

H D T



Elements 1

hydrogen - deuterium - tritium

Oscar van Dillen

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Elements 1: H D T

Elements 1: Hydrogen Deuterium Tritium is the first in a series of music on the Elements, a large work in progress consisting of electronically/digitally created architectural music compositions by Oscar van Dillen. The work on this album was composed February - October 2021.

All works, cover art and booklet of this album were created by Oscar van Dillen.

Tracks:

1. Hydrogen Deuterium Tritium – duration 1:06:36

Total duration: 1:06:36

The images of the Periodic Table and Pillars of Creation are Public Domain and taken from Wikimedia Commons

Ways of Listening to the Elements

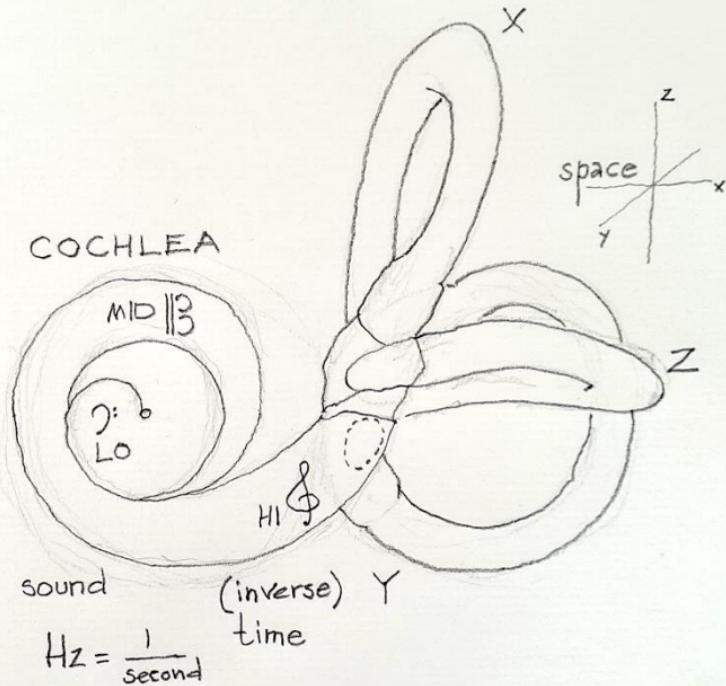
The series *Elements* are digital compositions which have a more static, installation-like character, crossing the border between musical and spatial composition, linking up music and architecture, both arts concerning Space.

It is a remarkable feature of human anatomy that the inner ear is the organ that perceives sound as well as space. Inside in the *cochlea* resonating crystals distinguish the frequencies within sound. Outside on top of the same organ there are the three half-circles of the *Labyrinth*, perceiving spatial movement along an XYZ axis system.

The direct perception of 4-dimensional space-time itself can be seen in this essential part of our anatomy: one organ handling perceptual elements of both space and time in unison.

Space, in the perception of XYZ orientation on the inside of the *Labyrinth*: spatial movement and balance. Time, or rather the inverse of time in Hz and frequency cycles/s in the perception of pitch on the inside the *Cochlea*.

LABYRINTH

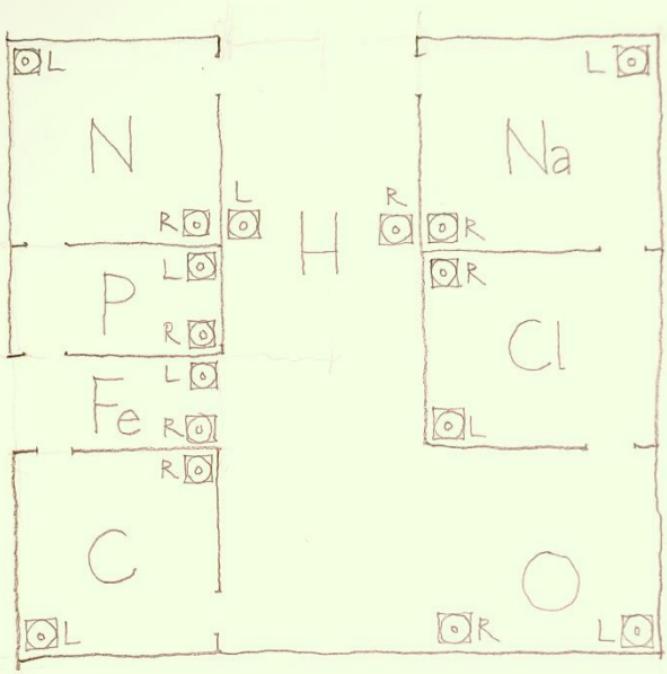


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Van Dillen's compositions in the series Elements can be listened to in several ways. Traditionally these are: privately over loudspeakers or headphones, or in a concert situation, that somewhat awkward setting where a group of interested people are sitting immobile and listening to what comes out pre-recorded out of a professional loudspeaker system, with no apparent performers in sight.

Each of the Elements is created to be able to stand on its own, as a deeply composed and serious work of art, to be enjoyed on its own. Yet the Elements series as a whole has also been conceived to work and sound together as a larger ensemble: a potential meta-symphony of works, to be exhibited and enjoyed in an architectural sound installation of a variety of Elements.

For installation playback of the series Elements, van Dillen proposes this option of creating simultaneously playing (looping) versions of various Elements widely spaced apart over a large space or several neighbouring spaces. Listeners could actively move around through the music, and choose to linger or sit in certain spots for some time.



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Also at home, a smaller version of an installation can be realized by playing several (looping) compositions in adjacent rooms, so they somewhat overlap and audibly interact. The only thing needed is one playback device per home installation element.

It is the composer's wish that he himself as well as others will be able to create an ever-evolving range of different choreographies for various architectural installation performances of these works in the future, of diverse sizes and durations, ranging from the very intimate to the truly monumental and in everything between.

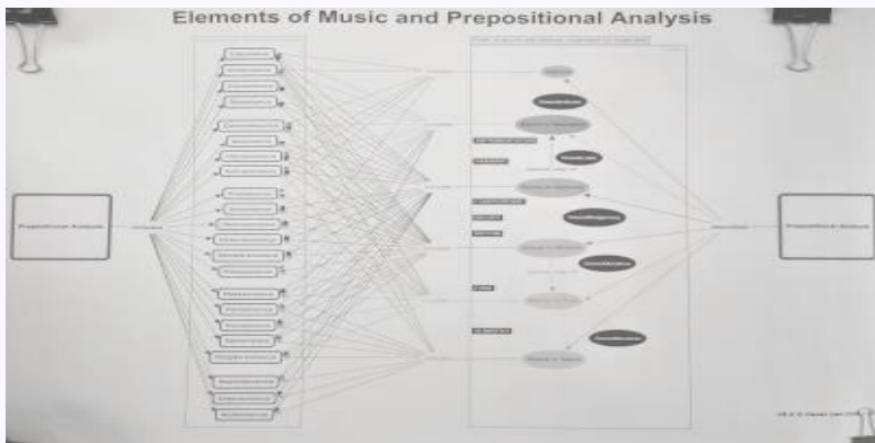
If such architectural installations would be placed in a museum, they would allow interaction with visual arts as well, but they could also be put in very dark settings.

Meanwhile at home, the listeners are challenged to DIY DJ and mix two or more of these compositions and turn one's home into a personal theatre or museum.

A degree of inclusion of the listener into the process of creation can thus be achieved.

Elements of both Music and Chemistry

The Elements referred to in the title are obviously the chemical elements: the very first of the periodic table of which is Hydrogen with its remarkable isotopes Deuterium and Tritium, the only isotopes with their own chemical abbreviation. Less obvious from the titles is the use of Elements of Music, as described in his original approach to composing: his *method* (not a system) of prepositional analysis, developed from 1998-2011 by van Dillen.

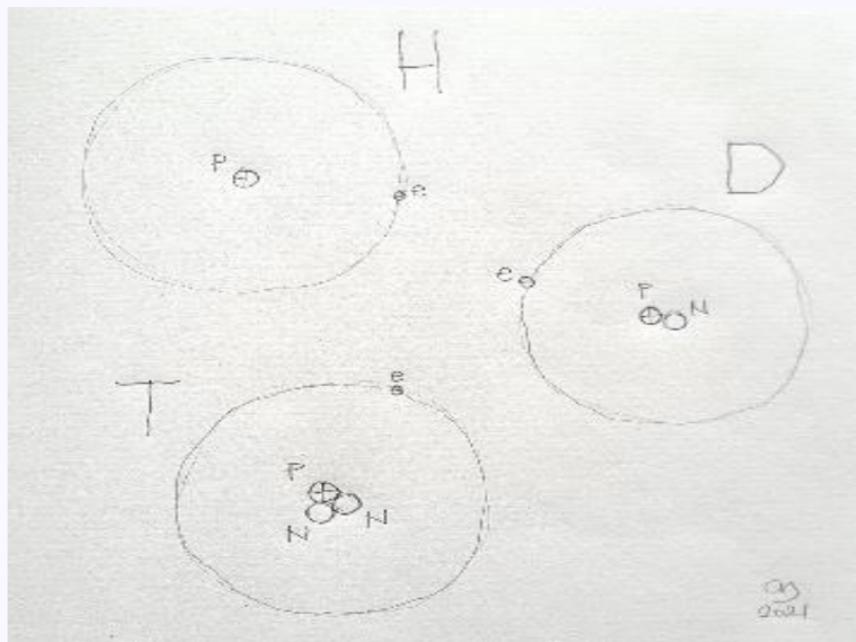


The website and books of Theodore Gray along with the work and videos of Professor Martyn Poliakoff can be consulted on a plethora of further details concerning the chemistry of the Elements. The chemical elements being such basic building blocks of matter, represent the basis for every existence, and for life. By means of Mendeleev's system for natural matter, for material nature, van Dillen ventured to compose his meta-symphony *Elements*.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 H																	2 He
2	3 Li	4 Be																10 Ne
3	11 Na	12 Mg																18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra		104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
				57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
				89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

Hydrogen Deuterium Tritium

Hydrogen, the very first chemical element of the periodic table and the very first atom to come into existence after the Big Bang, is practically in a category of its own.



Hydrogen is most abundant element in the universe, it is the main material and fuel of all stars, in which its protons are being fused together into larger atoms, creating the wealth of chemical elements.

Hydrogen is the simplest atom, essentially combining one positively charged proton with one negatively charged electron, usually represented as a kind of planetary system, but these basic electric charges cannot be thought of as objects at all. Hydrogen has one proton, Deuterium (present in so called heavy water) has an additional neutron and the radioactive Tritium has yet another neutron, making it the heaviest Hydrogen isotope.

Hydrogen as the primal Element is what both makes stars, matter, and life possible. We encounter is daily in the form of water, a compound of Hydrogen and Oxygen: in fact water consists of burned Hydrogen. The huge Hydrogen cycle on our planet makes the climate possible, but also continental drift, as subducted water contained within oceanic crust is the main lubricant for this mechanism. Evaporated water precipitates as rain or snow, and it is

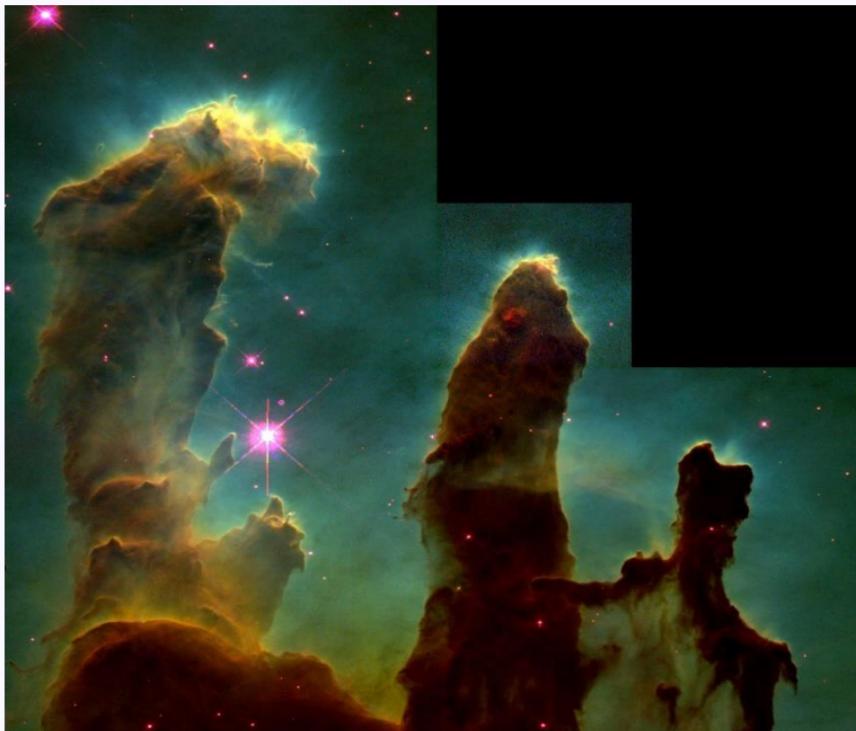
the very possibility of water being able to exist in its three states, solid, liquid and gaseous, that makes our planet so special and alive. At the core of all this is Hydrogen.

Hydrogen as an ion is the free proton that enables all acidity, most importantly on a planetary scale this means the weathering of the rocks, and with it the sea having become salty. Our very bodies consist for 2/3 of (salty) water, to remind us of our origins in the sea, millions of years back in evolution. But Hydrogen, being the most abundant element in the Universe, plays a major role on a far grander scale too.

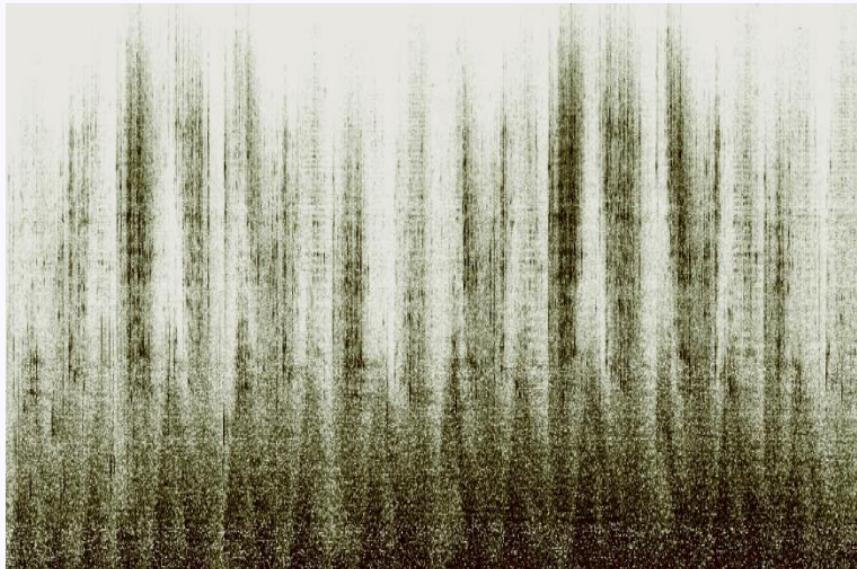
Carl Sagan once said "We are made of Stardust" and this is no metaphor, but a literal physical truth, as all elements have been created within stars, out of Hydrogen.

Very well known is the Hubble photograph called "The Pillars of Creation" which are images of vast clouds of Hydrogen from which stars are being formed as we look at them. Stars are born from Hydrogen, stars are nuclear

reactors with Hydrogen as fuel, in this way new and heavier elements are all born on the inside of stars.



How to musically create and evoke these famous *Pillars of Creation* consisting of Hydrogen, as can be observed from the deep space photograph? For this, cutting edge digital technology with spectral composition lends a hand. The image below shows the sound spectrum between 24 and 27 minutes of duration in this composition:

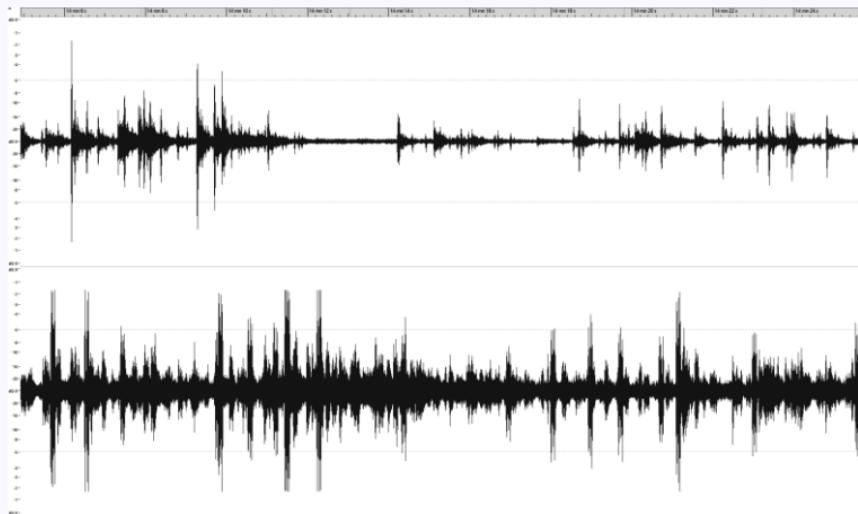


Pillars of sound with a hydrogenic quality can be observed here, counterparts to the pillars of creation shown before.

In the music of H D T (the abbreviated title of this work) one becomes aware of a music as time-place to linger in, rather than music mostly as an abstract story unfolding a plot in time. In this sense the music of all compositions in the Elements cycle does away with the classical concepts of form, and ventures into new territory with forms more akin perhaps to Calder's giant mobiles, always in motion and therefore different but also the same objects. But the music here is not an object, nor a collection of objects, but composed to make one enter into the very fabric of sound and sound perception.

Hydrogen, being at the beginning of all creation, of all spacetime, of all matter, of all life, required the music, the composition to be like an open projection area for all possible associations during listening. In fact, by selective listening one can discern the simultaneous possibilities for various works all in one. Further listening will open up new ways of hearing, new layers to focus one's attention to.

One of the means used to achieve this is the creation of quadro within stereo, so 2+2 audio, an original technique to create surround sound within what is technically still a stereo recording. Oscar van Dillen derived the concept and technique for this from his prepositional analysis parameters *insonance*, *intersonance* and *perisonance*. An example of this can be seen in the rather different channel peaks LR in the waveform audiogram below:

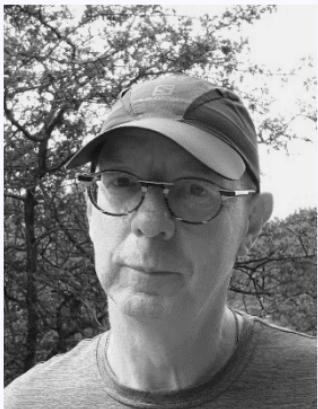


Oscar van Dillen

Oscar Ignatius Joannes van Dillen

('s-Hertogenbosch 1958) is composer and performer of music, professor of music at Codarts University for the Arts in Rotterdam, as well as visual artist. A polyglot and an erudite world citizen, he is also one of the pioneers from the early years of Wikipedia, having been founding president of Wikimedia

Nederland and serving as a trustee of the Wikimedia Foundation. Van Dillen has studied a wide variety of musical traditions with many renowned teachers. His music education having started at the age of 7 and performing both classical and rock music in his youth, van Dillen first studied North-Indian classical music (sitar, tabla, vocal) with Jamaluddin Bhartiya at the Tritantri School in Amsterdam and bansuri with Gurbachan Singh Sachdev at the Bansuri School of Music in Berkeley, California. Next, he studied classical and jazz flute at the Sweelinck Conservatory in Amsterdam. He took composition lessons from Misha Mengelberg. As a flutist, he was taught by Lens Derogée and Dieks Visser, and followed masterclasses from Pierre-Yves Artaud, Geoffrey Gilbert and Barthold Kuijken.



After his following postgraduate studies of medieval and Renaissance music with Paul Van Nevel in Leuven (Belgium), he studied classical and contemporary composition with, among others, Dick Raaymakers, Diderik Wagenaar and Gilius van Bergeijk at the Koninklijk Conservatory in The Hague, with Klaas de Vries, Peter-Jan Wagemans and René Uijlenhoet at the Rotterdam Conservatory and with Manfred Trojahn at the Robert Schumann College in Düsseldorf, where he also received lessons in conducting from Lutz Herbig. As a composer he furthermore followed masterclasses from, among others, Isang Yun, George Crumb, Jan van Vlijmen, Marek Stachowski, Zbigniew Bojarski and Gerard Brophy.

A founding member of the Rotterdam School of composers and the author of its manifesto, he currently works as professor of music at the Codarts University of the Arts Rotterdam since 1997, teaching composing, arranging, world music composition, music history and music theory in the Jazz-, the Pop-, the World music, the Classical music and the Music Education Academies of Codarts.

Oscar van Dillen is the inventor of *original world music composition*, combining strictly composed with improvised classical and folk traditions, and their techniques and mentalities for creating music: a new and contemporary form of art music.

He is also founder, composer, and artistic director of the Olduvai Ensemble for which he especially creates original world music compositions.

Van Dillen is a member of Nieuw Geneco and the Dutch-Flemish Society for Music Theory. As of 2020 his scores are published by Donemus. He collaborates with Donemus in publishing his recordings on OIJ Records.

Next to his fulltime work as composer, musician and pedagogue, van Dillen is also a visual artist. As composer, he has been a regular member of various juries, among which the yearly composition prize juries, in the Val Tidone Festival Competitions, since 2013.

Oscar van Dillen's personal website can be found at
www.oscarvandillen.com

OIJRECORDS can be found at www.lij-records.com

Donemus and Donemus Records can be found at donemus.nl

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