

# A Basis for Environmental Ethics

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## The Caohu 'ecological migration'

The region of Xinjiang ('New Frontier'), China's Far West, contains the majority of the planet's forests of *huyang* (*Populus diversifolia*): 360,000 hectares, or more than two-thirds. This tree is a miracle of nature, able to withstand the worst ecological conditions. It tolerates salt, which it gives off through its bark. It tolerates drought, with its roots that seek water almost 20 metres down; but it tolerates as well several months' flooding during the Tarim's high-water season in the summer months, for this interior river – which is as powerful as the Danube but peters out in the Lob Nor sands – has a current fed by the Karakorum, Pamir and Tianshan snow and ice melt in summer. This combination of high water and heat, which favours vegetation, has turned the banks of the Tarim into a corridor of life that stretches more than 2000 km across the desert. In its natural state the area is characterized by the primal *huyang* forest. Among the tree's extraordinary properties there is also the appearance of its foliage with its changing forms, which has given it its scientific name *Populus diversifolia*: a single tree can have on it leaves so different – some as wide as an aspen's, others narrower than a willow's – that at first you would think you were looking at two trees. Last but not least, the profile of the *huyang*, with its massive trunk, which is said to take a thousand years to grow, a thousand to die and yet another thousand to decompose once it has fallen, stamps its characteristic mark on the land both when it is alive – for example those incredible watery landscapes visible on the Tarim's middle reaches, recalling Louisiana bayous in the middle of the desert – and when it is dead and its tortured forms, like an army of skeletons, rise up among the dunes or *yardangs*, where the shifting riverbed has given way to desert. Hence its amazing ability to stabilize sand, which has given it the nickname *yingxiong shu*, 'the defender tree': it protects oases against the Taklamakan.

The *huyang*'s ecosystem is so remarkable and so valuable both for human life and for biodiversity that in 1983 an area of nature reserve (*ziran baohu qu*) was created on the Tarim's middle reaches, taking in parts of Luntai and Korla municipalities and

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covering more than 5.8 million *mu* (3924 km<sup>2</sup>). According to the official literature<sup>1</sup> this creation was decided upon not only to 'protect positively' (*jiji baohu*) the species but also to 'restore the resources of the *huyang* forest' (*hui fu huyanglin ziyuan*). In China this notion of 'resources' (*ziyuan*) has a high status. For instance it appears in the titles of many bodies that in the West would simply mention a scientific discipline; as an example, the 'Institute of Geography and Research into Resources' (*Dili kexue yu ziyuan yanjiusuo*) of the China Academy of Sciences. And when you mention 'resources' you naturally imply 'resources for human beings' and more specifically 'for the economy'. Thus there is a fundamental ambiguity in a policy of protecting nature that at the same time claims to be restoring a resource, since the first objective focuses on nature itself (for instance, preserving biodiversity) and the second centres on human beings' interests.<sup>2</sup> There can be a contradiction between these two objectives, which is evidenced by many controversies thrown up by the rise in ecological concerns since the 1960s; but it appears that China's environmental policy does not see the issue in that light. Here the central idea, repeated everywhere, is that protecting nature is achieved through developing the economy and society.<sup>3</sup> And this is not in the least unusual, since history shows that a certain degree of prosperity is needed for a society to acquire the distance to instigate an environmental policy; for below a certain threshold all that counts is day-to-day survival, with no consideration for ecological balance. In particular peasant poverty has always been the enemy of forest policies.

In the area in question the way of life of the locals – known as the 'Lob Nor folk' (*Luobu ren*) – depended on fishing, hunting and a subsistence polyculture with a strong pastoral element. Cut off by the desert, they lived without electricity, running water or telephone, in a situation of 'low cultural quality' (*wenhua suzhi jiao di*).<sup>4</sup> It seems that one day this situation did not fit in with the 'great development of the west' (*Xibu da kaifa*)<sup>5</sup> promoted by the central government. In a subtle twist of political thinking a link is also made between that situation and the drop in the quantity of water flowing down from the upper reaches of the Tarim, which was jeopardizing the *huyang*'s whole ecosystem as well as irrigation opportunities using the river. And so part of the protected section was made a no-access area, and it was decided to move the inhabitants out. Thus it was that, 'for the mother river' (*weile muqin he*)<sup>6</sup>, the Caohu people – 758 households comprising 3420 individuals – were made 'ecological migrants' (*shengtai yimin*). The government resettled them in a new village higher up in the Tianshan foothills and nearer to the town of Luntai, with modern amenities, all the equipment needed for controlled irrigation and the job of working there in an agriculture focusing on apricots, jujube and cotton. Starting on 16 November 2002, the operation was completed in a few months. However, the agreement between the inhabitants and the authorities allows for them to be able to return to their old land if cotton does not do well on the new land within three years.

I visited the area in June 2004. The Caohu lakes had dried out and the Tarim was almost completely dry too, though this had never been seen in the high-water season.<sup>7</sup> The obvious cause of the shortfall is the overexploitation of the river upstream. In this respect the 'ecological migration' forced on the 'Lob Nor folk' seems ineffective; but that is not the point I want to make with this example. It is to ask on what ethical basis a decision can be made that is painful for human beings –

involving exile and giving up a way of life – but is in theory intended to bring benefit to nature; in this case the health of a river (the Tarim) and an ecosystem (the *huyang* forest).

### The limits of the quantifiable dimension

It is interesting that in administrative and even scientific vocabulary an operation such as the Caohu ‘ecological migration’ is classified in the category of *gongcheng*, or ‘engineering’, like public works and building. Thus, in a summing-up article on the Tarim works,<sup>8</sup> we find the following list under the heading ‘Engineering activities in the overall works’ (*Zonghe zhili gongcheng cuoshi*):

In order to radically improve the ecological environment in the Tarim river basin there are used in conjunction: engineering work for emergency hydraulic transfer into the main stream,<sup>9</sup> ecological salvage engineering,<sup>10</sup> ecological migration engineering which is still in progress in the Tarim basin, dam-building engineering, engineering work to return agricultural land to forest (or grassland),<sup>11</sup> sand-stabilizing engineering work, engineering work to protect natural forests, engineering work to improve and extend retaining banks, irrigation systems engineering (construction, etc.).

This series of techniques used in the overall works in the great river’s basin includes, as we can see, operations affecting the society itself. So the question arises as to how it is possible to measure in the same way, an engineer’s way, phenomena associated with the science of nature and phenomena associated with the human sciences; a connection of which technical control is presupposed in the idea of engineering. The reality of these operations, apprehended via their effects, makes us think that not only technical control but even representation of the processes involved is far from perfect, even simply at the level of ecology. In fact a recent study<sup>12</sup> applying the Constanza evaluation methods<sup>13</sup> to the area that was cleared on the lower Tarim at the time of the Great Leap Forward (*Dayuejin*)<sup>14</sup> came to the conclusion that ‘ecosystem services’ (*shengtai xitong fuwu*) were seriously underestimated there. Because of this the clearance carried out had unforeseen negative effects which can be summarized as an encroachment of desert at the expense of the Tarim’s ‘green corridor’ (*lüse zoulang*) oases. Now the river does not reach Lob Nor; it hardly flows at all beyond the Daxihaizi dam, which was built when the clearing was done. Between 1986 and 2000 the *huyang* forest in the area studied died back by 50% (14% of the surface area in 1986, 8% in 1990, 7% in 2000), as did the grasslands (36% of the surface area in 1986, 22% in 1990, 19% in 2000). As far as arable land is concerned it seems relatively stable (4%, 3% and 3% respectively for the same three years),<sup>15</sup> but this proportion is deceptive: in fact it is the result of gradual migration since agriculture has cleared land here and then left it behind because it has become unusable due to salination, pollution, etc., the overall outcome of this development being of course an absolute deterioration in the ecological potential. The authors of a general assessment of the ‘oasis crisis’ (*lüzhou de weiji*)<sup>16</sup> summarize it in a disturbing phrase: ‘As a result of the effect of human activity the evolution of the Tarim

basin's ecological environment is tending to "take two steps forward and four steps back" (*liang kuoda, si suoxiao*), meaning that the oases and the desert are growing simultaneously.<sup>17</sup>

Hazarding a quantification – which in any case is only partial – of these environment 'services' (*fuwu*) that had not been taken account of, the authors of the earlier case study estimate they declined by an annual average of 1.5 million yuan between 1986 and 2000.<sup>18</sup> These figures speak volumes, since they enable us to express in a common language, the language of the economic system, what previously remained in the external world of the market. For this reason studies of that type may carry some weight in defining and implementing planning policies, where in practice financial considerations play a predominant, even overwhelming, role. Nevertheless it is impossible to conceal the fact that they depend on a simulation, since the 'services' concerned are in fact never on the open market. Of course the purpose of this kind of research is precisely to avoid the reductive effect of commercial accounting, which is dragging the contemporary world – of which the Xinjiang oases are like a microcosm on a scale  $1/n$  – towards blindly overexploiting the planet's resources, eventually destroying the ecological foundations of human life (see below). We do need to rectify this blindness. However, it remains the case that translating into commercial terms is by definition limited to a field – the economy – whose relevance is immediately cancelled out by the simulation that makes the translation possible. In this case the authors of the aforementioned study in fact acknowledge that they have only been able to quantify part of the ecosystem, leaving out, for instance, 'services' such as those provided by the snow and glaciers from the surrounding mountains, or even by the desert itself; but this limitation does not affect the principles of the method adopted. And it is indeed a question of principle. The Constanza method in fact brings problems of the environment down to a dimension which is itself inherent in a system – the market – that, as history shows, leads to the destruction of the planet's environment. It seems more logical to question the relevance of that referent, and look for a more fundamental one.

### Bringing the human down to Earth itself

Since the rise of awareness in the 1960s there has developed, as we know, a field of study called environmental ethics, which is now part of our intellectual landscape. There are some excellent books on the topic;<sup>19</sup> I shall not trace its history here, nor shall I go into the range of positions that have been expressed on the subject. As I see it<sup>20</sup> these positions extend between two theoretical extremes, one of which would be humanity's subordination to the biosphere, and the other subordination of environmental issues to humanity's interests. In general the first set of views is labelled *holism* and the second *anthropocentrism*. In addition, though its history contains plenty of strictures and stereotypical simplifications, environmental ethics also comes up against a basic aporia as soon as it is developed a little further: at one and the same time acknowledging that in a sense the human transcends nature and that in another sense the second subsumes the first. Indeed expecting the human race to behave ethically and respect the interests of other species means *ipso facto* giving it a

separate status, since we cannot reasonably attribute to them a reciprocal duty towards us. In other words the fields of ethics and ecology remain fundamentally heterogeneous.

In practice this aporia can only be resolved in the political area via the interplay of power relations between the supporters of one or other of the aforementioned views: holism or anthropocentrism. But 'resolution' depends on concealing, consciously or not, the above aporia using various metaphors or simulations and bringing the issue down to a common field of reference. We saw an example of this earlier with the Constanza evaluation method. Some of the routes worked out in this area are aimed explicitly at a 'cosmopolitics', where the interests of both nature and humanity would be discussed according to the same measures.<sup>21</sup> Nevertheless they do not overcome the stubborn obstacle raised by the fact that non-humans do not speak and that, when every metaphor has been exhausted, the political arena is actually monopolized entirely by *Homo sapiens'* soliloquy.

Personally I see as dead-ends the constructions that are designed to place humans and non-humans on the same footing. In fact the right method seems to me to take as a basis the obvious fact that the human situation is unique. So that uniqueness should be put into a genuinely cosmological perspective; that is, rather than reducing it, as above, to the same level, envisaging instead an ontological depth to the general order (the *kosmos*)<sup>22</sup> of the phenomena we can know. Once again this implies that we should not bring everything (both human and non-human) down to the same scale, whether it is in the end a human or non-human one, but on the contrary that we should try to define the relationship of different things to the human; and vice versa, the relationship of human things to nature.

Let us first take a simple example. As we have seen, the Constanza method reduces the environment's existence to 'services' that the market needs to take into account, whereas it normally does not do so, since these are external matters. This reduction to a similar level, that of services that are quantifiable just like others (those between humans), is indeed a way of calculating the importance of the environment, but it rests on a fiction; a tenacious fiction since it is in fact the same one that Marx ironically upbraided Ricardo for in a note in *Capital*:

Ricardo himself has his Robinson stroke. For him the primitive hunter and fisherman are traders who exchange fish and game in relation to the duration of the work represented by their value. Here he commits this exceptional anachronism that in order to calculate the instruments of their work hunter and fisherman look up the annuity tables used in the London Stock Exchange in 1817.<sup>23</sup>

and which he countered, as we know, with his own theory of goods, based on analysis of the socio-political relations of production. Indeed, like Ricardo, Constanza brings down to the 'London Stock Exchange' (that is, market values) phenomena that of their essence have no connection with it. That is the fiction (the Robinson stroke). Instead what we need to do is define the relationship between ecological and economic phenomena via an appropriate scale, that is, one that accounts for their respective identities instead of misrepresenting the first in the second.

If we acknowledge that ecological phenomena are associated with the planet

Earth and economic phenomena with human life on it, the simplest measure in this regard is to assess what Wackernagel and Rees have called the 'ecological footprint', in other words to express in units of surface area the impact on ecosystems of a particular way of life.<sup>24</sup> Some relatively simple conversions enable one to calculate the area for any natural resource. For instance, the area of carboniferous forest needed to produce one tonne of coal is estimated, and by relating that value to the productive capacity of the present biosphere the consumption of that tonne of coal is converted into square metres. There are no metaphors here since we remain within the same ontological order, that of ecosystems. But the capital consumed by our way of life is visible in very concrete terms, as is the degree to which it exceeds, or not, the planet's ability to reproduce that capital. And so it appears that around the turn of the century human consumption exceeded that ability by a third; in other words, we would need 1.3 planet Earths to sustain our way of life over the long term. With a constant population our ecological footprint should be substantially below 2 ha per person to maintain that balance; but it is approaching 3 ha. The most disturbing aspect is that this is only a worldwide average. In fact rich countries' lifestyle, which, through international bodies in particular (World Bank, IMF, etc.), is becoming the model in development scenarios for poor countries, produces a far larger footprint. If we all lived like Californians, we would need not one but a dozen blue planets (again with a constant population) to make maintaining that lifestyle possible. It is obvious that such a way of life is not ecologically sustainable.

Using equally simple conversions we can see that lifestyle is also unsustainable from a moral point of view. Indeed – since we have only one Earth – it implies on the one hand that the poor consume less to the extent that the rich consume more, and on the other that the capital in resources our descendants will have at their disposal will be reduced to the extent that we exceed our capital's ability to renew itself. So there is a double injustice.

### Being human on the Earth

If arguing in terms of an ecological footprint makes it possible to highlight the fact that our way of life is unsustainable – ecologically limited and morally unjustifiable – nonetheless that does not clarify the aporia noted earlier. In particular it does not explain why a reasonable being – the human being – is tending to live in an increasingly unreasonable manner. There must be a fundamental gap in our cosmology: we find it impossible rationally (in accordance with a coherent *kosmos*) to make our behaviour fit with our knowledge. And that gap is specifically a modern one. In fact all traditional societies have had the ability to integrate within a *kosmos* their representations of nature and their moral rules. We moderns lost that ability from the moment when things turned into morally neutral *objects* for us, ontologically distinct from us as moral *subjects*. Indeed that was the assumption – what is called *dualism* – that made modern science possible; and that dualism brought about what Heidegger denounced as a loss of world, or 'deworlding' (*Entweltlichung*). Personally I prefer to say 'decosmizing'; or loss of *kosmos* as order binding together the being of things and our own, in particular, connecting the representation we have of our existence with

the one we have of the basis that makes it possible: the Earth or nature. For us the former relates to what I call<sup>25</sup> the modern ontological *topos*: the 'individual person: individual body' identity; the latter relates to objects external to that ontological *topos*. But this duality denies the condition *sine qua non* for an environmental ethics, for moral rules can only be applied to self-conscious subjects. We cannot reasonably expect them to be observed by objects (we come back to that aporia I pointed to earlier), nor in the relations between subjects and objects, except through fictions that see those relations as similar to the ones between subjects (such as the 'services' envisaged by Constanza).

However, effective though it may be, the above-mentioned ontological *topos* is nothing more than a mental representation. It characterizes the *classic modern western paradigm*, Descartes' and Newton's, whose cosmology and physics have been out of date for a century.<sup>26</sup> On the ontological level that *topos* was also radically questioned by Heidegger, who put up against it a *Dasein*: a 'being-there' which is 'being-in-the-world', 'being-with-things', etc.; in short a 'being-outside-oneself' (*Ausser-sich-sein*) that goes beyond the *topos* in question. These views, which overturn modern (and especially Cartesian) ontology, entail a consequence unforeseen by Heidegger himself: they provide a reason to extend the field of ethics to that 'outside' (*Ausser*), which is now part of our being and no longer part of the objective – or, I should say more precisely, *objectal* (related to the object) – world. For me this reason is the essential condition that allows us to transcend the aporia the modern ontological *topos* entails for environmental ethics.

Nevertheless Heidegger did not follow the logic of *Dasein* through to the end. As Watsuji Tetsurô<sup>27</sup> noted, it remains limited by an individual horizon: one's own death (in other words the temporal limit of the modern ontological *topos*). Indeed Heidegger writes:

Death as the end of *Dasein* is the most specific, non-relative possibility of *Dasein*, certain and as such indeterminate, insurmountable. Death as the end of *Dasein* is in the being of this existing towards its end.<sup>28</sup>

For this reason the ontology of Heidegger's *Dasein* is that of a 'being towards death' (*Sein zum Tode*), a vision that Watsuji radically criticizes. Indeed for him human existence (*ningen sonzai*) is that of a 'being towards life' (*sei e no sonzai*):

Historicity structures social existence. Here too one can see the dual nature, finite-infinite, of human existence. People die, their between-link (*aida*) changes, but even though they constantly die and change, people are alive and their between-link goes on. It is in this fact of constantly ending that it is constantly continuing. What is *being towards death*, from the individual's viewpoint, is *being towards life* from society's point of view.<sup>29</sup>

We can see that for Watsuji the human being is composed inseparably of an individual dimension and a social dimension: and the link – the 'between-link', *aida* – from one to the other goes well beyond Heidegger's 'being-with' (*Mitsein*), which ceases with the individual's death. For Watsuji death does not put an end to the social part of our existence (and, we might add, it even confirms it).<sup>30</sup> Furthermore he is the first to have clearly spelt out that this between-link is also the basis for our

relationship with the environment, and that consequently the latter is no less a part of our being than the *aida* that connects us to others. Thus human existence is constituted by the dynamic of the relationship between an individual dimension and a socio-environmental dimension, a relationship that Watsuji defines as the 'structural moment of human existence' (*ningen sonzai no kôzô keiki*).<sup>31</sup>

So in my view Watsuji, whose writing in fact chiefly concerns ethics, has opened up the possibility not only of radically transcending the modern ontological *topos*, but also in particular of going beyond the aporia that it placed in the way of creating a genuine ethics of the environment.<sup>32</sup> This aporia arose from the fact that a being limited by the individual horizon of the Cartesian 'I', and even Heidegger's *Dasein*, cannot structurally operate a moral rule requiring that one take account of what is beyond that horizon: the *environment* (or *fûdo* in Watsuji's vocabulary), which, in time as well as space, goes beyond the modern individual's ontological *topos*. However, seeing this context not as external to our being (in the form of the objectal environment), but as constituting it no less fundamentally than the identity of our *topos*, allows us to carry out a decentring process that is as decisive as the one that inaugurated modern times – the Copernican revolution. The first of these decentring moments was the source of enormous progress; but at the same time it was to bring about a decosmization that, as we know today, could only be fatal in the shorter or longer term and is now unsustainable. Avoiding that outcome is the challenge of the second decentring, the revolution that will replace the modern individual's being towards death with the being towards life of what is the true basis of our existence: *being human on the Earth*.<sup>33</sup>

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## Notes

1. In this case the highly orthodox book by Su Haofa and Mai Xueshen (2003), *Luntai gu jin* [Luntai Yesterday and Today], Urumqi, Xinjiang Renmin Chubanshe, p. 164.
2. We shall see below that there are profound ontological reasons behind this ambiguity: the things in our environment are not objects but relative entities conditioned by our existence and in turn conditioning it. So it is inseparable from them.
3. This is the position claimed in particular in Song Yudong, Fan Zili, Lei Zhidong and Zhang Fawang (eds) (2000), *Zhongguo Talimu he shui ziyuan yu shengtai wenti yanjiu* [Research on the Ecological Problems and Water Resources of the River Tarim, China], Urumqi, Xinjiang Renmin Chubanshe.
4. Su and Mai, *op. cit.*, p. 164.
5. This ubiquitous theme is the first word in *Xinjiang shouce: Zhongguo xibu* [Xinjiang Manual: China's West] by Hu Wenkang et al. (2000), Urumqi, Xinjiang Renmin Chubanshe, which opens as follows: 'The great development of the West is currently the hottest topic of conversation throughout the country' (p. 1). *Kaifa* can also be translated as 'exploitation'. Indeed 'great exploitation of the West' would seem to me closer to the fact, but the phrase is used by its promoters in the sense of 'development'.
6. The title of the chapter about this operation in Su and Mai, *op. cit.*, pp. 321 *et seq.*



7. More precisely the start of the season, since high water used to begin in June and reach its height in August.
8. Wang Ranghui et al. (2004), 'Zhongguo Talimu he xiayou shengtai zhili gongcheng ruogan wenti de sikao' [Thoughts on Some Engineering Problems in the Ecological Works on the Lower Reaches of the River Tarim, China], pp. 57–60, in Li Peicheng, Wang Wenke and Pei Xianzhi (eds), *Zhongguo xibu huanjing wenti yu kezhiyu fazhan guoji xueshu yantaohui lunwenji* [Contributions to the International Scientific Conference on Environmental Problems and Sustainable Development in the Chinese West], Beijing, Zhongguo Huanjing Kexue Chubanshe.
9. From Lake Bosten, which is well supplied by the Kongqi, four similar transfers (*yingji shushui*, or emergency pumping) were carried out between 2000 and 2004, the biggest (400 million cubic metres) between 1 April and 17 November 2001.
10. *Shengtai zhili qiangqiu gongcheng*. This refers to a series of hydraulic works designed to restore an adequate supply of water for ecosystems.
11. *Tuigeng huanlin (cao) gongcheng*.
12. Xu Yingqin, Wu Shixin, Liu Zhaoxia, Yan Xinhua, Maier (2003), 'Talimu he xia you ken qu lüzhou shengtaixi fuwu de jiazhi' [Value of Ecosystem Services in the Oases of the Cleared Areas on the Lower Tarim], *Ganhanqu dili*, XXVI, 3, 203–16.
13. R. Constanza, R. De Groot, et al. (1997), 'The value of the world's ecosystem services and natural capital', *Nature*, 387, 253–60.
14. This refers mainly to works carried out between 1957 and 1960 and where the population rose to 38,000 by 1981 and 40,800 by 2001. *Op. cit.*, p. 209.
15. *Op. cit.*, p. 214.
16. The title of chapter IV of Guojia huanjing baohu zongju xuanchuan jiaoyu bangongshi [Education and Propaganda Bureau of the National Office for the Protection of the Environment] (2003), *Zhongguo shengtai huanjing jingshi* [Warning Signs for the Ecological Environment in China], Beijing, Zhongguo huanjing kexue chubanshi, pp. 94–122. In the same publication reference is made to 'the desertification caused by artificial enlargement of the oases' (*rengong lüzhou guangda suo dailai de huangmohua*, p. 101) and without resorting to euphemisms the 'ecological migrants' (*shengtai yimin*) mentioned elsewhere are here quite straightforwardly 'ecological refugees' (*shengtai nanmin*, p. 105).
17. *Op. cit.*, p. 98.
18. Xu et al., *op. cit.*, p. 215. In real terms this is roughly equal to the same amount in euros (1 euro = 10 yuan in 2004).
19. To quote just one, I refer readers to Catherine and Raphaël Larrère (1997), *Du bon usage de la nature. Pour une philosophie de l'environnement*, Paris, Aubier.
20. I have discussed these positions and suggested my own in (1996), *Être humains sur la terre. Principes d'éthique de l'écoumène*, Paris, Gallimard.
21. See Bruno Latour et al. (2002), *Cosmopolitiques I. La nature n'est plus ce qu'elle était*, La Tour d'Aigues, l'Aube.
22. We should remember that the Greek word *kosmos* has the threefold meaning 'order', 'world' and 'decoration'. The Latin *mundus* also has these three meanings whose origin signifies that there is an order to the things making up the world, and this order is positive in terms of human values (*kalos k'agathos*, both beautiful and good). On the other hand the universe of modern physics is axiologically neutral. In other words it is no longer a *kosmos*.
23. Karl Marx (1867), *Capital*, Book I.
24. Mathis Wackernagel and William Rees (1996), *Our Ecological Footprint. Reducing Human Impact on the Earth*, Gabriola Island BC, New Society.
25. Here I am brusquely summarizing views I expounded in detail in (2000), *Écoumène. Introduction à l'étude des milieux humains*, Paris, Belin.
26. This is said schematically, with Einstein's relativity and quantum mechanics in mind; but more profoundly still, non-Euclidean geometries had already rendered outdated the Euclidean space that is the basis for the paradigm in question.
27. In the normal Japanese order the patronym precedes the 'first' or 'Christian' name.

28. 'Der Tod als Ende des Daseins ist die eigenste, unbezügliche, gewisse und als solche unbestimmte, unüberholbare Möglichkeit des Daseins. *Der Tod ist als Ende des Daseins im Sein dieses Seienden zu seinem Ende.*' Martin Heidegger (1993), *Sein und Zeit* [Being and Time], Tübingen, Niemeyer, pp. 258–9. Originally published in 1927. Heidegger's emphasis.
29. Watsuji Tetsurô (1979), *Fûdo. Ningengakuteki kôsetsu* [Environments. A Humanological Study], Tokyo, Iwanami shoten, pp. 19–20. Originally published in 1935.
30. Which is illustrated by, among other things, funeral rites observable throughout the human race.
31. Reusing the formulation I have shown in *Écoumène* that this structural moment ('moment' to be understood here in the sense German philosophy derived from mechanics, that is, a dynamic coupling) is specifically human because the environment that constitutes 'half' of our being – the other 'half' being the modern ontological *topos* – is not only ecological (which would not distinguish us from non-humans) but also technical and symbolic: it is eco-techno-symbolic. This theory leans in particular on the notion of 'social body' in Leroi-Gourhan (1964), who (in *Le Geste et la parole*, 2 vols, Paris, Albin Michel) detailed the processes of 'exteriorizing' and developing into technical and symbolic systems the initial functions of our 'animal body' over the evolution of our species. This exteriorizing has made every human environment a system of relative entities – *resources, constraints, risks* and *pleasures* – that it is radically impossible to consider, in the modern manner, as a collection of objects: it is inseparable from our very being.
32. *Environment* translates here the French *milieu*, which translates the Japanese *fûdo*. Watsuji distinguishes *fûdo* (phenomenal environment, supposing the existence of the human subject) from *kankyô* (objective environment). This distinction was inspired by Heidegger's categories, which themselves were inspired by Jacob von Uexküll's distinction between *Umwelt* (the phenomenal environment of a given species) and *Umgebung* (objective environment, as analysed by the scientist).
33. This brief presentation could not go further than a few principles; more arguments will be found in *Être humains sur la Terre* and especially in *Écoumène*, *op. cit.*