

INTERNATIONAL
SOCIETY FOR THE
STUDY OF TIME

TIME'S

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NEWS





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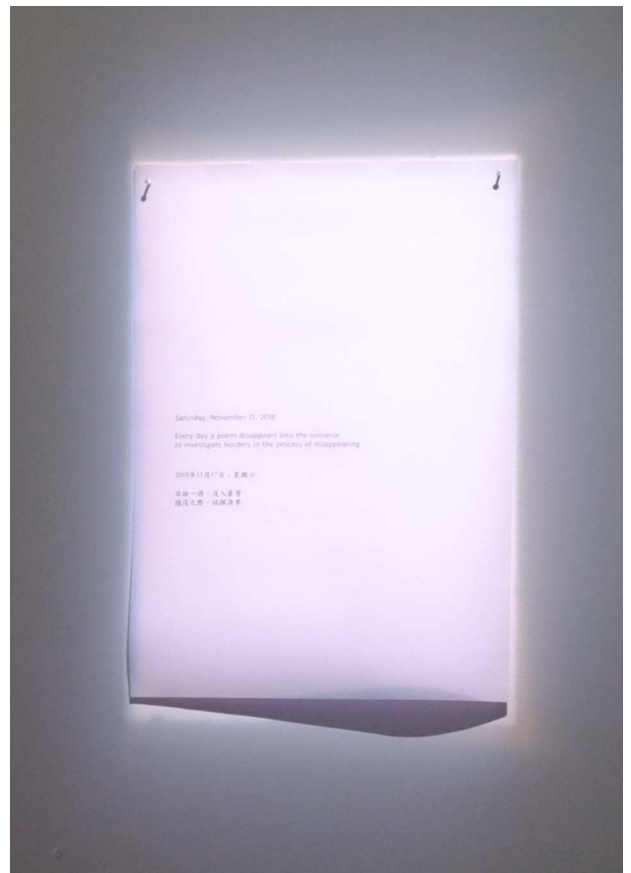
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Time's Urgency

Editors: Carlos Montemayor and Robert Daniel

The Study of Time XVI: Time's Urgency celebrates the 50th anniversary of the International Society for the Study of Time. It includes a keynote speech by renowned physicist Julian Barbour, a dialogue between British author David Mitchell, Katie Paterson and ISST's previous president Paul Harris. The volume is divided into dialogues and papers that directly address the issue of urgency and time scales from various disciplines.

This book offers a unique perspective on the contemporary status of the interdisciplinary study of time. It will open new paths of inquiry for different approaches to the important issues of narrative structure and urgency. These are themes that are becoming increasingly relevant. See More

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FROM THE PRESIDENT

Raji Steineck

Dominant concepts of time are dependent on social organisation. Or that is what sociologist Günter Dux argues in his book on "Time in History" (*Die Zeit in der Geschichte*). Dux believes that the capacity of a society to co-ordinate human action, and the degree to which such co-ordination of actions is built into its fabric together define the level of time-competence available in that society. It is also the level of competence that is required of every individual wanting to survive in this environment.

There is a whiff of determinism to this theory, which makes me hesitant to fully embrace it – as I am hesitant to embrace any kind of determinism. But I do believe Dux has a point. Time as a concept is, as Norbert Elias put it, the result of timing, of attuning one's thoughts and actions to the processes of the environment. And after 3 million years of hominids trying to make this earth a place conducive to their survival, for a large part, that environment is shaped, for better or worse, by human society and culture. As a consequence, it is more important now to be able to negotiate clock-time than to know about the phases of the moon, and to be conversant with digital media than with the voices of the birds in the woods.

When ISST was founded more in 1966, co-ordination across continents (early members hailed from North America, Europe and East Asia) mostly entailed letter writing and the business meetings at its triennial conferences. An aperiodic newsletter was introduced in the early 1970s to keep members abreast of developments in the society and council decisions. It turned into an annual newsletter in 1987. When I joined the society in 2003, a website and mailing list had already been added, and by now, much of the news is communicated on an ad hoc basis, via e-mail and various social media channels. Accordingly, the former printed newsletter has been turned into a digital magazine with the aim of communicating our members' time-related thoughts and activities to the interested public. Changes in our environment have prompted other adjustments, too. The aperiodic newsletter of 1975 explains the details of the third ISST conference, held in Alpbach, Austria, and scheduled to last for ten days (!) from June 1-10, 1976. The reasons were given as follows: "This is an experiment urged on us by some who grew weary sitting morning, afternoon, and sometimes in the evening as well at Oberwolfach and Lake Yamanaka while the beauties of nature waited outside." Other aspects of "temporal organization"

included: "There will be only four or five invited papers per day, followed by comments by invited discussants and by general discussion". The strategy was to invite mostly non-members as speakers, and to restrict members' presentations by the following temporal rule: "From among members, and as a matter of policy, no one will be invited to speak who has given a paper at both the prior conferences." The expectation was that members would join the conference to listen to scholars they hadn't heard present at previous conferences, for the sake of "contemplation" and "discussions". The ten-day schedule was given up in 1983 in favor of what has by now become a cherished tradition: a week-long conference with a breakout day for excursions etc. Furthermore, later conferences saw an increase in the number of presentations, leading to as much as three parallel sessions in Cambridge in 2004. That change already mirrored a trend that has become only stronger over the years: with research increasingly subject to supervision by management, travel subsidies are often strictly tied to presentations. And as we have learned on the occasion of our last conference in Edinburgh, even presenting is often not enough: the presentation has to fit into a research plan, approved by faculty or university management, in order to be eligible for funding. This has prompted us to experiment with a new format in our upcoming conference in Los Angeles: in future conferences, we want to invite other time societies to sponsor a panel at our conference. We hope that this will make it easier for scholars and scientists to explain how presenting at ISST is topical for their research. Over the past years, we have developed ties with the Japanese Society for the Study of Time (JSTS) and the Research Institute for Time Studies (RITS) at Yamaguchi University, and JSTS will sponsor the first such panel in Los Angeles. Should you be a member of another time society, please already start thinking about proposing a panel at our next triennial conference in 2022. By the way, there is a good chance that it will take place in Japan, as the JSTS and RITS have already offered to hold that conference at Yamaguchi University. They will present their bid at our business meeting in Los Angeles, and we are looking forward to receiving comments about that plan from our members and other interested parties, and about the other changes that we have introduced over the past years, be it at the meeting or via one of our other communication channels. Please join the discussion and help us to keep ISST attuned to the exigencies of our time. ■

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January 10, 1975

APERIODIC NEWSLETTER No. 2

The last eight months have witnessed the completion of several projects initiated at our second conference, and have seen as well the beginnings of the preparations for our third conference.

Constitution

The Constitutional Committee which was set up at the second conference has completed its appointed task; thus, the Constitution is now in force. David Park, its Chairman, wishes to express his appreciation to the Members of that Committee for their valuable and detailed assistance: H. B. Green, John Michon, G. H. Müller, M. S. Watanabe, G. J. Whitrow and J. T. Fraser. Copies of the Constitution are available to Members upon requests to the Secretary.

The Study of Time v.2.

The typist should finish the last few papers early this month. If all the proofs are returned promptly, the proceedings should be in print in April, 1975. Details of the publication of a separatum under the title Timekeepers and Time are now being negotiated directly between Springer Verlag and the sponsor of our 1973 special seminar.

Third Conference

With the proceedings complete, we are able to turn our attention and available time to the preparations of our third conference.

As required by the Constitution, a Conference Committee has been set up by the President. Its members are David Park and J. T. Fraser, both ex officio; appointed by the President: F. C. Haber, Nathaniel Lawrence, Helga Nowotny and Gisela Trommsdorff. Other members will be added at the discretion of the President and the Committee.

After a comparative review of various locations, the Kongresshaus in Alpbach (the Tyrol, Austria) has been selected as the place of our next conference. Its date is set for July 1-10, 1976.

In response to the replies to Dr. North's questionnaire, several changes will be made in the temporal organization of our conference program.

ISST Periodical Newsletter, 1975
The first iteration of Time's News magazine
COURTESY THE INTERNATIONAL
SOCIETY FOR THE STUDY OF TIME

APERNEWS No.2

* Most noticeable is the ten-day length of the conference. This is an experiment urged on us by some who grew weary sitting morning, afternoon, and sometimes in the evening as well at Oberwolfach and Lake Yamanaka while the beauties of nature waited outside. Since Alpbach is an exceptionally lovely site that invites much walking, talking, and contemplation, we have resolved to spread the usual number of papers over nine days of meeting, scheduling the sessions at times most suitable for sitting indoors.

* The day will be divided into three units: morning (8:30-12:30), afternoon (2:00-6:00) and evening (8:00-10:00). These units will be regarded as interchangeable for the purposes of formal presentations, discussions, or leisure, according to the weather or other considerations that will emerge at that time.

* There will be only four or five invited papers per day, followed by comments by invited discussants and by general discussion.

* The number of invited papers will again be about 40 so as to assure that The Study of Time v.3. remains a substantial volume.

* A total of one day's time will be reserved for opening ceremonies, a business session, and a social evening.

We feel that there are good reasons to try this rather peculiar scheme, considering the make-up and purpose of the Society, and hope for favorable judgements when the conference is over.

Invitations to the Conference

We began sending out requests for expressions of interest to a list of speakers compiled from the records kept by the Secretary and submitted to the Conference Committee (as it existed in December) for comments and possible extension. From the respondents who indicate a desire to attend, the Committee will try to create a program balanced as to discipline, topic, and nationality. The first invitations will go out in May. It is intended that about three-quarters of the papers be given by non-Members. From among Members, and as a matter of policy, no one will be invited to speak who has given a paper at both the prior conferences.

This newsletter is an invitation to all Members to come to the third conference. If you do plan to attend please write to me just as soon as you wish, but not later than February, 1976.

Finances

In view of the times, money is an especially difficult problem. If you have any specific ideas or direct connections that could lead to even partial support of the conference, please write me.

Our special symposium will be on the topic of Time, Timing, and Cultural Temperament. Through invited papers we shall seek correlation among (i) preferred views of time, (ii) attitudes toward history, and (iii) preferences for ways of life. The proceedings of the one day special symposium will again be publisheable as a separatum. If you have any direct connections to potential sponsors (in industry, government, or academia), please write me.

Please keep me posted about your work as it relates to the study of time.

Yours sincerely

J. H. Fraser

Founder and Secretary

JTF/agns

TIME IN MEDIEVAL JAPAN

A REPORT ON THE RECENT INTERNATIONAL TIME STUDIES SYMPOSIUM



WRITTEN BY MIGITA HIROKI & RAJI C. STEINECK

From August 1 to August 3, 2018, University of Zurich's Chair of Japanology (supported by the Advanced Grant TIMEJ from the European Research Council) and the Research Institute for Time Studies at Yamaguchi University, in collaboration with the Japanese Society for Time studies held the International Time Studies Symposium 2018 "Time in Medieval Japan". The symposium had the aim to explore the ways time was expressed, perceived, and experienced in medieval Japanese society from various angles. It brought together 25 researchers from the fields of intellectual and political history, literature, and religion of Japan hailing from various Japanese universities as well as from the United States and Europe for three days of presentations and extensive discussion. The program comprised papers and comments by designated specialists in the following seven fields: "calendars", "military strategy", "literature of the court and the warrior elite", "village life", "religion", "the human body" and "markets". Profs. Morino Masahiro, Morishita Tōru (both Yamaguchi University) and Hosoi Hiroshi (Kassui Women's University) served as coordinators on the Japanese and Raji C. Steineck and his team at University of Zurich as coordinators on the European side.

The first conference day on August 1 started with formal greetings by Profs. Fujisawa Kenta (Director, Research Institute for Time Studies, Yamaguchi University) and Raji C. Steineck (University of Zurich, PI of the ERC Advanced Grant Project "Time in Medieval Japan" / TIMEJ). The morning sessions were dedicated to the subject areas "calendar" and "military strategy", with Prof. Franz Emde (Yamaguchi University) serving as designated commentator. The first paper titled "The Study of Time and Calendars in Medieval Japan", by Prof. Hosoi Hiroshi started from a thorough review of research on calendars and annotated calendars (*guchūreki* 具注暦) and proceeded to demonstrate, based mostly on the *Hoki naiden* 〔簗簗内伝〕, the importance of these documents to understand the regional distribution and differentiation of time consciousness. Next, Prof. Kristina Buhrman of Florida State University in her presentation "An Investigation into Day-Selection for Military Actions in Medieval Japan" explained by way of a close scrutiny of the sources that the ancient court's culture of day selection according to the annotated calendars was probably received and continued by medieval warrior aristocrats in their planning of military exploits. Dr. Ueno Taisuke (Kanda University of Foreign Languages) discussed medieval books on strategy and what they reveal about changes in time consciousness over time. He showed that while earlier sources assume that the time of actual battle belongs entirely to the gods, later sources insert elements of human discretion and manipulation into the conception of the time of battle. The ensuing comments and discussion followed up on the main points of each paper and highlighted points such as the issue of human agency, or the apparent absence of quantitative calculation of time in medieval discussions of military strategy.

In the afternoon sessions, the subject moved to time in the literature of the court and the warrior aristocracy. In the first presentation, Prof. Morino Masahiro used the example of expressions pertaining to the call of the *bototogisu* 郭公/時鳥 (cuckoo) in the literature of court ladies to demonstrate how their expression of time was structured by the *Kokinshū* 〔古今集〕, and how, by the same token, the geographic aspect of the territorial boundaries of royal power strongly informed the temporality of the intratextual world in these documents. Dr. Simone Müller (University of Zurich) compared the late Heian Higashiyama gobunko bon *Nitchū gyōji* 東山御文庫本『日中行



事』 with a document of the same title written at the court of Go-Daigo (r. 1318-1339), in order to put into relief the chronography and units of time employed to regulate (at least in principle) life at court in the late Kamakura period in conjunction with questions of space and power. Alexandra Ciorciaro's (PhD student, University of Zurich) paper on "Chronography in the official records of the Kamakura bakufu" presented a detailed analysis of the systems of temporal notation used in the *Kenji sannen ki* 〔建治三丁丑年日記〕 and *Buke nendai ki* 〔武家年代記〕, highlighting not only quantitative, chronometric aspects, but also expressions pertaining to the properties of certain times, or their causal interconnections. Prof. Koyama Emi (Kyoto Institute of Technology) commented on each paper from the perspective of her own research into the illumination of ancient and medieval architecture and the ways it affected daily and nightly activities.

The second day of the symposium started with Prof. Migita Hiroki's (Yamaguchi University) presentation on "Night-time Labor by Pre-Modern Japanese Villagers", in which he highlighted the fact that in pre-modern time, night-time labor was often embedded in ritual and play, and performed by groups of lower status. For some of these groups, movement was restricted during the day, but conversely, while "normal" members of society were largely confined in their movements at night-time, these groups could move about freely at night. To this, Prof. Tsuji Shōji (Hoken Iryō Keiei Daigaku) responded that these findings must be seen in the light of more general and constant aspects of Japanese village life. Pointing to the necessity of regular night-time work such as protecting the fields or going fishing, which was not allocated to specific status groups, he warned against over-emphasizing exotic aspects of earlier epochs of Japanese history.

The following section on religion was opened by Prof. Yuasa Yoshimi (Saitama Gakuen University), who by way of a detailed comparative analysis of chronometrical expressions in the Buddhist sources contained in the *Kamakura ibun* 〔鎌倉遺文〕 corpus demonstrated that monasteries, while sharing a certain amount of standard chronography, often had specific styles of temporal regulation and chronometric expression.

The next paper by Prof. Yorizumi Mitsuko (Tokyo University) dealt with the concept of time in Dōgen's *Shōbōgenzō Uji* 〔正法眼藏〕「有時」. Prof. Yorizumi covered questions such as

how far Dōgen's idea that existence and time are inseparable is based on the mutual inter-dependence between different entities or how a privileged form of time that may be accessed through "practice and attainment of the way" had properties contrary to the irreversible, external and continuous character of profane time such as reversibility, discontinuity, and monadicity, giving a detailed analysis of the specifics of Dōgen's – or Buddhism's – concept of time as it is based on the ontology of *muga / anāman*. Prof. Steineck presented another paper on Dōgen's concept of time, placing it in the context of medieval Japanese temporalities. Based on a rigorous analysis of the chronography employed in Dōgen's writings, he discussed how the dimension of religious time as expressed in his term *nikon* ("now", often interpreted as "eternal present") is related to that of the "twelve hours", which is mostly equated with profane time in the literature. Steineck specifically pointed out that the "eternal present" is constituted within the quantitative differentiations of time, and that Dōgen's texts, in spite of the emphasis a large part of the literature places on the "moment" of practice and on the incalculable aspects of religious time, employ numeric chronometry to highlight the duration of practice of the patriarchs and to establish links between the "here and now" of practice and the time of the Buddhas and patriarchs. Etienne Stähelin (PhD student, University of Zurich), in his presentation on "The concept of time within early Kamakura period Sōtō Zen" explored the ways in which Dōgen's thoughts on time were developed or re-interpreted by his disciples in the earliest commentaries on the *Shōbōgenzō*, remarking on their tendency to unilaterally stress the unity of all of time and every single moment over and against the differentiation between entities and their times.

Prof. Maki Takayuki then discussed the "Transformation of the Buddhist Tonsure by Japanese Emperors in the late Heian Period". He explained the changes in a rite of passage (the taking of the tonsure) as it was practised at court in this period in between the ages and how they related to changes surrounding the transition of office between emperors, which used to shake up the world of the highest echelons of aristocracy in the Heian period because of the interpenetration of this-worldly and other-worldly logic. The final paper in this section by Hoshi Yuya (PhD student, Bukkyō University) turned to the subject of medieval mythology. In his paper "Medieval Mythology and Time Consciousness", he traced the genealogy of the stories surrounding Doshōjin 土公神 and elucidated how myths and rituals surrounding the calendar and the seasons evolved in medieval rural society. Commenting on this session, Prof. Bandō Yōsuke provisionally linked Shintō to public ritual and Buddhism to personal salvation, while also pointing to the entwinement of both aspects both in Dōgen's texts and in the imperial ritual of taking the tonsure.

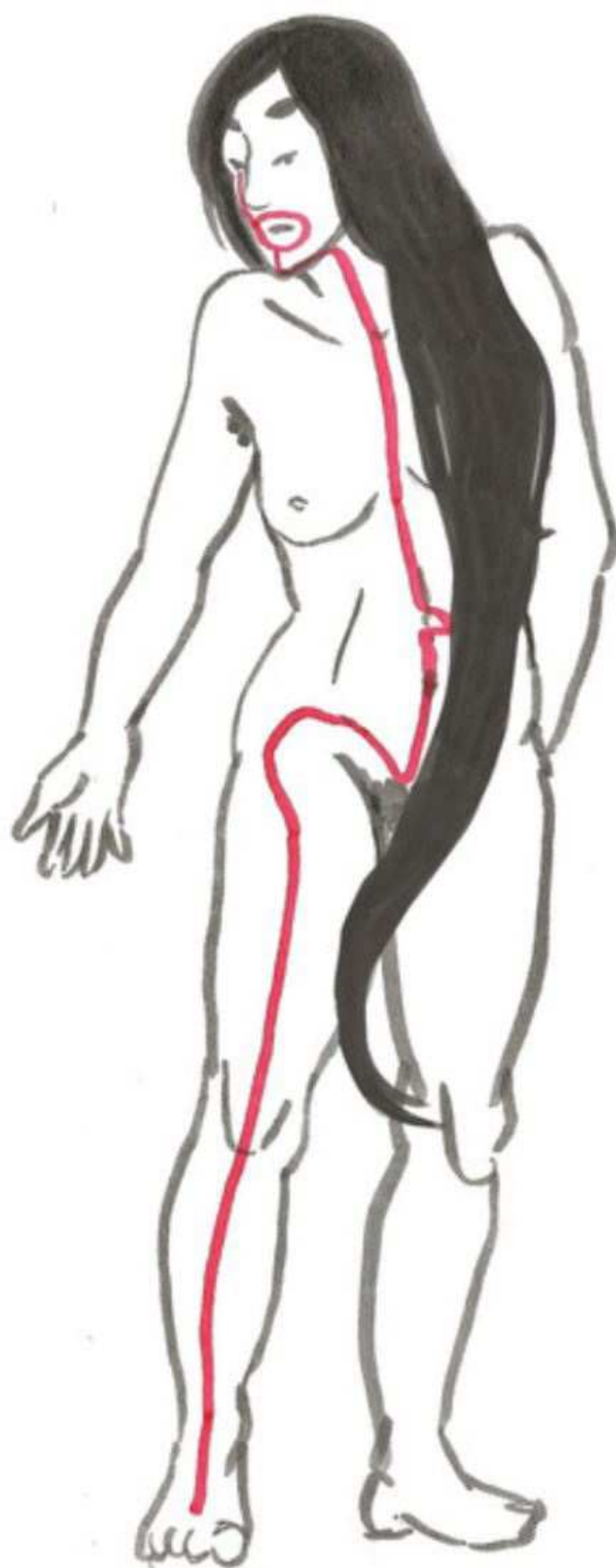
The third day of the symposium started with two papers dedicated to the subject of the body and time. First, Dr. Daniela Tan (University of Zurich) demonstrated how the physiological cycles of the female body were linked to the movement of nature and especially celestial bodies in the chapter on women's health of Kajiwarā Shōzen's *Ton'ishō* 『頓医抄』, leading to a cyclical interpretation of their temporal aspect. Next, in a presentation titled "Menstruation and Time Consciousness of Women in Medieval Japan", Prof. Saitō Nahoko (Kokugakuin University) compared references to the female cycle in *nikki* such as *Utatane* 『うたたね』 and *Towazugatari* 『とはづがたり』. She discussed how this cyclical physiological phenomenon affected time consciousness and time regulation of court ladies,

highlighting aspects such as the establishment and loss of individuality and gender solidarity, for example in respect to the planning of religious and social activities. The commentator to this session, Dr. Anna Andreeva (Heidelberg University) emphasized the fresh perspective both papers provided on a subject that was traditionally mostly associated with *kegare* 穢れ ("impurity"), which allowed to transcend the confines of medieval female history.

The afternoon of the third day was dedicated to the subject of "markets". Prof. Sakurai Eiji (Tokyo University) reported in his paper on "Workday and Wages in Medieval Japan" that, while the prices for physical commodities were decided according to the relation of supply and demand, those for labor and services were not subject to this principle. He found that labor time was paid by the workday, and that there is no evidence suggesting that its value was measured in relation to the unit of the hour, and reflected on the relevance of this fact for medieval time consciousness. The following paper on "Dept Cancellation and the Renewal of Time" by Dr. Kataoka Kōhei (University of Zurich) discussed the "virtuous policy" (*tokusei* 徳政) of rescinding the sale of land and of cancelling debts from the perspective of time theory by way of a thorough analysis of pertinent documents, arguing that these measures should be interpreted as attempts to reconstitute an ideal, imagined past, and reflecting on the specifics of medieval ideas of property. Finally, Vroni Ammann (PhD student, University of Zurich) analysed chronometric and chronotypological expressions in the *Kunshū ruishō* 『薫集類抄』 and the *Gofushimi in shinkan takimono hō* 後伏見院宸翰薫物方, two medieval books on recipes for incense as part of her project to trace the temporal aspects of production, trade, and use of incense in medieval Japan. In her comments, Dr. Angelika Koch (Ghent University) followed up on questions of wage labour and time consciousness, the temporal specifics of *tokusei* policies, and the use of incense to measure time in order to contextualize the findings of each paper.

The symposium ended with a final round of general comments by Profs. Satō Hiro'o (Tōhoku University), Tsuji, and Bandō. Prof. Satō reviewed the contributions from the point of view of the social and geographical stratification of time consciousness and time regulation in medieval Japanese society, contrasting it to current notions of homogenized and linearized "modern" time, emphasizing the need to further research the relation between the apparent temporal plurality and the general social structure of medieval society. He also called into question facile dichotomies between medieval and modern time consciousness. Prof. Bandō followed up on these remarks, stating that while the ancient *ritsuryō* 律令 state had possessed the power to homogenize previous plural time regimes, centrifugal forces (such as the strong tendency to rely on Buddhist images of time) gained more influence in the medieval period, which explains in part the stronger visibility of temporal plurality in this era. Finally, Prof. Tsuji placed the conference in the context of current societal issues. The conference was closed by Profs. Fujisawa and Steineck, who both emphasized the many insights gained through the multidisciplinary approach this conference took to the subject of time, and expressed their gratitude to everyone involved. ■

Alexandra Giorciaro
OPPOSITE: *Body Time*, 2019
PREVIOUS: *Scent of Time*, 2019
TITLE PAGE: *Time in the Court*, 2019
COURTESY ARTIST



SPOTLIGHT

MEMBERS OF THE INTERNATIONAL SOCIETY FOR THE STUDY OF TIME

LUIS MENNA-BARRETO

Special Issue on "Perspectives of Chronobiology"
Journal of the European Society for Chronobiology
Vol 50, No. 1-2, April 2019

The idea for this theme for a special issue of Biological Rhythm Research (BRR) came from a conversation with the editor, Professor Wop Rietveld, when Luis Menna-Barreto wrote him asking whether a paper on perspectives of this field would be acceptable to *Biological Rhythm Research*. Rietveld not only said 'yes', but he also invited Menna-Barreto to act as Guest Editor and to extend the proposition to other colleagues around the world. He wrote then to around 20 chronobiologists whom he supposed would share his interest in a discussion on perspectives for their field. In the end, he received seven texts in addition to his own from Brazil, Argentina, Mexico, United States and Spain. Throughout the issue, one will find distinct views on our possible future as a field of knowledge. It is important to remark that neither the first list of 20 nor the actual list of eight carry any pretention of encompassing all opinions on the matter, rather it should be understood as an invitation to comment, criticize and contribute.



ROSE HARRIS-BIRTILL

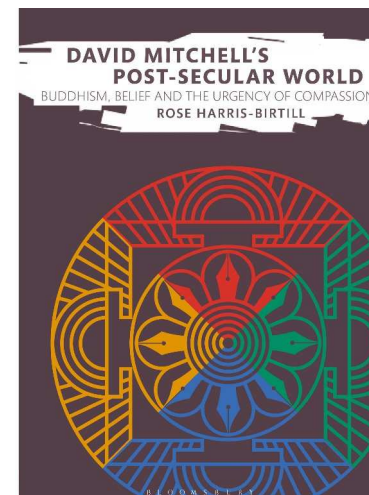
David Mitchell's Post-Secular World: Buddhism, Belief and the Urgency of Compassion
Bloomsbury Academic, 2019

The holder of the ISST Founder's Prize for New Scholars, Dr. Rose Harris-Birtill, has published her book, *David Mitchell's Post-Secular World: Buddhism, Belief and the Urgency of Compassion*, with Bloomsbury Academic as part of its *New Horizons in Contemporary Writing* series (2019; 125,000 words). The book includes a comprehensive critical analysis of British author David Mitchell's entire fictional world, including his novels, libretti and short stories.

Analysing the Buddhist influences that draw the author's works into a single ethical universe, Rose Harris-Birtill situates David Mitchell as part of an emerging generation of contemporary storytellers that revalue belief as a vital means of galvanising compassionate action in the face of the global humanitarian and ecological crises wrought by late capitalism.

The book also includes two substantial new interviews with David Mitchell, as well as a full chronology of his works and selected critical reading to help researchers, teachers and students. It also includes the full version of the essay for which Rose was awarded the ISST Founder's Prize for New Scholars, and is available online from Bloomsbury and Amazon.

David Mitchell was an invited guest speaker at the 2015 ISST conference in Edinburgh, UK, where he treated attendees to a reading;



the conference also featured a panel of academic papers on his writing.

Rose teaches and researches at the University of St Andrews, UK, where she also completed her PhD. She also serves as an editor for *KronoScope: Journal for the Study of Time*, and has guest edited a special edition of *C21 Literature: Journal of 21st-Century Writings* on David Mitchell's writing, containing essays by former ISST President Paul Harris and former ISST Vice-President Jo Alyson Parker.

MARC WITTMANN

Altered States of Consciousness. Experiences out of Time and Self.

Cambridge MA: MIT Press, 2018.

What altered states of consciousness—the dissolution of feelings of time and self—can tell us about the mystery of consciousness?

During extraordinary moments of consciousness—shock, meditative states and sudden mystical revelations, out-of-body experiences, or drug intoxication—our senses of time and self are altered; we may even feel time and self dissolving. These experiences have long been ignored by mainstream science, or considered crazy fantasies. Recent research, however, has located the neural underpinnings of these altered states of mind. In this book, neuropsychologist Marc Wittmann shows how experiences that disturb or widen our everyday understanding of the self can help solve the mystery of consciousness.

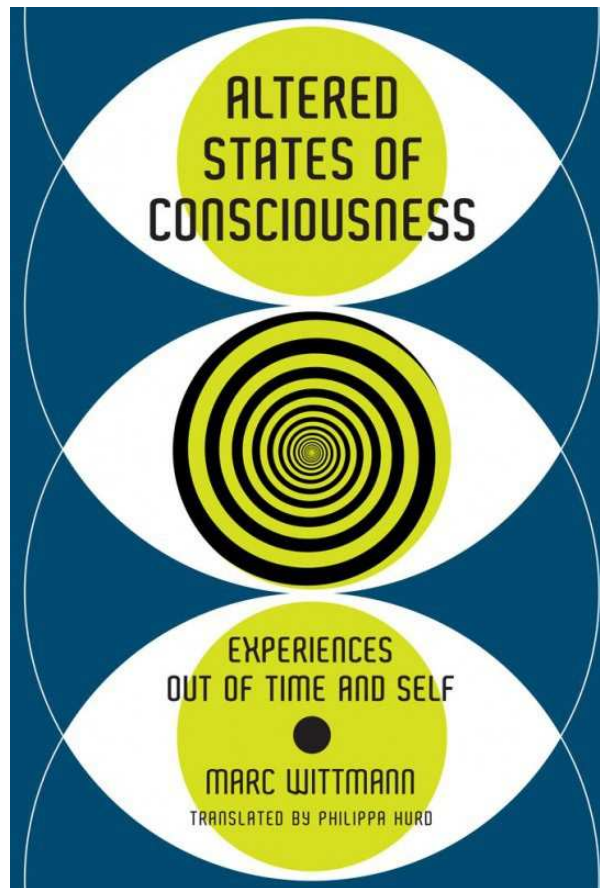
Wittmann explains that the relationship between consciousness of time and consciousness of self is close; in extreme circumstances, the experiences of space and self intensify and weaken together. He considers the emergence of the self in waking life and dreams; how our sense of time is distorted by extreme situations ranging from terror to mystical enlightenment; the experience of the moment; and the loss of time and self in such disorders as depression, schizophrenia, and epilepsy. Dostoyevsky reported godly bliss during epileptic seizures; neurologists are now investigating the phenomenon of the epileptic aura. Wittmann describes new studies of psychedelics that show how the brain builds consciousness of self and time, and discusses pilot programs that use hallucinogens to treat severe depression, anxiety, and addiction.

If we want to understand our consciousness, our subjectivity, Wittmann argues, we must not be afraid to break new ground. Studying altered states of consciousness leads us directly to the heart of the matter: time and self, the foundations of consciousness.

Exploring and Modifying the Sense of Time in Virtual Environments VIRTUALTIMES

The sense of time co-constitutes our subjective experience and embodied self-consciousness. It refers to the dimensions of passage of time (time passing by) and structure of time (serial order of events). Both can be disturbed under psychopathological conditions and give rise to a variety of psychopathological symptoms. VIRTUALTIMES will for the first time (1) provide a personalized and neuroadaptive virtual reality technology enabling the systematic variation of time experience, based on (2) the rigorous study of the sense of time in different psychopathological conditions including depression, schizophrenia and autism, and (3) neuroscientific measures that describe neural mechanisms which underlie our sense of time and validate both diagnostic differences and technological interventions. For that purpose, virtual reality scenarios and games will be developed from the starting point of the everyday scenario “waiting room”. We will systematically enrich the scenery both physically (objects) and socially (interaction partners).

In the realm of time-based interventions this will allow to manipulate passage of time (varying velocity of time flow) and



structure of time (varying synchronicity of events). VIRTUALTIMES (1) will provide a diagnostic tool and innovative mental health technology that works in a highly individualized, easy-access, and easy-to-use application, (2) will foster new technological developments in the field of human-computer-interaction to improve personal wellbeing and intercultural communication in a global world, and (3) will initiate a radical shift both in empirical approaches to and our understanding of the sense of time as basic constituent of human subjectivity.

Investigators: Kai Vogeley (Cologne), Marc Wittmann (Freiburg), Anne Giersch (Strasbourg), Marc Erich Latoschik, Jean-Luc Lugin (Würzburg), Giulio Jacucci, Niklas Ravaja (Helsinki), Xavier Palomer, Xavier Oromi (Barcelona).

ELIZABETHA LEVIN

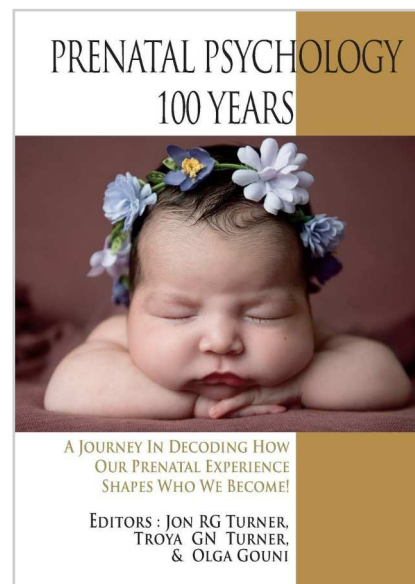
Prenatal Psychology 100 Years: A Journey in Decoding How Our Prenatal Experience Shapes Who We Become!

In spring 2018, an essay about the 'Effect of Celestial Twins' (ECT) was included the *Centenary Anthology Prenatal Psychology 100 Years*. In June, Dr. Elizabetha Levin presented in her interview on Jerusalem Radio a clear exposition of this pioneering work she is doing researching time through her discoveries about Celestial Twins.

Later that year in September 2018, during the 28th International Scientific Symposium Meteorology and Meteorology Assurance (Bulgaria, Sozopol), Dr. Levin presented new methods of time-measurements in the historical processes. She was also invited to talk about the philosophy of time measurements in general and about the ECT in particular during the coming 29th International Scientific Symposium Meteorology and Meteorology Assurance (Bulgaria, Sozopol, 2019).

Finally, in December 2018, Dr. Levin received a Diploma awarded by Israeli Association of Inventors (IAI) for her original research on time in Celestial Twins, citing the following criteria:

"Based on the available biographical data on the lives of historical personalities born on the same day of the same year, the effect of 'synchronicity' has been established and theoretically substantiated. It manifests itself in a high degree of similarity in the characters and life-paths of the "celestial twins", i.e. people born simultaneously in different parts of the world. New interrelations of social and cultural phenomena, caused by the temporal factors on historical processes, are revealed."



GUS KOEHLER

Time Structures Report 2019

Time Structures' latest effort is to build a new business with our newly appointed Vice-president of Art Research, Pin Li, around identifying and marketing poets, and artists who paint or perform works on time, sculptures, dancers, musicians, and various modes of space-time perception such as VR, movement or visualization. The hoped-for venue is Peking, China.

The most recent professional effort is promotion and organization of a four-part, four-day Renaissance Society seminar, *Invisible Threads and Hidden Walls of Time*, this Spring at Sacramento State University. The parts were: I. Time Instants: Varying creations of Six integrated senses time by a "time brain cell", and from the perspective of the Gap created by Poetic Knowing and Speculative Reason; ii. A flowing of Instants: Tao, Christian and Buddhist Time, Complex Systems, Time-Ecology, and Heterochrony; III. Evolution of Time: Fraser's Hierarchy of 5 Types of Time and How they Might Work Together and IV. Time Strategies Applied to War, Disasters, and Global Warming.

Time Structures also organized two Professional Association conference presentations which included a paper presentation on the same topic: *Investigation of a Foundation for New Poetic-Scientific Research Instruments*, 27th Annual International Society for the Society for Chaos Theory in Psychology & Life Sciences, Cincinnati Children's Hospital Medical Center.



Buddhist Robingya Moslem
Genocide, 2018-19
chalk pastel, ink, acrylic paint
COURTESY ARTIST

EMILY DICARLO

I Need To Be Closer To You (DST IV)

As the fourth iteration in DiCarlo's ongoing Daylight Saving Time series, the two-channel video installation *I Need To Be Closer To You (DST IV)* riffs off expanded notions of site-specificity in contemporary art to explore concepts of "time-specificity" while positing that certain poetic gestures or aesthetic acts have the potential to function as performative interventions. DiCarlo asserts that these interventions can reveal conceptual loopholes, which combat accelerated modes of living, resist the universality of standardized temporal systems, and provide momentary ruptures of freedom.

By collaborating with her partner Evan Tyler, the long-distance project *I Need To Be Closer to You (DST IV)* exhibits the shifting temporal proximities experienced between subjective bodies residing time zones apart. The fluctuating temporal orientation of two long-distance lovers comes to the forefront and centers on the physical moment when spring Daylight Saving Time regulations go into effect in Canada. Separated by more than 2500 km where Tyler resides in the flat prairie plains of Regina, Saskatchewan and DiCarlo in the metropolis of Toronto, Ontario, the clocks turn ahead to lose an hour, but only in only one of the two locations. Here, a felt time variance arises, their temporal distance dilates and they collaboratively perform to bridge and amend this disruption in time. The project will debut at this year's 17th Triennial Conference of the International Society for the Study of Time, Los Angeles, California.

I Need To Be Closer To You, 2018
video installation
COURTESY ARTIST



Journal for the Study of Time KronoScope Online



Kronoscope

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Aims & Scope

Time bears a unique and direct pertinence to all human concerns. Time is a fundamental feature of the physical universe, of the life process, of the functions of the mind, and of collective behaviour. Time is an all-pervasive, intimate and immediate part of human experience. Time has been the subject of much study and debate in the arts, the sciences, the social and behavioral sciences and the humanities.

Since 1966, the International Society for the Study of Time (ISST) has been providing a framework for an interdisciplinary dialogue about the nature of time. KronoScope, edited by an international board of scholars, carries forward the work of ISST. It offers a forum for the cross-fertilization of scholarly and scientific study about the nature of time as seen from a range of perspectives and disciplines. As a journal, it can accommodate the expanding concerns of the global community in search of understanding and meaning. KronoScope invites critical contributions from all disciplines.

Instructions for Authors

KronoScope uses Editorial Manager, a web based submission and peer review tracking system. All manuscripts should therefore be submitted online to www.editorialmanager.com/KRON. Please make sure to consult the Instructions to Authors on Editorial Manager prior to submission to ensure your submission is formatted correctly.

Abstracting & Indexing

Emerging Sources Citation Index (Web of Science), International Directory of Philosophy, ERIH PLUS, Scopus, Sociological Abstracts.

VISUALIZING TIME

A RECENT SURVEY OF TIME-FOCUSED ART



CURATED BY ANTONELLA SBRILLI & LAURA LEUZZI



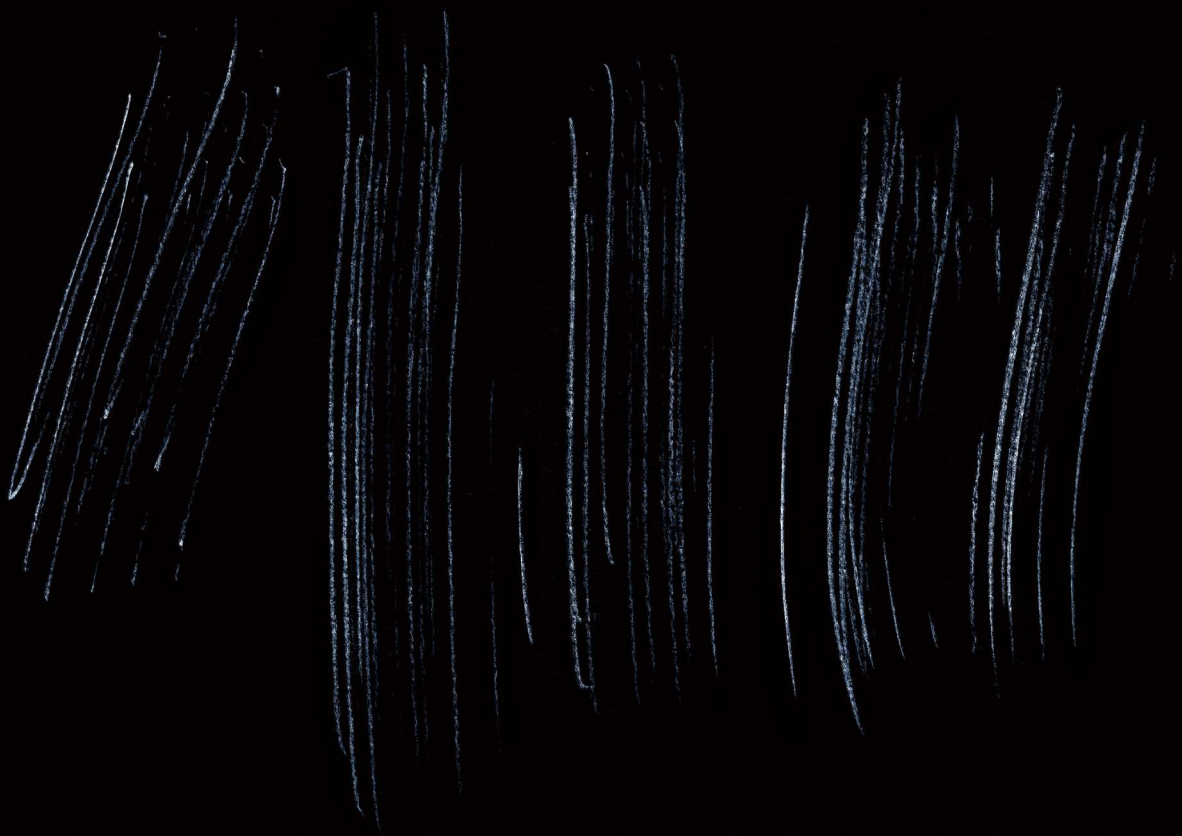
MARIAGRAZIA PONTORNO

4th January. Everything I know

A floating laboratory on a cargo ship reflects on the relationship between art and science, with the contributions of a “virtual crew” of intellectuals, re-enacting the journey accomplished in 1817 by Leopoldina of Habsburg in Brazil, together with artists and scientists. The exhibition aims to convey the sense of this experience, through a visual narration capable of recreating the atmosphere lived in the ship: of wonder, encounters, performance, which unfolds over time.

*4th January. Everything
I know*, 2018
performance, ship's
logbook, blog
COURTESY ARTIST



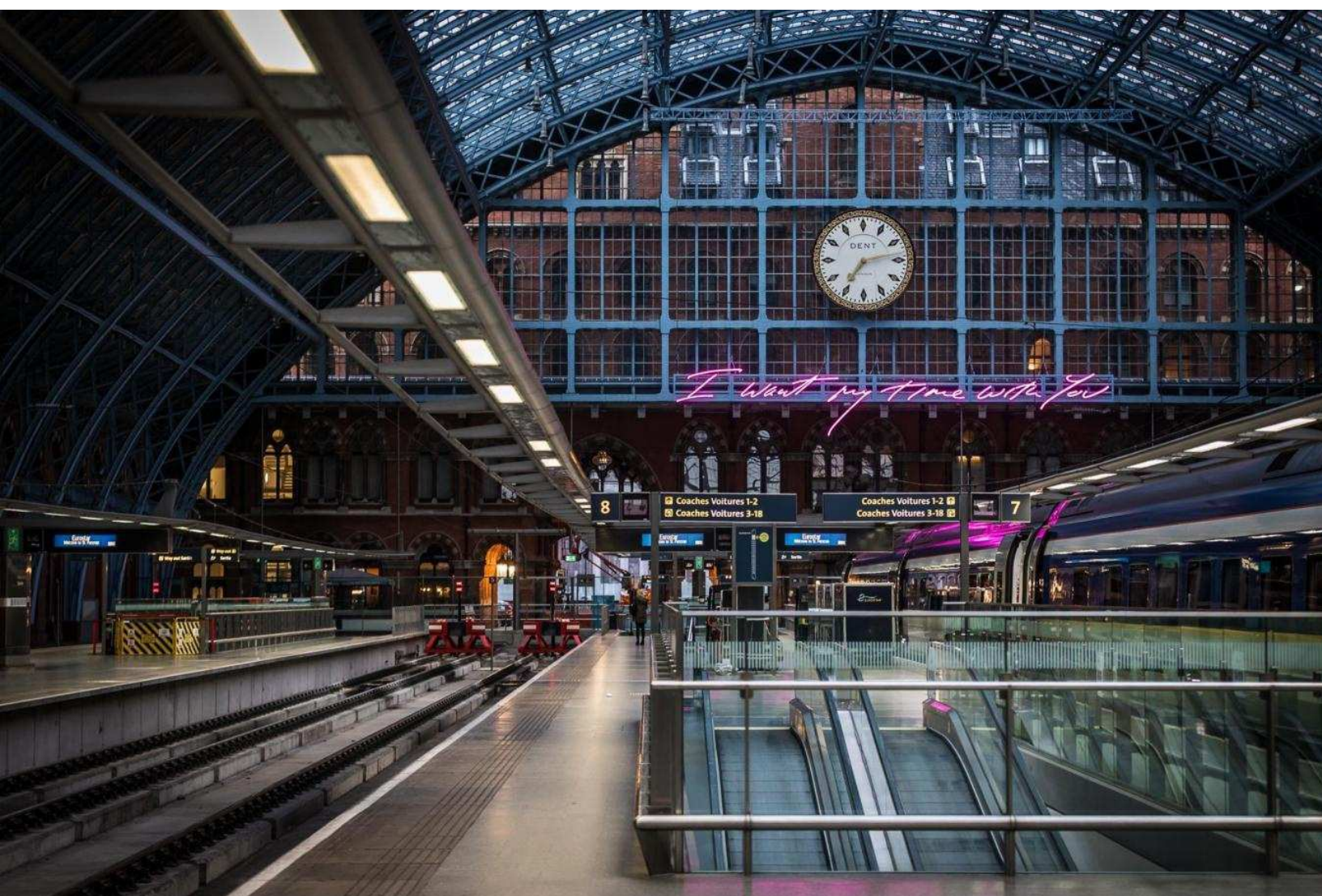


ZHAO ZHAO

One Second

Zhao's *One Second* drawings capture otherwise ephemeral moments in time, marking paper with single, fluid gestures that stretch across the face of the paper. Zhao creates the drawings by holding a group of ten pencils in his hand; his spontaneous sketches end up consisting of multiple lines that vary subtly in intensity, weight and depth, even as they follow the same movement across the surface of the paper. Sharp, vivid and almost jagged in shape, the lines evoke notions of a rash, aggressive guiding impulse. The works are described as “encapsulat[ing] a vicious loss of control”. In this sense, Zhao Zhao's *One Second* drawings find echoes in the conceptual foundations of modern art movements such as Abstract Expressionism, where artists acted on their emotional impulses, allowing the subconscious mind to guide their acts of physical mark-making.

One Second, 2018
oil on canvas
COURTESY TANG
CONTEMPORARY
ART GALLERY



TRACEY EMIN

I Want My Time With You

In the largest text piece she has ever made, Tracey Emin reminds travelers to stop and take a moment in one of the UK's busiest railway stations. The intimate words 'I Want My Time With You' now stretch 20 meters across the famous Barlow Shed roof, hanging directly below the St. Pancras clock. Emin elaborates saying: "It sounds really simple, but there's a kind of question mark at the end of it... It's very open ended."

I Want My Time With You, 2018
light sculpture
St. Pancras Station, London
COURTESY ROYAL
ACADEMY



PETER LIVERSIDGE

From home - how far the moon has, and is, moving away from the Earth since the moon landing, July 20th 1969

From home – how far the moon has, and is, moving away from the earth since the moon landing, July 20th 1969 (2018) is a perfectly judged inclusion. A fabric measuring tape hangs in the gallery 186.2 centimeters off the ground, marking the distance the moon has traveled away from Earth since Apollo 11 first touched its surface.

From home - how far the moon has, and is, moving away from the Earth since the moon landing, July 20th 1969, 2018
framed proposal, 1000-year installation plan 1969-2969, 38 meter long measuring tape, monofilament
COURTESY ARTIST

PROPOSAL FOR RICHARD AND FLORENCE INGLEBY AT THE INGLEBY GALLERY,
33 BARONY STREET, EDINBURGH, EH3 6NX.

For the exhibition: Jacob's Ladder.

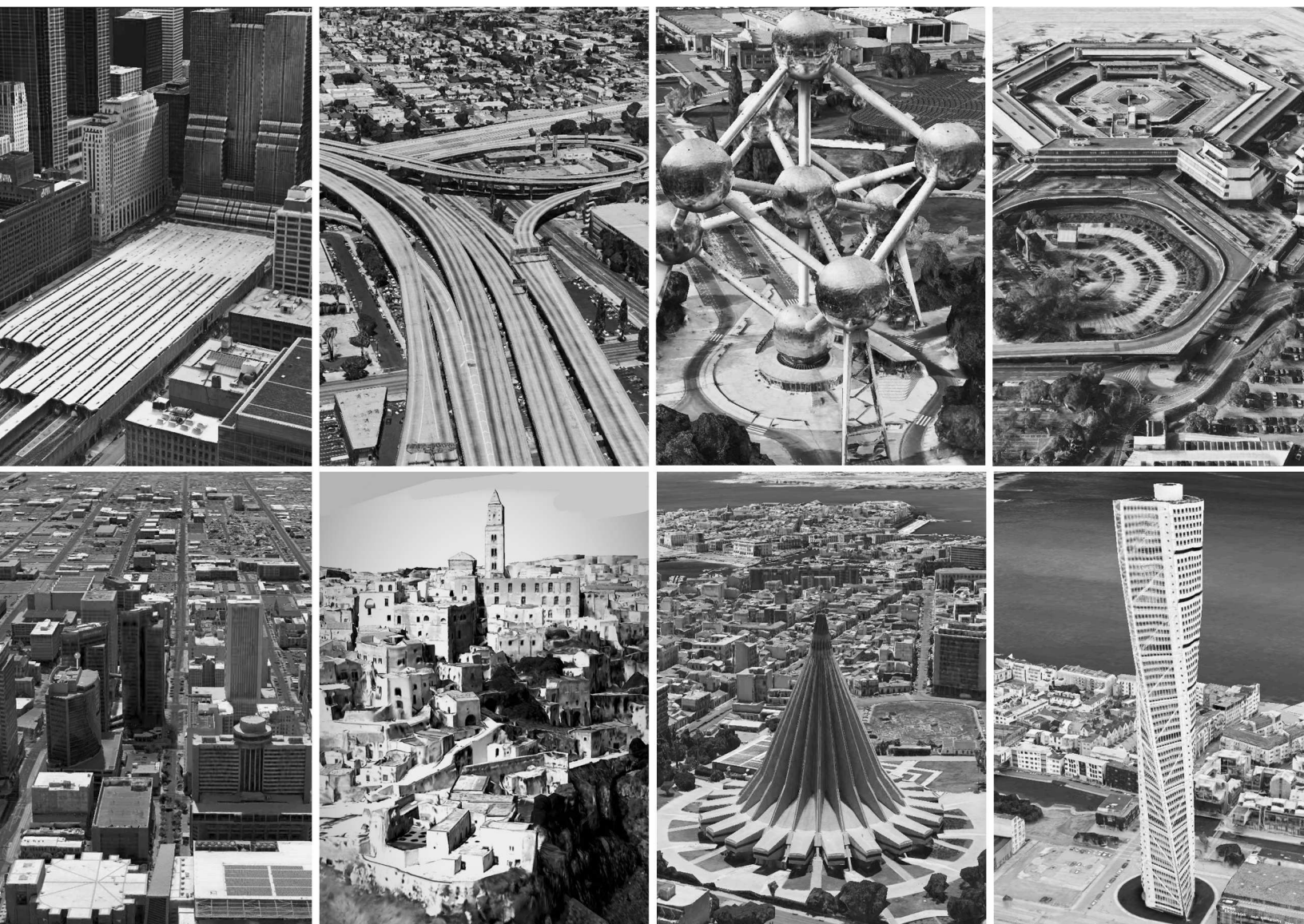
27 July - 20 October 2018.

I propose to place a 38 meter long spooled tape measure directly on the floor of the Ingleby Gallery at 33 Barony Street, Edinburgh, for the exhibition: 'Jacob's Ladder'.

The tape measure will be installed on the floor in a coil, from this position the hooked end of the tape measure will be un-coiled to a height of 186.2cm, and held at that height by monofilament. 186.2 is the distance that the moon has moved away from the earth since the moon landing on July 20th 1969. Each subsequent year from ~~2018~~ 2018, on July 20th the tape measure will be extended by 3.8cm, the distance the moon is moving away from earth annually.

At a length of 38 meters the tape measure is long enough to delineate the distance the moon will have moved away from the earth since July 20th 1969, and from that point to a thousand years into the future, until it is fully extended on July 20th 2969.

Peter Liversidge.

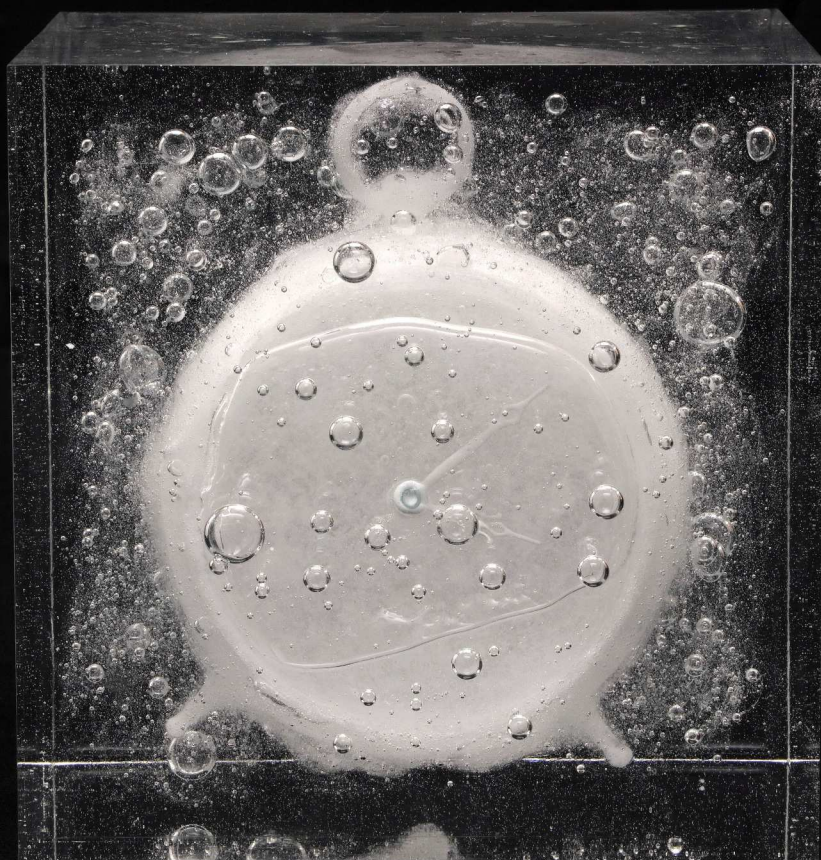


DANIELA COMANI

Planet Earth: 21st Century

The starting point of Daniela Comani's work *Planet Earth: 21st Century* stems from visual material sourced from Apple Maps. Apple bought the 3D software from Saab-Military Industries in 2011 for use on mobile devices. This App "Flyover" uses a mix of satellite images and 3D rendering. As the user, you can fly through the cities or even the country, however the maps are still being developed. Experiencing cities of the world becomes accessible to everyone. Similar to standing in front of a postcard stand, the user (the traveler) can choose their favorite virtual city view, like a souvenir of the trip. Around the world in one day.

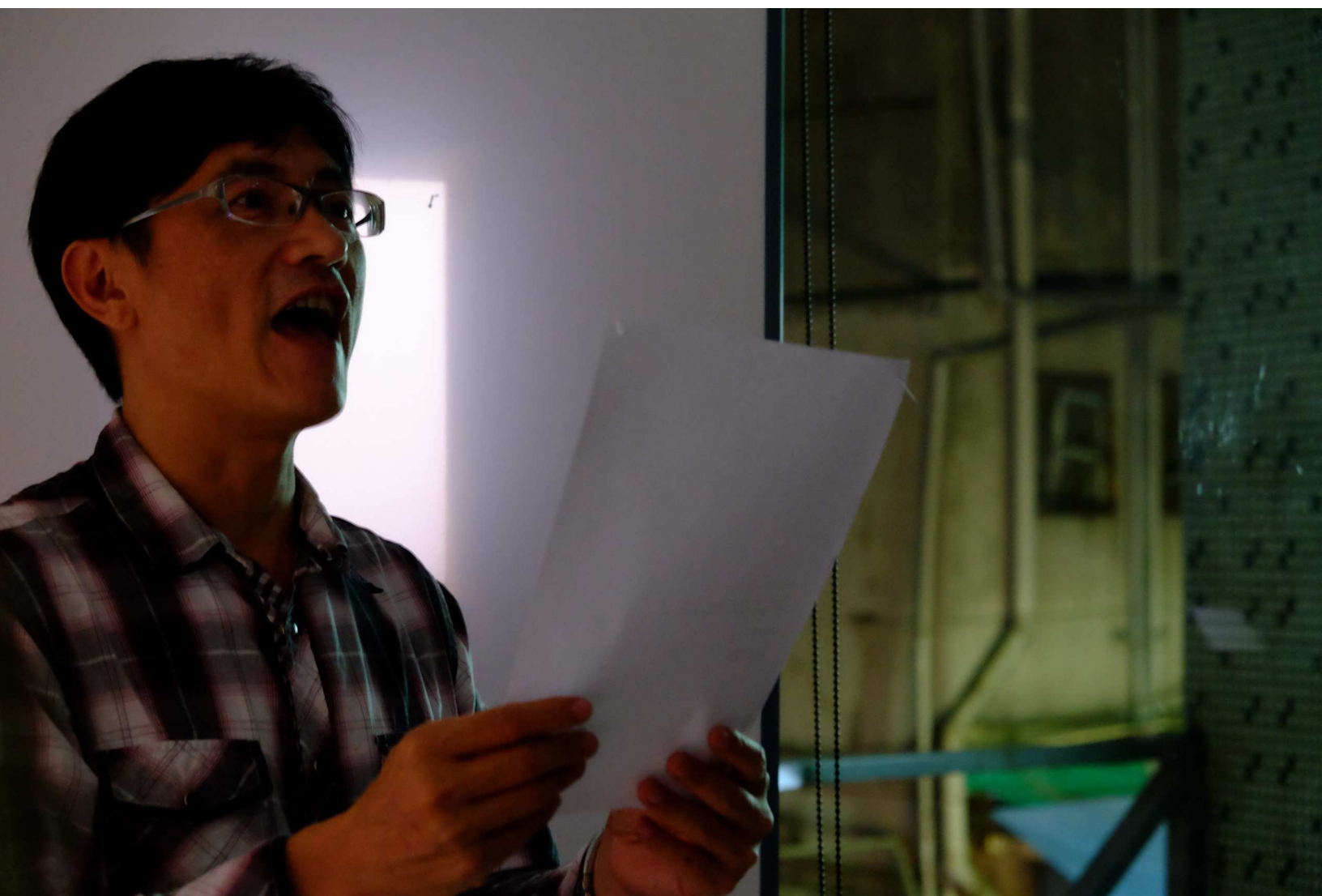
Planet Earth: 21st Century, 2018
postcards of a virtual journey (detail)
COURTESY ARTIST



AIKO MIYANAGA
Waiting for Awakening - Clock -

Aiko Miyanaga is known for her installations using materials such as salt, and specially-made objects with naphthalene, which she shapes into daily commodities and preserving their historical essence. She visualizes time by tracing signs of its presence.

*Waiting for awakening -
clock -*, 2018
naphthalene, resin,
mixed media
PHOTO KIOKU
KEIZO
COURTESY MIZUMA
ART GALLERY



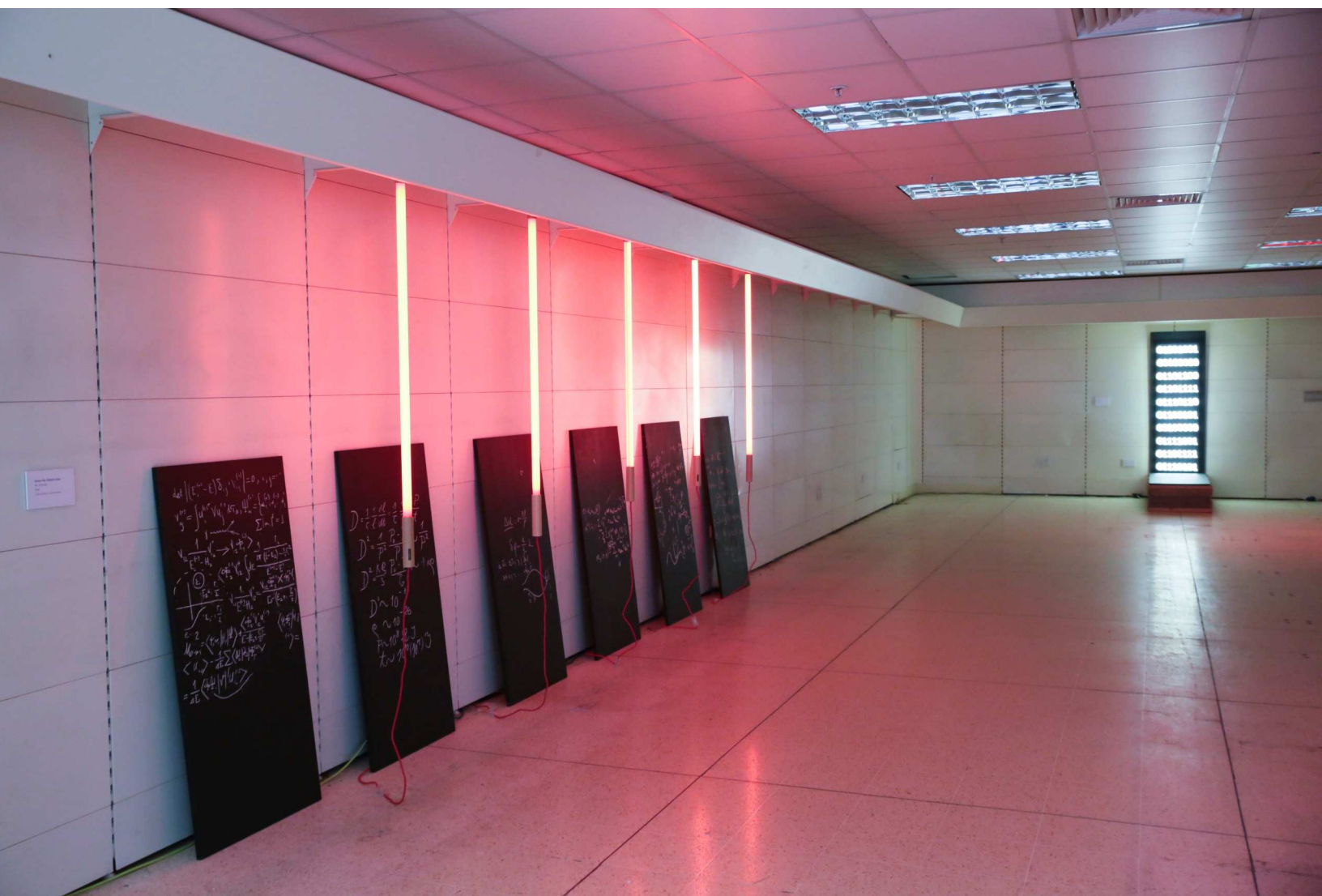
MARCO GODINHO

Every Day a Poem Disappears into the Universe

Inspired by a ritual observed in the streets of Taipei the first day after the full moon, where merchants make an offering in front of their door of food and burn conceptual money to thank the gods for the proper functioning of their business. For the duration of the exhibition, Godinho sent a new poem to the director of the exhibition space. The poem was printed and made visible all day long inside the exhibition before being read in silence to the universe and burned outside at closing time.

*Every Day a Poem Disappears
into the Universe, 2018*
performance, installation
COURTESY ARTIST



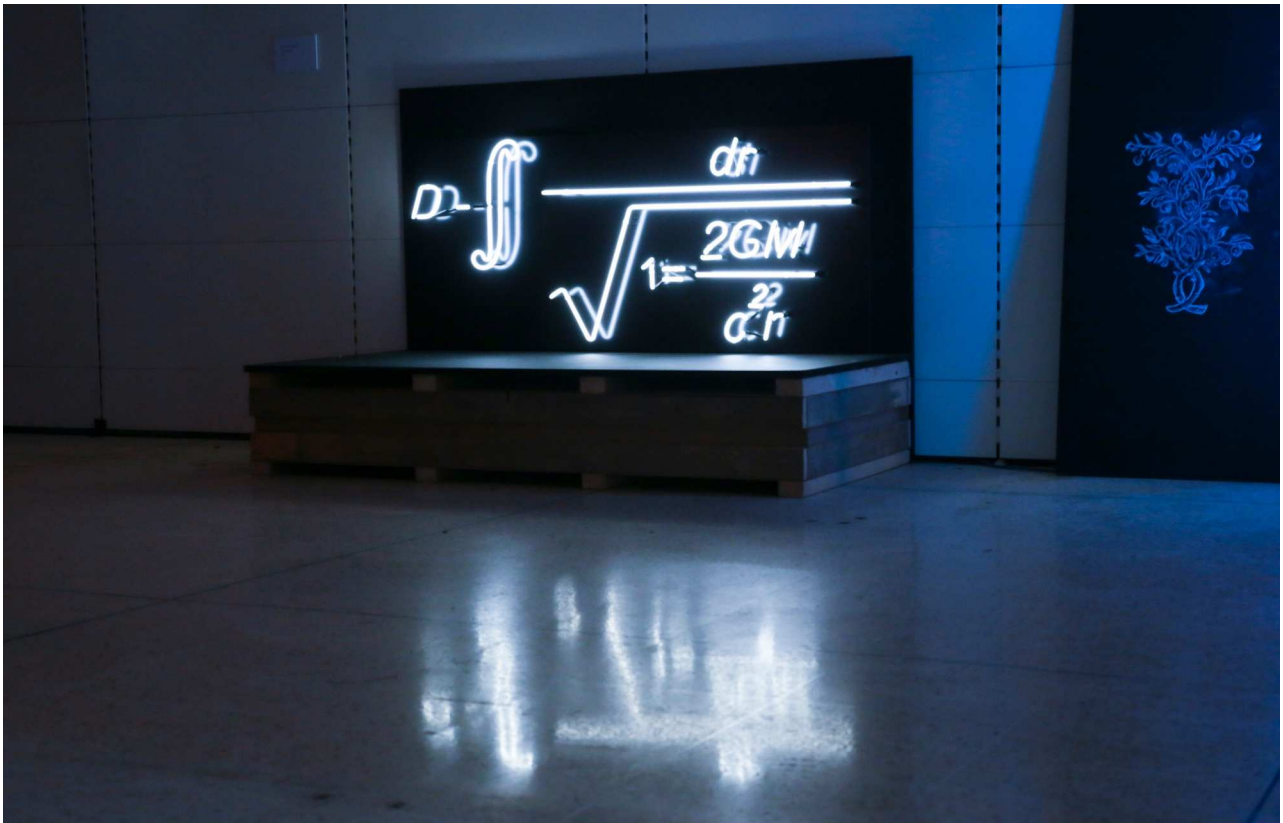


AL AND AL

Down The Rabbit Hole

AL and AL invite us to jump down the rabbit hole and explore the mind-bending reality of space-time in a site-specific installation next to Dundee's most loved clock. Located at the heart of the Wellgate shopping Centre in Dundee, Scotland, the Nursery Rhyme Clock has mesmerized generations of children in Dundee and inspired families to watch and mark time together. Influenced by this magical timekeeper, AL and AL's installation presents the World Premiere of their *Immaculate Conception of Isaac Newton with the Birth of Absolute Time*.

Down The Rabbit Hole, 2018
installation
COURTESY NEON
DIGITAL ARTS FESTIVAL





OLAFUR ELIASSON & MINIK ROSING

Ice Watch

Olafur Eliasson and geologist Minik Rosing installed *Ice Watch*, a group of twenty-four blocks of ice, in front of Tate Modern in London. The ice-blocks were fished out of the Nuup Kangerlua fjord in Greenland after becoming detached from the ice sheet. As a result of global warming, more icebergs are being produced. This is contributing to rising sea levels. When they were installed, each ice block weighed between 1.5 and 5 tonnes. The estimated energy cost for bringing one of these blocks to London is equal to one person flying from London to the Arctic and back to witness the ice melting.

Ice Watch, 2018
temporary sculpture
COURTESY ARTIST



NEWS & VIEWS

RECENT CALLS, UPCOMING CONFERENCES, FUTURE OPPORTUNITIES



5th INTERNATIONAL CONFERENCE ON TIME PERSPECTIVES

University of Applied Administrative Sciences NRW
Cologne, Germany
July 13-17, 2020

Time and time perception is a central concept for a wide range of social and natural sciences. The perspectives on time are rather heterogeneous in different disciplines and need a broader framing. The International Time Perspectives Conference has provided an arena for within discipline and interdisciplinary discourse, interconnecting different streams and schools in the study of time since 2007. We welcome contributions from psychology and other social sciences, natural sciences, health sciences, and the humanities, including anthropology, philosophy, and political science, among others. We also aim to broaden the scope of our discussion by supporting interactions with other disciplines like, for example, the arts, urban studies, gender or literature studies, economics, design, and information technology, just to name a few.

We are interested in interdisciplinary approaches to time research. Streams might include following areas:

- everyday experience, understanding and perception of time;
- temporal practices of individuals, groups, societies or cultures;
- time perceptions;
- mental time travel;

- temporal cultures and socialization;
- cross-cultural time research;
- neural correlates of time perception;
- near-death time experience;
- clinical implications of time perspective;
- procrastination;
- the history of time taking;
- biographical work and time perspective, time management;
- time in business, time lack, inequality of time, social status and time use, gendered time practices;
- evaluation of time use;
- work-life-balance and conflicts;
- subjective understandings of time;
- education and time, career success and time orientation;
- considerations of future consequences, hope;
- power and time use;
- acceleration, pace of time, rhythms and time structure, flow;
- chronotypes;
- resonance experience;
- (re-)construction of the past;
- mindfulness and time, boredom and the length of time;
- biographical patterns;
- time in the construction of identity.

temporalbelongings.org

FINALISM IN JUDGMENT, FINALISM OF JUDGING

Firenze University Press
Aisthesis Vol. 13, No. 1
April 2020

The relationship between finalism and judgment has been often interpreted only as the finalism attributed, by judging, to certain object or phenomena. Sometimes has been inversely interpreted from the point of view of the finality of judging itself, i.e., the teleological orientation of judging in the complex dimension of life.

Judging seems at the same time a circular movement, starting from the nature itself, and from the nature of our mind, going to the dimension of objects, structures, natural kinds, beauty, etc. and coming back to nature of man, and nature itself, by a sort of mirroring. Such dynamics of complementary mirroring between inverse finality relations has been already explored from a philosophical point of view by German Idealism (Fichte, Schelling, Novalis, Hölderlin, Hegel) but also by Phenomenology (Husserl and Merleau-Ponty). At the same time, such topic opens new links to other disciplines and to an interdisciplinary approach to the activity self of judging as well as to the conception of finality in many research fields as ethno-anthropology, psychology, cognitive science, history of ideas.

The issue of *Aisthesis* devoted finalism in judgment and finalism of judging intend to rethink such “ordo inversus” of the relationship between judgment and finality bridging gaps between philosophy (and aesthetics) and other disciplines, by putting together essays of scientists and scholars focusing the double dimensionality of judging.

Aisthesis publishes academic articles in Italian, English and French, current research articles, symposia, special issues, and timely book reviews. It publishes two issues per year and contains a thematic section, a miscellany, notices and reviews. Each issue contains invited papers and contributed papers.

As part of the submission process, authors are required to check off their submission's compliance with the journal style from our website.

Articles should be submitted using the online submission system. They should be in .doc or .docx format, A4, paginated, double spaced throughout (i.e. including references and quotations), with ample margins. They should be formatted for blind review, not normally exceed 7,500 words and should include an abstract of no more than 150 words and five keywords (in English).

Tables and illustrations should be submitted to the online submission system in separate files to the main manuscript. Please be aware that you may have to secure figure permissions upon acceptance.

Submission deadline: October 31, 2019
fupress.net



TIME IN ELECTROACOUSTIC MUSIC

Cambridge University Press
Organized Sound, Vol. 25, No. 2
August 2020

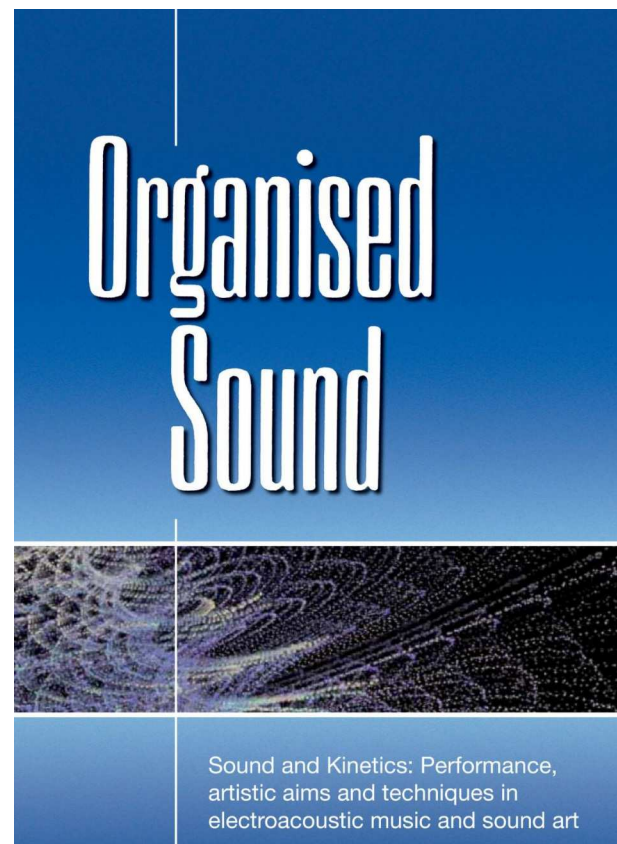
Music is a time-dependent art - often conceived and expressed with explicit reference to the temporal placement and duration of sounds. Yet its attraction is generally in the temporal design which may evoke a more subjective feeling of time passing. The patterning of time in music usually draws on familiar impressions of time, but is welcome because it is clearly outside the mundane due to its nature or treatment. Complex works often compress and juxtapose different paces of time within a relatively short duration, in amusing or unpredictable ways.

One of the problems with discussions about time is that the perspective can influence the choice of terminology and metaphor, and these are not always shared across disciplines. In many disciplines, the regularity of the clock measurement aspect of time is considered the most useful model, whereas in the temporal arts, as in philosophy, the subjective experience is often the more central aspect. But for musicians, who use the clock time model for both performance instructions and digital creation, the apparent dichotomy and possible correlation between these perspectives is rarely acknowledged, despite their being crucial to our craft.

To improve the effectiveness of our investigation, we would benefit from some easily shared language to speak about the perception and cognition of time and its manipulation in electroacoustics, as well as an understanding of current theoretical models of time. This issue therefore is particularly interested in presenting a summary and critical review of existing schema, metaphors, terminology, software, etc. which have been used to describe temporal aspects of music and how these might be adjusted, if necessary, to thinking about this corpus of music in its various manifestations. In addition, it would be helpful to compare these to perspectives of time used in cognate disciplines, to enable us to discuss their advantages and weaknesses in relation to the analysis of electroacoustic music.

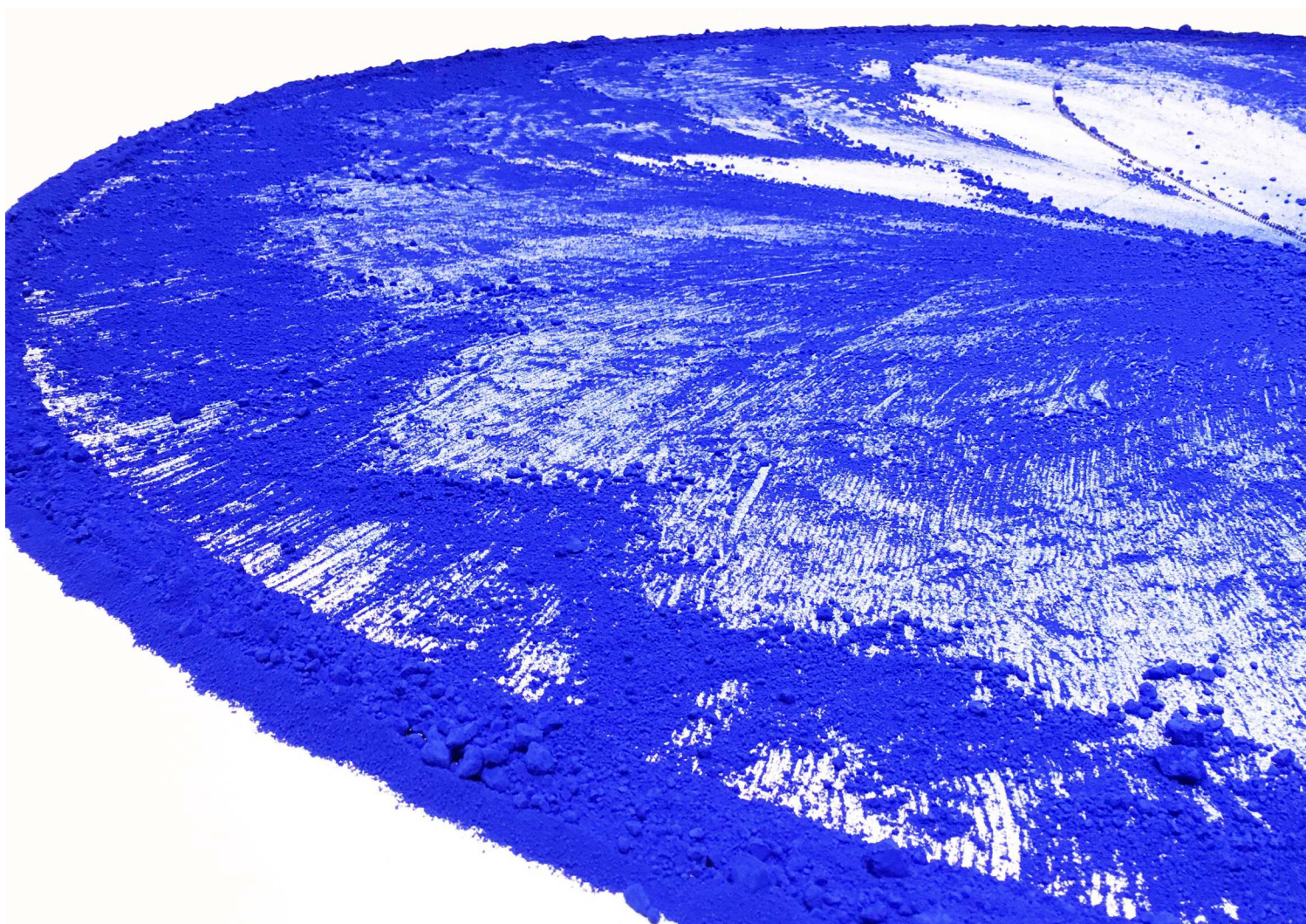
The investigation can also start from an examination of specific aspects of electroacoustic music composition and performance, as revealed, for example, in collected interviews or psychological studies. Does the ability to work to millisecond precision and looking at visual sonographic representations of a work have an effect on the composer's attitude towards the creation of illusions of time presented in the work? How does the presence of previously unheard sounds or the absence of physical sound-producers affect the listener's reception and sense of time? How does the absence of a quasi-universal symbolic system for the representation of time information influence electroacoustic composition mechanisms? Do presentation formats - for example, listening in darkness, multi-channel diffusion - enhance the appreciation of temporal design in some ways? What are the performance challenges to mixed electroacoustic-live pieces, and how does the presence of visible sound-producers affect the perception of time? How does/could our analyses of electroacoustics reflect temporal aspects? Would it be beneficial to build on extant philosophical frameworks (e.g. Bergson)?

Does electroacoustic music provide exceptions to the 'note-based' music discussed by previous authors about musical time (e.g., Zuckerkandl, Rowell, Yeston, Kramer, London)? Do we need to modify mainstream music psychology studies on rhythm to make them more applicable to the electroacoustic field? Can we propose more relevant models for psychological-type investigation of electroacoustics? What are the differences/similarities between the forging of sense of time during composition, its articulation during interpretation, and its reception during listening in EA/computer/technologically-mediated music? Finally, to paraphrase Bergson in a somewhat provocative way, is music the art of time (an uninterrupted stream of successive and similar temporal units), or the art of duration (made up of successions of variable states of consciousness)... or both?



SCULPTURE'S CONTINUUM

ARTIST ANDREW COZZENS' WORK STRIVES TO CREATE ALTERNATIVE EXPERIENCES OF SPACE AND TIME. HE EXPLAINS WHY THE VIEWER'S EXPERIENCE IS MORE IMPORTANT THAN THE WORK ITSELF.



INTERVIEW BY EMILY DICARLO

ED: As a visual artist, your research focuses on "time subjectivity and its effect on human experience and aging". Can you elaborate on this and provide a few examples of work that address this line of research?

AC: I refer to time subjectivity as it pertains to the human experience of duration. This is the phenomenon whereby our body overestimates or underestimates time passage depending on the situation. This is evident when time seems to drag by during times of boredom and speed up when we engage in pleasant or engaging activities. In physiological terms, these phenomena relate to the number of impulses to the brain that our body receives during any given experience. For example, let's assume that it takes roughly 20 seconds to accumulate 100 impulses. In an exciting or pleasurable situation, your impulses are firing at a faster speed than usual. As a result, your accumulator will reach the 100 pulse mark more quickly, which, when compared to the average 100 pulse per 20-second experience, will cause the 20-second duration to arrive "faster." This works the other way as well. When you encounter a boring situation with little stimulation, your impulses fire slower than average. This causes the 100 impulse mark to be reached later than normal resulting in the 20-second duration seeming to pass more slowly. In short, our individual experience of time is highly dependent on our experience of any given situation.

My interest in how this subjective experience of time affects our physical aging began with my encountering the work

of Dr. Ellen J. Langer, a psychology professor at Harvard University who has performed and written about many experiments concerning the speed of our culture and its relationship to aging. One experiment that directly led to my interest took place in 1979 when Dr. Langer had a series of doctors test a large group of older men based on 100 markers of aging, such as height, flexibility, vision, taste sensitivity, intelligence, and memory. She then formed a retreat in rural New Hampshire that re-created a setting in the year 1959. The men were instructed only to speak as if it were present day 1959. They had discussions about politics, the products, the music, etc. of 1959. After the retreat was over, the men were tested again on these same markers of aging. Not only did they seem happier and more content with their age, as reported by their relatives, but they also tested up to 20 years younger physically than before the retreat. To me, this experiment suggests that our aging process, just like our experience of time in general, is relative, and thus subject to manipulation.

As an artist, I am much more concerned with the viewer's experience than the artwork itself. Given my aforementioned interests, I try to create a situation wherein duration becomes primarily an experience rather than a measured interval. This, in turn, triggers a physical reaction which, depending on the viewer's willingness to endure, may alter how they physically age.

With this hypothesis in mind, I often design works that create anticipation or boredom in the viewer. By using unconventional materials, I draw connections to industry, nature,



ABOVE:
Center Off Center, 2017
OPPOSITE:
Model of Emotive Time
Perception, 2010
COURTESY ARTIST



time theory, art history, and medical pedagogy. Examples of this can be seen in works like *Model of Emotive Time Perception* and *Looking Forward*. In *Model of Emotive Time Perception*, a human-sized industrial vice is squeezing a red balloon measuring eight feet in diameter. As the viewer enters the spatially tight room to see the work, a motion sensor is triggered causing the vice to "turn on" and slightly squeeze the balloon just before shutting off to wait for the next viewer. The balloon, being very flesh-like and delicate, draws a connection to the body juxtaposed with the hard, unwavering edges of the cold industrious steel. This situation causes the body to tense up with anxiety and concern. How much longer until the enormous red balloon bursts in someone's face? What will happen when it does? Who will be present? Will it be me? How would I react? These concerns fill the psyche and often cause a direct physical response.

In *Looking Forward*, the goal for the viewer is reversed. Upon entering the gallery, the viewer sees a 300-pound steel I-beam resting horizontally on a pedestal as if laid out for burial. As the viewer approaches to investigate, they again trigger a motion sensor housed inside the pedestal. A few seconds later water slowly seeps from a series of small unobtrusive holes in the top of the I-beam. As the water slowly spills over the entire surface of the steel, it pools and softly drips off the edges and back into a hidden reservoir inside the pedestal creating a subtle fountain-like drip sound that seems to come from nowhere. The water eventually dries, and the gradually rusting I-beam lays waiting for the next viewer. Using a steel I-beam, a basic building block of

industry, and allowing the water to slowly destroy it is a way of defeating the I-beam's industrial purpose. The viewer hopefully finds interest in the simple and boring process of rusting, which in turn invites them to slow down to the pace of the process they are watching. Beyond creating a calming physical reaction in the viewer, I am using materials that are designed for temporal efficiency within an industrial context- a context that has profoundly shifted our experience of time and damages a person's psyche, emotional stability, and physically aging body. This work offers a very different physical reaction than that of the large red balloon. However, both represent the manner by which art can affect one's perception of time and one's physically aging body.

ED: You recently returned from Taiwan where you are exhibiting a version of your work *Center Off Center*. In context to our current accelerated, hyper-capitalist culture, could you talk a little about how this work brings slow-time meditation to the viewer?

AC: *Center Off Center* consists of a very slow-moving chain that winds into a hole on a platform, dragging a blue powder pigment across an 8 ft circular piece of paper to create a large drawing. The gallery was empty except for this work and three benches for viewers to relax while watching the slow evolution of the work. The sounds of binaural beats filled the gallery. A binaural beat is an imaginary tone created in the brain when it is presented with two different frequencies at the same time. The two tones that were playing in this work stimulate neural pathways in your brain



that naturally occur when meditating. Beyond the physical response to the auditory component, this work invites the viewer to take an interest in a very boring process that is, in my opinion, simultaneously deeply engaging.

I exhibited a similar version of the work in Taiwan because the exhibition took place in Taipei, a global city that is known for its major high-tech industry where speed is key. I wanted to take the opportunity to show work that acts as a counterbalance to that environment. I used similar visual and auditory cues while adding different colored pigments that speak to Taiwan's continuously shifting political identity. My intention is for the viewer to experience the present, develop a narrative of the past, consider the future, and realize their own placement within the continuum of the work. By utilizing the gallery as a space for contemplation that exists outside of the accelerated world, I created a place for the viewer to stop, reflect, and revel in the painfully boring.

ED: I understand you recently exhibited your 2017 work, *End Game*, which touches on themes of progress in relation to the degenerative effects of time. Our contemporary view of 'progress', once associated with utopian, modern ideals, has shifted. How does this work address this evolved perspective?

AC: I think it addresses our new perspective via its placement of the viewer. Whether they want to or not, they become part of a collective dilemma of action vs inaction or apathy. *End Game* consists of a series of shelves, each wired to a digital clock. Each

clock counts down from a different starting point. The clock on the far left is programmed to hit 00:00:00 at the opening of the month-long exhibition, and the clock on the far right counts down until it hits zero at the end of the exhibition. On each shelf sits one of six ceramic vessels hand-made for this exhibition by ceramic artist Thomas Lowell Edward. As each clock reaches zero, the shelf automatically drops, leaving the vessel to fall crashing to the floor. Once the vessel has dropped, the clock begins counting upward from the moment of destruction. This happens one after the other until the final drop occurs at the closing of the exhibition.

The piece invites the viewer to consider a series of questions. What is success? What is failure? Can they do anything to affect the outcome? All of these questions are considered in the context of a ticking clock. The viewer must dwell in uncertainty as the world of the piece "progresses". The pricing of the work demands even more consideration. The economic structure of *End Game* reflects the demand for immediate action as opposed to a delayed one depending on the viewer's perspective or priority. The intention is not to sell the vessels. In fact, the goal is to destroy all six of them. However, each vessel increases dramatically in price from left to right as they become more scarce with every drop. This adds to the consideration of time as it pertains to action or inaction. Similar to many of the situations we are collectively experiencing in today's climate, the cost of action and extent of destruction increases the longer we delay.

ED: Your *Smoketown Life|Line Project* is a sculpture you created



End Game, 2017
COURTESY ARTIST

during a residency in Louisville, Kentucky, which relied on gathering data from the local community to realize it. Can you talk a little about the project's goal, the type of data you collected, and how this relates back to your overarching research on time subjectivity?

AC: The Smoketown Life|Line Project was a very different avenue for my work, an avenue that is becoming more and more important to me and my practice. Most of my previous artwork was developed for a traditional white cube gallery space. Although my artwork isn't traditional, prior to the Smoketown Project it was still somewhat limited to an abstract dialogue between people that happened to see it. This work marks a pivot in my practice that took my interests in time perception and specifically its relation to human aging from the theoretical and abstract to the practical and concrete. It began with a Project HEAL Artist Residency with IDEAS xLab and Creative Agents of Change when I was awarded a one-year residency split between New York City and Smoketown in Louisville, KY. I was to address the health inequity experienced by members of the Smoketown community. The life expectancy of this particular neighborhood is 10 years less than the rest of the city despite being located next to the largest concentration of healthcare facilities in the region. This statistic obviously raises a lot of questions, and I was excited to engage them as a visual artist. Traditional quantitative medical data didn't necessarily offer the answers, so I considered whether an accumulation of qualitative data was needed.

To gather direct information from Smoketown residents as part of the discovery stage, I constructed a temporary outdoor sculpture on a high-traffic corner in the Smoketown neighborhood. The sculpture reflects conversations that occurred over one month. The work was a set of tubular metal rods vertically installed that grew in number as the members of Smoketown shared their stories with me. I hoped that while working on the site, curiosity would encourage pedestrians to stop by and take an interest in the project. It was successful. These initial interactions spread through Smoketown as residents encouraged their friends and family to come forward and tell their stories to me. Some also spoke on behalf of their family members who were unable to come themselves or that were currently incarcerated.

I had a list of questions in mind that would inform the construction of each rod. The vertical rods began straight as they stemmed from the ground. A bend or kink was put into the rod depending on when a traumatic experience occurred in that individual's life. I started by asking the person's age and measured the rod to that size. From there, I asked questions concerning the person's history of addiction, family/ parental issues, incarceration, mental illness, violence and other traumatic experiences which may have prevented them from achieving their dreams or caused the individual to "stray from the straight and narrow path." Each bend had a color associated with it and would ultimately have a colored plaque or signage nearby to indicate what sort of trauma it represented. As each steel rod was bent, the initial structural integrity was compensated over and over again, leaving the rod far from straight- just as these traumatic experiences prevent a full recovery. The height of the rod, representing the age of the individual, also got shorter with every bend. This represented the toll that it has on the overall health or lifespan of that individual. This is a visual cue to represent the time that has been lost due to traumatic life experiences.

Although this visually abstract work doesn't contain any specific information about the individuals, one is able to "read" the work to better understand the trauma that is affecting

the lives and health of the citizens of Smoketown during specific times in their lives. This leaves the viewer to wonder: How tall might their line have been without all of these incidents? How can we prevent these things from happening to the individuals whose lines are less than one foot tall? What would my line look like? What will my children's lines look like? This sculpture was meant to offer a visual interpretation of the issues that affect the health of Smoketown- both individually and holistically. My goal is that this project will ultimately develop into an online tool to help communities collect qualitative data that can be used to address policy change.

ED: Looking forward, I understand that you are working on a large-scale installation that will use a series of cameras and video projections in a space that will skew the viewer's experience of time. Can you tell us a bit more about this project and how technology can be used as a tool to manipulate a viewer's temporal experience?

AC: I address time perception as it pertains to the human sensual experience- visually for the most part. Some physicists claim that time is nothing more than how we measure our own perception of change. With this in mind, I often wonder how I might attempt to alter people's perception of time, and consequently that of reality, in a way that disorients their self-awareness in physical space over time. If I can cause the viewer to question their own understanding of time, I can lead them to a heightened consideration of it. When we pay close attention to the passage of time, our perception of it begins to slow down as if we are perceiving duration in individual frames. This is different from our common experience of time as a continuous flow of moments, which prevents any opportunity to truly experience and appreciate the passage of time.

With this goal in mind, I am working, albeit slowly, on a large installation that begins with creating or finding a space in which the viewer can wander. Through a very specifically synchronized series of hidden cameras and projectors, I will use face-recognition software to capture video of viewers in the space, store it, alter it, and later project it back throughout the space allowing the viewer to witness and possibly interact with their previous selves in real time. This would create an altered understanding of the viewer's own existence within the space as if the fabric of time has been folded before their eyes. I assume this sounds confusing and sort of crazy, and that's probably because it is. But if I can do it, and the technology meets me there, many of my interests and goals would collide. That is very exciting. ■

Smoketown Life|Line Project, 2017
COURTESY ARTIST



EINSTEIN'S ANNUAL RINGS

PROCESS DIARY: THEORY, CONCEPT, DESIGN



WRITTEN BY WILLEM FERMONT

INTRODUCTION

After many years of studying time and time-related features, I decided that understanding our world is much easier if I accept that time is non-existent, although humans are soaked with time-like concepts and perspectives. The integration of the two components of this apparent controversy is out of the scope of this work (Fermont, 2019, *in prep.*). Playing with time and time concepts is a major issue in my art works. One example of such an art work is described below: *'Einstein's Annual Rings'*.

We measure states, compare these states and draw conclusions about sequences, causes and effects. But all these measurements, comparisons and conclusions are mental constructions. Every construction of a timescale is based on relative comparisons, enabled by our incredibly well-equipped brains. This comparison of different states, either in time, or in space, is only possible because our brains function as a system with a tremendous capacity for information storage, retrieval and interpretation. Without such a system time and place are irrelevant.

Astronomical, geological and paleontological methods, next to many other methods are available to reconstruct our current geological timescale. During the last millennia numerous new methods were developed for relative time measurement, and careful application and cross correlation of astronomybiochronology, cyclo-stratigraphy, sedimentology, geomagnetic polarity stratigraphy, radiometric stratigraphy, oxygen isotope stratigraphy, and others, resulted in an increasing precision of the Geological Timescale which covers the origin of the Earth some 4.54 billion years ago up to Recent (compare the evolution of timescales in Harland et al., 1989, and Gradstein et al. 2012).

After Newton's classic space-time concept, Einstein's 'relativity of time' concept was a major step in the right direction, towards a better understanding of our world, but confusing, because time does not exist as a physical entity, and curved time neither. Einstein put time into a new perspective, approaching the time-space problem with a mathematical solution. Mathematicians use this kind of approaches and solve many problems, similar to the application of i , the imaginary square root of -1 to solve complex equations. Attempting to visualize a complex number i is not advisable, and the same holds for the visualization of a curved time-space.

I hope readers do not misunderstand me. I am a very great admirer of Albert Einstein. I called the project "Einstein's Annual Rings" in honour of Einstein, who would certainly have been glad about the assumption that time does not exist at all. Several years after the completion of Einstein's Annual Rings I visited the house where Einstein wrote his Theory of Relativity in 1903-1905. This house is now a museum - but unfortunately closed due to watershed in 2012 - at Kramgasse 49, in the Altstadt of Bern. Because of the leaks in the Einstein building I consumed, in deep thought, a cup of coffee in the adjacent restaurant "Einsteinhaus". There, sitting on a shaded terrace, I was rethinking the consequences of the present art work for myself.

THE THEORY OF TREE

One method of relative time measurement is dendrochronology, or tree-ring dating. This method is frequently applied to reconstruct the age of trees or pieces of wood, utensils or furniture, to date objects, or to reconstruct past atmospheric conditions.



Fermont cutting poplar, 2007

Since we know the laws of a growing tree, we choose by default one definite sequence, starting with number one in the heartwood centre of the tree and ending in the latest ring: the cambium cell layer just below the protective bark, which is the growing part of the trunk. The cambium produces annually new bark and new wood in response to auxins: hormones that stimulate growth in cells. Auxins are produced by leaf buds at the ends of branches, and as soon as they start growing in spring auxins are transported to the cambium. Due to seasonal fluctuations the amounts, the composition and the transportation of these auxins vary as well, which is reflected in the thickness, colour, cell structure and physical/chemical properties of each annual ring. Year by year the tree grows, and rings reflecting different circumstances are added annually to the tree. So, the instruments come into existence that allow us to reconstruct the past.

Annual rings form a fabulous library. Those who speak the language of the growth rings can create beautiful reconstructions of the past. A tree is an impressive book of time, if you know the page numbering.

THE CONCEPT

But what if we did not know the page numbering or the behaviour of a tree, its laws, its growth mechanisms, its constraints? Then the information stored in the tree lacks any significant ordering! If a tree has X annual rings, the annual sequence described above has $X!$ (X faculty) possible combinations. For a young tree of 5 years old, there are 120 possible sequential combinations of annual rings. This does not look impressive, but a 120 years old tree yields $0,67 \cdot 10^{198}$ possible sequences, a number that outreaches the number of atoms in the known universe. Without our knowledge of the tree's annual sequence the chance to come across the right order of annual rings is 1 out of $1,3 \cdot 10^{198}$, virtually zero. But since all possible distributions have an equal chance to be captured, the chance to find the exact reversal of the sequence of annual rings is the same. I used this idea to discuss the relativity of time concepts by means of an art work by turning outside-inside of the annual rings. With this project I aim to stimulate the discussion about the phenomenon of time and its dependence of *a priori* knowledge.

THE DESIGN

In the spring of 2006 I designed a kind of a tree sculpture. This tree was cut into four sectors and the tree sectors were turned inside out, forming a kind of rectangular sculpture. Now the younger growth rings are close to the centre. On top of it I positioned a virtual clock that turns counter clockwise. Figure 1 shows the original design.

REALIZATION OF EINSTEIN'S ANNUAL RINGS

I waited for a suitable tree. I am well equipped for waiting because in my opinion time does not exist! Fortunately, several months later on January 18th, 2007 a tremendous storm raged over the Netherlands. Near our house an enormous poplar could not stand the storm. Later it appeared that it was not only the storm that knocked him down. This old tree was already weakened by the activities of fungi, bacteria, insects and so on.

The diameter at the base of the tree measured approximately one meter and a half. The stump remained after the storm. He is still standing there, a hundred meters away from our house. Dead or not, within a year some 50 new shoots grew from the old stalk. How old are they then? I counted about 70 annular rings, which encompassed a period in which the world witnessed the beginning and the end of World War II, my birth, the setup of the forerunner of the European Union, the first space travel, the landing on the moon, the beginning and the end of the Cold War, and many other events.

I went at work. I saved the tree from the unfavourable fate of pelleting and combustion and brought two pieces of it home: a base part with a height of 1,50 meters, a second part with a height of 2 meters. Don't ask me how, but I succeeded to transport this mass of 4000 kg, approximately, to my house. After almost a year of cutting, towing, sawing, towing, flattening, towing, sanding, towing, polishing towing, impregnating, towing, finishing, towing, sleeping, the sculpture was finished. ■

'Einstein's Annual Rings' is currently on view at Galerie BontenBlauw as part of their sculpture park exhibition, The Netherlands until September 15, 2019.



Current exhibition at
Galerie BontenBlauw,
The Netherlands, 2019



