COMMENTARY

Thoughts about Objects, Places and Times

BILL BREWER

St. Catherine's College, Oxford, OX1 3UJ

1. Introduction

I AM QUITE SYMPATHETIC to the general direction of Dr. Campbell's argument, and may in the end be in agreement with the basic shape of his position. But there are a number of places in his paper where the dialectic seems to me to be rather unclear in certain important respects, or where prima facie plausible opposing views are given little real consideration. What I shall do here, then, is present and develop a number of lines of objection which exploit these points of weakness. As the discussion proceeds, my comments will increase in generality and abstraction from the particular way in which Campbell sets up the issues. So I hope that by the end, the broad outlines of what might be a global alternative to his overall conception of things will have emerged.

Campbell begins the main body of his paper with a characterization of the causal structure of physical objects. He highlights two related features. First, there is their internal causal connectedness over time. This is the idea that the way an object is at some later time depends not only on what is done to it from outside, so to speak, but also on the particular complex of properties it now has. Second, objects have the capacity to function as common causes of correlated phenomena. Therefore certain identity judgements involving them can be genuinely

informative. One and the same physical object can be presented in two quite different ways; and we learn something when we realise this.

He goes on to argue for what I shall call the Negative Thesis that, although objects greatly enrich spatial representation through our appreciation of these two aspects of causal structure, place-identification is not in general dependent upon the reidentification of physical objects. The rest of the paper is an argument for the Positive Thesis that reference to physical objects is required for representing particular times, most distinctively as this capacity enters into human self-consciousness. This is what is supposed to provide the essential value for full-blown object-involving objectivity in spatial thought, which therefore undermines the traditional empiricist-pragmatist critique of the very notion of complete objectivity. For it is only in terms of a detached reflection on the narrative of our own lives over time that we determine, evaluate and revise our most fundamental aims and objectives.

Central to the arguments for both the Negative and Positive Theses is an appeal to the ways in which basic spatial and temporal notions are given causal significance for the subject. I start with a worry about Campbell's use of this notion of causal meaning for spatial and temporal relations. Then I discuss a critical lack of clarity in the relation between the two Theses concerning what exactly is supposed to be built into the notion of object-identification, which threatens to undermine his whole project. Finally I illustrate this problem in a little more detail with a doubt about whether the differences between the spatial and temporal dimensions of our thinking about the world out there can really do the work required of them in his argument.

2. Causal significance

In the spatial case, Campbell's crucial claim about causal meaning can be put like this. There are two ways of giving causal significance to the spatial relations one represents. First, this can be done by the fact of one's own engagement in the space. Here the significance comes out in a systematic practical sensitivity to the consequences of represented relations for one's own perception and action. This involves no requirement to think of place-occupants as physical objects, as opposed merely to stably located features, and the spatial thought is not fully objective. Second, causal significance can be given by one's reflective, disengaged

understanding of the possibility of movement through the space by objects (including oneself), and of the conditions of their mutual inter-action. Her place-occupants are to be regarded as persisting substantial things: common causes, whose earlier condition is a partial determinant of their later condition, and of which one is oneself simply one among many. In the first case, what matters is a subject's actual or potential interaction with the environment in perception and action. In the second case, it is rather her thought about such interactions between objects in general with her own perception and action simply as special cases in which one of the objects happens to be herself.

Now what theoretical role is there supposed to be for this causal meaning in the account of spatial thinking itself, once it has been granted that the representation is genuinely spatial? Either it is, or it is not; and this is a matter of whether or not it is *places* and their *spatial* relations that are being identified. If it is, then of course there will be many more questions that need to be answered. For example, there will be an issue about what fixes the frame of reference relative to which places are reidentified as the same again. There will also be questions about the subject's acuity in distinguishing between nearby places both at the time of perception and later in memory. Generally, there will be a whole range of issues about how such representations are used in reflective thought about and action in the spatial world. Regardless of all this though, if the representation is genuinely spatial, then the places identified just will all be spatially connected, and their relations will provide the conditions of movement and interaction for the things at them. How much the subject is aware of this is simply a question of the extent and depth of her spatial knowledge and physical understanding.

In the absence of further argument, it is also difficult to resist the natural thought that Campbell's distinction between a detached and a practical grasp of causal significance is really a distinction in what the subject does with it, rather than any intrinsic distinction in the nature or content of the spatial representation itself. Take the representation I now have of Oxford, and where I am in it. This is my basis for reflective thought about which of the people, perhaps including myself, travelling different routes from St. Catherine's to the Philosophy Centre is likely to arrive first, or how much faster one of them would have to walk to beat the others. Yet I would equally appeal to this very same spatial representation in planning routes and finding my

way around, negotiating the various obstacles on my way back home via a food source, say Sainsbury's, to feed my young.

There are surely possible subjects who could use precisely this kind of representation for one kind of task and not the other. Perhaps there are neglect patients (Bisiach and Vallar, 1988; Brewer, 1992), some of whom we know have access to relatively complete map-like representations of familiar environments (Bisiach and Luzzatti, 1978), who can use these in disengaged reflection but not in practical navigation. It is certainly conceivable that some such patient might be reasonably competent in abstract physical and spatial reasoning, but get into a terrible mess when immersed in the situation trying to find his way around, by ignoring any landmarks to his left and making turns only to the right. Conversely, there may well be subjects whose intellectual problems with abstract mathematical reasoning, or straightforward ignorance of the relevant physical principles, prevents them from using such representations in any kind of detached problem-solving calculation, but who can use them to get around without difficulty. Clearly there are also many kinds of creature who can only ever manifest to us their use of any such spatial representation they might have in practical tasks of the second kind. But this could be a point about their intelligence, their knowledge of basic physics, their needs, or our ability properly to understand what they are up to, rather than anything to do with the sophistication of the representation they actually use.

Generally, then, it seems that a single system of spatial representation, of whatever accuracy and completeness, may or may not in fact be put to use in any of a rich variety of ways, both practical and reflective. Distinctions in these uses of the kind Campbell invokes, or at least some such distinctions, cannot immediately be taken to reveal important distinctions in the underlying representations themselves.

3. Object-identification

Suppose Campbell's use of the distinction between practical and reflective causal meaning for basic spatial notions can be defended against this line of objection. I think there still remains a critical lack of clarity in the arguments for the Positive and Negative Theses, which threatens to undermine his whole project. There is an ambiguity in what is supposed to constitute object-identification.

3.1 Grasp of causal structure

Sometimes it is suggested that what is required for identifying physical objects in thought and perception should be characterized simply in terms of the subject's grasp of the rich causal structure which distinguishes them from merely located features like the pool of light cast by a street lamp on the pavement. On this reading, the distinction between the more primitive 'feature-placing' level of thought and the level at which there is genuine reference to physical things is to be spelt out in terms of the subject's sensitivity both to the internal causal connectedness of objects over time, and to their capacity to function as common causes of correlated phenomena. But this cannot on its own be the most important condition, because it does not obviously require the detached objectivity Campbell is really interested in. Grasp of these two aspects of objects' causal structure might equally consist in a sophisticated practical sensitivity to the ways in which they can function as common causes on the one hand, and a practical recognitional capacity tuned to their internal causal connectedness over time on the other.

Consider, to begin with, rats using the triangulation model Campbell outlines (p. 9; Wilkie and Palfrey, 1987). Successful navigation, even in the water maze, requires some sensitivity to the role of salient cues as common causes of correlated appearances from different viewpoints. When on the platform, the rat registers its distance from each visible cue. Then when it is placed back into the pool at some random location it must compare its current distance from each visible cue to that it logged as its distance from the same cue when on the target platform. Now unless it is extremely lucky, its current location is not on the platform. So the retinal stimulation from any particular cue will be quite different from that it received at the target location. But it can only get going on its journey back to the platform when it has made a series of identifications of single cues as the common causes of these correlated but distinct patterns of stimulation. Prior to making some such identification it could not possibly compare its distances now and then from one and the same cue. Therefore the rat must have some kind of sensitivity to the fact that cues function as common causes. Of course this need not be at all explicit or reflective; but it must be there, informing the rat's practical use of perceptual input.

This is one very crude example of a purely practical grasp of cues' capacity to function as common causes of correlated phenomena. No

doubt in the real world things are far more complicated. The tacit identification of cues across varying retinal stimulations from different points of view must range over many more cues. Perhaps there are a number of disjoint 'mapped' regions with somewhat similar cues in each. So the identifications have to be made only conditional on other factors determining which environment it is in, if the animal is to head off in the direction of the target in that region. This creates an important role for memory. Similarly, more than one target might be represented in any one region. There would be further complex interactions between the navigational system and the animal's varying needs: which target it selects depends on whether it is food or rest that it wants. This gradual sophistication can go a long way, but the sensitivity remains purely practical. The significance of any common cause identification is exhausted by its consequences for the animal's perception and action.

A similar story can be told about a purely engaged, or exclusively interactive, sensitivity to the internal causal connectedness of things over time. Campbell certainly acknowledges at least the beginnings of this idea when he is discussing the contrast between targets and cues in simple animal navigation. Here he recognizes the possibility of a realization that targets are not causally inert features, whose significance is nevertheless exhausted by its behavioural consequences. This happens, in the first instance, when the animal responds to a target as 'the bearer of a single-track property, such as edibility, relating to its own interaction with it' (p. 11). Another example would presumably be a parent's sensitivity to offspring as its own on the basis of their scent. But very much this same kind of basic practical sensitivity to causally relevant properties of targets can be enriched to mimic most of what seems central to the idea of causal connectedness over time. To take the second example, it might be that there is great subtlety in the variation of a newborn's scent as it develops. At birth, let us suppose, it just has an overpowering scent identical to its mother's, to aid immediate recognition, protection and feeding. As it grows more independent this same recognitional strand in the scent might be flavoured according to its experiences whilst away from its parents. Depending on whether the dominant flavouring is correlated with hunger, distress, puberty, or whatever, the parents will automatically react appropriately, feeding, comforting or helping out in the elaborate procedure designed to find a mate. Perhaps adults also keep a derivative parental nose on the young of close relations, who have similar

basic scents. In this way, parents' behaviour in connection with a number of youngsters of various ages will be acutely tuned to their causal connectedness over time. But, again, all this is perfectly unreflective. For the numerous fine-grained discriminations parents make in youngsters' changing properties over time have their significance completely exhausted by their consequences for perception and action. The animals themselves do not have any disengaged understanding of what is going on and why. They just succeed in doing it. Indeed Campbell himself seems to allow for precisely this possibility of a spectrum of ever more sophisticated, purely practical sensitivities to objects' causal connectedness, showing up in complex behavioural responses to objects, where 'one's response to detection of any one of . . . [an object's] properties depends upon which other properties one knows it to have' (p. 11).[1]

The upshot of all this is that an account of object-identification simply in terms of the subject's grasp of the causal structure of physical things cannot make the connection Campbell wants between objects and a fully detached objectivity in spatial thought. For there might be something which certainly deserves to count as such a grasp, but which consists in a sophisticated but purely practical sensitivity to objects' capacity to function as common causes of correlated effects and to their causal connectedness over time. Regardless of its sophistication, this cannot be good enough to give us a real alternative to the empiricist-pragmatist picture to which Campbell is explicitly opposed, of 'a set of types of representation, all located at a greater or lesser distance from action and perception, but all ultimately given meaning by their significance for one's engagement in the space' (p. 15). So there must be more involved in the capacity for object-identification, or in the fully object-involving notion of objective spatial thought he is working with, than just what might count as some kind of grasp of objects' causal structure, potentially exhausted by its implications for perception and action.

3.2 Detachment

All this points towards a rather more demanding conception of what is required for identifying physical objects in thought and perception,

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[1] I also outline below (pp. 30–1) what might count as a purely practical grasp of one's own causal connectedness.

which is certainly also active in Campbell's paper, and is required if the connection with objectivity is to be made directly. This is the idea that what is distinctive about object-identification is to be spelt out in terms of a fully objective, reflective or disengaged, understanding of causal structure. On this reading, then, the distinction between the more primitive 'feature-placing' level of thought and the level at which there is genuine reference to physical things is not primarily a matter of subjects having some sensitivity to objects' rich causal structure, which might be ever increasing in sophistication whilst remaining purely practical and unreflective. It has to do rather with the kind of grip subjects have on this structure. We are at the object-involving level of thought just if a subject's grasp of causal structure is completely detached from the demands of perception and action, and is not given significance simply by its implications for her interactions with things in the environment.

If this much is required to bring them into the picture, then Campbell may well be right that place-identification does not in general depend upon reference to physical objects. But the price for thus weakening his Negative Thesis in the move from the relaxed (3.1) to the stringent (3.2) conception of object-identification is, of course, strengthening the Positive Thesis that reference to physical objects is required for representing particular times in thought and perception. For the remainder of the present section I shall be sketching two ways in which this stronger version of the Positive Thesis might create difficulties for Campbell. In the final section I develop the thought fuelling the first of these, that the differences between the spatial and temporal dimensions are really insufficient, or of the wrong kind, to justify the asymmetry created by the conjunction of the Positive and Negative Theses.

A first problem for the newly strengthened Positive Thesis arises when we recall the details of how place-identification is supposed to work in the absence of reference to physical objects. The thought is that a creature might keep track of particular places either by keeping track of its own movements, or by registering their distances (and directions) from a number of stably located features (or relative to a fixed origin and axis defined by such features).[2] The reason why this

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[2] My formulation of this second alternative is meant to include both the Wilkie–Palfrey (1987) triangulation model and O'Keefe's (1990; 1991) slope and centroid model. I am in agreement with Campbell that what matters most in the current context is the similarity between these two models of animal navigation.

need not bring in reference to objects is not so much that it requires no sensitivity to causal structure. For we have seen that it does, in the case of landmarks' capacity to function as common causes. And we have also seen that some appreciation of causal connectedness over time can be built in whilst retaining the fully engaged, unreflective, nature of the activity. It is rather that any such sensitivity which may be involved in tracking its own movements, or in coding the various distances and directions it uses, can be given purely practical causal significance by the creature, in the sense of being exhausted by its implications for perception and action. On our current understanding of object-identification in terms of detachment, this keeps objects out of the picture.

But then we might wonder why creatures could not equally keep track of particular times by keeping track of their own temporal progress, or by registering the duration between them and various temporally located occurrences. Of course practical grasp of the 'vector' back to a given time, birth or puberty say, cannot, like knowledge of the spatial vector home, manifest itself in any capacity to get back there. Nevertheless it may still be put to work in the organization of quite sophisticated behaviour in some other way, and so be given purely practical causal significance. Perhaps the time elapsed since that particular event is of massive significance for a particular creature's present and future well-being, in that it determines an intricate web of hierarchical mating practices within the community in which it lives. Any objection that this involves merely temporal orientation with respect to phase can, I shall argue, be redirected back as an objection to the Negative Thesis by appeal to the possibility of massive qualitative reduplication. If physical objects are required to ground reference to particular times, as against merely phases in some repeatable cycle, then they must equally be required to ground reference to particular places, as opposed merely to what might be called 'Leibnizian places'. These would be places definitively individuated in such a way that any pair of places p_1 and p_2 which are equivalently spatially related to qualitatively identical, even if numerically distinct, cues are themselves identical.[3] This is the general line of objection I shall be developing in my final section.

Before I return to that, it is worth cutting off what might look like an obvious reply here, particularly given Campbell's overall concern

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[3] John Campbell suggested the terminology to capture this notion.

with self-determination and the notion of a person. The line of response I have in mind is what gives rise to my second difficulty with our current version of the Positive Thesis. It might appear possible to save this, in the face of the doubts expressed above, by pressing the demands of self-consciousness. But any such defence faces a dilemma.

1 On the one hand, self-consciousness might be defined as detached thought about oneself as one persisting thing among many. In that case, it will indeed require object-identification, even on our present, more ambitious, conception. But the Positive Thesis would then be empty. For what is involved in reference to physical objects is spelt out precisely in terms of this very detachment. Although it is true, the claim that detached thought about oneself as an object demands a detached grasp of the causal structure characteristic of objects is hardly illuminating. Self-consciousness is simply being defined as a particular instance of the general capacity for object-identification it is held to require.

2 On the other hand, self-consciousness might be left more open-endedly as an awareness of oneself as an object, with no mention of reflective detachment. In that case, the thesis that self-consciousness demands object-identification will indeed be a substantial one. For on our current conception of things, reference to physical objects does explicitly require disengagement from the concerns of perception and action. The difficulty now is that the thesis seems to be false. Awareness of oneself as an object might alternatively consist in a fully engaged practical sensitivity to the facts about one's own internal causal connectedness over time and one's capacity to function as a common cause of correlated phenomena. To take the latter first, a squirrel or child might be extremely sensitive, in its retrieving behaviour, to its having been the common cause of a number of differently located secret stores of acorns or sweets. Similarly, a skilled one-man band has to be highly sensitive to his being the common cause of the harmonica tune, guitar harmony, drum-beat and cymbal clash rhythm, and so on, in balancing and co-ordinating his performance. In both of these cases, and in many more, the grasp of common causation is purely practical. In the same kind of way, and again along with animals and infants, we also manifest a quite unreflective sensitivity to our own causal connectedness. An obvious example would be in our everyday transactions with the world, negotiating obstacles and avoiding injury. We bend, jump, rotate and run to avoid or contact things around us in ways which are extremely well tuned to the complex interrelations between our size, shape, solid-

ity, mobility, flexibility and so on, and to the kind of impact the things might make on us in our various possible configurations. Indeed, if Gibson (1979, p. 126) is on the right lines, then in all our most basic environmental perception, we quite unreflectively coperceive ourselves, both at a time and changing over time.

It seems, then, that, either way, it is fruitless trying to defend the Positive Thesis by pressing the demands of self-consciousness.

4. Space and time

I think all this raises a very interesting challenge to Campbell's overall position. He must spell out precisely the feature of temporal thought which is supposed to distinguish it from merely spatial thinking in just the respect to demand of the former but not the latter genuine reference to physical objects. We need to know what it is in the conditions on particular times' entering the contents of perception, thought, intention and so on, which imposes the requirement that physical objects also figure in such contents. Furthermore, we need to be convinced that whatever this is that draws objects into temporal contents is quite absent from any condition on identifying reference to particular places. I end by filling out the first point I sketched in section 3.2 above, suggesting a reason why this may be a difficult challenge to meet.

We are to consider keeping track of particular times and places in perception, thought and action. The intuition that this is possible in the spatial case without the need for reference to particular objects can be put like this. Certainly if there is to be successful place-identification, then the subject must know which place is in question in the following sense. There must be some account of what it is about her thinking which makes it the case that it is that particular place rather than any other which is involved. This condition can be met, though, in the absence of any thought to the effect that it is the place where such-and-such an object is located. For its satisfaction might instead consist in the subject's practical sensitivity to her changing spatial relations to that place. Perhaps she continually updates the vector back home by monitoring her own movements away from it on a food-finding expedition, or she uses her coding of its distances from a number of salient cues to guide her return on the basis of something like the triangulation model. She knows where home is, but this knowledge is exhausted by its consequences for the organization of her spatial and

other behaviour. Now although one manifestation of such a sensitivity is clearly impossible in the temporal case, since one can never actually reidentify the same particular time again, subjects might nevertheless equally manifest a highly sophisticated but purely practical sensitivity to their changing temporal relations with a number of individual times.

For example, the females of a certain type of monkey might go out of their extended family group to search amongst other similar groups for a suitable mate some fixed duration after reaching their puberty. Perhaps which group they try first even depends upon the time since the previous adolescent female of their own group set out. Similarly, it may be that the adult males all go off hunting some fixed duration after the first birth in a new spring. All of this might be perfectly unreflective behaviour, in the sense that all causal significance of their coding durations between crucial events is exhausted by its consequences for animals' perception and action. We have here, then, in parallel with the spatial case, a practical sensitivity in the timing and temporal organization of behaviour to changing temporal relations to particular times. An animal acts just when it does, or in the way it does, precisely because it has been tracking the duration since the particular time at which some past event occurred: it is aware that it is now appropriately related to that past time. It would surely be a mistake to underestimate the theoretical significance of this sensitivity, relative to various spatial navigational abilities, simply because the tracking is made easier by there being only one temporal dimension, duration along which is to be recorded. So we seem to have equally good grounds for attributing reference to particular times in the absence of object-identification as we have with respect to keeping track of particular places.

At this point Campbell objects that this can only possibly amount to reference to a given phase in some repeatable cycle, a Leibnizian time,[4] with no real appreciation of the distinction between qualitative and numerical temporal identity. But if this is the case, then it must be thought quite insignificant that it is in fact a particular time, temporal relations to which subjects are actually sensitive in their behaviour: the unrepeatable particular time at which they reached puberty or whatever. The only reason for this seems to be the idea that it is somehow

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[4] As with Leibnizian places, these might be thought of as sets of particular times realizing the same phase of some (in principle) repeatable cycle.

quite incidental to any later behaviour that it is that particular time, duration from which they are sensitive, rather than any other which is qualitatively identical in the relevant respects. All that is really relevant is its realization of a given phase in some (in principle) repeatable cycle: the puberty phase in the life cycle of a female monkey, or the phase in the yearly cycle of a community in which the first young of a new spring are born.

Once this sceptical worry gets a grip though, it arises equally in the spatial case. We can no longer rely on the fact that it is a particular place, changing spatial relations to which the creature is actually sensitive, to ground reference to an individual place. For it will be held equally incidental that that place constitutes the focus of its spatial sensitivities rather than any other which is relevantly similar. In the case of an animal supposedly keeping track of its home by keeping track of its own movements away from it, the sensitivity will be to whichever place happens to lie at the end of the vector it currently thinks leads back there. Had it been released from some qualitatively indistinguishable place other than home, or been moved under sedation whilst away, this would have been a numerically different place, alike only in being that distance and direction from wherever the animal happens to be. Similarly, and more obviously, in the case of the triangulation model or any other cue-based navigational system, all that really matters in defining the target location is a set of distances (and directions) from some collection of purely qualitatively defined stably located features (or relative to a fixed origin and axis defined by such features). Reflection on the possibility of qualitatively duplicating any such system of features, elsewhere, as it were, then brings out the fact that this only identifies a set of particular places constituting a single Leibnizian place. There is no longer any reason to suppose that one particular place is being represented rather than any other which is equivalently spatially related to qualitatively identical but numerically distinct cues.

I myself am inclined more towards the view that things go wrong as soon as we allow the sceptical worry to get started at all, in either the spatial or the temporal case. The very fact of a particular time or place actually being the target of one's sophisticated practical sensitivities is itself relevant in characterizing the contents in terms of which one's behaviour is to be explained. Or as Gareth Evans puts it, 'For an item to be the object of some psychological attitude of yours may be simply for you to be placed in a context which relates you to that

thing' (1973, p. 191).[5] But having let the rot set in by countenancing the sceptical worry, it is precisely at this point that one might reach for reference to particular objects to anchor the representation. Reference to a particular time, it might be argued, is secured only when this is thought of in relation to a particular object, as the time at which one attained puberty oneself (here thinking in a detached way of oneself as one particular object among many), or when a particular child, Eleanor, was born early that spring. But this will equally be a requirement in the spatial case. Reference to a particular place being dependent on one's thought of it as located relative to certain physical things, as where a particular youngster is waiting to be fed, or the submerged target platform as such-and-such distances from those particular landmark objects. Whether or not one is prepared to allow a role for the very fact of one's standing in certain spatial and temporal relations to particular places and times in determining the spatial and temporal components of representational content, it seems that the two modes of thought are equally placed in respect of the demand for object-identification.

The principle contention of Campbell's conjunction of the Negative and Positive Theses is that there is an asymmetry in the spatial and temporal dimensions of our thinking. Although thought about physical objects greatly enriches our capacity for place-identification, it is only in our temporal thinking about the world out there that we necessarily attain a reflective level of objectivity which is genuinely disengaged from the demands of perception and action and for which reference to physical objects is essential. But if my discussion in this final section is at all on the right lines, then any such asymmetry is considerably more difficult to establish than he suggests.

[5] See Evans (1982, pt. II) and Peacocke (1993) for discussion of the epistemological and counterfactual components respectively of what it might amount to for one to be suitably related, in a given context, to the thing in question.

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