

Titelseite

Günther L. Eckert

**DAS KONTINUUM
EINE ARCHITEKTUR FÜR DENKBARE ZEITEN**

**THE CONTINUUM
An Architecture for a Conceivable Future**

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SURVIVAL IN A SECOND NATURE

Günther L. Eckert's "The Continuum - An Architecture for a Conceivable Future"

Is it conceivable and technically possible to create the material basis for a way of life that would permit humankind "to advance in the process of Nature"? This is the question underlying the project, which architect Günther L Eckert (1927-2001) conceived in 1979/80.¹ Eckert answered this question not in the mode of typical architectural utopias but by an as elegant as feasible strictly technical proposal. This is why his Continuum was chosen to serve as the conceptual platform for the exhibition *Museutopia – Steps into other worlds*, which itself is dedicated to the question how we would live when Mankind's surviving on earth were no longer synonymous with its further destruction.

In the following text, I should like to outline the essential features of this project in the context of the general debate about an 'Alternative Technology', that re-started in the Seventies of the last century and led to some important revisions of industrialized societies' relationship toward nature. Despite all the achievements, which subsequently have been made, one must state with respect to the dimensions of the problems we will have to cope with in future that we are still at the very beginning of a fundamentally new relationship towards nature as the base and source of our life. It is the advantage of Günther Eckert's Continuum to give us an idea of the scale of those inevitable changes by submitting and visualizing a radical conclusion drawn from the observation of the inherent tendencies of 'our' technology. Re-thinking Buckminster Fuller's notion of a 'Spaceship Earth', Eckert's Continuum promotes the idea that Mankind, for its survival on Earth, has to construct something like a spaceship integrating all 'our' technologies into one huge closed circuit. As far as Eckert can demonstrate in detail, that such a cave-like construction is technically feasible – and not just another utopian dream – he creates a theoretical platform from which we can observe ourselves using up the resources that secure our life.

I. The Continuum - a brief description

The Continuum, which Günther Eckert also calls *The Tube*, is a tubular construction measuring 35,000 kilometers in length and 250 meters in diameter, suspended on pylons 300 meters above sea level. It is to span the globe between the 40th and 50th parallels along approximately the following course: Le Havre - Saarbrücken - Krakow - Stalingrad (Volgograd) - Agadyr - Ulan Bator - Tsitsihar - Sapporo - Eureka - Salt Lake City - Boston - Brest.

40 internal rapid transport links serve the East-West routes, three subsidiary connections link north and South America, Europe and Africa, Asia and Australia. The Continuum is to be constructed according to the principles of bridge building (on pylons 500 meters apart) and divided into one-kilometer sections with an expansion joint between each section. One section consists of ten sub-sections, which are in turn sub-divided into four construction units measuring 25 meters

¹ Eckert's proposal consists of 110 drawings, which he gave as a gift to the Karl Ernst Osthaus-Museum. About 20 years ago, I had the pleasure of presenting Eckert's project in an exhibition (Museum Bochum, 1980) as well as a book (Munich, 1980). The following text is a revised version of the article I wrote in 1980.

each. The Continuum is built on a cubist module system (edge length 10 meters) designed as either an open construction or a container.

Günther Eckert has developed various proposals for the internal structure of the *Tube*. Version A envisages a vertical division into six sections of which the top three would be living areas, the section below would contain communications, educational, cultural and trade facilities, whereas the bottom two sections would house production plants (for food and artifacts) as well as energy and water supplies. In Version B, all the living accommodation is located along the outside walls of the Tube, whereas all the other facilities are situated in the center. In either case, the continuum offers room for 4.3 billion people, allowing 50 m² living space per person and an additional 37 m² if one includes a proportional share of the other facilities, making a total of about 87 m² per person - a greater usable floor area than even western industrial nations can offer their population today.

Eckert has produced detailed calculations for his proposals and had his figures checked by structural designers. For example, he puts forward precise plans for energy consumption and energy supply. Eckert demonstrates that heating requirements can be met largely with the aid of solar energy, the surplus heat from production plants, and the body heat of the inhabitants. For power generation, he envisages a system of wind turbines that built into the expansion joints of the Continuum use upward and downward air currents to drive power generators.²

The architect has even calculated the costs of constructing the continuum. In 1980, he arrived at a per capita figure of 170,000 Euro, which was significantly less than it would have cost in the Federal Republic of Germany at that time for living accommodation, production plants plus public and private infrastructure facilities.

Finally, Eckert gives careful thought to the quality of life inside the Continuum. Here he puts forward plausible arguments to show that his construction would offer not only a comparatively high degree of comfort but far more individual forms of expression than life in traditional housing developments. Eckert has also worked out that people living in the Continuum would only have to spend one year approximately every two years on their reproduction; consequently, they would have the opportunity to leave the *Tube* and rediscover the world, which would gradually be re-conquered by nature.

II. ... like an army of occupation in enemy territory

In his treatise "Technology and Domination", Otto Ullrich says the following on the subject of a 'Alternative Technology': "The type of criticism of existing technology sets the parameters within which one can imagine or desire a 'changed technology'. If the criticism is directed for example at a false application, the changed technology will (...) only have a different application but will remain 'inherently' the same. However, if the criticism goes deeper and aims at the very nature of the technology, then the criticism implies the need for a 'alternative' or 'new' technology"³. It seems remarkable to me - and that is why I quote such a long passage - that in this basic methodological analysis Ullrich precludes a further alternative: the possibility that

² A large-scale trial of this principle was planned in 1992 using the cooling tower of a decommissioned nuclear power plant in Hamm, North Rhine-Westphalia, but the trial eventually could not be conducted due to the shortsightedness of the politician in charge.

³ Otto Ullrich, *Technik und Herrschaft*. (From Craftsmanship to the Reified Block Structure of Industrial Production), (in German) Frankfurt 1979, p. 384.

'our' technology could be developed further in such a way that negative repercussions for nature and us humans would be reduced to a minimum.

Ullrich is here following the argumentation of Ernst Bloch who characterizes the existing "bourgeois" as an "outwitting type" of technology whose relation to Mankind and nature is abstracted and, in the final analysis, hostile. "The relationship between technology and nature is a repetition of the bourgeois social relationship with the misunderstood tendencies and contents of the workplace. In both cases, activity does not rise above the mere utilization of opportunities; in both cases, the material is not used for communication; (...) oppression and immediacy are thus connected in bourgeois society; all invention is determined and limited by this factor. If thus repeatedly becomes apparent: our present technology's place in nature is like that of an army of occupation in enemy territory. It knows nothing about the interior and the material is over its head."⁴

Bloch's criticism of existing technology stems from the central theme of his philosophy: the concrete hope of a reconciled world, a world, which can be "home" to Mankind. Bloch therefore does not regard humans' existing relationship of outwitting and exploiting Nature (and himself) as an inevitable fate but as a relationship, which can be changed. Like other critical thinkers, Bloch believes it is possible to abandon the technology based attempts to "outwit" nature and move towards an "alliance technology", i.e. one, which would enable a "collaborative" and "friendly" relationship between humans and nature. However, this possible relationship cannot take shape and "come closer to the center of production in the natural world" until, as Bloch says, "the subject of history, the working Man, sees himself as the manufacturer of history and consequently revokes the concept of the destiny of history (...)." ⁵

But if one pursues the question of whether and how an "alliance technology" could be shaped, one comes up against rigid theoretical positions which seem to rule out a Alternative Technology just as much as a 'alternative' science, which would be it's pre-condition. Taking issue with Herbert Marcuse, Jürgen Habermas wrote the following: "If the phenomenon on which Marcuse hangs his analysis of society, namely the peculiar fusion of technology and dominance, rationality and oppression, can only be interpreted in the sense that a world design, a 'project', determined by class interests and historical situation (...) lies in the material apriori of science and technology, emancipation could only be perceived as a historically unique project if a least one alternative design were conceivable."⁶

However, for Habermas, an alternative design of science and technology is inconceivable since he - following on from Arnold Gehlen - regards technology as closely linked to the human organism. "If we understand the functional sphere of success-orientated action as a union of rational decision and instrumental action, we can reconstruct the history of technology in terms of the gradual objectification of purposeful action. (...) First, the functions of the locomotion system (hands and legs) were strengthened and replaced, then the generation of energy (of the human body), then the functions of the generation of energy (of the human body), then the function of the senses (eyes, ears, skin), finally the functions of the controlling organ (brain). If one realizes that technical development follows a logic, which corresponds (...) to the structure of work, it is impossible to imagine how we could ever (...) relinquish technology, and more specifically our technology in favor of a

⁴ Ernst Bloch, *The Hope Principle*, Frankfurt 1973, Vol. II, p. 814.

⁵ Bloch, 1973, p. 813.

⁶ Jürgen Habermas, *Technology and Science as 'Ideology'*, Frankfurt 1970, p. 54.

qualitatively different one."⁷ For Habermas, therefore, technology "if it is based on a design at all, can obviously only be traced back to a 'project' of the human race overall and not to a historically revisable one."⁸

Habermas' position has been criticized in turn by Ullrich, namely with regard to the definition of technology underlying his argumentation. Ullrich believes that Habermas bases his arguments on pre-industrial technology and overlooks the fact that scientific technology "has radically lost or consciously abandoned its ventral links with Man and Nature". He further believes that "the transcendental framework of current technology is typically no longer the functional sphere of instrumental action" and consequently "the independent systematic character of the scientific-technical process can no longer be adequately understood from a theoretical approach."⁹ Ullrich can claim the support of Bloch here, who wrote: "... the technology, which has developed during the present centuries displays an ever dwindling similarity with human limbs and dimensions, and the steam engine gives a final greeting, itself merely the appearance of a greeting, to the old organoid series."¹⁰

One can agree with Ullrich's criticism of Habermas to the extent that he questions his definition of technology. For indeed it was not the advent of scientific technology, which removed the link with human organs - this link was missing in such early inventions as the wheel and the clock (the first autonomous machine), not to mention the use of fire. However, this objection cannot invalidate Habermas' most important argument that the existing technology is 'our' technology and must be accepted as such. For whether one - like Habermas - sees technology as "the objectification of purposeful action" or - like Ullrich - points above all to its "independent systemic character", it nevertheless remains 'our' technology simply because there is no historical evidence of an alternative design. Consequently, if the idea of an Alternative Technology appears no less speculative than the idea of a 'alternative' history - different ideas and solutions have probably always existed but for one reason or another proved impracticable - one may ask whether present efforts to find a Alternative Technology reveal signs of a different overall scientific technical design, a 'different' project at all.

At this point, it should be stated that actual concepts of 'alternative' technology are more or less clearly characterized by a negation of 'our' technology and therefore scarcely permit the possibility of merging into an 'alternative' overall design for science and technology. This also applies where "alliance technology" is presented as a direct reconciliation between nature and technology, for example as an "Ecotopia" (Ernest Callenbach, 1975). Because, as much as the first is seldom more but a step back to a historical level, i.e., to a point where instrumental action seems not to conflict with natural circumstances - a luxurious step backwards, which in the long term only western minorities will be able to afford at the expense of the large majority of the world's population - the other - the wish to reintegrate oneself into the natural constraints - is not more than the ideologization of the idea of a reconciled world: As if we humans could be linked with Nature like animals and ignores the fact, that unlike animals we require technology in order to survive in Nature.

However, even if one does not agree with this evaluation of current attempts to find an Alternative Technology, this does not mean that the notion of "alliance

⁷ Habermas, 1970, p. 56.

⁸ Habermas, 1970, p. 56.

⁹ Ullrich, 1979, p. 390 f.

¹⁰ Bloch, 1973, p. 772.

technology" could not be fulfilled in another way. For as Bloch himself says: "Invention is only driven by real utopia again when the economy is motivated by needs rather than profits. When the law of socialism – maximum satisfaction of requirements at the highest level of technology – has finally replaced the law of capitalism, namely maximum profit. When consumption can utilize all products and technology, without regard for risk and private profitability, when it can be courageous once again, without any demonic elements driven by imperialistic motives."¹¹

III. 'Our' technology as an "alliance technology": The Continuum

Without wishing to propagate details of the Tube, I believe that Günther Eckert's design is a useful model for imagining how an "alliance technology" could develop from 'our' technology, indeed for putting an "alliance technology" in concrete terms at all. As I shall try to show in the following, this is not science fiction or the product of a naively optimistic belief in progress but rather a well-founded attempt to develop the idea of 'our' technology further towards a goal which is, however, dependent on political acceptance.

If one follows Eckert's design, then developing the idea of 'our' technology further primarily means: understanding that Nature and technology, Nature and Mankind, cannot be directly reconciled with one other. Even the minutest technical interference with Nature contains a destructive element. However, Man cannot avoid interfering with Nature. Nature is a hostile environment for Man and without technology we could not survive in it. But if technology is inevitable and Nature and technology cannot be directly reconciled with one other, the alliance between Nature and technology can only be achieved by a compromise, namely by attempting to keep the effects of technology on Nature as slight as possible. There are two fundamental alternatives for this compromise: A small, highly decentralized technology (once the 'Chinese Model') or the concentration of technology in the smallest possible space (the Continuum). The first alternative has to be rejected since it does not rule out a development into large-scale technology along western lines (as one now sees clearly by now); the second alternative has in its favor a tendency inherent in 'our' technology, a tendency to assume an independent systemic character, to form closed circuits.

Taking the idea of 'our' technology further therefore means: first, presuming a clear dualism between Nature and technology and their mutual irreconcilability; and second, taking it further precisely at the point where it seems threatening and developing it into a Second Nature.

For if it is certain that the technically feasible is only really used or consistently implemented in exceptional circumstances and that, on the contrary, it usually only serves to enhance and consolidate traditional structures in the sense of maximizing profits - where only the profitable part of what is feasible is realized and not what could free people from constraints - then with regard to the complex "domination through technology" it is no less certain that the decisive problem does not lie in the fact that power structures go into the technical structures but that, despite all the technical progress, people remain trapped in power structures and are indeed enchained more by them than by Nature. If, on the other hand, technology were so far developed that it functioned without the collaboration of humans - and that this is not sheer fantasy is demonstrated (unfortunately) by the development of 'our'

¹¹ Bloch, 1973, p. 771.

military technology - it could be a matter of indifference to us which structures within technology were dominant.

However, if the fact that 'our' technology is not fully but only partly developed for some requirements is the reason for its tendency to dominate humans and its tendency for excessive expansion, then thinking 'our' technology further can only mean thinking it through to an end, developing it further as a whole to a closed circuit, to a closed system. If 'our' technology is a 'project', a global design determined by class interests and historical situation, the Continuum is the model for its emancipatory impulses - and not a fiction. Like a space station ("2001") on Earth, it comprises everything we need for life in an independent cycle which regulates, maintains and controls itself. The *Tube* therefore functions like a protective Mother-Cave. It is a system which enables survival and life at a comparatively very high standard, a system which one does not have to leave, but which one can leave in order to re-discover the world.

With the *Tube*, 'our' technology and thus presumably 'our' science as well would attain a new quality. For as a control loop which spans the globe, as a technical system thought through to the end which solves the problem of survival virtually for the entire population of the planet, it would automatically divert human creativity away from the struggle with Nature and to other goals, goals which they could set themselves free of material constraints.

To the extent that the Continuum is designed to be constructed with 'our' science and technology and could probably be achieved at less cost than, for example, putting a man on the moon, thinking 'our' technology further with Eckert also means developing a utopia out of what is available. This does not mean merely extending 'our' technology as it is usually the case in science fiction, nor does it mean depicting something which like Thomas More's "Utopia" lies nowhere and thus cannot be achieved. What it means is recognizing and harnessing the emancipatory drive in what is already there.

This is where the utopian character of the global continuum, that Eckert proposes becomes evident. By using it to prove that at least the immediate reproduction of the world's population at the level of western industrial countries, i.e. the global abolition of hunger and poverty, could be achieved with 'our' technology, the compelling question is why we humans cannot concentrate our efforts on such a useful project. Eckert's *Tube* is therefore not a utopia in the sense of a technical system but rather as a social achievement, which is of benefit to us all, a concrete utopia as defined by Bloch.