

**How Heidegger's interpretation of Aristotle's Four Causes uncovers the
loss of a vital element in current Art Education**

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Introduction

The investigation into the nature of technology that Martin Heidegger initiates in his essay 'The Question Concerning Technology' seems to raise some pertinent questions for education. As Heidegger tries to uncover certain assumptions that surround the human relationship with technology, an interesting parallel becomes evident with how similar assumptions are adopted with regard to education. In this particular instance, I want to show how some of the concerns expressed by Heidegger regarding how our thinking has been influenced by an overly technological approach has some strong bearings on certain problems encountered in the practice of teaching art in colleges of Further Education. This is especially evident on vocational art courses where a strong emphasis on setting projects which have fairly specific outcomes in mind has become prevalent. Yet it would appear incorrect to say that just because a purpose had been specified that this in itself caused the difficulty. So there is obviously something else at issue here. What this issue is exactly is somewhat more difficult to get to the root of, and appears to be tied up with the kind of thinking that gains dominance when the achieving of set outcomes becomes the main objective of education. I will argue that this is a type of thinking which can lead to a very superficial grasp of the subject becoming commonplace, as thoughtful and committed engagement becomes lost, and instead of raising standards the very criteria that are needed to define those standards are effectively ignored. It is, surely, the understanding that lies behind the making of the work that makes the idea of a standard, in that particular context, intelligible, for what other criteria could be used to judge the work?

If we take, for example, the work of Michelangelo, there appears to be a marked difference in the quality of carving that is found in his statue of David, with its great attention to detail – the hands are particularly remarkable in this regard – with its flawless, polished finish, and those of the seemingly rough and uncompleted series of carvings he produced depicting slaves. In many of these pieces the original block of un-worked stone is still clearly visible, and the slaves seem to be emerging out of this unformed raw matter, as though struggling to free themselves from the oppressive weight of the stone or, conversely, being held captive within its dense mass. Their features have been left coarse and unrefined and, in some cases, are barely distinguishable from the rough working of the stone that surrounds them. They show none of the detail and meticulous crafting found in the statue of David. This might simply show that they were works that Michelangelo never got round to completing, and in that case one could argue that they do not come up

to the same standard as the more finished sculptures. Yet, if one were to take into consideration the nature of the subject being dealt with, the portrayal of these figures could appear to be entirely appropriate, in fact, the manner in which they were fashioned might be seen as giving a deeper insight into the human condition of the subject matter than any finely detailed or more finished work could ever have realised. In that case the standard of carving is perfectly in tune with the expressive requirements demanded by the nature of the work. There is no denying that understanding how to apply such standards is a complex matter and would call for sensitive interpretation, but surely this is the sort of discussion that educators should be engaged in.

Heidegger's essay, while not referring directly to education, raises concerns about how modern technology not only describes how things are made or what is used to make them, but how this imperceptibly begins to colour our outlook on the world, so that we come to think about things, or become destined to see them, in a particular way. And the dominance of this outlook seems to have serious repercussions for education.

The main section of this paper will concentrate on a close reading of certain parts of the actual text, so that gradually some of the major points that appear in Heidegger's complex work might be unravelled and made sense of. I will then briefly attempt to show what bearing they might have on art education.

'The Question Concerning Technology'

Heidegger begins by asserting that 'everywhere we remain unfree and chained to technology' (Heidegger, 1977, p.4) regardless of what our attitude to it is, whether we are distrusting of it or have total confidence in it. He goes on to warn that however it is viewed the worst mistake would be to see it as something neutral, because this makes us blind to what it is, to its essence, and this is the question we need to begin by asking. It would be unwise to assume that an un-problematic understanding of what technology is had already been decided upon. He starts by giving two possible definitions, the first says that 'Technology is a means to an end' and the other is that 'Technology is a human activity'. (Ibid) It is in the pursuit of certain ends and what is used or needed to pursue them, which make up this human activity. Heidegger goes on to explain that 'Technology itself is a contrivance, or in Latin, an *instrumentum*.' (Ibid. p.5) He says that it is this

instrumental idea of technology that comes to condition our relationship to it; it is something to be used by us and we talk about learning how to use it correctly, of bringing it under control and mastering it, and it is thus, says Heidegger, that the 'will to mastery becomes all the more urgent the more technology threatens to slip from human control.' (Ibid) Yet, why should we need to bring anything under control that appears to be there purely to be used by us? This appears to give it a somewhat threatening undercurrent. To answer this question Heidegger asks what if technology was not simply a means to achieving certain ends, how would that affect our ability to bring it under control? But if it is not just a means, what then could it be?

Heidegger puts forward the suggestion that because technology has been defined as a means to achieving certain ends, and this in one sense might well be correct, it doesn't necessarily follow that this is what it is in essence or, as Heidegger puts it, 'the merely correct is not yet true.' (Ibid. p.6) Therefore there is a need to look beyond its instrumental definition and ask what the instrumental itself is. This seems to require a more precise understanding of the idea of means and ends. He explains that a 'means is that whereby something is effected and thus attained' (Ibid) and what produces this effect is called a cause. So, for example, if a hammer was used to hit a nail against a wall it would be the means of producing the effect of driving that nail into the wall, but he also says that having a particular end in view is also considered a cause. So, to continue the example, the fact that someone wished to put up a picture on that wall could have been the cause for using the hammer to hit a nail into the wall to begin with, which would mean that the hammer hitting the nail now becomes an effect of a different cause. Patrick Fitzsimons, in his essay on Heidegger, explains that because there could be many causes that we don't, or can't, know about, it is difficult to pin-point them precisely. 'The truth is that, because of the complexity of the world, we may not know what causes what – ordinarily we simply attribute a cause.' (Fitzsimons, 2002, p.176) Heidegger goes on to say that 'wherever ends are pursued and means are employed, wherever instrumentality reigns, there reigns causality.' (Heidegger, 1977, p.6) Now all this might appear fairly self-evident, so where exactly is this leading? Is he trying to bring out, or make us aware of, certain complexities in what seems like a fairly straightforward thought process? It is here that Heidegger introduces the idea of the four causes, an idea, as he later tells us, which can be traced back to Aristotle, and he uses the example of the making of a silver chalice to illustrate them.

The Four Causes

The first of the four causes he calls the *causa materialis*, and this refers to the material used to make an object, so this would be silver in the case of the chalice. The second is the *causa formalis*, and this is the shape that the material is formed into. The third is the *causa finalis*, and this relates to what the end purpose of the object will be, so this will be bound up with the rites that the chalice will form part of; in other words the human significance of its making. The fourth is the *causa efficiens*, and this is what brings about the effect on the material, so this would appear to be the silversmith. He concludes by saying ‘What technology is, when represented as a means, discloses itself when we trace instrumentality back to fourfold causality.’ (Ibid)

It is here where I become a little uncertain of the point that Heidegger is trying to make, but he says that causality, as it relates to the four causes, appears to be obscured, but that we act as though it was ‘a truth as clear as daylight.’ (ibid) I think he might be saying that this relationship between the four is something that is overlooked, and that because we do not have a clear understanding of this relationship to start with, the danger lies in our failure to recognise when something has gone awry. The consequences of this, Heidegger says, is that we have now become so used to thinking that a cause is what brings something about, or what obtains a result or effect, that this is what sets the standard for causality. But, as he points out, the *causa efficiens*, which is the category assigned to obtaining a result or effect, is but one of the four causes, and he seems to suggest that we have carelessly allowed the others to drop out of the picture. The *causa finalis*, its purpose or reason for coming into being, its human significance, no longer counts as part of causality.

Heidegger then goes into quite a complicated explanation of the meaning of *causa*. He describes how it belongs to the verb *cadere* which means ‘to fall’, so it is ‘that which brings it about that something falls out as a result in such and such a way.’ (Ibid. p.7) This is difficult to make sense of, but in the example of the chalice it might mean that because it was required as a ritual object, which meant its form already carried human significance,

the chalice had to take on its particular shape in order to fulfil its purpose, and its status within that ritual was also the cause behind its being made in a precious metal and that this was why the object fell out in this particular way. It is the complex relations between all the various causes and how they are responsible for, and bound up with each other, that is important. To see the silversmith merely as a means of bringing about the making of an object is to miss out on this complexity. Heidegger remarks that the silversmith should not be seen merely as a *causa efficiens*, because this would be to separate him from all the other causes which are so inextricably linked together. He says that the 'Aristotelian doctrine neither knows the cause that is named by this term nor uses a Greek word that would correspond to it.' (Ibid. p.8) He seems to be implying that the Greeks would not have recognised this cause in isolation from the others; it simply would not have made sense.

Technology and Art as *Poiesis*

Heidegger then asks why these causes, which are so different from each other, belong together in the sense of being responsible for each other. 'What', he asks, 'is the source of the unity of the four causes?' (Ibid. p.9) He seems to suggest that when the four ways of being responsible combine they allow something else to appear that wasn't present before. Following Aristotle, he calls this bringing forth '*poiesis*' and this is what the artist or craftsman brings about, or makes visible. Something that was concealed is now revealed in the process of making. He continues by saying that the 'Greeks have the word *aletheia* for revealing' (Ibid. p.12) *Aletheia* means truth, though he thinks that this is often mistakenly understood 'as the correctness of an idea' (Ibid) rather than as a process of revealing. Technology, in this definition, is a bringing-forth arising out of the four causes. So it is not merely a means, but, Heidegger claims, it opens up another realm for the essence of technology and that 'is the realm of revealing, i.e., of truth.' (Ibid)

Heidegger goes on to tell us that the word technology comes from the Greek word *technikon* which in turn belongs to *techne*. He says that *techne* is not merely a description for the various activities and skills of a craftsman, but that it is also present in the fine arts or the arts of the mind. He says that '*Techne* belongs to bringing-forth, to *poiesis*; it is something poietic.' (Ibid. p.13) *Techne* is linked as well with the word *episteme* and both are names for knowing something in the widest sense. He talks about how they 'mean to

be entirely at home in something, to understand and be expert in it.’ (Ibid) This expertise doesn’t just mean a skill in making something, but it encompasses the ability to visualise what it is that needs to be made, the significance of its making and the most fitting materials and means for its construction. Heidegger concludes this part of the discussion by explaining that, ‘It is as revealing, and not as manufacturing, that *techne* is a bringing-forth.’ (Ibid)

This idea of bringing-forth, or of revealing, is in evidence within the fine arts. Here all the four causes can be quite clearly seen in play. Though there seems to be differences between art and craft, as in a craft the object that is made usually comes about through a practical need for that particular object. To digress slightly here, this is where it becomes evident that there has been, what could be described as, a falling off of significant meaning in some craft activities, especially when the reason behind their making becomes located in what could be seen as their quaint or decorative qualities. In Heidegger’s example of the chalice, the significance is located in its importance as part of a human ritual, and not in the fact that it might look rather attractive when placed upon an altarpiece, though indeed it may well do so, but that was not the sole rationale behind its making. Any aesthetic qualities would have arisen, most probably, out of respect or love for whatever it was that initiated the need to be part of the ritual to begin with. So, it is the part the object plays in a wider set of human purposes that gives meaning to, and is revealed by, its making. As Heidegger later explains, for the early Greeks ‘The arts were not derived from the artistic. Art works were not enjoyed aesthetically.’ (Ibid. 34) They were a form of revealing.

When an artist attempts to reveal or bring something forth, it is usually in response to something they have seen. This response is initiated by a sense of recognition and with it the wish to find a way of acknowledging this attraction, or of giving it material form. The artist would then need to find the materials that were sympathetic to the realisation of this aim, and from these create the appropriate form. For example, let us say that the artist is drawn to the movement of fallen leaves which lie around the base of a tree. Perhaps the attraction lies in the feeling of fragility contained within the rocking motion of those leaves as they are disturbed by a slight breeze which doesn’t quite have the power to lift them totally from the ground; objects that remain both earthbound and yet contain the potential,

at any moment, to be sent scurrying in another direction. So apart from their apparent characteristics which commonly identify them as leaves, they also take on a different quality in the mind of the artist, one in which their form carries a sense of expectancy, or manifests a feeling of nervous containment, of something that at any moment will seek to escape, much like that quality found concealed in the tremulous nature of a bird that will take flight at the slightest disturbance. Of course, this is not the only aspect of the leaves that could elicit a response, it could be their colour that provokes this, or the sound they make, or perhaps certain memories they evoke. Whatever the attraction is, the artist would then seek to make an object that could make such a feeling manifest. That would then become the *causa finalis*, the end that the artist has in mind. Let us say the object is formed first from a thin strip of wax. The wax is bent into a curved shape and carved in such a way that when resting on a flat surface its delicate form gives the appearance of something about to be lifted into the air. This is the *causa formalis*, or the finished shape of the object. The wax object will then be cast into bronze, which can be polished to a highly reflective finish, so as to heighten the immateriality of the feeling that the object is trying to convey. The heaviness of the metal becomes transformed into insubstantial light. This is the *causa materialis*, or the substance from which the object is made. The *causa efficiens* is the artist who draws all of the other causes together, and that all then belong together and are responsible or indebted to one another. As Heidegger explains ‘What we call cause and the Romans call *causa* is called *aition* by the Greeks, that to which something else is indebted.’ (Ibid. p.7) The form, the material, the intention and the maker are joined and inextricably linked with one another. So *techne*, which Heidegger says belongs to bringing forth, to *poiesis* and to the revealing or unconcealment of truth, is also the concern of the making that is found in art.

There is an interesting difference here between the object created by the silversmith and the object created by the artist. The chalice, made by the silversmith, serves a particular function within their community and is made for that purpose, when that community, or the traditions that were found within it, no longer exist, the object’s purpose is lost. Michael Bonnett, in his essay on Heidegger, points out that the chalice had significance only in ‘a particular sort of world – its world’ (Bonnett, 1983, p.24) and that ‘when this world decays the chalice in its essential nature decays’. (Ibid) Is the art object, if it reveals the ineffable, better able to resist the corrosive effects of time or the limited duration of the

culture out of which it came? Though, perhaps the expressive language used by art changes over time and a re-initiation into that language might be necessary, or perhaps value can be found – even though the response might arise out of a different context – that still has the potential to be no less valid.

Towards the end of the essay, Heidegger says that ‘the *poiesis* of the fine arts also was called *techne*.’ (Ibid. p.34) He says they were given such a modest name, because *techne* was seen as a way of revealing truth, and so belonged within *poiesis*. ‘It was finally that revealing which holds complete sway in all the fine arts, in poetry, and in everything poetical that obtained *poiesis* as its proper name.’ (Ibid) Art was seen as a revealing of the highest order, and this might be something that cannot be said for modern technology.

Modern Technology and Enframing

The purpose of Heidegger’s long explanation of the origin of technology becomes clearer when he turns his attention to modern technology. He says that while traditional handicrafts can be seen in the light of the thought of the ancient Greeks, modern machine-powered technology cannot. He says that modern technology is also a revealing, but of a different kind to the one that the Greeks would have known. It is no longer a bringing-forth ‘in the sense of *poiesis*’, (Ibid) but it becomes a challenging, it demands that something reveals itself. He speaks about the field that the peasant would have cultivated in terms of setting it in order or taking care and maintaining it, of having responsibility towards it, and so behaving like a custodian rather than challenging it to yield the maximum crop at the minimum expense, regardless of the long-term consequences of such forced production.

There could be objections made here that it is because of modern technology that many people, in the developed countries at least, no longer go hungry, as they might have done before if the crop had failed, and perhaps a not unreasonable claim could be made for arriving at a happy medium between the two positions. Michael Bonnett, in his book, *Retrieving Nature*, makes reference to how, in the early seventeenth century, Francis Bacon ‘criticised the Aristotelian sciences for having done nothing to relieve the condition of humankind.’ (Bonnett, 2004, p.30) But, what Heidegger is leading towards is that when

a particular type of thinking holds sway, it attempts to find a solution to a problem by using the same method of thinking that may have caused the problem to begin with; one that seeks to dominate and control the situation. According to Bonnett, ‘The idea that nature needs managing – to be set in order by man for her own and the general good – is perhaps the completion of that long gestating motive to dominate and to control.’ (Ibid. p.31) But anything that seeks to impose a solution onto a situation, by attempting to preempt all the possible consequences of a set of actions, is failing to take into account the complexity behind what causes what. It is almost impossible to predict what the effects of these different causes might be, or only be possible if the questions asked are framed within fairly narrow parameters and this, by its very nature, leads to an exclusion of a lot of variables. In the desire for control, anything that proves recalcitrant gets pushed to one side and this would appear to lead to a falsification of the situation, or at least a partial view of it. This type of domination appears to be at the heart of Heidegger’s idea of modern technology as a challenging or setting upon the world in order that something reveal itself. Though, this is not to say that there wouldn’t be times when such limitation is both desirable and necessary, as long as the use of these limitations is acknowledged. Simone Weil seems to express much the same opinion in a letter written in 1937 to Jean Posternak:

It requires no knowledge of physics to understand that we never in any case possess all the data of the problems to which we try to reduce natural phenomena. To study any phenomenon, we eliminate by abstraction, on the one hand, all surrounding events and, on the other hand, all events on a smaller scale; and in this way we imagine a sort of doubly closed vessel or retort, in which we ourselves do not believe, for we know that it is implied in the essential nature of determinism that nothing in nature can be isolated from the rest. In particular we know very well that the mere fact of observing and measuring modifies the thing observed and measured... It is already a fine achievement to be able to measure mathematically the imperfection of our measures. (Weil, 1965, p.90)

The difference between technology as a form of bringing-forth, of poiesis, and that of modern technology as a challenging-forth, could be seen in that one opens up the possibility of being affected by nature or of entering into dialogue with it, while the other determines what it requires from nature and then calculates the most efficient means of bringing that about.

The relationship that human beings have with modern technology takes seems to follow the second example. Heidegger explains that ‘Only to the extent that man for his part is already challenged to exploit the energies of nature can this ordering revealing happen.’ (Heidegger, 1977, p.18) Because the relationship with nature is now seen to be one of dominance; as being able to use it as efficiently and as profitably as possible, this in itself comes to govern how people start to behave; it comes to colour their outlook on life and they become caught up in this mode of thinking. ‘If man is challenged, ordered, to do this, then does not man himself belong even more originally than nature within the standing-reserve?’ (Ibid) This is the way the world starts to appear or reveal itself to people. So, in the observation or investigation of nature, it has already become, Heidegger claims, conceived of in a particular way, man has ‘already been claimed by a way of revealing that challenges him to approach nature as an object of research, until even the object disappears into the objectlessness of standing-reserve.’ (Ibid. p.19) This leads on to Heidegger’s use of the word ‘Enframing.’ Fitzsimons explains this term by saying that it is ‘the historical stamping which compels humanity to disclose everything in one dimension, as standing reserve.’ (Fitzsimons, 2002, p.178) When this occurs ‘nothing is allowed to appear as it is in itself’ (Ibid) and ‘things are not regarded as objects because their importance is confined to their readiness for human control.’ (Ibid) The problem with Enframing, according to Heidegger, is that it then ‘drives out every other possibility of revealing’ (Heidegger, 1977, p.27) and that includes the possibility of revealing through poiesis.

So, to sum up some of the aspects of Heidegger’s argument, he appears to be saying that it is not modern technology itself that is the cause of the problem, but that human beings seem to have become caught up in a way of revealing the world that sees it in terms of its usefulness, or in how it may be manipulated or managed for human purposes. For example, the criteria for a successful business will probably depend on how much profit it makes, how efficiently it is organised so as to maximise productivity and reduce wastage etc., and the higher the profit the better the business is considered to be. Few questions are asked here about the nature of the business, the necessity or good in what it is producing or trying to achieve; these are not the criteria used to measure its success, and, if acknowledged at all, would probably be seen as a side issue. Simone Weil points out that economic survival is often based on the ‘marketing of useless products by almost violent methods’ along with ‘speculations with the object of ruining rival concerns’ (Weil, 2006,

p.108) People are seen in terms of how they will benefit the smooth running of a business, and even though there has been a recent increase in concern for the well-being of the worker, this is largely due to the realisation that a happy or contented worker is an efficient worker, and an efficient worker is good for productivity. And not many would question this position, for surely it is just how things are, or this is how the economic system works, and anyway, isn't it necessary for the good of society? Of course that might well depend on your definition of a good society. And this is what Heidegger would see as the dominance of a particular way of revealing that holds sway in the world, and it is one which threatens to, or perhaps has already, overridden all others.

Let us go back and compare this to the working practices of the silversmith, now doubtless the silversmith was paid for his efforts, but the making of the chalice appears to have been more than a commercial venture, a question of how much profit was to be made on the deal. Its making was also tied up with its human significance, the part it played in the lives of the people that formed that community or culture. As Heidegger points out, it took account of the complexity found in the 'fourfoldness' of causality. The silversmith would have been responsible for bringing all four causes together, whereas in modern manufacturing the worker is more likely to be a means of producing a fixed end, where what they are making, or the materials they are using, or the ends they are pursuing, no longer require their judgment or understanding to bring about, they have simply become part of the process. Simone Weil said of such practices that 'Never has the individual been so completely delivered up to a blind collectivity, and never have men been less capable, not only of subordinating their actions to their thoughts, but even of thinking.' (Ibid)

Some implications for Art Education

What then are the implications of this for art education? On a vocational art and design course, for example, a project brief will be handed out to students giving them details of the aims of the project, and what units of the grading criteria the project covers and the tasks that have to be completed for assessment. For instance, a colour project was set to introduce students to the concept of colour theory. One of the tasks was to collect certain objects to use in a still-life composition; these had to include a variety of colours, shapes and textures, etc. The students were given a hand-out explaining basic colour mixing rules, and had to use these skills to attempt to approximate the colours found in their still life. Now the project itself gives a lot of scope for the investigation of many different

aspects of colour or objects or the way students interact with them, but because all that is required by the assessment criteria is a competent use of colour in a set task, many of these considerations fall away. Because the project's value and purpose has already been established, the students are simply required to complete the task. If we return to the idea of the four causes, it may become more obvious what has been lost here.

Heidegger says, at one stage, that the silversmith is not a *causa efficiens*, he is not simply a means of bringing something about, but must attend carefully to the other causes and gather them together. It is true that the silversmith was given a set task to do, as were the students, so why is there a difference? The students' task was to complete a still-life painting, but they were not required to think about the objects they used except as a means of affecting some predetermined end. It was a convenient way of appraising a set of skills, while still claiming creative validity by referring to the tradition of still-life painting, although there was no apparent understanding of that tradition within the project. Now perhaps it might be argued that the students were not yet ready for such a complicated undertaking and needed to begin with a more straightforward task, such as working on their basic observational skills, and much could still be gained from this close observation of the objects, regardless of their significance for the students. It would therefore be important for the teacher to encourage the students to pay close attention to what they were looking at, and avoid the temptation to paint an approximation of what they saw, but to watch out instead for the subtle changes of colour and tone, and this might require a lot of patient effort from students. Yet even this was seen as taking up too much time, the emphasis was on finishing the project within the set deadline so as to move onto a different task that covered the next set of assessment objectives. But if the still-life tradition was being used then it would appear apposite to introduce students to the history of that tradition, in order to give the work some context.

At art school I remember being shown images of still-life paintings by the Dutch masters, and was fascinated to discover that their paintings of flowers in vases were, in part, a meditation on the frailty or transience of human life, of how these flowers, at the height of their beauty, already showed signs of the decay that was to come, and of how that only served to increase the poignancy of that captured, albeit fleeting, moment. This opened up a new perspective on the genre that changed my understanding of its purpose.

If art is seen merely in terms of fulfilling assessment criteria it leaves out the rich complexity of the subject. The still-life painters did not produce their paintings in order to show that they could use colour to make a close approximation of a set of objects, but they may have had to learn to use colour in a competent way in order to be able to make palpable the thought they were attempting to convey. Of course, successfully opening up students to this kind of thinking would depend heavily on the teacher's understanding of their subject and their commitment to it. (The Dutch painters would most likely have learnt their craft from a master painter; such a training would have covered not only certain skills, but included a wider understanding of the tradition and its meaning.) One of the objections to pre-set assessment criteria could be that this understanding and expertise of the teacher gradually begins to fall away as teachers come to see successful completion of projects in terms of fulfilling external criteria and not a passing on of knowledge contained within the traditions.

It appears that the judgment of the teacher has been superseded by a need to satisfy certain grading criteria, satisfying these criteria seems to have become the *causa finalis* of the whole enterprise. But can external criteria become a *causa finalis*, as they are not bound up with internal making of the work? If we return to the artist who responded to the feeling evoked by the leaves, one of the incidental reasons for its making could be that this work will become part of their final assessment, but that doesn't affect the *causa finalis* of the work, that will still be to reveal a particular aspect of what they saw. If this external goal were to replace it, the other three causes would no longer make sense, or follow the internal logic that joined the original four causes together. This type of external goal does not belong in fourfold causality.

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