”The Living Archive” of Digital Arts – Web 2.0 & 3.0 and the Bridging Thesaurus

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ABSTRACT: While Media Art has evolved into a critical field at the intersection of art, science and technology, a significant loss threatens this art form due to the rapid technological obsolescence and static documentation strategies. Addressing these challenges, the Interactive Archive and Meta-Thesaurus for Media Art Research is developed to advance the Archive of Digital Art. www.digitalartarchive.at Through an innovative strategy of ‘collaborative archiving,’ social Web 2.0, 3.0 features foster the engagement of the international Media Art community, and a ‘bridging thesaurus’ linking the extended documentation of the Archive with other databases of ‘traditional’ art history facilitates interdisciplinary and transhistorical comparative analyses.

As a valuable solution to challenges in the documentation, indexing and research of Media Art, the Interactive Archive and Meta-Thesaurus for Media Art Research (AT.MAR) has been developed as an innovative strategy for ‘collaborative archiving’ [1]. Supported by the Austrian Science Fund (FWF), and conducted at the Department of Image Science, AT.MAR is an advanced conception of the Archive of Digital Art (ADA) [2]. Formerly called the Database of Virtual Art, this pioneering archive for works at the intersection of art, science and technology celebrated its fifteenth anniversary in 2015 [3]. ADA was established as a collective project in cooperation with renowned international Media Artists, researchers and institutions for the integration of a sustainable exchange between artists, experts and users. Comprehensive and open access, ADA is a costfree database.

HARD HUMANITIES: MEDIA ART HISTORIES & IMAGE SCIENCE

Over the last five decades, Media Art has evolved into a significant contemporary field. It encompasses art forms produced, modified or transmitted by means of the very digital technologies that are fundamentally revolutionizing our world—as well as how we perceive and interact with images—through globalization, the Internet, social networks, Web 2.0 and 3.0, and on. Unlike with painting or sculpture, graphic printing or even photography, Media Artists make use of emerging technologies that originate from a scientific, military or industrial context not only as their media, or image carrier, but have this technology as their explicit image-subject as well [4]. Thus, Media Art can take highly disparate forms, and includes such genres as bio/genetic, database, digital animation, game, glitch, installations, nanotechnology, net art, telepresence, and virtual reality.

Image Science (Bildwissenshaft in the German tradition), and its sister discipline, Visual Studies, encourages a ‚reading’ of artistic images that is interdisciplinary, as is essential with Media Art. This approach presupposes that scientific work with images must include their definition, archiving and a familiarity with a large quantity of images. Though there have been a number of historic forerunners to the image science method, most frequently cited as the discipline’s ‚father’ is Aby Warburg. Famously intending to develop art history into a “Laboratory of the cultural studies of image history” that would widen the field to „images [...] in the broadest sense”, by including many forms of images in his iconic Mnemosyne image atlas of 1929, Warburg redefined art history as medial bridge building [5] .Yet, definitions of the image such as those

by Gottfried Böhm, James Elkins and W.J.T Mitchell [6] have become problematic in the context of the interactive, immersive, telematics and generative digital image. These challenges have fueled interidisplinary debate as to the status of the image with protagonists such as Andreas Broeckmann, Oliver Grau, Erkki Huhtamo, Martin Kemp and Barbara Stafford [7].

Through the study of MediaArtHistories in the discourses of Media Art the most immediate socio-cultural questions of our time are investigated: from body futures and media (r)evolution, to environmental interference, finance virtualization, and surveillance culture. While the critical lexicons of classical art history are relatively fixed, the classifying language of Media Art is defined with dynamic terminologies that are continually in flux, or so-called 'floating signifiers.' Thus, the forums and catalysts for Media Art rhetoracy take place in a vibrant knowledge ecosystem reported in: collaborative projects for database documentation supported by institutional and social agencies; international festivals with peer reviewed awards and globally publicized interviews; and new literatures published by leading scientific and university presses [8]. Yet, despite such worldwide recognition, programmes for documenting the 'art of our times' continue to be met with serious challenges within the memory institutions of our societies. As Media Artworks frequently have functionalities across variable media substrates, and these constituted by the latest technologies as well as characterised by a rapid obsolescence, the work of Media Artists complicate both object-oriented preservation methods as well as static indexing strategies. Consequently, artworks originating even just ten years ago can often no longer be exhibited. As debated since the 1990s, museums rarely include Media Art in their collections, and those that do struggle to sustain finance, expertise, and technology for the preservation of artworks through strategies such as migration, emulation, and reinterpretation [9]. Further, that Media Artists engage the most contemporary digital technologies leads to the production of artworks that are necessarily "processual," ephemeral, interactive, multimedia-based, and fundamentally context-dependent [10].

Since the turn of the Third Millennium, there has certainly been evident promotion of conferences, lexicons, and platforms in the endeavour to document Media Art. It is specifically the subject of the MediaArtHistories conference series, which with its premier in 2005 represented and addressed the many disciplines involved in the then emerging field [11]. A number of preservation projects have also been established. While many continue to exist online, each either lost key researchers, had funding expired, or was eventually terminated [12]. And as recently expressed in an international declaration [13], signed as of 2016 by more than 450 scholars and leading artists from 40 countries, there is an urgent need to create a stable international platform of interoperable archives. Yet, even with such progress in the study of Media Art, programmes for documenting this 'art of our times' continue to be met with serious challenges within the memory institutions of our societies. Indeed, it is no exaggeration to state that we continue to be threatened with a significant loss of this critical art form, both in the archives of art history and for future scholarship.

MEDIA ART (R)EVOLUTION AND THE ARCHIVE OF DIGITAL ART

Since the year 2000, ADA is one of the most complex research-oriented resources available online as a platform for both scientific information and social communication. Hundreds of leading Media Artists are represented by several thousand documents, with more than 3,500 articles and a survey of 750 institutions of media art also listed. Besides the artists, there are also more than 250 theorists and media art historians involved in making ADA a collective archiving project (Fig. 1).

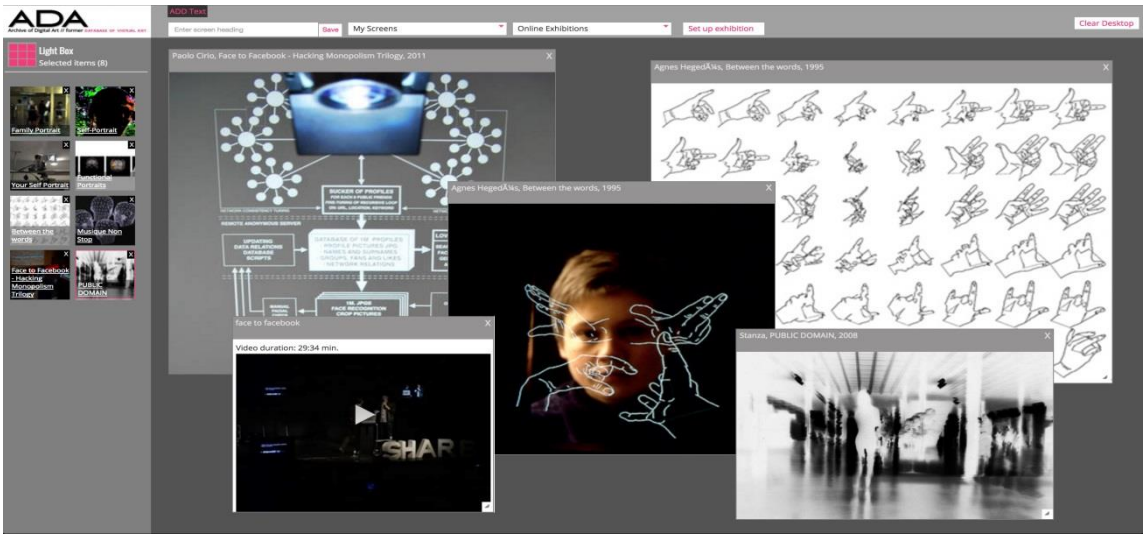

Fig. 1. *Archive of Digital Art, screenshot (detail, Community Light-Box) <https://www.digitalartarchive.at/nc/home.html>, accessed 4 March 2018.*

Because of the singular structure of the art form, a defining strategy for the Archive of Digital Art is that of an "expanded concept of documentation" [14]. The documents on ADA that represent the artists there archived include: biographical and bibliographic information about the artist, their inventions, awards, and statements; exhibitions, and publications; graphic images of the installation of the artwork; digital images of individual artworks (exhibited, in process, and in all its varying iterations); information on the software and hardware configuration; technical instructions; type of interface and display; video documents (interviews, presentations, symposia); references and literature about the artists; information about the technical staff; institutions; and copyright.

A system of online community membership for ADA allows artists and scholars to upload their own information, with a gate-keeping policy that the ADA advisory board reviews applicant qualifications and makes member selections. The system offers a tool for artists and specialists to individually upload information about works, people, literature, exhibits, technologies, and inventions [15]. Over the last fifteen years some 5,000 artists were evaluated, of which 500 fulfilled the criteria to become a member of the ADA. From the beginning, the long-term goal of the project was not simply the documentation of festivals, awards or similar events, but a scientific overview with the respective standards of quality. Members have to qualify with at least five exhibitions or articles about their work, or, alternatively, can be suggested by the board.

DOCUMENTING MEDIA ART: IMPLEMENTING 2.0, 3.0 FEATURES

For the Archive of Digital Art (ADA), the first online collective archive that is both scholarly and social in either art history or media studies, documentation and access are not understood as static concepts, but as a process that integrates a continuous exchange between users, scholars and artists. With an open access policy that provides users with an active role and that supports accessibility, ADA is more likely continue to be an up-to-date as well as a lasting resource. An essential aspect of its Interactive Archive and Meta-Thesaurus for Media Art Research (AT.MAR) was thus to transfer ADA into a Web 2.0 environment and open it up on the 'retrieval-side' by making the data available and easier to share for users, and on the 'archivist-side' by allowing contributions of diverse individuals in order to facilitate a collaborative and more balanced preservation practice. Newly innovated ADA features support the group engagement and foster motivation. A messaging system and "News" section allow archive community members to interact with peers and announce upcoming events. Contribution monitoring and a function for colleague 'following' provide updates on the research and activities of other Archive members. And collaborative processes of peer-reviewing and content curation, integrate the member community's decision-making and agenda setting into ADA itself. Contributions can be seen in the "Works" section of every scholar and artist on ADA,

where the Archive features enable members to collect "Descriptions and Essays" about their artworks, as well as information on "Technology," "Literature," and "Exhibition and Events." A process of peer-review performed by the ADA member community guarantees the quality of these contributions, with all the "Latest ADA Updates" visible to members on the homepage after login. Individual contributions, once peer-reviewed, are automatically referenced and made accessible to all users, whether ADA community member or online visitor to the Archive. Contribution visibility is measured not only in web links, page hits, and citation statistics, but also exemplified by the above described peer assessments internal to the ADA, in a disciplinary as well as interdisciplinary networking that builds the standing of Archive members within their international professional community.

Members also engage in selecting a monthly-featured artist or scholar, a profile about who is published on the ADA homepage, social media, and through web newsletters. This "Featured Artist/Scholar" introduces ADA visitors to artists and scholars distinguished by their peers; allows Archive members to commemorate achievement within the discipline or recognition within the community; and supports active participation in content direction. Additionally, ADA's "Light Box" (Fig. 1) feature is both scholarly and social. Promoting the comparative analysis of Media Artworks on the Archive, this tool permits community members to assemble individual arrangements from the extended documentation of images, texts, and videos on ADA. These "Selected Items" can then 'enlarge' and 'overlap' so that relevant image details can be compared and analyzed. Textual notes can be added and "Exhibitions" saved on a visual pin board of "My Screens" for further research. These "Light Box"-based exhibitions of ADA content by community members are then publishable as an "Online Exhibition," visible to all users, and accessible for a wide variety of applications from scientific or art-based research, to science, education and public outreach. ADA promises many potential affordances as an online collaborative archive, including expanding data beyond that which any single institution or even cross-institutional research team could compile; increasing the high quality of data that originates directly with artists and scholars in the field of media art; cultivating the various viewpoints of the global community that contributes to the archive; and developing this scholarship through a system of checks and balances by Archive community members. Features such as "Works" contribution and peer review, "Featured Artist/Scholar of the month, and "Light Box" peer review all enhance the interpersonal relationships of ADA community members and foster exchange.

INDEXING MEDIA ART: THE BRIDGING THESAURUS

Keywording is bridge building! And for the 'bridging thesaurus' of the AT.MAR project, the intent to establish a linguistic framework that allows for the classification of the aesthetics, subjects and technologies of artworks, directs the process of individual concept and term selection. To achieve a comprehensive overview of the knowledge domain of Media Art, but also a manageable one, this vocabulary is kept limited to around 400 terms. This constraint increases the usability of vocabulary terms and insures an accuracy for indexing practice, which is particularly crucial with ADA as it the community members themselves who carry out a significant part of the indexing. Central to the construction of the ADA controlled vocabulary is the logical concept of terminology structure based on a classification strategy that will allow users to index various levels of meaning relevant to the Media Art knowledge domain. In relation to other vocabularies, ADA "Keywords" have a unique hierarchical schema based on a categorical triad of 'aesthetics', 'subject', and 'technology'. This top-down distinction of categories allows for the contextual specification of vocabulary as well as for the conceptual analysis of these levels by users: ***Aesthetics*:** In accordance with the dominant understanding of Media Art in the scholarly literature, and 'relatives' of this field such as digital or electronic art, the 'aesthetics' category encompasses a broad scope of terms ranging from phenomenological observations such as 'immaterial' to ontological qualities such as 'site-specific' and 'object-oriented'. ***Subject*:** The 'subject' category encompasses iconographic terms established in art history and Media Art Histories, as well as concepts that enable both descriptive and interpretative approaches to the

subject of works. In regards to term quantity, this category is the most comprehensive [16]. The 'subject' category includes 13 subcategories like: 'Body and Human', 'Entertainment and Popular Culture', 'Magic and Phantastic', 'Media and Communication', 'Nature and Environment', 'Technology and Innovation', 'Power and Politics', 'Psychology and Emotion', 'Religion and Mythology', 'Science and Knowledge'. ***Technology*:** The 'Technology' category was adopted from that originally developed for the Database of Virtual Art (DVA), which later became the Archive of Digital Art, and enhanced by subcategorization 'interface' and 'display,' as well as terms encompassing 'traditional' image-carriers such as 'painting', 'print' or 'book'. The Resources of terms and concepts used in the development of AT.MAR and which define the very foundation of this controlled vocabulary, include (1) 'traditional' art history vocabularies as well as (2) Media Art databases, (3) festivals, and (4) literatures:

(1) The 'traditional' art historical vocabularies cited were those most widely accepted scientific tools used for the description, linkage, and retrieval of images in art history. These included Iconclass, an alphanumeric classification scheme designed for the iconography of art; the Art and Architecture Thesaurus (AAT) and the Warburg-Index, an index of iconographical terms.
(2) Databases were selected for AT.MAR, includine The Dictionnaire des Arts Médiatiques, GAMA keywords, the vocabulary of the Daniel Langlois Foundation, and Netzspannung. Each of these vocabularies reflects the explicit practical affordances and implicit ideological assumptions of the institution that advanced it.
(3) Further, as festivals are central to the media art scene as forums and catalysts for the contemporary discourses and innovative technologies of media art, the project team took account of an international range of festival materials such as official publications and professional interviews. Festivals reviewed included, among others, Ars Electronica; Dutch Electronic Art Festival; European Media Art Festival; Festival Internacional de Linguagem Electrônica; Inter-Society for the Electronic Arts; Microwave Festival, Transmediale..
(4) Research literature was evaluated on the basis of its indexes, that 'map' the most valuated topics in the field. Important innovations such as, 'interface' or, 'genetic art' were considered along with keywords that play a role in traditional arts— such as 'body' or 'landscape'— with a bridge-building function.

FUTURE MEDIA ART RESEARCH: THE GÖTTWEIG COLLECTION

To support the cross-cultural, inter-disciplinary, and trans-historical comparative analyses of the Media Artworks on ADA, the

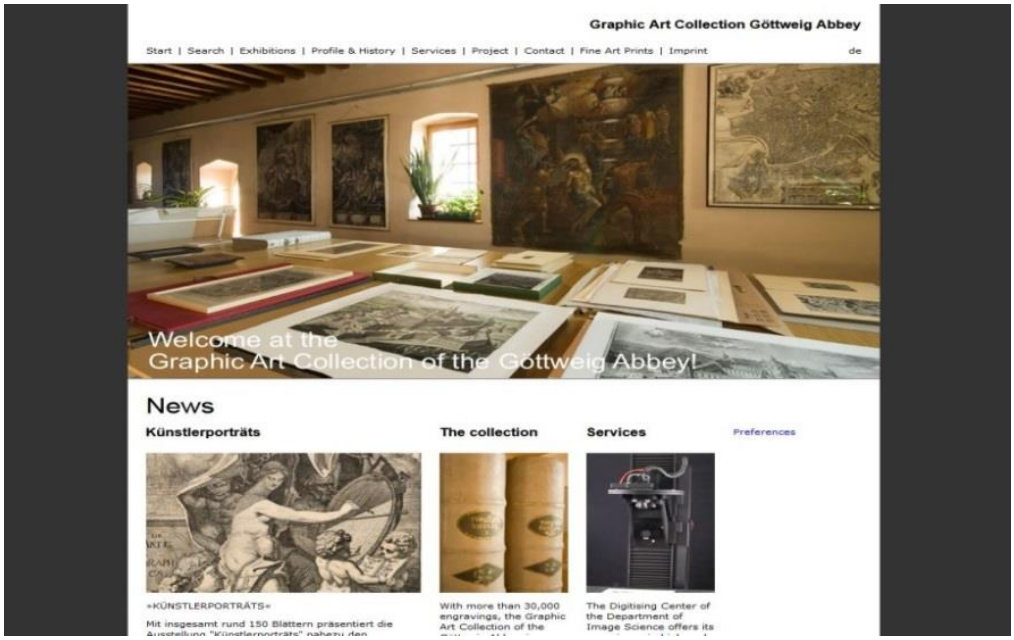

Fig. 2. *Göttweig Monastery Graphic Art Collection Online, screenshot, <http://www.gssg.at/>, accessed 4 March 2018, © Department for Image Science.*

keywords of its 'bridging thesaurus' are further applied to artworks from other social contexts and historical periods. Through AT.MAR, ADA is now linked with the Göttweig Abbey Graphic Collection (Fig. 2). Göttweig Abbey, founded in 1083, holds 30,000 prints as well as a library of 150,000 volumes in one of the most comprehensive private collections of mostly Renaissance and Baroque engravings. With acquisitions first recorded in 1621, the collection was systematically expanded during the Abbotship (1714–1719) of Gottfried Bessel. In cooperation with Göttweig, the Department of Image Science conducted the digitization of the collection [17].

The graphic and textual works of the online Göttweig collection, document subjects from the 'representation of knowledge' and 'history of science,' to 'architecture' and 'fashion,' 'optics' and 'panorama.' Thesaurus keywords navigable as "Hierarchical," "Alphabetical," and "As Cloud" , support and stimulate users to bridge the 'traditional' artworks and the Media Art of ADA, providing complex image resources for a richer analysis of Media Art

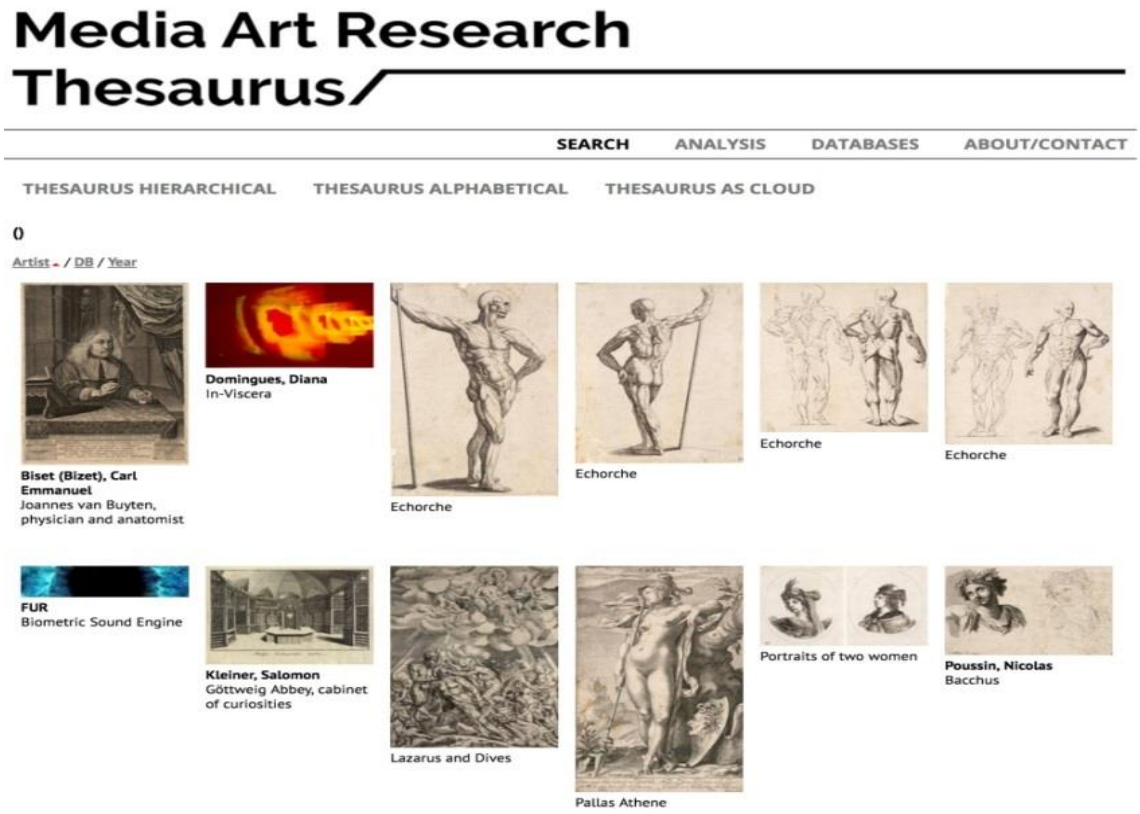

Fig. 3. *Media Art Research Thesaurus, screenshot (detail, comparative analysis), accessed 4 March 2018.*

CONCLUSION

The innovative methodology developed through the AT.MAR project will foster the documentation, indexing and research of Media Art on the Archive of Digital Art in a context of multiple histories of art, science and technology. Thesaurus categories in aesthetics, subject and technology bridging 'traditional' art forms with Media Art support the tracing of hybrid qualities in these artworks, as well as historical correspondences and conflictions. Through collaborative visual tools that include a Light Box and semantic links, a global community of artists and scholars may conduct research and perform clustering analysis or comparative study. That the thesaurus connects Media Art with art history, and neither isolates these fields from one another nor includes only contemporary terminology, increases the usability of the Thesaurus for the humanities. For the future of ADA, further goals are to document works within a context of complex information and, at the same time, allow users

to find specific information readily. Beyond using analysis using the Briding Thesaurus, which shows, for example, virtual and immersive art's reminiscences to its predecessors in the panorama and laterna magica, Media Art documentation should also include questions of gender, track the movement of technical staff from lab to lab, technical inventions pertaining to art, as well as public and private funds allocated to research. By advancing from a one-way deposit of key data to a proactive process of knowledge transfer, the archiving of Media Art becomes a resource that facilitates research on Media Art for academics, experts, and students.

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[2] See <http://digitalartarchive.at>.

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[12] For example, the Langlois Foundation in Montreal (2000–2008), Netzspannung at the Fraunhofer Institut (2001–2005), MedienKunstNetz at ZKM (2004–2006), The Boltzmann Institute for Media Art Research in Linz (2005–2009). The Variable Media Network, <http://www.variablemedia.net/>. And the Capturing Unstable Media project by V2, <http://v2.nl/archive/works/capturing-unstable-media>.

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[14] Oliver Grau, “For an Expanded Concept of Documentation: The Database of Virtual Art,” ICHIM, École du Louvre, Paris 2003, Proceedings, pp. 2–15 (2003).

[15] The PostGreSQL Database is open Source and the operation system is Linux based.

[16] In accordance with the guidelines of the ‚Categories for the Description of Works of Art’ (CDWA), the AT.MAR vocabulary considers ‘subject’ as “the narrative, iconic, or nonobjective meaning conveyed by an abstract or a figurative composition. It is what is depicted in and by a work of art.

[17] See <www.gssg.at>.