

Tim Ingold persuasively argues for anthropology's transformational role in serious reflection on the need for anthropologists to correspond to the world as it is, rather than imposing a preconceived framework. The book is a focus on handwork in art, building, and the making of tools and objects, as "thinking through making" and learning by doing. This accessible and timely contribution to a core area of anthropological research will engage with the fascinating work emerging from it.'

Trevor Marchand, *School of Oriental and African Studies, UK*

With *Making*, he continues to enliven the social sciences with compelling and critical reflections on anthropological, archaeological, and historic practices. This volume will be useful to all who are striving to understand the world through research, making and thinking, practice and theory.'

Ian Alden Russell, *David Winton Bell Gallery, Brown University, USA*

an absolute must to discover and absorb the work of this friendly and thoughtful author who is touch the heart of what we do.'

Lars Spuybroek, *Georgia Institute of Technology, USA*

Ingold questions and propose daring answers, Tim Ingold has developed a new way of thinking in the process, he has staked out an increasingly influential position in the range of disciplines.'

Webb Keane, *University of Michigan, USA*

MAKING

Anthropology, archaeology, art and architecture

Tim Ingold

me through to the production process. For some of the chapters, I have raided material that I have presented or published elsewhere, though not without substantial on. Thus a fragment of Chapter 1 comes from my chapter 'The 4 As (anthropology, ecology, art and architecture): reflections on a teaching and learning experience', in *Of Knowing: New Approaches in the Anthropology of Knowledge and Learning*, ed. M. s, Oxford: Berghahn, pp. 287–305, 2007. Some sections of Chapter 2 appear, in a preliminary form, in my article 'Toward an ecology of materials', *Annual Review of Anthropology* 41: 427–442, 2012, and parts of Chapter 5 appear in two introductory pieces on production: the perception of the user-producer', in *Design and Anthropology*, eds. J. and J. Donovan, Farnham: Ashgate, pp. 19–33, 2012; and 'Introduction', in *Living Landscapes: Past, Present and Future*, eds. M. Janowski and T. Ingold, Farnham: Ashgate, pp. 1–18, 2012). Chapter 6 owes a certain amount to my chapter 'The round mound is not a monument', in *Round Mounds and Monumentality in the British Neolithic*, eds. J. Leary, T. Darvill and D. Field, Oxford: Oxbow Books, pp. 253–260, 2012. Chapter 7 incorporates a couple of paragraphs from the *Annual Review* article cited above, and a few paragraphs of Chapter 9 come from my 'Introduction' to *Redrawing the Map: Materials, Movements, Lines*, ed. T. Ingold, Farnham: Ashgate, 2012, pp. 1–18. The rest is new.

I dedicate this book to my most constant supporter and most unsparing critic in all my life, who – by the time this book is published – will have put up for over forty years in incorrigibly academic husband whose thoughts are always somewhere other than where they ought to be.

Tim Ingold
Aberdeen, August 2012

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KNOWING FROM THE INSIDE

Learning to learn

Know for yourself! That was oftentimes the only advice my companions would offer when, as a novice fieldworker among Saami people in north-eastern Finland some forty years ago, I was stuck as to how to proceed with some practical task. At first I thought they were just being unhelpful, or unwilling to divulge what they knew perfectly well. But after a while I realised that, quite to the contrary, they wanted me to understand that the only way one can really know things – that is, from the very inside of one's being – is through a process of self-discovery. To know things you have to grow into them, and let them grow in you, so that they become a part of who you are. Had my companions offered formal instruction by explaining what to do, I would have had only the pretence of knowing, as I would find out the moment I tried to do as I was told. The mere provision of information holds no guarantee of knowledge, let alone of understanding. Things, as proverbial wisdom has it, are easier said than done.

It is, in short, by watching, listening and feeling – by paying attention to what the world has to tell us – that we learn. My companions did not inform me of *what* is there, to save me the trouble of having to inquire for myself. Rather, they told me *how I might find out*. They taught me what to look for, how to track things, and that knowing is a process of active following, of *going along*. These were people who had always lived by fishing, hunting and herding reindeer, so for them the idea that you know as you go – not that you know by means of movement but that knowing is movement – was second nature. To me it was not, and yet it must have somehow wormed its way into me, without my even realising it at the time, for when I look back I can see how it has guided my thinking and my preference for some philosophies over others. Would I be thinking in the same way had I not undergone this formative experience of fieldwork very early on in my career? That is impossible to say. I would have to rerun the past four decades without that experience to see whether the results would be the same or different. But for my part, I can find no other explanation.

Our task, in a situation such as that in which I found myself, is one of *learning to learn*. Gregory Bateson – anthropologist, cybernetician and general intellectual

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maverick – called it 'deutero-learning' (Bateson 1973: 141). This kind of learning aims not so much to provide us with facts *about* the world as to enable us to be taught by it. The world itself becomes a place of study, a university that includes not just professional teachers and registered students, dragged into their academic departments, but people everywhere, along with all the other creatures with which (or whom) we share our lives and the lands in which we – and they – live. In this university, whatever our discipline, we learn *from* those *with* whom (or which) we study. The geologist studies with rocks as well as professors, he learns from them, and they tell him things. So too the botanist with plants and the ornithologist with birds. And anthropologists? They also study with the practitioners of any other discipline, means shaking off, instead of applying, the preconceptions that might otherwise give premature shape to their observations. It is to what lies before us, in the world, not by looking it up at the back of the book. In this feeling forward rather than casting our eyes rearwards, in anticipation rather than retrospection, lies the path of discovery.

This book is anchored in the discipline of anthropology. Surely the most anti-academic of academic disciplines, anthropology could not be sustained were it not for the institutions of learning and scholarship in which most of its practitioners spend the greater part of their working lives. Yet at the same time, it is largely devoted to challenging the principal epistemological claim upon which the legitimacy of these institutions is founded, and that continues to underwrite their operations. This is the claim of the academy to deliver an authoritative account of how the world works, or to reveal the reality behind the illusion of appearances. In the academic pantheon, reason is predestined to trump intuition, expertise to trump common sense, and conclusions based on the facts to trump what people know from ordinary experience or from the wisdom of their forebears. The mission of anthropology has long been to turn this pantheon on its head. It is to start from the presumption that if anyone knows anything about the ways of the world, then it will be those who have devoted their lives – as have their ancestors – to following them. Therefore, say anthropologists, it is by seeking to understand these ways of life, and by acquiring for ourselves some of the knowledge and skills required to practise them, that we have most to learn. Armed with this learning, and with the critical perspectives it opens up, we can turn our sights back on the academy and, as it were, cut it down to size by revealing the limitations inherent in its own knowledge practices.

Anthropology and ethnography

In anthropology, then, we go to study *with* people. And we hope to learn *from* them. What we might call 'research' or even 'fieldwork' is in truth a protracted masterclass in ways his or her mentors do. It is, in short, to undergo what the ecological psychologist James Gibson calls an *education of attention* (Gibson 1979: 254, cf. Ingold 2001). But besides subjecting themselves to this kind of education, many fieldworkers are committed to documenting the lives and times of their host communities. This work of documentation is known as *ethnography*. More often than not, anthropologist and

ethnographer are combined in one and the same person, and the tasks of anthropology and ethnography proceed in tandem. They are not the same, however, and their persistent confusion has caused no end of trouble. We need to sort this trouble out.

It helps to be able to think through an example, so I have made one up for the purpose. As an amateur cellist I used to dream, quite unrealistically of course, that I would one day go to study with the great Russian master of the instrument, Mstislav Rostropovich. I would sit at his feet, observe and listen, practise and be corrected. After a year or two of this, I would return with a much enriched understanding of the possibilities and potentials of the instrument, of the depths and subtleties of the music, and of myself as a person. This, in turn, would open up paths of musical discovery that I could continue to travel for years to come. Now suppose that instead, having perhaps read for a degree in musicology, I decided to carry out a study of prominent Russian cellists. The idea would be to find out what factors had set them on this particular path, how their subsequent careers had unfolded, what the major influences had been on their lives and ways of playing, and how they saw themselves and their work in the contexts of contemporary society. I would plan to spend some time with Rostropovich, using my cello as a kind of entry ticket to gain access to him and his circle, and in the hope of gathering information relevant to my study, whether through casual conversation or albeit not so famous. And I would come home with a lot of material to work on for my projected thesis: *Bears on Strings: Cellists and Cello-Playing in Contemporary Russia*.

I do not mean to deny that a study of the latter kind could make a valuable contribution to musicological literature. It could increase our knowledge of an otherwise little-studied topic. It might even have earned me a doctorate! My point is not that the first project is better than the second, but simply that they are fundamentally different. Let me highlight three differences that are crucial for what I want to say, by analogy, about *ethnography* and *anthropology*. First, in project one I study *with* Rostropovich and learn *from* his way of playing, whereas project two is a study of Rostropovich in which I learn *about* him. Second, in project one I take what I have learned and move *forward*, all the while of course reflecting on my earlier experience. In project two, by contrast, I look *back* over the information I have collected, in order to account for trends and patterns. And thirdly, the impetus that drives project one is primarily *transformational*, whereas the imperatives of project two are essentially *documentary*. To put it rather crudely, these are also the differences between anthropology and ethnography. Anthropology is studying *with* and learning *from*; it is carried forward in a process of life, and effects transformations within that process. Ethnography is a study of and learning about, its enduring products are recollective accounts which serve a documentary purpose.

Now in proposing this distinction, I do not mean to belittle ethnography. Many colleagues, I know, will protest that to regard ethnography as mere documentation is to take far too narrow a view of it. They will insist that ethnography is a much broader and richer endeavour than I have made out, and even that it should be taken to include everything that I have just brought under the rubric of anthropology. Not only anthropology but also ethnography, they will say, is transformational: the ethnographer is changed by the experience, and this change is carried forward into his or her future work. Hence in their view, ethnography and anthropology are practically indistinguishable. But to this I answer that there is nothing 'mere' about

descriptive documentation. Ethnographic work is complex and demanding. It may even be transformational in its effects upon the ethnographer. These are side effects, however, and are incidental to its documentary purpose. Indeed, if anything belittles ethnography, or makes it seem less than what it really is, it is the usurpation of its name for other ends. After all, description of the people is what ethnography (from *ethnos* = 'people', *graphia* = 'description') literally means. If ethnography has in practice become something different from description, then by what name should the task of description be known? It can be hardly more emphatically devalued than by being left nameless and unrecognised. Nor is that all, for as I shall show in a moment, to conflate the objectives of documentation and transformation is to leave anthropology impotent in the fulfilment of its critical mandate.

For the present, I wish only to insist that the distinction – in terms of objectives – between the documentary and the transformational is absolutely not congruent with that between empirical and theoretical work. It is almost a truism to say that there can be no description or documentation that is innocent of theory. But by the same token, no genuine transformation in ways of thinking and feeling is possible that is not grounded in close and attentive observation. This book is a case in point. It is not an ethnographic study, and indeed makes very little reference to ethnography at all. That does not, however, make it a work of theory. Rather, my entire argument is set against the conceit that things can be 'theorised' in isolation from what is going on in the world around us, and that the results of this theorising furnish hypotheses to be applied in the attempt to make sense of it. It is this conceit that sets up what the sociologist C. Wright Mills, in a celebrated essay on intellectual craftsmanship, denounced as a false separation between ways and means of knowing. There can, Mills argued, be no distinction between ways and discipline and its method; rather, both are 'part of the practice of a craft' (1959: 216). Anthropology, for me, is such a practice. If its method is that of the practitioner, working with materials, its discipline lies in the observational engagement and perceptual acuity that allow the practitioner to follow what is going on, and in turn to respond to it. This is the method, and the discipline, known in the trade as *participant observation*. It is one of which anthropologists are justly proud. Participant observation, however, is a practice of anthropology, not of ethnography (Hockey and Forssey 2012), and, as I shall show below, anthropologists do themselves a disservice by confusing the two.

Participant observation

It is not anthropology's purpose to describe the specificity of things as they are: that, I have argued, is a task for ethnography. But nor is it to generalise from these descriptions: 'to account', as anthropologist Dan Sperber (1985: 10–11) would have it, 'for the variability of human cultures' by resort to 'ethnographic data'. It is rather to open up a space for generous, open-ended, comparative yet critical inquiry into the conditions and potentials of human life. It is to join with people in their speculations about what life *might* or *could* be like, in ways nevertheless grounded in a profound understanding of what life is like in particular times and places. Yet the speculative ambition of anthropology has been persistently compromised by its surrender to an academic model of knowledge production according to which lessons learned through observation and practical participation are recast as empirical material for subsequent

interpretation. In this one, factual move, not only is anthropology collapsed into ethnography, but the entire relation between knowing and being is turned inside out. Lessons in life become 'qualitative data', to be analysed in terms of an exogenous body of theory.

Whenever positivistically minded social scientists speak of 'qualitative and quantitative methods' – or even more obscenely, of 'quant/qual' – and point to their essential complementarity as though a mix of both would be advantageous, this inversion is at work. To make matters worse, they then recommend participant observation as an appropriate tool for collecting the qualitative component of the dataset. This is to add insult to injury! For participant observation is absolutely not a technique of data collection. Quite to the contrary, it is enshrined in an ontological commitment that renders the very idea of data collection unthinkable. This commitment, by no means confined to anthropology, lies in the recognition that we owe our very being to the world we seek to know. In a nutshell, participant observation is a way of knowing from the inside. As science studies scholar Karen Barad (2007: 185) has eloquently put it: 'We do not obtain knowledge by standing outside the world; we know because "we" are of the world. We are part of the world in its differential becoming.' Only because we are already of the world, only because we are fellow travellers along with the beings and things that command our attention, can we observe them. There is no contradiction, then, between participation and observation; rather, the one depends on the other.

But to convert what we owe to the world into 'data' that we have extracted from it is to expunge knowing from being. It is to stipulate that knowledge is to be reconstructed on the *outside*, as an edifice built up 'after the fact', rather than as inhering in skills of perception and capacities of judgement that develop in the course of direct, practical and sensuous engagements with our surroundings. It is this move that – by situating the observer on the outside of the world of which he or she seeks knowledge – sets up what is often alleged to be the 'paradox' of participant observation, namely that it requires of the researcher to be both 'inside' and 'outside' the field of inquiry at one and the same time. This paradox, however, does no more than restate the existential dilemma that lies at the heart of the very definition of humanity which underpins normal science. *Human beings*, according to science, are a species of nature, yet to be *human* is to transcend that nature. It is this transcendence that both provides science with the platform for its observations and underwrites its claim to authority. The dilemma is that the conditions that enable scientists to *know*, at least according to official protocols, are such as to make it impossible for them to be in the very world of which they seek knowledge. It seems that we can only aspire to truth about this world by way of an emancipation that takes us from it and leaves us strangers to ourselves.

In any appeal to data, whether quantitative or qualitative, this division between realms of knowing and of being is presupposed. For it is already taken for granted that the world is given to science not as part of any offering or commitment but as a reserve either by stealth, feigning invisibility, or under false pretences by claiming we have come to learn from teachers whose words are heeded not for the guidance they have to offer, but as evidence of how they think of their beliefs or attitudes. Then, as soon as we have filled our bags, we cut and run. This, in my estimation, is fundamentally unethical. It is to turn our backs upon the world in which we live and to which we

owe our formation. With all the data at our fingertips, we think we know what can be known, yet knowing all, we fail to see or take our counsel from the world itself. With this book my aim is to restore knowing to where it belongs, at the heart of being. This is to turn once again towards the world for what it has to teach us, and to refine the division between data collection and theory building that underwrites normal science.

As anthropologists we currently find ourselves in a double bind. How can we do justice to the ethnographic richness and complexity of other cultures, while simultaneously opening up to radical, speculative inquiry into the potentials of human life? The alternatives seem to lie between abdication from our responsibility to engage in critical dialogue around the great questions of how to fashion our collective humanity in a world that is recentering on the edge of catastrophe, or turning the people among whom we have worked into unwitting mouthpieces for philosophies of salvation that are not of their own making. Neither alternative has served anthropology well. The first leaves the discipline on the margins, condemned to the retrospective documentation of indigenous worlds that seem always to be on the brink of disappearing; the second only fuels the popular belief that the traditional wisdom of native people can somehow rescue the planet.

An anthropology that has been liberated from ethnography, however, would no longer be tied down by a retrospective commitment to descriptive fidelity. On the contrary, it would be free to bring ways of knowing and feeling shaped through transformational engagements with people from around the world, both within and beyond the settings of fieldwork, to the essentially prospective task of helping to find a way into a future common to all of us. When we go to study with great scholars in the course of our education, we do so not with a view to describing or representing their ideas in later life, but to sharpening our perceptual, moral and intellectual faculties for the critical tasks that lie ahead. Why, I wonder, should it be any different for anthropologists when they go to work with other people? The truth is that in finding ways to carry on we need all the help we can get. But no one – no indigenous group, no specialist science, no doctrine or philosophy – already holds the key to the future, if only we could find it. We have to make the future for ourselves.

The art of inquiry

We cannot make the future, however, without also thinking it. What then is the relation between thinking and making? To this, the theorist and the craftsman would give different answers. It is not that the former only thinks and the latter only makes, but that the one makes through thinking and the other thinks through making. The theorist does his thinking in his head, and only then applies the forms of thought to the substance of the material world. The way of the craftsman, by contrast, is to allow knowledge to grow from the crucible of our practical and observational engagements with the beings and things around us (Dorner 1994; Adamson 2007). This is to practise what I would like to call an *art of inquiry*.

In the art of inquiry, the conduct of thought goes along with, and continually answers to, the fluxes and flows of the materials with which we work. These materials think in us, as we think through them. Here, every work is an experiment: not in the natural scientific sense of testing a preconceived hypothesis, or of engineering a confrontation

between ideas 'in the head' and facts 'on the ground', but in the sense of prising an opening and following where it leads. You try things out and see what happens. Thus the art of inquiry moves forward in real time, along with the lives of those who are touched by it, and with the world to which both it and they belong. Far from answering to their plans and predictions, it joins with them in their hopes and dreams. This is to adopt what anthropologist Hirokazu Miyazaki (2004) calls the *method of hope*. To practise this method is not to describe the world, or to represent it, but to open up our perception to what is going on there so that we, in turn, can respond to it. That is to say, it is to set up a relation with the world that I shall henceforth call *correspondence*. Anthropology, I believe, can be an art of inquiry in this sense. We need it in order not to accumulate more and more information about the world, but to better correspond with it.

By and large, however, practitioners of the art of inquiry are to be found not among anthropologists but from among the ranks of practising artists. And this prompts a reassessment of the relation between art and anthropology. There is of course a long and distinguished tradition of study in the anthropology of art. Scarcely a region of the world remains whose native productions have not been subjected to exhaustive analysis and interpretation. Much of the resulting literature overlaps with writing in the fields of material and visual culture. It also suffers from the same biases. In the study of material culture, the overwhelming focus has been on finished objects and on what happens as they become caught up in the life histories and social interactions of the people who use, consume or treasure them. In the study of visual culture, the focus has been on the relations between objects, images and their interpretations. What is lost, in both fields of study, is the creativity of the productive processes that bring the artefacts themselves into being: on the one hand in the generative currents of the materials of which they are made; on the other in the sensory awareness of practitioners. Thus processes of making appear swallowed up in objects made; processes of seeing in images seen.

Likewise in the study of art, anthropologists have tended to treat the work of art as an object of ethnographic analysis. 'The anthropology of art would not be an anthropology of art', as Alfred Gell has written, 'unless it were confined to a subset of social relations in which some "object" were related to a social agent in a distinctive, "art-like" way' (Gell 1998: 13). By this, he means that it should be possible to trace a chain of causal connections, in reverse, from the final object to the initial intention that allegedly motivated its production, or to the meanings that might be attributed to it. In a word, it is to place the object in a social and cultural context. In thus taking the artwork to be indexical of the social milieu and cultural values of its makers, the anthropology of art has merely taken on the mantle of art history. It is true that anthropologists have gone out of their way to distance their endeavours from the propensity of many art historians to make evaluative judgements on the basis of criteria that appear value-laden and ethnocentric. Nevertheless, in so far as they continue to treat art as a compendium of works to be analysed, there can be no possibility of direct correspondence with the creative processes that give rise to them.

I contend that this reverse-reading, analytic approach represents an intellectual dead end so far as the relation between anthropology and art is concerned. The source of the blockage lies in what could be called the 'anthropology of' formula. The problem is that whenever anthropology encounters anything outside itself, it wants to turn whatever it

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activity → power
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is – say kinship, law or ritual – into an object it can analyse. Thus when it encounters art, it wants to treat art as a collection of works that are in some way caught up in a texture of social and cultural relations that we can study. Yet while we might learn much *about* art from the analysis of its objects, we learn nothing *from* it. My aim, to the contrary, is to replace the anthropology *of* with an anthropology *with*. It is to regard art, in the first place, as a *discipline*, which shares with anthropology a concern to reawaken our senses and to allow knowledge to grow from the inside of being in the unfolding of life. To carry out anthropology *with* art is to correspond with it in its own movement of growth or becoming, in a reading that goes forwards rather than in reverse, and to follow the paths along which it leads. And it is to link art and anthropology through the correspondence of their *practices*, rather than in terms of their objects, respectively historical and ethnographic.

To date, with a few notable exceptions (e.g. Schneider and Wright 2006, 2010), collaborations between anthropologists and arts practitioners have been few, and those that have taken place have not all been entirely successful. Once again, the source of the difficulty lies in the identification of anthropology with ethnography. For the very reasons that render arts practice highly compatible with the practice of anthropology are precisely those that render it incompatible with ethnography. On the one hand the speculative, experimental and open-ended character of arts practice is bound to compromise ethnography's commitment to descriptive accuracy. On the other hand, the retrospective temporal orientation of ethnography runs directly counter to the prospective dynamic of art's observational engagement. Precisely as arts practice differs in its objectives from the history of art, however, so anthropology differs from ethnography. It is here, I believe, that the real potential for productive collaboration between art and anthropology lies. Could certain practices of art, for example, suggest new ways of doing anthropology? If there are similarities between the ways in which artists and anthropologists study with the world, then could we not regard the artwork as a *result* of something like an anthropological study, rather than as an *object* of such study? We are already used to the idea that the results of anthropological research need not be confined to written texts. They may also include photographs and films. But could they also include drawings, paintings or sculpture? Or works of craft? Or musical compositions? Or even buildings? Conversely, could not works of art be regarded as forms of anthropology, albeit written in non-verbal media?

Doing things ourselves

These were the kinds of questions we set out to address in a seminar that began life over fifteen years ago, when the seed for this book was first planted. At that time, in the mid-1990s, I was still working in the Department of Social Anthropology at the University of Manchester. More by accident than design, the Department included a number of research students with backgrounds in either art or architecture, or both.² I thought it would be interesting for us to meet on a regular basis to talk about issues on the interface between art, architecture and anthropology. This we did, rather successfully – indeed the seminar ended up running in fits and starts for a full three years, until 1999, when I left Manchester to take up my current position in Aberdeen.

It was, at least for me, a very remarkable seminar, and I have never known anything quite like it. We began in the usual way, in a seminar room, listening to each other talk, but after a term of this we felt that we had reached some kind of impasse. For it became clear that the issues that concerned us could not be addressed in a vacuum. We had to be *doing things ourselves*.

Obviously, without the benefit of prior training (which some of us had), we anthropologists cannot snap our fingers and, as if by magic, turn ourselves instantly into artists or architects. But we could at least try to ground our discussions in something practical, so as to give the ideas we came up with some foundation in experience. And we did all manner of things! We wound string and wore baskets, made pots and fired them on a home-made kiln, we practised the Alexander technique and discovered how heavy a head or limb can be when it is completely relaxed. We helped a farmer rebuild a drystone wall, held a workshop on polyphonic singing, tried our hand at architectural drawing, visited artists' studios and exhibitions, and so on. Some of the things we did were a bit mad, and they did not always lead anywhere. We never had a coherent agenda. However, we were all agreed that the quality of the discussions we had while doing things was quite unlike anything experienced in an ordinary seminar, and that they were tremendously productive of new insights. But while this was undoubtedly the case, it was not so clear *why* this should be so. The question is: what difference does it make if discussion is grounded in a context of practical activity?

When I moved to the University of Aberdeen in 1999 to revive the anthropology programme there, one of my ambitions was to carry forward some of the ideas arising from the Manchester art, architecture and anthropology seminar. Initial discussions with colleagues at the School of Fine Art and the Visual Research Centre at the University of Dundee led us to put together a proposal for collaborative research under the rather cumbersome title, 'Learning is understanding in practice: exploring the interrelations between perception, creativity and skill'. To our considerable astonishment, the project was funded for a three-year period (2002–2005).³ One component of the project was to look at the way in which the skills of fine art are taught and learned in the course of studio-based practice, and involved participant observation with fine art students in Dundee, following their learning experience (Gunn 2007). Alongside and complementing this study, however, we set out to explore the potential applicability of practices of teaching and learning, in both fine art and architecture, within the discipline of anthropology.

It was in this context that we developed a course for advanced undergraduate and postgraduate students in anthropology at the University of Aberdeen, entitled 'The 4 As: Anthropology, Archaeology, Art and Architecture'. The course was introduced and taught for the first time in the spring semester of 2004, and with one or two interruptions, has continued to be offered ever since. I shall say more below about what the course covered and how it was delivered, as well as about the philosophy of teaching and learning that underpinned it. Before doing so, however, I should explain what brought the four disciplines together, beyond the happy coincidence that they all began with the letter A! I have already devoted some attention to differentiating one of them – anthropology – from the practice of ethnography. I had to do this in order to establish the conditions for anthropology's correspondence with art. But it is also necessary, as we shall see, for its correspondence with architecture and archaeology as well.

The four As

While much work has been done in the anthropology of art, the anthropology of architecture remains little developed. The literature in the former is voluminous, in the latter it is almost non-existent. The reasons for this are unclear. It can surely be no reflection of the relative importance of art and architecture in people's lives. One possible explanation is that on account of their scale and portability, works of art are more collectible than those of architecture, and have therefore found their way into the museums and galleries of the western world, where they have naturally attracted the attention of scholars disinclined to travel to their regions of provenance. I have no evidence to support this hypothesis, however, and no doubt other factors are involved. In any case, of the few studies that do exist, most adopt the same general stance as studies of art, visual and material culture in equating 'architecture' with built structures that are then treated as objects of ethnographic analysis.⁴ These are studies of, rather than *with* architecture. In combining it with art and anthropology, I propose instead to think of architecture as a *discipline* that shares with art and anthropology a concern to explore the creative processes that give rise to the environments we inhabit, and the ways we perceive them. Taken as the practice of such a discipline, architecture is not so much *about* as *by means of* buildings. It is, in short, an *architecture of inquiry*. Included in it are questions concerning the generation of form, the energetics of force and flow, the properties of materials, the weave and texture of surfaces, the atmospheres of volumes, and the dynamics of activity and of rest, of making lines and making place. To answer every one of these questions entails a way of knowing from the inside, and we shall be exploring some of these in the chapters to follow.

It was in the move from Manchester to Aberdeen that the three As of art, architecture and anthropology were joined by the fourth, archaeology. This was in part a reflection of my own interests, which have long spanned the boundary between archaeology and anthropology. But I was also convinced that no discussion of the relation between art, architecture and anthropology could be complete if archaeology were not included as well. With their unifying themes of *time* and *landscape* (Ingold 1990) and in their mutual concern with the material and symbolic forms of human life, *anthropology* and *archaeology* have long been regarded as sister disciplines, even though they have not always been on speaking terms. Moreover there is an obvious affinity between archaeology and the histories of both art and architecture, in their common interest in the artefacts and buildings of antiquity. In a sense, I suppose, architects and archaeologists could be regarded as procedurally equal but temporally opposed: after all the very same tool – the trowel – that the builder uses to fabricate the architectural forms of the future is used by the archaeologist, in the excavation of a site, to reveal the forms of the past. If one begins with designs of what is to be put up, the other ends in plans of what has been unearthed. With all these parallels and connections, indeed, it seemed only natural that archaeology should be along as the fourth A.

However, if archaeology is to join with anthropology not as a positive science but as an art of inquiry, and similarly if it is to join with art and architecture conceived as disciplines rather than as compendia of objects for historical analysis, then the terms of engagement have to be renegotiated, in two respects. Firstly, just as we have been compelled to distinguish anthropology from ethnography, so, likewise, archaeology must be distinguished from the kind of pre- or proto-historiography that has as its

Robert / human
the way

objective to arrive at descriptively plausible reconstructions of everyday life in the past. Though the pros and cons of using ethnographic analogies to fill the gaps in such reconstructions have been extensively debated, this issue – crucial to the relation between ethnography and prehistory – is of no particular consequence for the relation between anthropology and archaeology. Secondly, we need to recognise that archaeology's core practice of excavation, understood in the broadest sense as an engagement with materials embedded in the earth that carry the traces of past human activity, can no more be reduced to a technique of data collection than can the corresponding practice of participant observation in anthropology. Just like participant observation, excavation is a way of knowing from the inside: a correspondence between mindful attention and lively materials conducted by skilled hands 'at the trowel's edge'. It is from this correspondence, and not from the analysis of 'data' within frameworks of 'theory', that archaeological knowledge grows. In the practice of excavation, as Matt Edgeworth has recently put it, archaeologists are obliged to *follow the cut* – to 'see where it goes, and in what direction it takes us' – not passively but actively like hunters tracking their prey, ever alert and responsive to visual and tactile clues in an intrinsically variable environment (Edgeworth 2012: 78; see Ingold 2011a: 251 fn. 4). In effect, the cut is a line of correspondence.

The course

Many years ago, asked by a university bureaucrat how he would describe the objectives of his teaching, anthropologist Heonik Kwon responded that he would endeavour to turn his students into *good hunters*. It was a typically inspired response, and while it left the bureaucrat completely flummoxed, as a summation of the principles underlying the design and delivery of the course on the 4 As, it could not have been bettered. The aims of the course were to train students in the art of inquiry, to sharpen their powers of observation, and to encourage them to think *through* observation rather than *after* it. Like hunters they had to learn to learn, to follow the movements of beings and things, and in turn to respond to them with judgement and precision. They would discover that the path to wisdom lay in this correspondence, not in an escape into the self-referential domain of academic texts. And like hunters, too, they were encouraged to *dream*. To dream like a hunter is to become the creatures you hunt and to see things in the ways they do. It is to open up to new possibilities of being, not to seek closure. The world of dreams, as indigenous hunters tell us, is no different from that of waking life. But in the dream you perceive that world with different senses, while moving in different ways and perhaps in a different medium such as in the air rather than on land.⁵ On waking you then see the familiar with new eyes (Ingold 2011a: 239).

In the official documentation we were obliged to provide for reasons of bureaucratic accountability, we stated that the 4 As course aimed to explore the connections between anthropology, archaeology, art and architecture, conceived as complementary approaches to understanding and shaping *how people perceive and relate to their surroundings*, in currents of space, time and movement. In hindsight, however, one of the more remarkable and slightly unexpected outcomes of presenting the course has been that although planned as an explicitly interdisciplinary inquiry, in practice

(...)

the boundaries of the disciplines simply vanished, if indeed they ever existed. Students did not have the experience of having to relate four distinct fields, but rather found themselves following a series of pathways in which the concerns of anthropology, archaeology, art and architecture seemed naturally and effortlessly to converge. This was perhaps because the course was as much *anti-disciplinary* as *interdisciplinary*. It was anti-disciplinary because it overturned the normative understanding of the academic discipline as a delimited domain of inquiry, the boundaries of which are coterminous with those of the class of phenomena (A) with which it deals. This is implied whenever a discipline is described as the study of A (e.g. art or architecture). But from our perspective of studying with, the entire terrain of knowledge is reconfigured. Instead of a territorial surface segmented into domains or *fields of study*, we have something more like a rope, wound from corresponding strands or *lines of interest*. In binding these lines together our aim has been to undo the territorialisation of knowledge implied in the way disciplines are normatively understood, and to celebrate the openness of knowing from the inside.

The course was delivered through a combination of lectures, practicals, project work and workshops, spread over a period of ten weeks. Following a general introduction, lecture topics included (in this order): design and making; materials; objects and things; gesture and performance; craft and skill; the senses in perception; lines; drawings; notation. Normally, courses offered at this advanced level comprise one lecture and one tutorial per week, each of an hour's duration. While the lectures for the 4 As followed a fairly traditional format, the tutorials were replaced by weekly practical sessions. In each session students would discuss the issues arising from that week's lecture, along with the accompanying readings, at the same time as carrying out specific practical exercises as described in the following chapters: they included collecting objects, messing with materials, flying kites, string-making and knotting, a walk on the beach, forging signatures, and constructing notations for observed movements.

Besides attending lectures and participating in practicals, students were also required to carry out a project. Project work proceeded throughout the course. Each student was asked to select a 'thing' such as a building, a bridge, a bench, an ancient monument, a piece of public sculpture, or a landmark (for example a tower, fountain or prominent tree). The student was advised to spend about an hour with the chosen thing every week, focusing on a specific aspect, and to make notes on what had been observed or discovered. For example, they were asked to attend to the thing's history, whether it is finished or still growing or under construction, the materials it is made of and their histories, what plants are growing on it or animals living in it, how people and animals move in, over, through or around it, and what it sounds and feels like at different times of day, after dark or in varying weathers. They had to draw or sketch it and make plans of it, and reflect on how their drawing affected their observations. And they had to make a model from readily available raw materials, and consider what model-making could teach about the thing, bearing in mind the differences of scale and materials between the thing and the model. At the end of the course, these notes, along with drawings, model and supporting documentation, were to be assembled into a dossier to be submitted for assessment. The final component of the course comprised a series of three half-day workshops, including an outdoor session on weaving with

teaching
Knowing from the inside 13

willow, a visit to an artist's studio, and a walk in the countryside to address issues of landscape perception.

In its design and delivery, the 4 As course was part of an effort to introduce ways of teaching and learning in anthropology that are consonant with what we know from anthropology about the processes of learning and teaching. For many years I have taught undergraduate courses, at both introductory and more advanced levels, in which I have explained that it is wrong to think of learning as the *transmission* of a ready-made body of information, prior to its *application* in particular contexts of practice. On the contrary, of our teachers is not literally to pass on their knowledge, in the form of a ready-made system of concepts and categories with which to give form to the supposedly inchoate material of sensory experience, but rather to establish the contexts or situations in which we can discover for ourselves much of what they already know, and also perhaps much that they do not. In a word, we grow *into* knowledge rather than having it handed down to us. This is what Jean Lave (1990) means when she says that learning is a matter of *understanding in practice* rather than *acquiring culture*.

Now if this is the way people learn in any society, then it must also be true of the way students learn in our own. Accordingly, the role of the student is not to take on the board a corpus of authorised, propositional knowledge issuing from a superior source in the academy, but to collaborate in the shared pursuit of human understanding. Yet as Lave herself has pointed out, our institutions of education, at least in the western world, are largely premised on the theory that the classroom is a dedicated space for learning in which students are supposed to acquire the approved knowledge of society, which they can then take into the world outside and put into practice once their education is complete. As many of the more astute students taking my courses pointed out to me, there was a glaring inconsistency between *how* they were being taught, and *what* they were being taught about how learning actually occurs in the social world. Educators such as myself seemed to be the very last to practise what they preach.

This book

The challenge for me, then, was to find a way to teach as I had been taught. For if, as I have argued, the ultimate objective of anthropology is not documentary but transformational, it is surely incumbent on us to give to the future as we have received from the past. What value lies in transformations of the self if they end there, if selves do not go on reciprocally to transform others and the world? Had I gone to study with Rostropovich, I would have sought to transform the world through making music. By profession, however, I am not a musician but an anthropologist. I give lectures, not concerts. Yet my teaching – all teaching – would be worthless were it not if it did not lead us to teach with this intent. To teach is to honour our commitments by repaying what we owe the world for our formation. In short, teaching (and not ethnographic writing) is the other side of participant observation: there cannot be one without the other, and both are indispensable to the practice of anthropology as an art of inquiry. To teach anthropology is to practise anthropology; to practise anthropology is to teach it. This was the pedagogical principle at the heart of the course on the 4 As. And

Making and growing

This chapter is about bringing things back to life. Its basic argument may be expressed by means of a simple diagram. Draw two lines: they need not be straight; indeed you can allow them to meander a little. However, they should proceed alongside one another, like the trails left by two people walking abreast. Each is a path of movement. Let one of these lines stand for the flow of consciousness, saturated as it is by light, sound and feeling. And let the other stand for the flow of materials as they circulate, mix and meld. Now imagine that each of these flows is momentarily stopped up. On the side of consciousness, this stoppage takes on the semblance of an *image*, like a fugitive suddenly caught in the glare of a spotlight. And on the side of materials it takes on the solid form of an *object*, like a boulder placed in the fugitive's path, blocking his passage. On our diagram we could depict both stoppages by a point or blob on each respective line. Now draw a double ended arrow connecting the two blobs. Unlike the original pair of lines, this arrow is not the trace of a movement; it is notional rather than phenomenal, and depicts a connection of some kind between image and object. Now that our diagram is complete (Figure 2.3), we can sum up the argument of this chapter, and indeed of the entire book. It is to switch our perspective from the endless shuttling back and forth from image to object and from object to image, that is such a pronounced feature of academic writing in the fields of anthropology, archaeology, art and architecture, to the material flows and currents of sensory awareness in which images and objects reciprocally take shape. In terms of our diagram, this entails a rotation of 90 degrees, from the lateral to the longitudinal.

We will find this rotation cropping up again and again, in various connections. Indeed we have already encountered it in the last chapter, in our distinction between ethnographic documentation (lateral) and anthropological transformation (longitudinal). With regard to perception, it underpins the distinction between an optical and a haptic relation to the world – a distinction that explains the quite different experiences of tactility described above, showing that the optical relation is by no means limited to a perception mediated by the eye (nor is the haptic relation limited to the hands). With regard to creativity, it distinguishes the improvisatory creativity of labour that works things out as it goes along from the attribution of creativity to the novelty of determinate ends conceived in advance. It underpins the distinctions spelled out in Chapter 7 between interaction and correspondence and in Chapter 8 between articulate and personal knowledge. Most fundamentally, however, it crops up in connection with the question of what it means to make things.

We are accustomed to think of making as a *project*. This is to start with an idea in mind, of what we want to achieve, and with a supply of the raw material needed to achieve it. And it is to finish at the moment when the material has taken on the intended form. At this point, we say, we have produced an *artifact*. A nodule of stone has become an axe, a lump of clay a pot, molten metal a sword. Axe, pot and sword are instances of what scholars call *material culture*, a phrase that perfectly captures this theory of making as the unification of stuff supplied by nature with the conceptual representations of a received cultural tradition. 'Material culture', as Julian Thomas (2007: 15) puts it, 'represents at once ideas that have been made material, and natural substance that has been rendered cultural'. In the literature, the theory is known as *hylomorphism*, from the Greek *hylē* (matter) and *morphe* (form). Whenever we read that in the making of

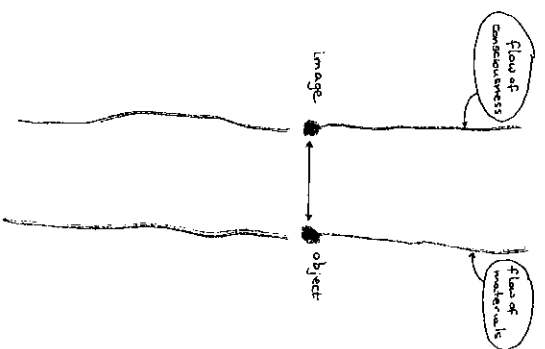


FIGURE 2.3 Consciousness, material, image, object: the diagram

artifacts, practitioners impose forms internal to the mind upon a material world 'out there', hylomorphism is at work.

I want to think of making instead, as a *process of growth*. This is to place the maker from the outset as a participant in amongst a world of active materials. These materials are what he has to work with, and in the process of making he 'joins forces' with them, bringing them together or splitting them apart, synthesising and distilling, in anticipation of what might emerge. The maker's ambitions, in this understanding, are altogether more humble than those implied by the hylomorphic model. Far from standing aloof, imposing his designs on a world that is ready and waiting to receive them, the most he can do is to intervene in worldly processes that are already going on, and which give rise to the forms of the living world that we see all around us – in plants and animals, in waves of water, snow and sand, in rocks and clouds – adding his own impetus to the forces and energies in play. The difference between a marble statue and a rock formation such as a stalagmite, for example, is not that one has been made and the other not. The difference is only this: that at some point in the formative history of this lump of marble, first a quarryman appeared on the scene who, with much force and with the assistance of hammers and wedges, wrested it from the bedrock, after which a sculptor set to work with a chisel in order, as he might put it, to release the form from

the stone. But as every chip of the chisel contributes to the emergent form of the statue, so every drop of supersaturated solution from the roof of the cave contributes to the form of the stalagmite. When subsequently, the statue is worn down by rain, the form-generating process continues, but now without further human intervention.

To read making longitudinally, as a confluence of forces and materials, rather than laterally, as a transposition from image to object, is to regard it as such a form-generating – or *morphogenetic* – process. This is to soften any distinction we might draw between organism and artefact. For if organisms grow, so too do artefacts. And if artefacts are made, so too are organisms. What varies, among countless other things, is the extent of human involvement in the generation of form: but this variation is one of degrees, not kind. This is not of course to deny that the maker may have an idea in mind of what he wants to make. He may even be seeking to copy a piece of work that already stands before him. Does this not distinguish the statue from the stalagmite, once and for all? Can we not speak, in a sense unique to artefacts, of their *design*? This is a question I will leave for later (see Chapter 5). Suffice it to say, at this point, that even if the maker has a form in mind, it is not this form that creates the work. It is the engagement with materials. And it is therefore to this engagement that we must attend if we are to understand how things are made. Time and again, scholars have written as though to have a design for a thing, you already have the thing itself. Some versions of conceptual art and architecture have taken this reasoning to such an extreme that the thing itself becomes superfluous. It is but a representation – a derivative copy – of the design that preceded it (Frascati 1991: 93). If everything about a form is prefigured in the design, then why bother to make it at all? But makers know better, and one of the purposes of this book is to bring them out of the shadows into which they have been cast by an uncritical application of the hylo-morphic model, and to celebrate the creativity of their achievement.

Baskets in the sand

On a cold and windy day in February, the 4 As students and I were out on a sandy peninsula wedged between the beach and the estuary of the River Don, which flows into the sea on the northern flank of the city of Aberdeen. Patches of snow remained on the ground. We were learning to make baskets out of willow, under the direction of anthropologist and craftsperson Stephanie Bunn (see Bunn 2010: 49–50). To form a frame, an odd number of lengths of willow were stuck vertically into the ground, to form a rough circle, tied at the top. Horizontal pieces were then woven alternately in and out of the vertical frame so as gradually to build up a surface in the form of an inverted cone. Students worked at this either singly or in pairs (Figure 2.4). From the start, I think, many students were surprised by the recalcitrant nature of the material. In a finished basket, the willow seems to sit so naturally there, as if it had always been meant to fall into that shape and was merely fulfilling the role for which it was predestined. But the willow did not want to be bent into shape. Sometimes it put up a fight, springing back and striking the weaver in the face. One had to be careful and coaxing. Then we realised that it was actually this resistance, the friction set up by branches bent forcibly against each other, that held the whole construction together. The form was not imposed on the material from without, but was rather generated in this force field,



FIGURE 2.4 Making baskets in the sand, near Aberdeen beach in north-east Scotland. (Courtesy of Raymond Lucas.)

comprised by the relations between the weaver and the willow. Indeed as novices, we had little control over the precise form and proportions of our baskets. Kneeling on the ground, our weaving involved quite muscular movements of the entire body, or at least from the knees upwards, so that the dimensions of the basket related directly to such bodily dimensions as arm-reach and shoulder-height. Students discovered they had muscles in places they had never imagined, partly because after a while they began to ache. But other forces, too, entered into the formative process. One of these was the wind. A persistent, strengthening wind was bending all the verticals of the frame in one direction, with an inclination that increased with height. No wonder, then, that many baskets, especially those woven nearest to the shore, tilted over somewhat, in an elegant but wholly unintended curve (Figure 2.5).

We laboured for almost three hours, gradually developing a rhythm and a feel for the material. As the work progressed, however, we began to face another problem. How would we know when to stop? There is no obvious point when a basket is finished. The end dawned for us, not when the form came to match initial expectations, for we had none. It came rather with falling light and the imminent prospect of heavy rain, increasing chill and stiffness in the limbs, and the sense that each additional strand was becoming somehow superfluous. At that point it was time to insert a separately woven base and to cut the verticals at the height we had reached. At last, then, we could lift the woven construction from the ground, and turn it upside down to reveal that what we had made was indeed a basket. Each basket was different, uniquely reflecting the mood and

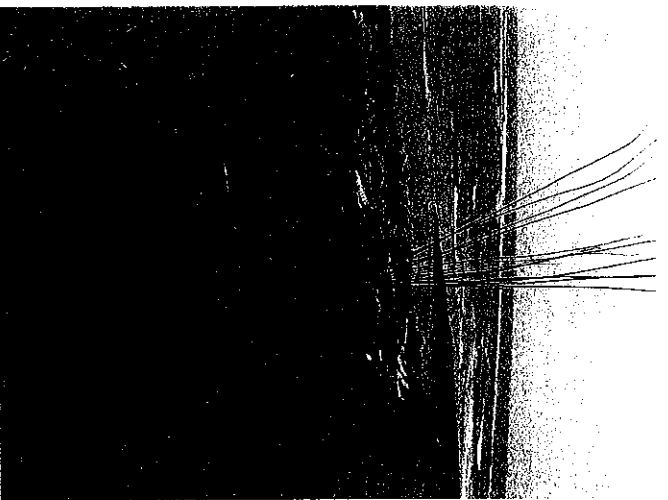


FIGURE 2.5 A near-complete basket. (Courtesy of Raymond Lucas)

temperament, as well as the physical stature, of its maker. Finally the students straggled off into the gathering dusk, proudly bearing homeward the baskets they had made. Later they would tell me that they had learned more from that one afternoon than from any number of lectures and readings; above all about what it means to make things, about how form arises through movement, and about the dynamic properties of materials.

On matter and form

Perhaps it is unfair to use basketry as a way to criticise the hylomorphic model. The conclusion that the model does not work for weaving does not rule out the possibility that it might work perfectly well for branches of manufacture in which form is more ostensibly imposed on material. What about making bricks, for example? In forming the brick, prior to firing in the kiln, soft clay is pressed into a pre-prepared, rectangular mould. The mould, it seems, prescribes the form while the material – the clay – is initially formless. Surely, as the clay is pressed into the mould, form is united with material just as the logic of hylomorphism requires. But in a thesis entitled *L'indivision et la limite des*

Simondon → un divisible

notions de Forme et d'Information, the philosopher Gilbert Simondon shows that this is not so.¹ For one thing, the mould is no geometric abstraction but a solid construction that has first to be built from a specific material (traditionally, a hardwood such as beech). For another thing, the clay is not raw. Having been dug out from beneath the topsoil, it has first to be ground, sieved to remove stones and other impurities, and then exhaustively kneaded before it is ready for use. In the moulding of a brick, then, form is not united with material. Rather, there is a bringing together or unification of two transformational half-chains (*demi-chainés de transformations*) – respectively building the mould and preparing the clay – to a point at which they reach a certain compatibility: the clay can take to the mould and the mould can take the clay (Simondon 2005: 41–42). At the moment of encounter, when the brick maker 'dashes' a clot of clay into the mould, the expressive force of the maker's gesture, imparted to the clay, comes hard up against the compressive resistance of the hard wood of the mould's walls. Thus the brick, with its characteristic rectangular outline, results not from the imposition of form onto matter but from the *contraposition* of equal and opposed forces immanent in both the clay and the mould. In the field of forces, the form emerges as a more or less transitory *equilibration*. Perhaps bricks are not so different from baskets after all (Figure 2.6).

Simondon's central postulate of *indivision* holds that the generation of things should be understood as a process of morphogenesis in which form is ever emergent rather than given in advance. As Brian Massumi (2009: 37) explains, in a commentary on Simondon's text, this is to assert 'a primary of processes of becoming over the states of being through which they pass'. Against the form-receiving passivity of matter posited by hylomorphism, Simondon took the essence of matter, or the material, to lie in *form-taking activity*. The hylomorphic model, Simondon (2005: 46) concludes, corresponds to the perspective of a man who stands outside the works and sees what goes in and what comes out but nothing of what happens in between, of the actual processes whereby materials of diverse kinds come to take on the forms they do. It is as though, in form and matter, he could grasp only the ends of two half-chains but not what brings them together, only a simple relation of moulding rather than the continuous modulation that goes on in the midst of form-taking activity, in the *becoming* of things.

In their 'treatise on nomadology', philosopher Gilles Deleuze and psychoanalyst Félix Guattari have taken up Simondon's crusade against hylomorphism, and, thanks to their influence, the issues it raises are beginning to percolate through to archaeology and anthropology. The trouble with the matter-form model, argue Deleuze and Guattari, is that in assuming 'a fixed form and a matter deemed homogeneous' it fails to acknowledge, on the one hand, the variability of matter – its tensions and elasticities, lines of flow and resistances – and, on the other hand, the conformations and deformations to which these modulations give rise. In reality, they insist, whenever we encounter matter 'it is matter in movement, in flux, in variation', with the consequence that 'this matter-flow can only be *followed*' (Deleuze and Guattari 2004: 450–451). Artisans or practitioners who follow the flow are, in effect, itinerant, wayfarers, whose task is to enter the grain of the world's becoming and bend it to an evolving purpose. There is an 'intuition in action' (ibid.: 452).

Whereas Simondon took his key example from brick making, however, Deleuze and Guattari appeal to metallurgy. For them, metallurgy highlights a particular insufficiency of the hylomorphic model, namely that it can only conceive of technical operations as

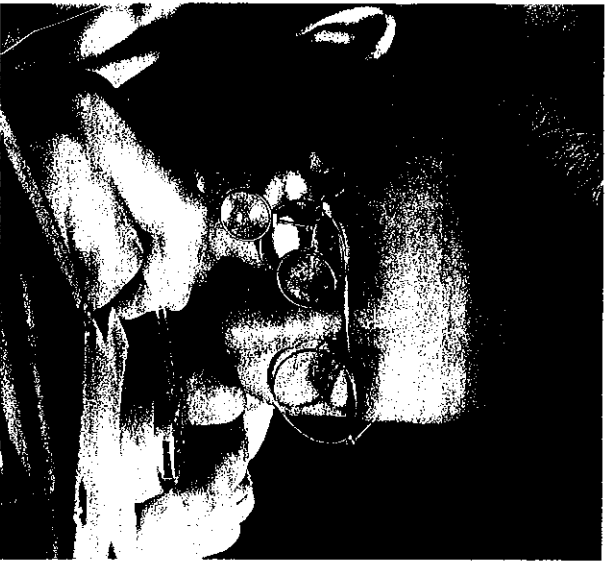


FIGURE 5.1 The watchmaker at work. This photograph, which appeared in the in-house publication of the Elgin National Watch Company *Watch World*, in September 1949, shows company employee Les Linder making final adjustments to the movement of a railroad watch. I am grateful to librarian Betsy Vera and collections services manager William R. Blohm, of Gail Borden Public Library in Elgin, Illinois, for tracking down the photo and providing a copy.

no hand in shaping, of which they have no conscious awareness and that analytically trained design theorists are alone capable of articulating.

We have already seen in the last chapter (p. 56) *by way of* Turnbull's example of building the great Gothic cathedral of Chartres, how this argument both fails to account for workmanship and attributes power to rules they cannot have. But the same counter-argument could be applied just as well, on a miniature rather than monumental scale, to the case of watchmaking. Pledge for a moment the real watchmaker at work (Figure 5.1). There he is, in his workshop, delicately fitting together tiny cogs and springs, along with other components, under a close and observant eye. He may well have to use a magnifying glass to see well enough what he is doing. Before that, he may have had to manufacture the individual components, a task that calls for an equally close-up engagement with metal and precious stones. A watchmaker who was truly blind, but whose intellectual faculties were unimpaired, could in principle design a

watch. He could, as Dawkins intimates, design the cogs and springs, and plan their interconnections. Yet the foresight that Dawkins attributes to the watchmaker will not make a watch. For that you also need skilled vision and manual dexterity. And just as medieval cathedral builders had to work things out as they went along, following flexible rules of thumb rather than procedures precisely laid down in advance, so too did the watchmakers of Paley's day, else they would not have had to pay such close attention to what they were doing.

The design of everyday life

In this regard, the foresight required of the watchmaker is of a very different kind from that which the argument from design attributes to the designer. It lies not in the cogitation that literally comes *before sight* but in the very activity of *seeing forward*, not in *preconception* but in what the sociologist Richard Sennett, in his study of the work of the craftsman, calls *anticipation*: being 'always one step ahead of the material' (Sennett 2008: 175). The philosopher Jacques Derrida has resort to the same idea in reference to the art of drawing in which, he claims, the inscribing hand continually overtakes the cogitations of the head. To anticipate, he says, is 'to take the initiative, to be out in front, to take (*surper*) in advance (*en*)'. (Derrida 1993: 4). 'If the mind wants to be involved in the process of making,' writes design theorist Lars Spuybroek (2011: 160), 'it must not only be open but forward-looking, in the direction of as-yet-unborn creation.' This is a matter not of predetermining the final forms of things and all the steps needed to get there, but of opening up a path and improvising a passage. To foresee, in this sense, is to see *into* the future, not to project a future state of affairs in the present; it is to look where you are going, not to fix an end point. Such foresight is about prophecy, not prediction. And it is precisely what enables practitioners to carry on.

To make a watch takes time. This time is not incidental, or collapsible into an instant or series of instants. It is rather a time of growth or formation, of ontogenesis. Thus the designing of the watch continues into its making – in the ways the pieces assembled there answer to one another in the generation of internal coherence. What the maker has to hand, to begin with, are cogs and springs, among other minute pieces. These pieces do not belong together, in preordained positions, by dint of some external necessity. They are no more parts of a watch than are twigs on the forest floor parts of a bird's nest. Rather, as with the nest, pieces become parts only as the assembly proceeds and tends increasingly to cohere. They gradually acquire a feel for each other, they *settle*, holding each other in place ever more tightly as the work advances asymptotically towards closure without ever absolutely reaching it. The task of the maker is to bring the pieces into a sympathetic engagement with one another, so that they can begin – as I would say – to *correspond*. Peering through his eyeglass (Figure 5.1), the watchmaker inhabits a realm *in among* the pieces, rather than *above* and *beyond* them, adjusting each in relation to the others, and serving as a kind of go-between in their correspondence. Only as the work nears completion can the pieces be judged, with reasonable confidence, to be the parts of a whole.

On these grounds, Spuybroek (2011: 67) maintains that Paley could not have been more *wrong* in his inference that the watch, accidentally encountered on the heath, attests to an intelligent design that preceded its manufacture, as if things resembled wholes with

with the design
of the building

the design of everything
- designing buildings thing

predetermined parts, each restricted to a single act. No more ale cut and carved stones the predefined parts of a building, and we would be equally mistaken – as we have already seen – to infer the precedence of architectural design from such a complex structure as a cathedral. Design extends into making as the builder, in among the stones, brings them into correspondence. Our models for art and design, Spyrook (2011: 243) suggests, should ideally be drawn not from horology or architecture but from gardening and cooking. 'A great gardener or chef', he observes, 'not only sees the state of things but senses where they are going' (ibid.: 240). I have called this sensing anticipatory foresight: a foresight that does not so much connect a preconceived idea to a final object as *go between*, in a direction orthogonal to their connection, following and reconciling the inclinations of alternately pliable and recalcitrant materials. You do not have to be a gardener or chef of distinction, however, in order to design in this sense, for it answers to our most everyday experience, for example at the breakfast table, from where we begin each day and whence I began this chapter. Let us briefly revisit it, before moving on.

I suggested earlier that the table is tantamount to an obstacle course, on and around which every designed object is a hurdle to be overcome. Yet it is really not that hard, except perhaps for infants who still have to master the manipulation of the spoon, and whose physical size is not matched to the adult proportions of the furniture. It is not hard because in their enrolment in a fluent and skilful performance, box, jug, bowl, spoon and cloth, as well as table and chair, are not encountered as finished objects answering to a design that preceded and underwrote their manufacture. Indeed, as will become clear in the next chapter, they are not really encountered as objects at all, but as things. These things are not finished but are carried on in their use even as you carry on with your own life as you sit down to eat. What Norman (1988) calls 'the design of everyday things' does not, then, achieve its ends with their manufacture. For them to be things at all, and not objects, requires that they be brought into a relation with one another – into a correspondence – that is itself defined by a narrative of anticipated use. Everyday design catches the narrative and pins it down, establishing a kind of choreography for the ensuing performance that allows it to proceed from the moment when you sit down to eat. In such a straightforward task as laying the table – in enrolling into your relation bowl and spoon, milk jug and cereal box – you are designing breakfast. In amongst the furniture and tableware, your role is to act as a go-between. Not until the table is already laid can we say with assurance what any particular item is *for*. And this gives the lie to the mantra of 'user-centred' design, which casts practitioners as the mere consumers of objects designed *for* them, and not *by* them, in order to satisfy predetermined 'needs'.

Breaking trail and catching dreams

What, then, can design possibly mean if not to set up a plan in advance of its implementation? If things are never finished – if the world is perpetually under construction by way of the activities of its inhabitants, who are tasked with keeping life going rather than bringing to completion projects specified at the outset – then can design any longer be distinguished from making? Are design and making merely two words for the same thing? We have already noted (Chapter 4, pp. 50–51) that in some

European languages, the word for design is the same as that for drawing. Their original synonymy, however, rested on the idea of the drawing as the outline of a mental image, geometrically projected onto a plane surface. In the writings of such Renaissance figures as Alberti and Vasari, for example, the Italian word *disegno* signified both the idea and its visual expression. Here, design and drawing figure as two sides of the same coin, with one side in the mind and the other on paper. But what if we were to think of drawing in another way: not as the projection of a ready-made image but as the inscriptive trace of a movement or ~~gesture~~ *gesture* comparable to weaving with threads or carving in stone?

The artist Paul Klee (1961: 105) famously described drawing as taking a line for a walk. The line that goes for a walk does not represent or prettify anything. Quite unlike the straight line of Euclidean geometry, it does not connect predetermined points. On paper, it is the trace of a movement rather than a statement of intent (Maynard 2005: 66–67). As we have already said of the anticipatory foresight of the skilled practitioner, it breaks a trail, continually launching forth from its tip and tracing a path as it goes. If design is to be the other side of drawing in this sense, then it would have to be about anticipating the future. Far from seeking finality and closure, it would be open-ended, dealing in hopes and dreams rather than plans and predictions. As the Finnish architect Juhani Pallasmaa (2009: 110–111) writes, 'Design is always a search for something that is unknown in advance'. It is precisely this inner uncertainty, according to Pallasmaa, expressed in the hesitancy of his drawing, which drives the creative process. Unlike material bodies, however, hopes and dreams can fly: they are not bound to the spatio-temporal limits of earthly life. The difficulty is that in taking flight they can all too easily be lost. It is the task of design to go after them and bring them back. Travelling light, unencumbered by the dead weight of heavy materials, the line of the designer seeks to give chase to the phantasms of a fugitive imagination and to rein them in before they can get away, setting them down as signposts in the field of practice that makers and builders can track at their own, more laboured and ponderous pace.

Picture for example a composer, at work on a symphony. The music flies ahead in his imagination like a bird on the wing. It is all he can do to catch it and get it down before it is lost beyond the horizon of his recollection. With so many staves, each for an instrument of the orchestra, it can take many hours of painstaking work to notate a passage that in performance would last barely a minute. Composing would be easy, were it not for music's propensity to outpace its material inscription. Nor is this a problem confined to musical composition. The performer, writes the philosopher Maurice Merleau-Ponty (1968: 151), who feels that the music 'sings through him', finds that he 'must dash his bow' to follow it'. The architect Alvaro Siza compares the task of designing a building to tracking a character, or rather a host of characters, who are always slipping away from him. His predicament, he says, is not unlike that of the novelist, whose characters have a way of outrunning his capacity to write them down. It is vital not to lose them (Siza 1997: 51). In writing as in drawing, notes Serge Tisseron (1994: 36), thought darts out like an untamed horse, which is later led back and tamed, bound to the line which the hand holds fast upon the paper. Or in another image, the writer or draftsman is like a man swept away by a wave from a ship: the line is the rope from which he is hanging on (Tisseron 1994: 37). Even painters are challenged to rein in their fleeting visions of an evanescent world before

they escape. 'It is the fear of not going fast enough', wrote Charles Baudelaire, 'of letting the phantom escape before the synthesis has been extracted and pinned down; it is that terrible fear that takes possession of all great artists and gives them such a passionate desire to become masters of every means of expression so that the orders of the brain may never be perverted by the hesitations of the hand' (in Baudelaire 1986: 17). While the frenzy of creation that Baudelaire evokes so vividly sweeps practitioners ever forward as though on a wave crest, the hesitancy of the body and the weight of materials perpetually hold them back. It seems that composer, performer, architect, writer, draftsman and painter alike are continually caught between the anticipatory reach of imaginative foresight and the tensive or frictional drag of material abrasion – whether of pen on paper, bow on strings, or brush on canvas.

The trick, then, is to be able to hold the foresight that pierces the distance like an arrow in check with the close-up, even myopic engagement that is necessary for working with materials. Recently, anthropologist Rane Willerslev (2006) has argued that one of the singular properties of vision, by which it is distinguished from other sensory modalities (including hearing and touch), is that it brings foresight and the close-up together, to the extent of making the former a *condition* for the latter. The inspiration for this move comes from Merleau-Ponty's claim that 'to see is to have at a distance' (Merleau-Ponty 1964: 166). With hearing and touch, if you come close to something, then the boundary between yourself and the thing begins to blur and eventually dissolves altogether. You merge with it. In vision, by contrast, if you are too close to something, you cannot see it. To see, at least with binocular vision, you must take a certain distance. And in this disjunction lies the possibility for a kind of reflexive self-awareness. You do not just see but see yourself seeing. It is this self-awareness, then, that makes it possible to come close to another thing or being, and hence to engage with it materially, without actually merging with it. This is a prerequisite for hunting, for example. To succeed, the hunter must identify with his prey, but were he to merge with it the consequences would be fatal. Likewise the artist painting a landscape must immerse himself in the sensory environment, whilst remaining afar from it. It is difficult, Willerslev (2006: 41) concludes, to see how this could be pulled off without vision.

I am not so sure, however. For one thing, if vision is a condition for self-awareness, then this leaves us wondering how human beings with visual impairments can be aware of themselves – as they manifestly are – or why non-human animals (even those endowed with binocular vision) apparently are not. For another thing, anyone who has had to make their way in pitch darkness, relying on tactile and aural perception alone, knows that touch and hearing, too, can induce a sense of distance, just like vision. You may be startled by sounds, and recoil from what is touched. Be that as it may, the general point that a designerly process of making is one whose close-up engagements are guided by foresight is a powerful one. It has been said that painters cannot see what they are painting, since they are too close to it, and likewise that composers cannot hear – even that writers cannot remember what they are writing about (Deleuze and Guattari 2004: 544). But it would probably be closer to the mark to say that the particular skill of painters, composers and writers lies in their practised ability to keep their distance whilst in the thick of the labours of proximity. The parallel with hunting, as Willerslev intimates, is precise. Hunters

often dream of animals before they encounter them. Artists, architects, composers and writers are likewise bent upon capturing the insights of an imagination always inclined to shoot off into the distance, and on bringing them back into the immediacy of material engagement. Like hunters, they too are dream catchers. Human endeavours, it seems, are forever poised between catching dreams and coaxing materials. In this tension, between the pull of hopes and dreams and the drag of material constraint, and not in any opposition between cognitive intellection and mechanical execution, lies the relation between design and making. It is precisely where the reach of the imagination meets the friction of materials, or where the forces of ambition rub up against the rough edges of the world, that human life is lived.