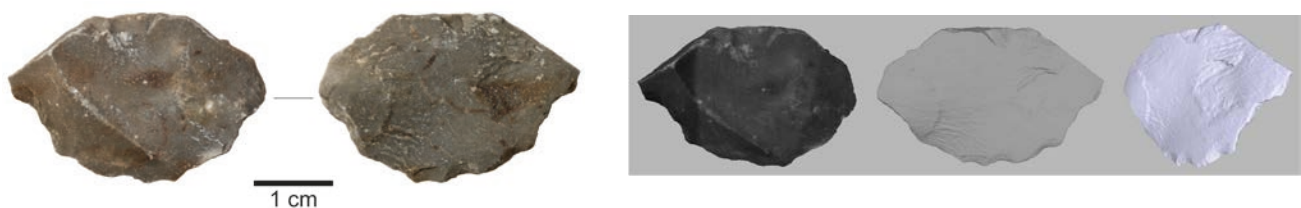
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-408>



7.10. **Artifact #424** (inventory: 1770-13144)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 388-390, chapter I.8 (Taxon F-D,Dx,Dt, modified/used)



3D file name: **CHQ-B_424.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/14/CHQ-B_424.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1iXB7T75YI_vB4whD9gpj-UjhmKi-wpqH/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

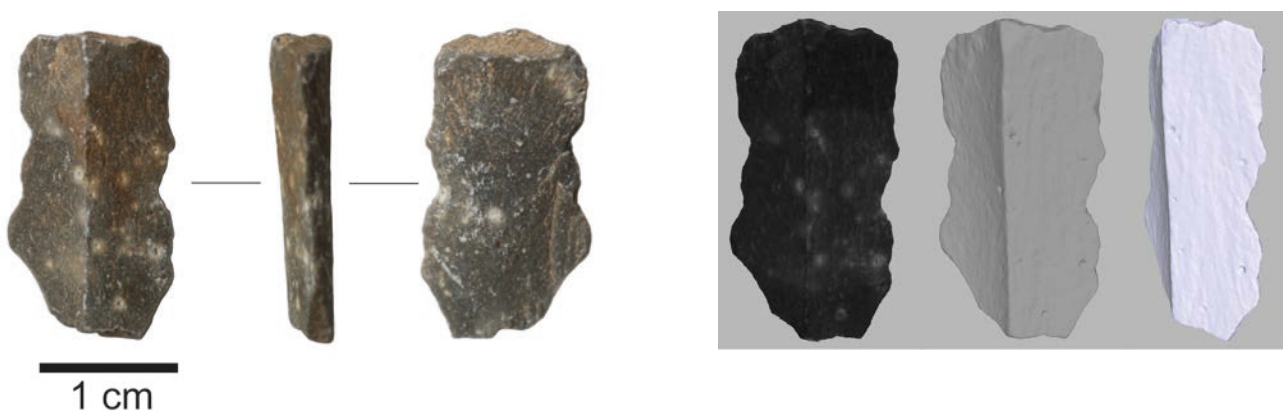
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-424>



7.11. **Artifact #457** (inventory: 1253-13027)

Context: Excavation X-12 (2017), stratum 1204, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 436-437, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_457.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/15/CHQ-B_457.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/16ZYN8QR3tygYImFhIIs5znUBYW95fBw4/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-457>



7.12. **Artifact #481** (inventory: 369-9733)

Context: Excavation X-12 (2016), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 469-471, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_481.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/16/CHQ-B_481.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1OBviks0BEhHRM6VwL-oLwFu6y3QkBGby/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

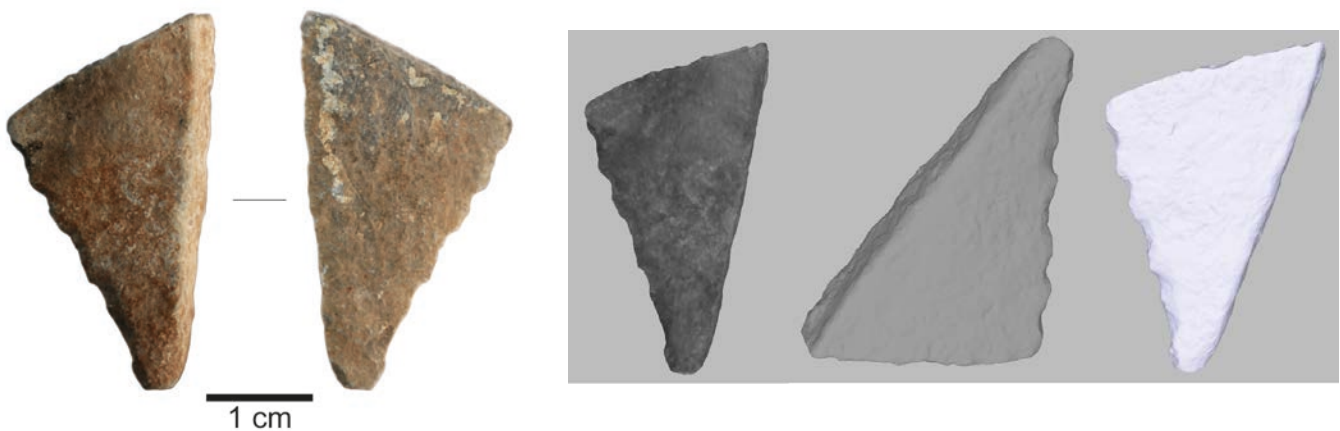
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-481>



7.13. **Artifact #482** (inventory: 273-10601)

Context: Excavation X-12 (2016), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 471-473, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_482.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/17/CHQ-B_482.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/17j4mgRkk7K4zrQQ_kdy0QTXoqISH2XOU/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

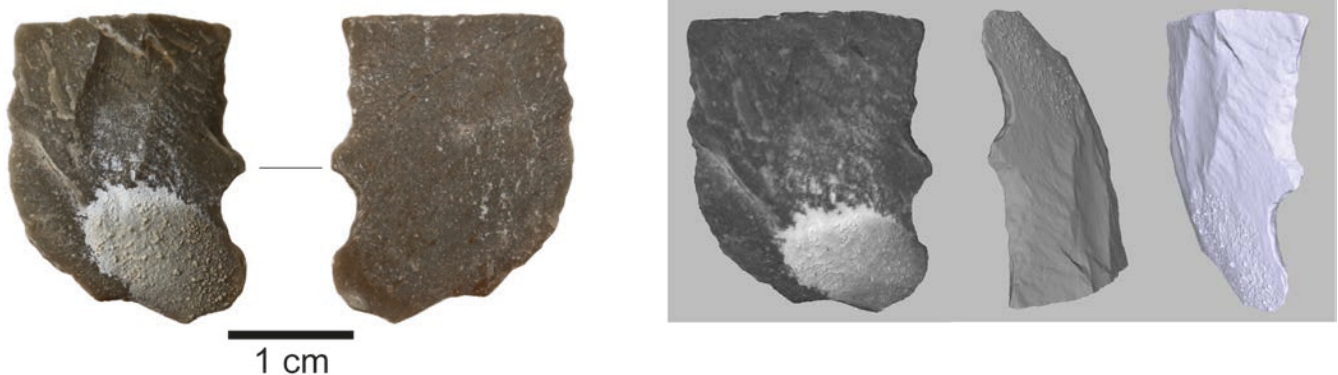
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-482>



7.14. **Artifact #489** (inventory: 1836-12905)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 483-485, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_489.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/18/CHQ-B_489.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1x-GzhdyyOHEqZc1URghgW8J6nvNUWpEn/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-489>



7.15. **Artifact #490** (inventory: 1836-12907)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 485-486, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_490.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/19/CHQ-B_490.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/13J-TgQv-hgMXhkWk7z9gBkz1_1y3qfUi/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

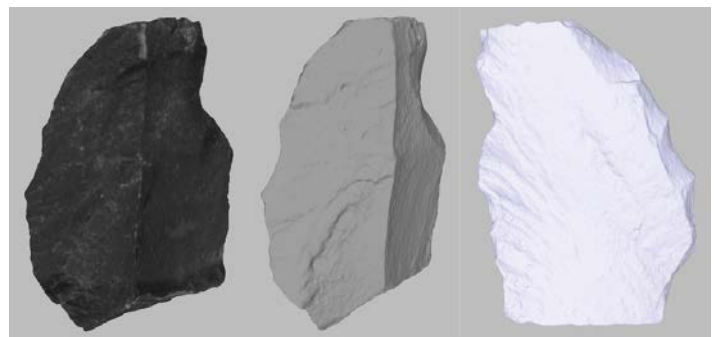
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-490>



7.16. **Artifact #493** (inventory: 1694-13291)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 489-492, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_493.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/20/CHQ-B_493.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1VPkBjJSfuIN_ui3W0Ye1OWTsjWWdblpJ/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

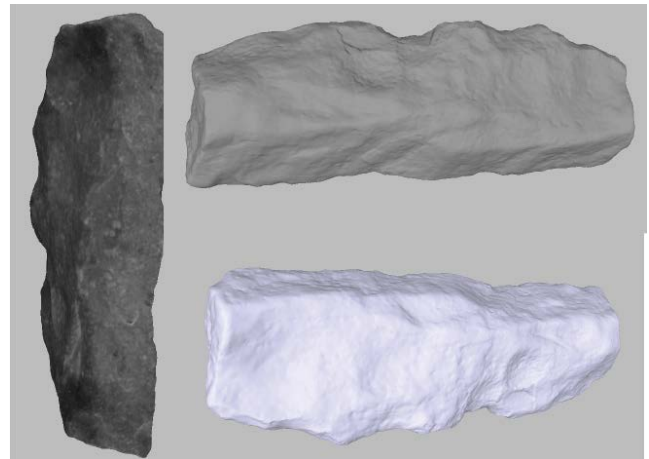
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-493>



7.17. **Artifact #500** (inventory: 1779-13148)

Context: Excavation X-12 (2017), stratum 1207, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 501-503, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_500.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/21/CHQ-B_500.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1viEblqNHMeM7YpJxM2PzExwRHUgMV2um/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

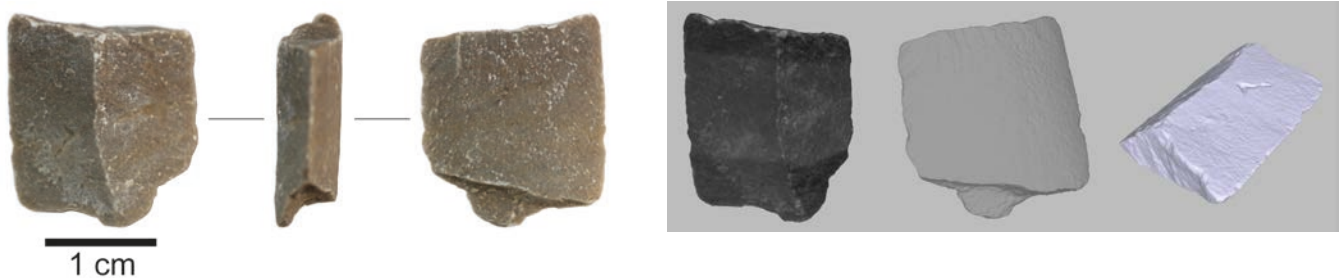
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-500>



7.18. **Artifact #506** (inventory: 1942-12935)

Context: Excavation X-12 (2017), stratum 1207A-B-C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 511-512, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_506.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/22/CHQ-B_506.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1K0rGsEypP-aiqqQjsoK0jtfCHPenJwR3/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

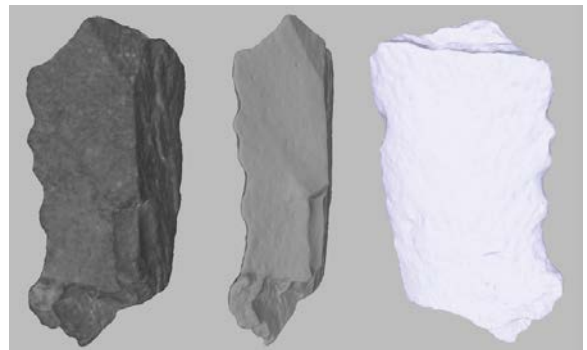
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-506>



7.19. **Artifact #508** (inventory: 312-10652)

Context: Excavation X-12 (2016), stratum 1207C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 514-516, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_508.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/23/CHQ-B_508.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/19MgDwzl83OPR8NAsQ9jEZUie6DdJkFCR/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-508>



7.20. **Artifact #511** (inventory: 1919-13194)

Context: Excavation X-12 (2017), stratum 1208, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 520-521, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_511.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/24/CHQ-B_511.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1gO1VYsmqijFa4P-suWTU3LWgtSEUrmVO/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

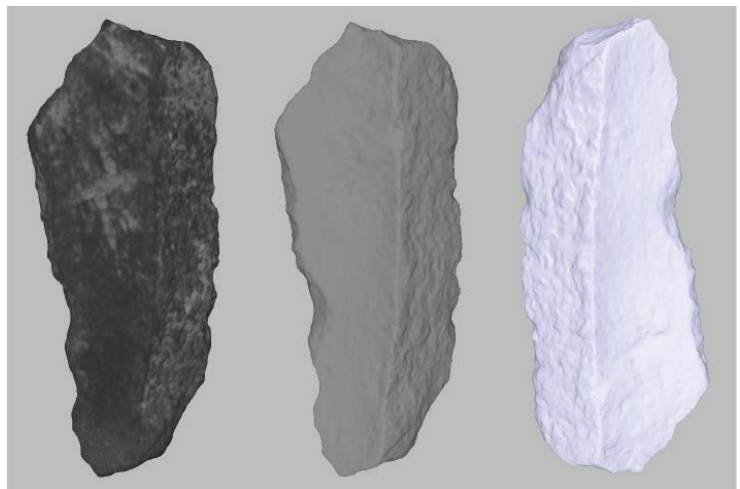
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-511>



7.21. **Artifact #517** (inventory: 202-9335)

Context: Excavation X-12 (2016), stratum 1210, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 531-533, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_517.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/25/CHQ-B_517.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1kQr3QntwQ9SiiAVoObdD-udMN9EHpXMN/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

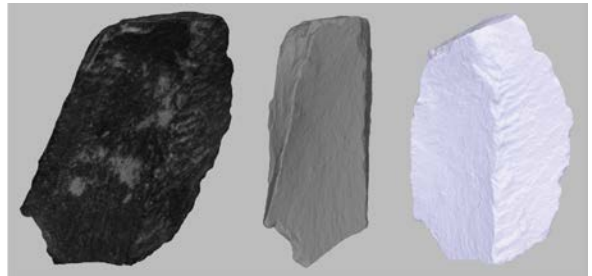
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-517>



7.22. **Artifact #520** (inventory: 425-10966)

Context: Excavation X-12 (2016), stratum 1210, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 537-538, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_520.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/26/CHQ-B_520.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1KS2KmcJ6JVkt_afsCdTHjchIASyyHx0w/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-520>



7.23. **Artifact #521** (inventory: 450-11024)

Context: Excavation X-12 (2016), stratum 1210, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 538-541, chapter I.9 (Taxon F-E, Ef, modified/used blades)



3D file name: **CHQ-B_521.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/27/CHQ-B_521.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1gkmxrluaiE09-l1tng-z4UJUmlrGx7Py/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

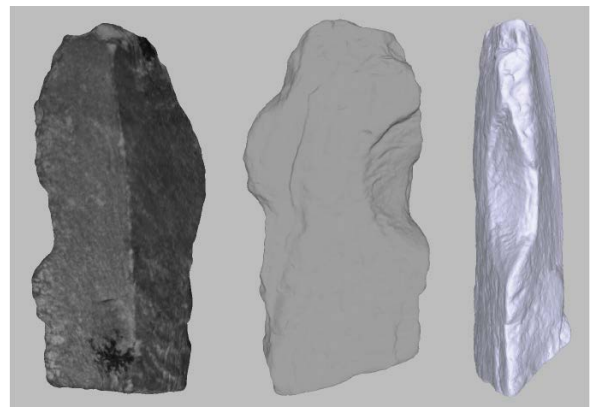
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-521>



7.24. **Artifact #524** (inventory: 1409-13054)

Context: Excavation X-12 (2017), stratum 1204A-B-C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 545-547, chapter I.10 (Taxon G, scrapers)



3D file name: **CHQ-B_524.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/28/CHQ-B_524.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1DOykfAd0cxu3BQIPuizuOEsRfck7Q-KN/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

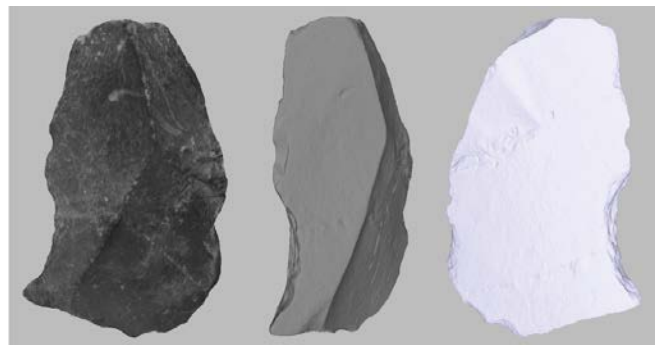
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-524>



7.25. **Artifact #527** (inventory: 1990-12735)

Context: Excavation X-12 (2017), stratum 1207, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 549-552, chapter I.10 (Taxon G, scrapers)



3D file name: **CHQ-B_527.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/29/CHQ-B_527.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/15eRIgqUZPvwkXmb5NtF3UyLebLAzGfV/_view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-527>



7.26. **Artifact #528** (inventory: 167-9233)

Context: Excavation X-12 (2016), stratum 1207A, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 552-529, chapter I.10 (Taxon G, scrapers)



3D file name: **CHQ-B_528.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/30/CHQ-B_528.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1RV44GRFZGiPjz_HiJnpZRbOWViaFGivQ/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

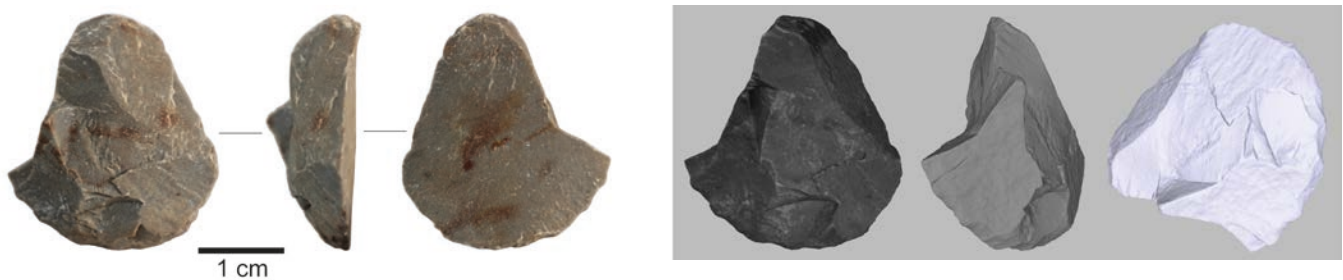
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-528>



7.27. **Artifact #529** (inventory: 319-10657)

Context: Excavation X-12 (2016), stratum 1208, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 554-556, chapter I.10 (Taxon G, scrapers)



3D file name: **CHQ-B_529.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/31/CHQ-B_529.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1B9AD-EO-LFUrlR3aEEZ3thT_-Ulp5bkW/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-529>



7.28. **Artifact #540** (inventory: 1055-13261)

Context: Excavation X-12 (2017), stratum 1204?, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 570-572, chapter I.11 (Taxon Hf, points on flake)



3D file name: **CHQ-B_540.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/32/CHQ-B_540.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1RVWwD594ucNEfOmLerWvBM-CVbTLyjmz/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

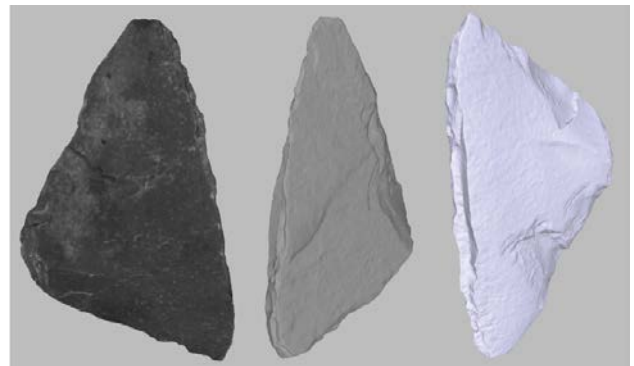
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-540>



7.29. **Artifact #543** (inventory: 1202-13012)

Context: Excavation X-12 (2017), stratum 1204A-B-C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 574-576, chapter I.11 (Taxon Hf, points on flake)



3D file name: **CHQ-B_543.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/33/CHQ-B_543.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1s6lZQm3WzDJJ-cl291kuz_qk0n0LsLEy/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-543>



7.30. **Artifact #547** (inventory: 370-9734)

Context: Excavation X-12 (2016), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 581-583, chapter I.11 (Taxon Hf, points on flake)



3D file name: **CHQ-B_547.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/34/CHQ-B_547.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1dhzFVNmvHTyF_PTpYQQJNu9KP71GwBnA/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

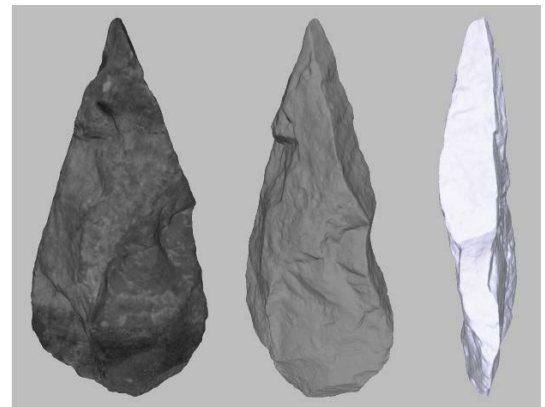
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-547>



7.31. **Artifact #567** (inventory: 1554-13487)

Context: Excavation X-12 (2017), stratum 1204A-B-C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 607-608, chapter I.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_567.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/35/CHQ-B_567.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1Uq0wSzZ9nxCtuTuig1Nd8olSgBcHbh9b/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

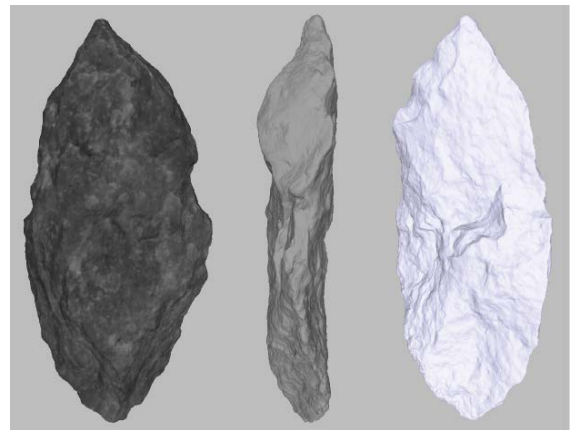
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-567>



7.32. **Artifact #568** (inventory: 1838-13567)

Context: Excavation X-12 (2017), stratum 1204A-B-C, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 608-609, chapter I.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_568.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/36/CHQ-B_568.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1Guz6C9P53yBYccaOTk83v5tfgLKEMPDv/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

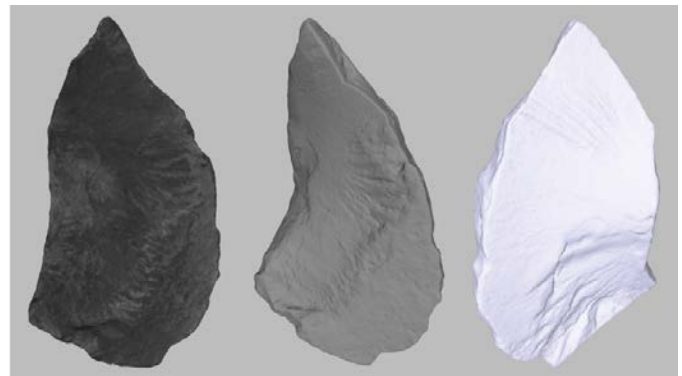
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-568>



7.33. **Artifact #570** (inventory: 336-10662)

Context: Excavation X-12 (2016), stratum 1204C?, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 611-613, chapter I.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_570.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/37/CHQ-B_570.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/111j-pOZdYqtFDlkvwQJjGvVIYHoQ4AaQ/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

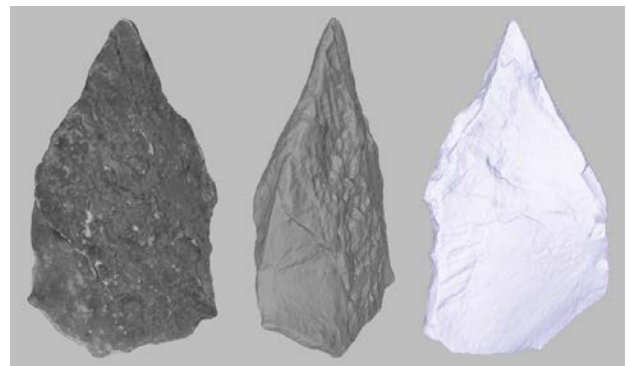
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-570>



7.34. **Artifact #572** (inventory: 1783-13558)

Context: Excavation X-12 (2017), stratum 1204D, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 615-616, chapter I.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_572.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/38/CHQ-B_572.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1D6nspiBTQyU-Ys7Ab2fWRPDoKJMqPSg/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-572>



7.35. **Artifact #580** (inventory: 1422-13448)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 627-628, chapter I.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_580.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/39/CHQ-B_580.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/13cTg-LfxdKf64QGJswPUz1y_MKLurLWI/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

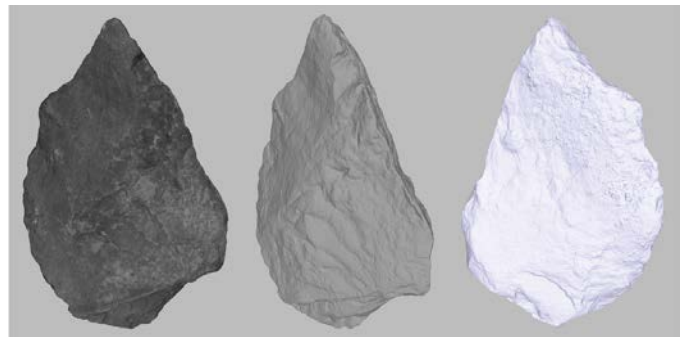
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-580>



7.36. **Artifact #586** (inventory: 327-10660)

Context: Excavation X-12 (2016), stratum 1209, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 636-637, chapter I.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_586.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/40/CHQ-B_586.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/17Ot-E14RH2fzrJiGjVx6k94OVzF4otef/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

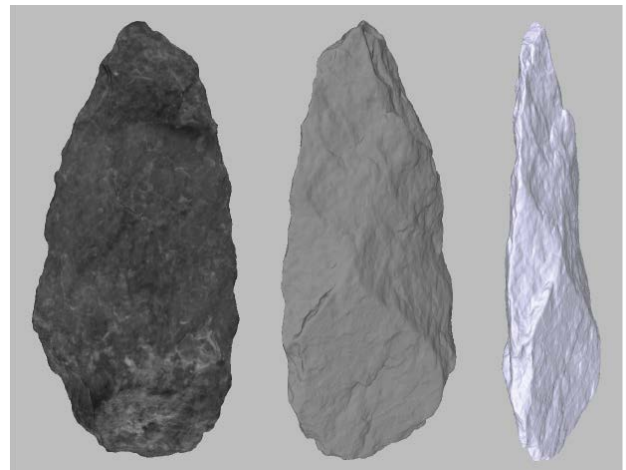
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-586>



7.37. **Artifact #598** (inventory: 279-9539)

Context: Excavation X-12 (2016), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 653-655, chapter I.13 (Taxa Hk, Hj, bifaces and preforms)



3D file name: **CHQ-B_598.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/41/CHQ-B_598.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1_r0eu89hjrccUVSszQ2GZVMleZy6PWN_/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

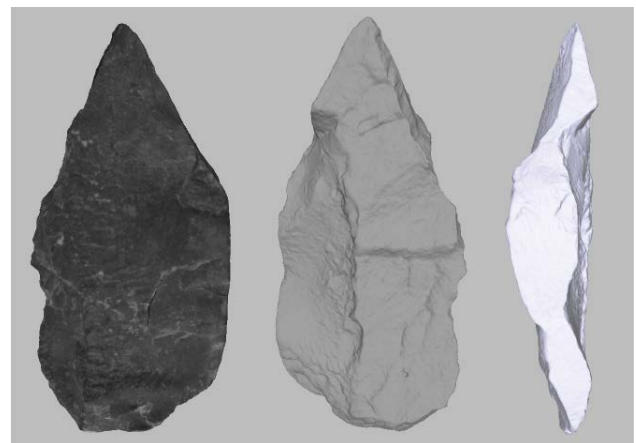
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-598>



7.38. **Artifact #603** (inventory: 1925-13709)

Context: Excavation X-12 (2017), stratum 1209, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 662-664, chapter I.13 (Taxa Hk, Hj, bifaces and preforms)



3D file name: **CHQ-B_603.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/42/CHQ-B_603.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1bIUyolBbbDfIS7agEL1_IDCEPa_GwQRr/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

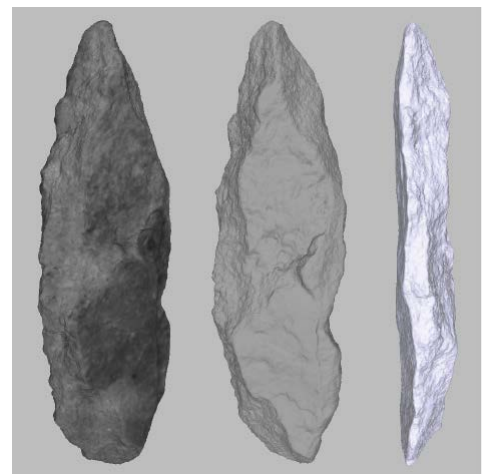
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-603>



7.39. **Artifact #608** (inventory: 1437-13746)

Context: Excavation X-12 (2017), stratum 1204, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 670-672, chapter I.14 (Taxa HL, Hm, on plaquette, effigies)



3D file name: **CHQ-B_608.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/43/CHQ-B_608.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1Mu24LF6_kaqy-oguQMMaq-ae7hC6daSj/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

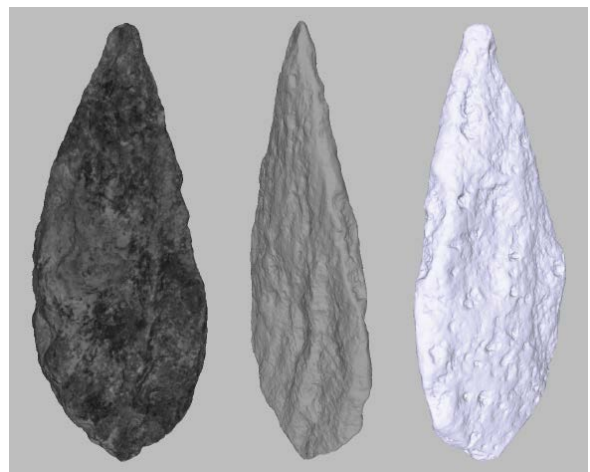
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-608>



7.40. **Artifact #609** (inventory: 406-9792)

Context: Excavation X-12 (2016), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 672-673, chapter I.14 (Taxa HL, Hm, on plaquette, effigies)



3D file name: **CHQ-B_609.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/44/CHQ-B_609.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1NB0WY7H367Plvmzn-K1ZjvtWwzkGd5ba/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

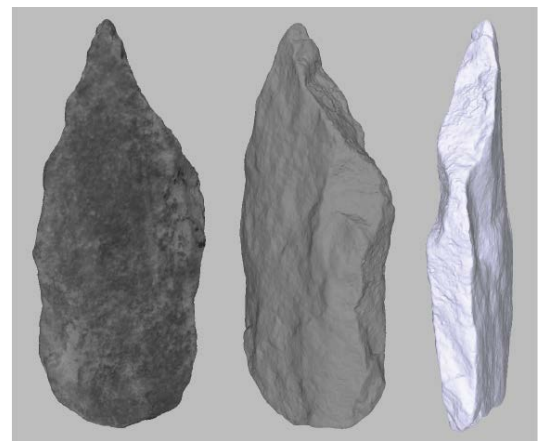
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-609>



7.41. **Artifact #610** (inventory: 1596-13750)

Context: Excavation X-12 (2017), stratum 1206, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 673-675, chapter I.14 (Taxa HL, Hm, on plaquette, effigies)



3D file name: **CHQ-B_610.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/45/CHQ-B_610.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1rLgw5V6FXrBoMLlyggsKkj2JrtbwQMWY/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

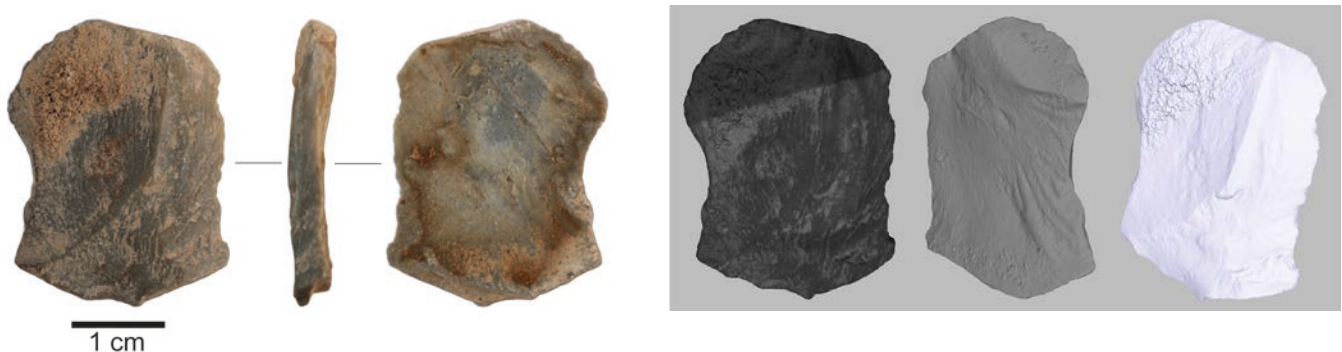
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-610>



7.42. **Artifact #898** (inventory: 4224-16870)

Context: Excavation X-16 (2019), stratum 1604A/1604, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 984-986, chapter II.9 (Taxon F-E, Ef, tool on blade)



3D file name: **CHQ-B_898.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/46/CHQ-B_898.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1fTZRCf1R5VotxXI2pNTbPNLeQh4IFB34/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

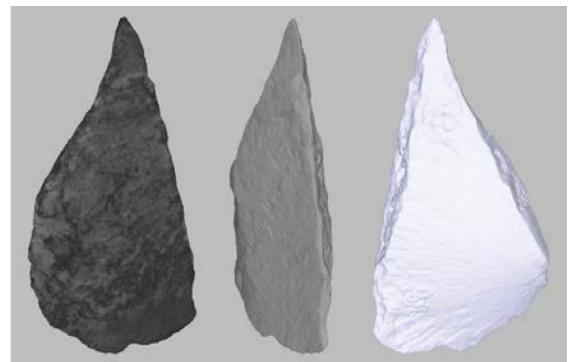
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-898>



7.43. **Artifact #929** (inventory: 2255-17228)

Context: Excavation X-16 (2019), stratum 1602, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 1020-1021, chapter II.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_929.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/47/CHQ-B_929.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1AuF-_MER4ZhiDhE2WSv2VkJtaDjGn2dW/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

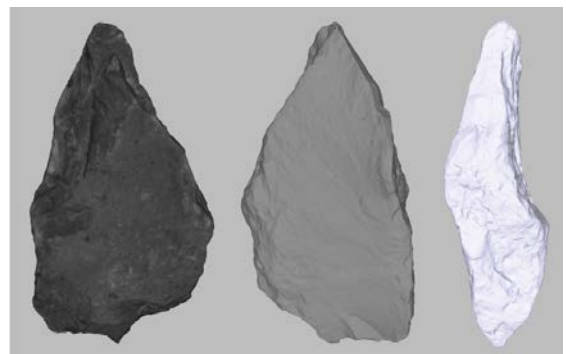
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-929>



7.44. **Artifact #937** (inventory: 2697-17271)

Context: Excavation X-16 (2019), stratum 1604A, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 1029-1030, chapter II.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_937.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/48/CHQ-B_937.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1ijBpV1ppSD8bKE0yYR7Fu6A62k3yl6pu/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

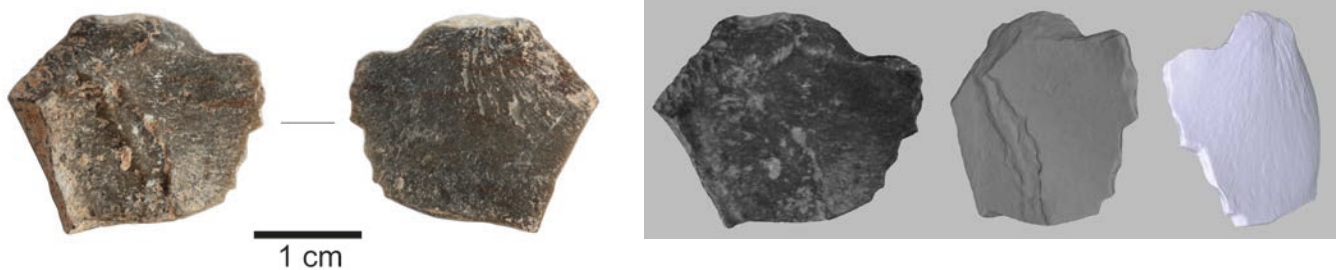
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-937>



7.45. **Artifact #974** (inventory: 4487-17457)

Context: Excavation X-17 (2019), stratum 1705, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 1071-1072, chapter III.3 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_974.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/49/CHQ-B_974.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1UUna_vv9z95c9hwK9yuF8pLxNzTglDAA/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

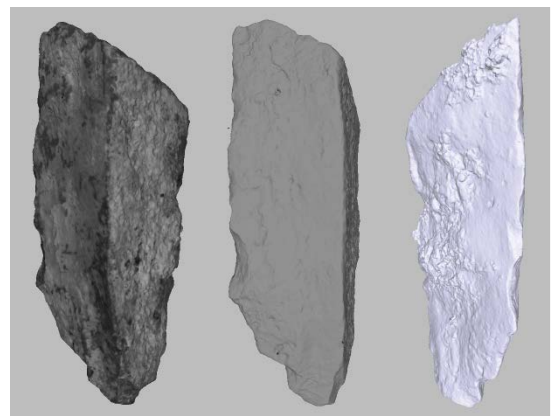
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-974>



7.46. **Artifact #976** (inventory: 4427A-17450)

Context: Excavation X-17 (2019), stratum 1705, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 1074-1075, chapter III.4 (Taxon F-E, Ef, tools on blade)



3D file name: **CHQ-B_976.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/50/CHQ-B_976.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1DOvZolFifsMQq9HxFeRRg29yDNSdK7dt/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

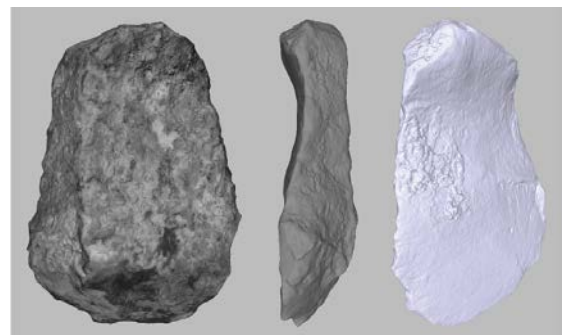
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-976>



7.47. **Artifact #977** (inventory: 4416-17446)

Context: Excavation X-17 (2019), stratum 1703, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 1076-1078, chapter III.5 (Taxon G, scraper)



3D file name: **CHQ-B_977.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/51/CHQ-B_977.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1ZzugQoDWZonQ6QLKlaureV_55SubyiUC/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

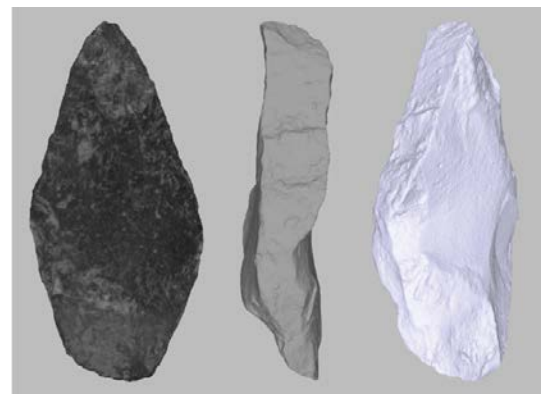
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-977>



7.48. **Artifact #980** (inventory: 4419-17448)

Context: Excavation X-17 (2019), stratum 1704/1705, stratigraphic component B (SC-B)

See details in: Ardelean, 2022: 1083-1085, chapter III.8 (Taxon Hk, bifaces or preforms)



3D file name: **CHQ-B_980.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/52/CHQ-B_980.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1Ct5AHN0bdMXfv7W8K3GPY88pN-C-wv9/_view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

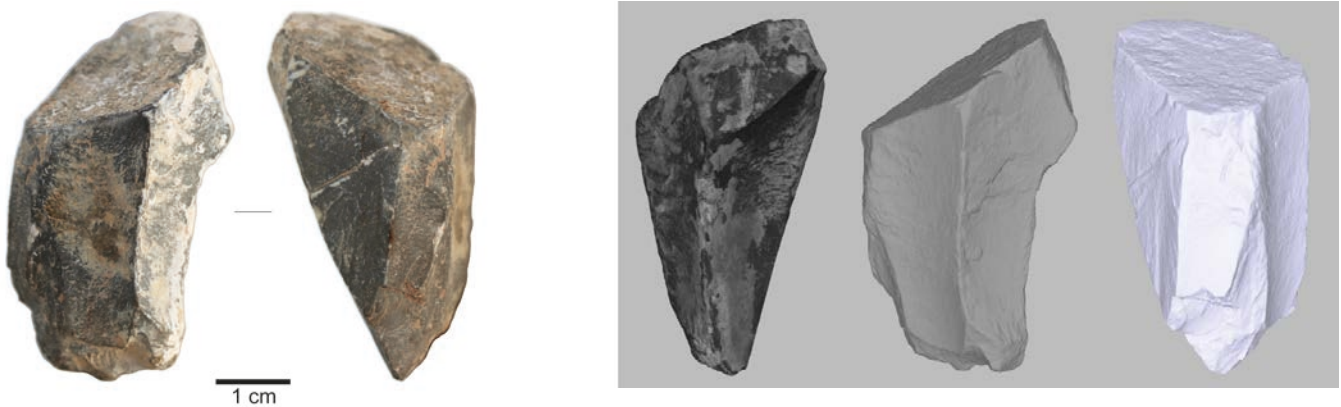
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-980>



7.49. **Artifact #981** (inventory: 649-12283)

Context: Excavation X-12 (2016), stratum 1222, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1086-1087, chapter IV.1 (Taxon B, cores)



3D file name: **CHQ-B_981.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/54/CHQ-C_981.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1fLOEO0DAP9Mu-z7gGfRCMFgOyamtpfUJ/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

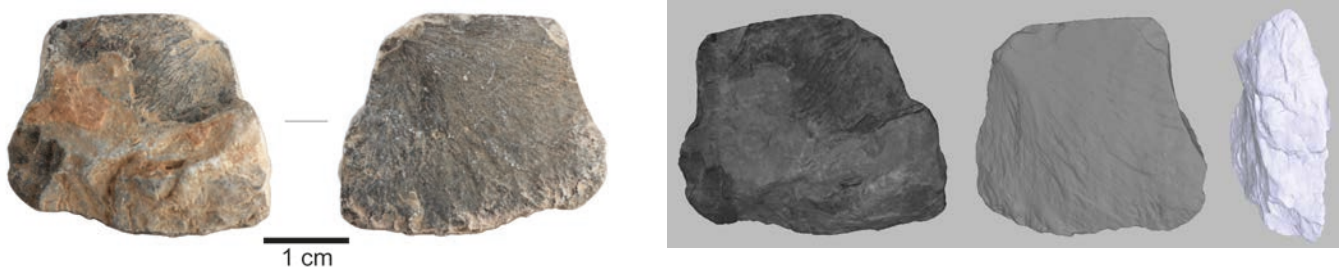
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-981>



7.50. **Artifact #989** (inventory: 425-10970)

Context: Excavation X-12 (2016), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1096-1097, chapter IV.4 (Taxon Dx, flakes with platforms)



3D file name: **CHQ-B_989.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/55/CHQ-C_989.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1KYMMn8olZk4soCkdwwiVX6RNEBd2huUj/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

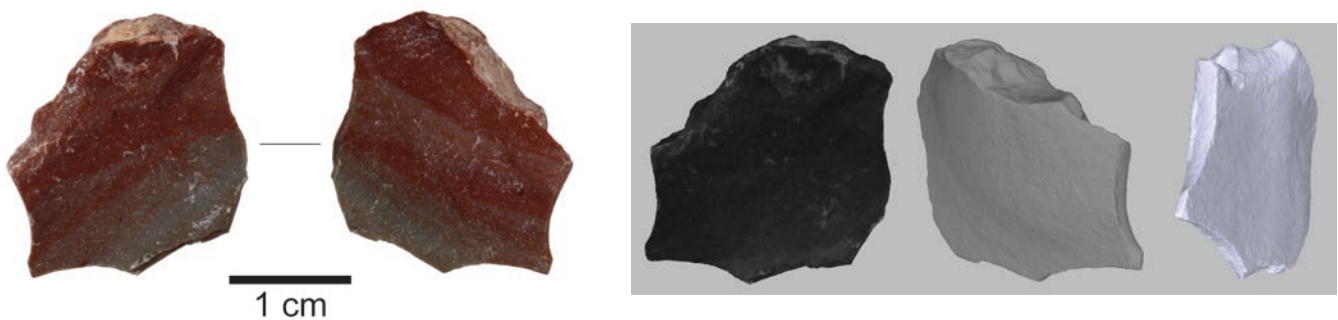
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-989>



7.51. **Artifact #1003** (inventory: 2132-13241)

Context: Excavation X-12 (2017), stratum 1222, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1110-1111, chapter IV.4 (Taxon Dx, flakes with platforms)



3D file name: **CHQ-B_1003.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/56/CHQ-C_1003.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1Mlw4-aYp2VbLS7WnjU4goRLGNp4Q37I/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

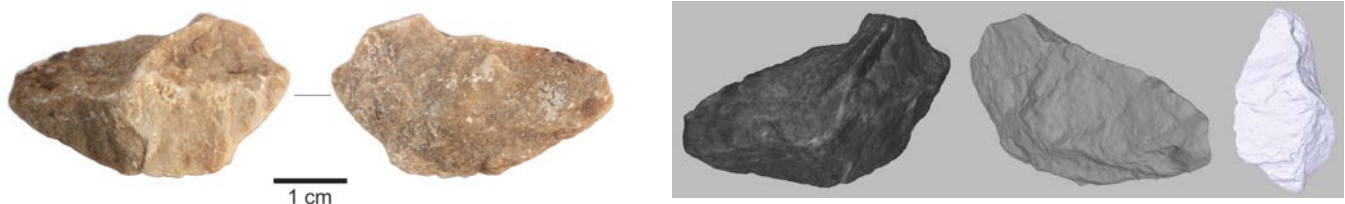
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1003>



7.52. **Artifact #1006** (inventory: 471-11066)

Context: Excavation X-12 (2016), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1114-1115, chapter IV.5 (Taxon Dt, transversal flakes)



3D file name: **CHQ-B_1006.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/57/CHQ-C_1006.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/13zLzZ_lqRgH64QWa1GtJ3F5vewoEu-cm/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

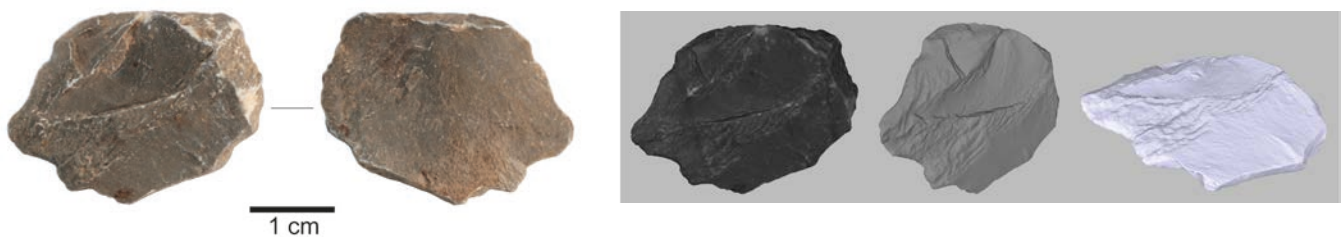
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1006>



7.53. **Artifact #1013** (inventory: 2153-13244)

Context: Excavation X-12 (2017), stratum 1218, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1120-1121, chapter IV.5 (Taxon Dt, transversal flakes)



3D file name: **CHQ-B_1013.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/58/CHQ-C_1013.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1pcitQfqwDLHotS5C9XCnfWpfm9IDdnry/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

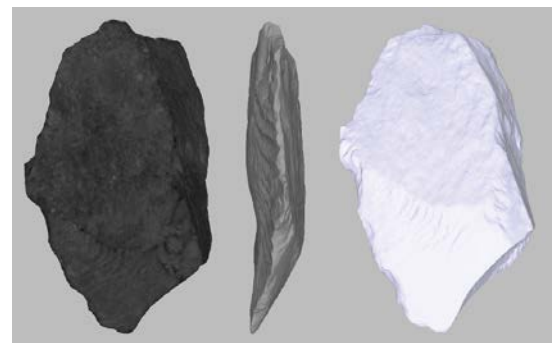
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1013>



7.54. **Artifact #1016** (inventory: 484-9937)

Context: Excavation X-12 (2016), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1125-1126, chapter IV.6 (Taxon Ef, blade-like flakes)



3D file name: **CHQ-B_1016.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/59/CHQ-C_1016.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1qv5pcZ1eRhKimQA8iCF5C1aXabbCE4I1/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

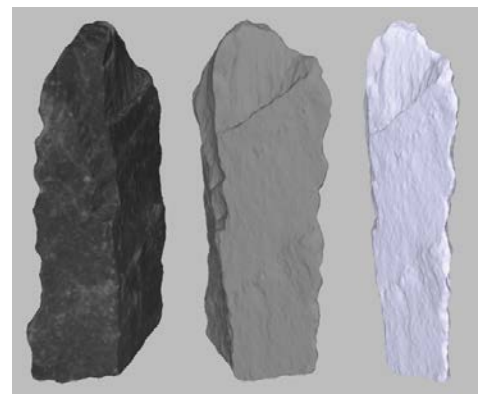
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1016>



7.55. **Artifact #1021** (inventory: 487-1115)

Context: Excavation X-12 (2016), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1131-1132, chapter IV.7 (Taxon E, blades)



3D file name: **CHQ-B_1021.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/60/CHQ-C_1021.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1qHrpCgFTAG3UySIZ7_oe_-6LjuL0glz-/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

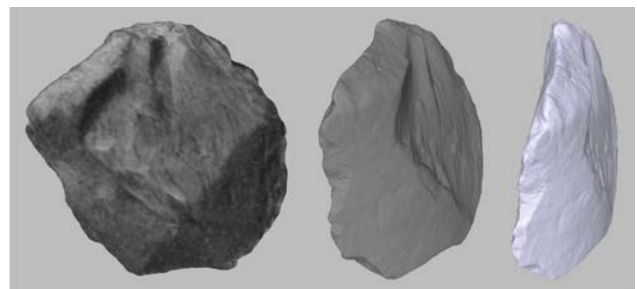
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1021>



7.56. **Artifact #1028** (inventory: 487-1118)

Context: Excavation X-12 (2016), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1139-1140, chapter IV.8 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1028.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/61/CHQ-C_1028.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1oPRUifiChdrdAL8c83bMfHa46G20hO6r/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

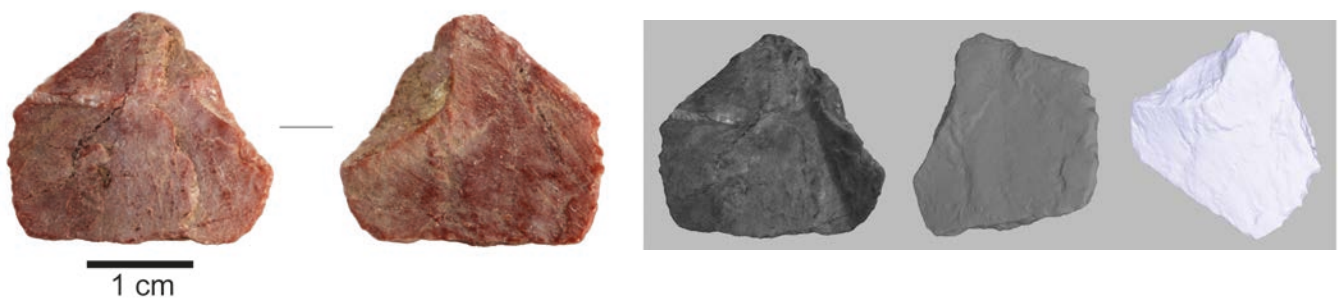
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1028>



7.57. **Artifact #1029** (inventory: 492-11133)

Context: Excavation X-12 (2016), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1140-1142, chapter IV.8 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1029.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/62/CHQ-C_1029.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1RyirUvaAqiaZfs_B7TKJis34s4oY97gO/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

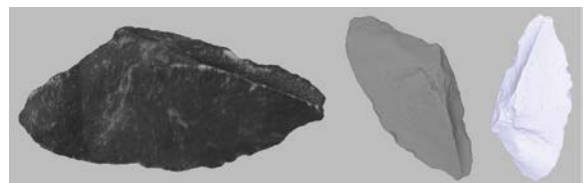
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1029>



7.58. **Artifact #1031** (inventory: 2008-13220)

Context: Excavation X-12 (2017), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1144-1145, chapter IV.8 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1031.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/63/CHQ-C_1031.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1MRGpVFvmtbGiEZ8_3aZ0wNm2UBnqXEjA/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

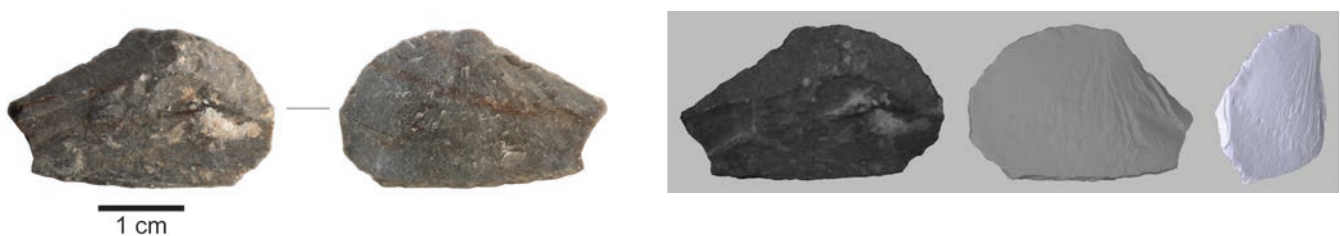
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1031>



7.59. **Artifact #1034** (inventory: 2161-13247)

Context: Excavation X-12 (2017), stratum 1219, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1148-1149, chapter IV.8 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1034.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/64/CHQ-C_1034.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1ERrRei8dJgGgy0dpVxzdsW8A8-xvtN7P/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1034>



7.60. **Artifact #1040** (inventory: 573-10065)

Context: Excavation X-12 (2016), stratum 1223, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1156-1158, chapter IV.8 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1040.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/65/CHQ-C_1040.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/14i2ovhBxU87s2HO_zVOJ5YGhRQAnZ10S/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1040>



7.61. **Artifact #1043** (inventory: 472-11070)

Context: Excavation X-12 (2016), stratum 1217, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1162-1163, chapter IV.9 (Taxon F-Ef, E, tools on blade)



3D file name: **CHQ-B_1043.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/66/CHQ-C_1043.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1BXVNSA3a-qnTy2DIW0KEjx-aDxlaySdG/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

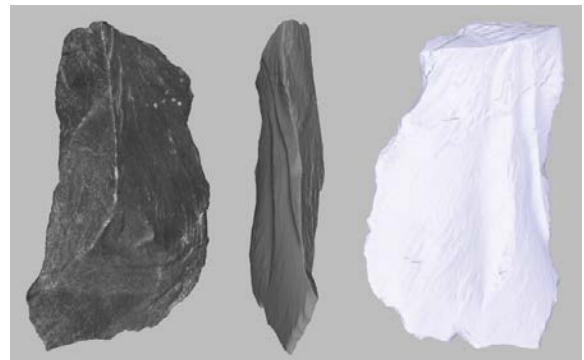
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1043>



7.62. **Artifact #1044** (inventory: 2095-13235)

Context: Excavation X-12 (2017), stratum 1218, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1163-1165, chapter IV.9 (Taxon F-Ef, E, tools on blade)



3D file name: **CHQ-B_1044.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/67/CHQ-C_1044.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1eDFqC7Cxa2xQitbKPtm8PD52GhBeDoBE/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

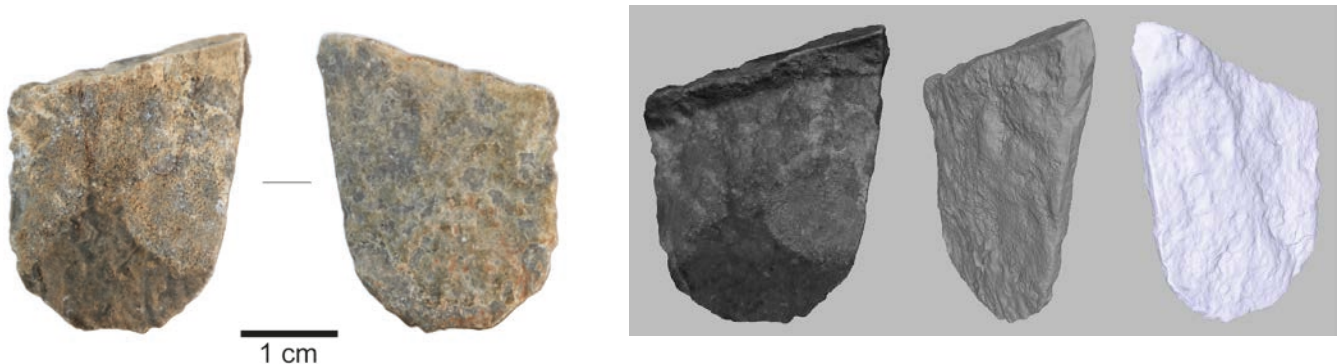
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1044>



7.63. **Artifact #1045** (inventory: 2157-13246)

Context: Excavation X-12 (2017), stratum 1219, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1165-1166, chapter IV.9 (Taxon F-Ef, E, tools on blade)



3D file name: **CHQ-B_1045.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/68/CHQ-C_1045.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

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Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

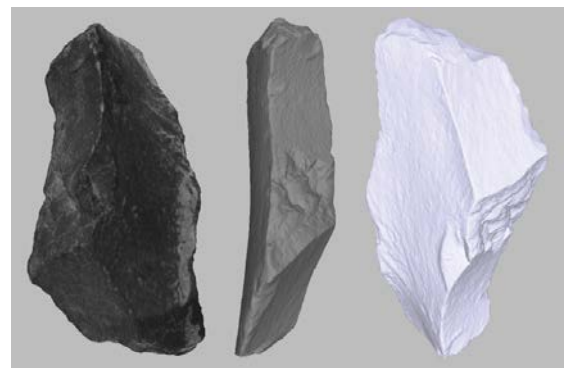
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1045>



7.64. **Artifact #1049** (inventory: 582-11804)

Context: Excavation X-12 (2016), stratum 1222, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1171-1173, chapter IV.10 (Taxon G, scrapers)



3D file name: **CHQ-B_1049.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/69/CHQ-C_1049.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

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Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

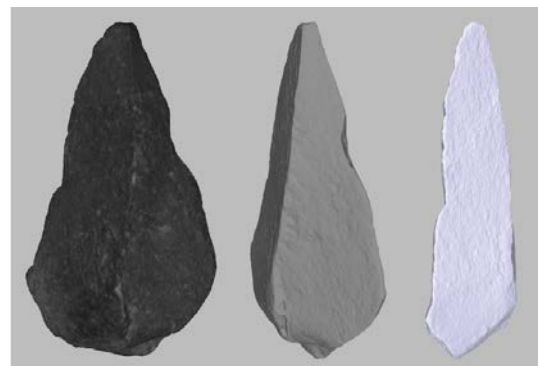
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1049>



7.65. **Artifact #1060** (inventory: 484-9944)

Context: Excavation X-12 (2016), stratum 1217, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1188-1189, chapter IV.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_1060.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/70/CHQ-C_1060.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

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Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

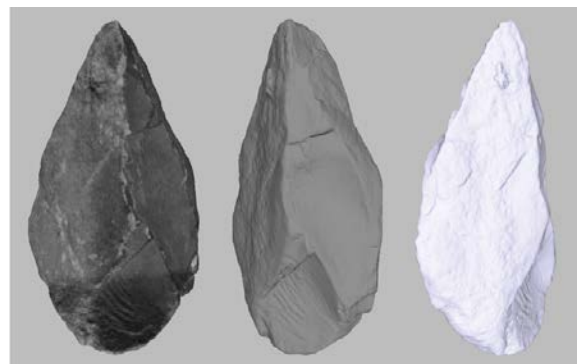
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1060>



7.66. **Artifact #1061** (inventory: 2104-13596)

Context: Excavation X-12 (2017), stratum 1218, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1189-1191, chapter IV.12 (Taxon Ht, transversal points)



3D file name: **CHQ-B_1061.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/71/CHQ-C_1061.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

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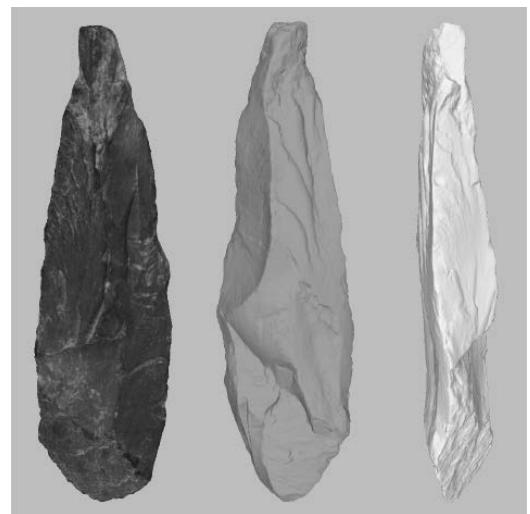
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1061>



7.67. **Artifact #1069** (inventory: 570-10056)

Context: Excavation X-12 (2016), stratum 1223, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1201-1202, chapter IV.13 (Taxon HK, bifaciales, preformas)



3D file name: **CHQ-B_1069.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/72/CHQ-C_1069.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

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Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

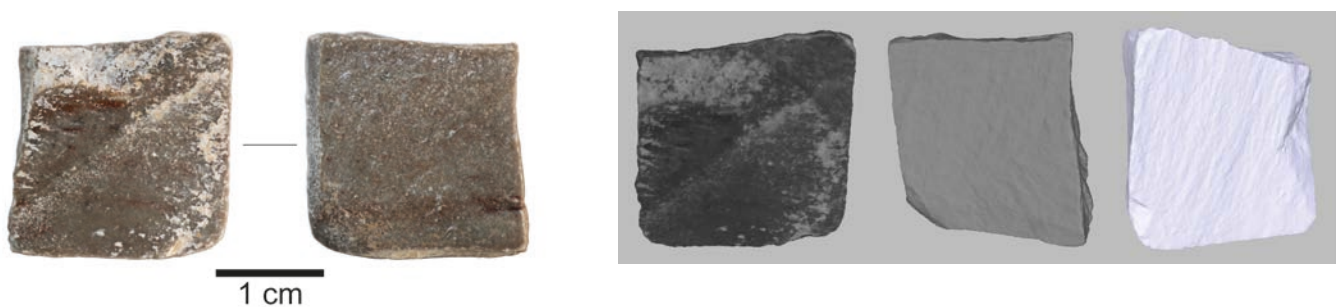
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1069>



7.68. **Artifact #1074** (inventory: 2107-13778)

Context: Excavation X-12 (2017), stratum 1212, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1209-1210, chapter IV.15 (Taxon O, Geometrics)



3D file name: **CHQ-B_1074.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/73/CHQ-C_1074.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1ZDfoB9L5XYTyrbG5ZH_GXBY7AzF_v39z/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

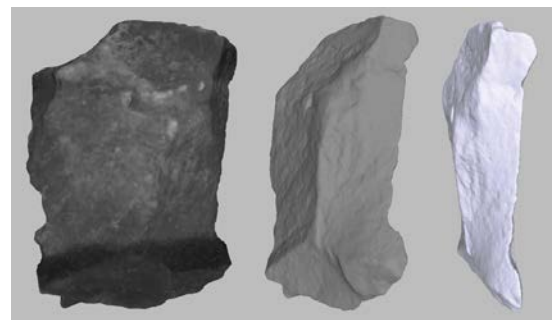
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1074>



7.69. **Artifact #1094** (inventory: 4288-17012)

Context: Excavation X-16 (2019), stratum 1606/1609, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1234-1235, chapter V.4 (Taxon Ef, blade-like flakes)



3D file name: **CHQ-B_1094.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/74/CHQ-C_1094.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1NtlCkOZEB3kmT4OCz6TNu70ei6XwjaMR/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1094>



7.70. **Artifact #1098** (inventory: 2185-17218)

Context: Excavation X-16 (2019), stratum 1606, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1240-1241, chapter V.4 (Taxon E, blades)



3D file name: **CHQ-B_1098.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/75/CHQ-C_1098.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

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Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

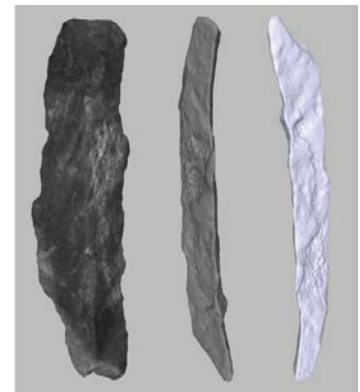
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1098>



7.71. **Artifact #1099** (inventory: 2700-17043)

Context: Excavation X-16 (2019), stratum 1606, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1241-1242, chapter V.4 (Taxon E, blades)



3D file name: **CHQ-B_1099.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/76/CHQ-C_1099.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1xF8VMu9Ntl-aKssk3AobsyJjSGSmJYVt/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

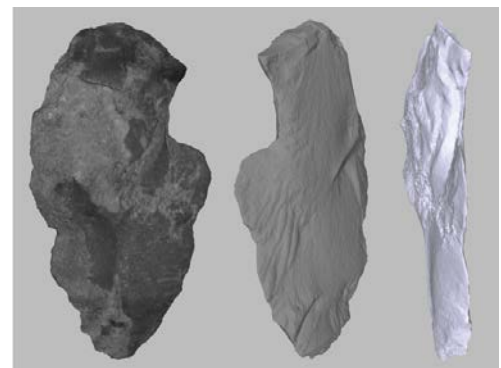
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1099>



7.72. **Artifact #1118** (inventory: 4301-17015)

Context: Excavation X-16 (2019), stratum 1609, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1262-1263, chapter V.4 (Taxon E, blades)



3D file name: **CHQ-B_1118.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/77/CHQ-C_1118.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1bOOBJ5pabecUD5Ed2doJwwvZDs3ot2Gq/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

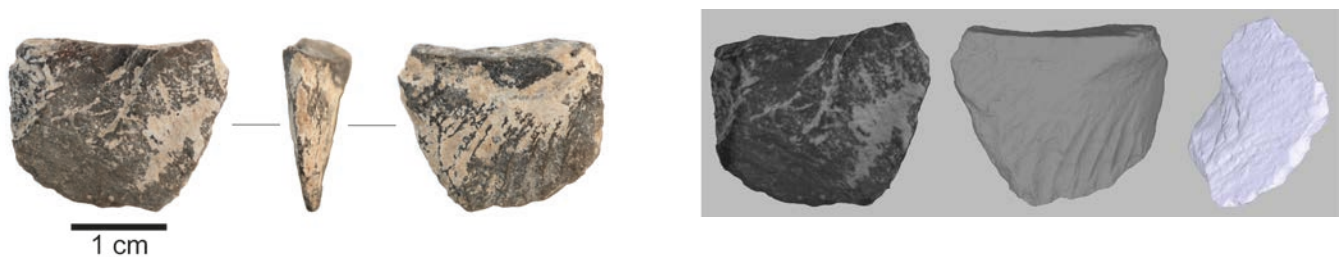
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1118>



7.73. **Artifact #1122** (inventory: 3988-17192)

Context: Excavation X-16 (2019), stratum 1606, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1267-1269, chapter V.6 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1122.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/78/CHQ-C_1122.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1G5Dwx1MuZ3f7FJb7Gcgw_8knuWoep4wU/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

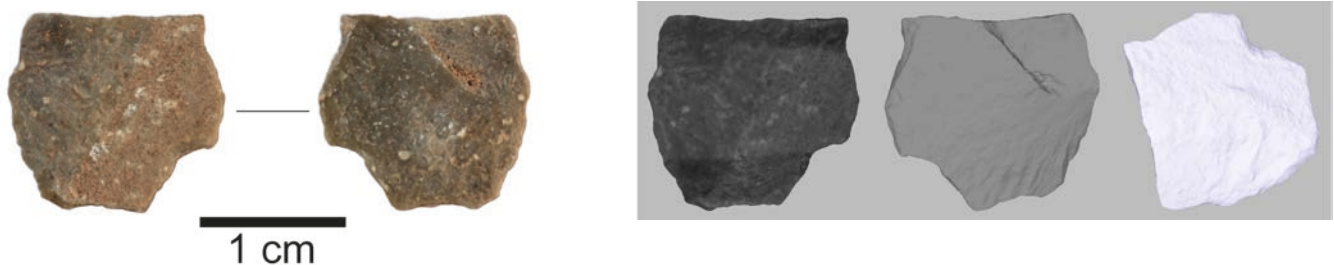
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1122>



7.74. **Artifact #1125** (inventory: 2242-16369)

Context: Excavation X-16 (2019), stratum 1606, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1272-1274, chapter V.6 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1125.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/79/CHQ-C_1125.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1g3FBzk_10RgyKqRQIXEldRYKmwii3eg1/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

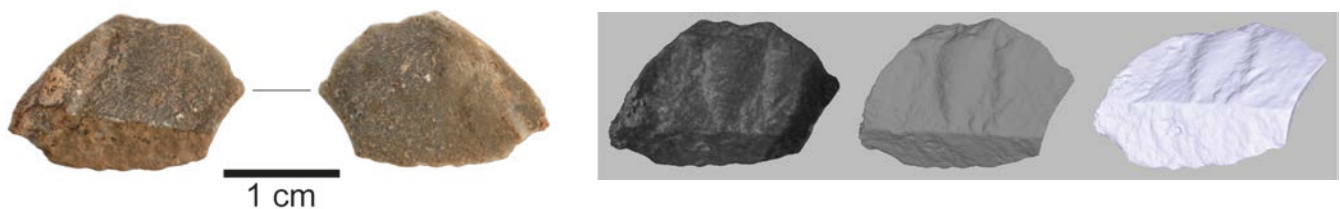
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1125>



7.75. **Artifact #1126** (inventory: 3095-16489)

Context: Excavation X-16 (2019), stratum 1606, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1274-1275, chapter V.6 (Taxon F-D,Dx,Dt, modified, used)



3D file name: **CHQ-B_1126.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/80/CHQ-C_1126.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

https://drive.google.com/file/d/1ZBypTp3syv_u4-ONsDMaPf7UYOtYOea1/view?usp=sharing



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

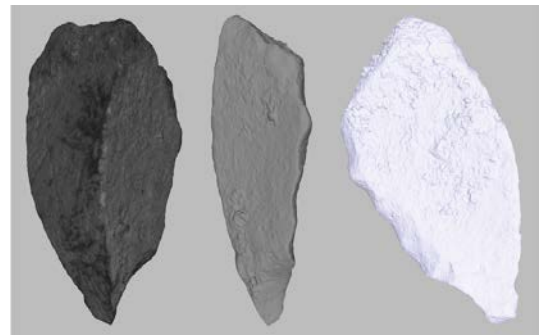
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1126>



7.76. **Artifact #1132** (inventory: 4140-17430)

Context: Excavation X-16 (2019), stratum 1606, stratigraphic component C (SC-C)

See details in: Ardelean, 2022: 1283-1284, chapter V.7 (Taxon F-Ef,E, tools on blade)



3D file name: **CHQ-B_1132.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/81/CHQ-C_1132.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1gFALbLcg7t9q0DXx9Awsq--4lYtSYOXq/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

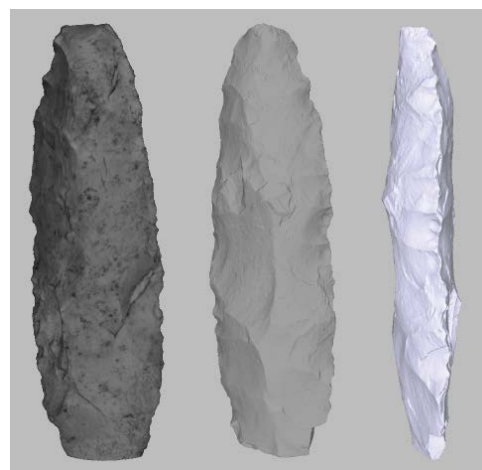
<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1132>



7.77. **Artifact #1143** (inventory: L0828-5603)

Context: Surface, close to cave's mouth (2011), unknown chronology

See details in: Ardelean, 2022: 1300-1302, chapter VII (Taxon Hk, bifaces or preforms)



3D file name: **CHQ-S-L0828_5603.ply**

Access option A, download .ply 3D model from source 1 (institutional repository):

http://ricaxcan.uaz.edu.mx/jspui/bitstream/20.500.11845/3089/82/CHQ-S-L0828_5603.ply



Access option B, download .ply 3D model from source 2 (Google Drive account):

<https://drive.google.com/file/d/1g0TSRt-272JWsUUu0B9EZkKggxON4UYt/view?usp=sharing>



Access option C, interactive online 3D visualization on *Ariadne Visual Media Service*:

<https://visual.ariadne-infrastructure.eu/3d/chiquihuite-cave-artifact-nr-1143>



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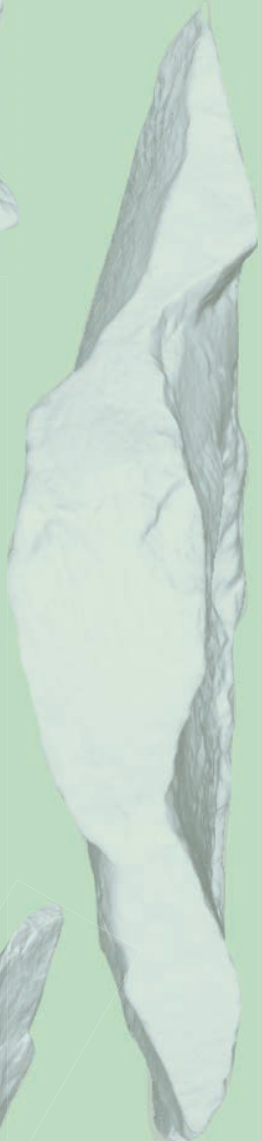
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