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## Living on thin abstractions: more power/economic knowledge

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Received 14 March 2001; in revised form 4 October 2001

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**Abstract.** Debates over the role of knowledge and know-how as key economic assets in the contemporary economy, although far from new, are now increasingly couched in terms of a new-found economic immateriality which allows for their costless reproduction and widespread geographical dissemination. In the rush to tie down and reproduce economic know-how in abstract codifiable form, it has become almost baffling to argue that our stock of economic knowledge may rest upon affects as much as analysis, expressive symbolism as much as abstract symbolism. This paper is an attempt to think through how such 'elusive' economic knowledges may be grasped, yet neither formalized nor codified in abstract terms. It is also a plea to consider the geography of economic knowledge outside of the tacit–explicit distinction.

### Introduction

In discussions over the nature of growth in the developed economies the intangible assets of knowledge and know-how are never far from centre stage. In today's service-based economies, the largely insubstantial nature of such production, whether deemed high or low tech, attracts more of our attention to the extent that many have now begun to wonder aloud why, until recently, we were so preoccupied with the bulky side to all things economic and their worn-out physical descriptions.

Naturally there are different approaches to this new-found economic immateriality, from Danny Quah's (1996a; 1996b; 1997) provocative insights on increasingly weightless economies and Charles Leadbeater's (1999) preoccupation with the 'thin air business' to Robert Reich's (1993; 2001) culturally sensitive approach to creativity and innovation, and others who, more forcefully, wish to chart the rise of symbolic economies. Despite their differences, however, what they hold in common is a recognition of the increasingly light and abstract nature of much economic activity which foregrounds both knowledge and ideas. What they also share, and this is the focus of the paper, is a sense of economic knowledge which broadly speaking falls into one of two kinds: either a 'hard', abstract, explicit form of knowledge that is replicable in codified form, or a 'softer', more ambiguous, tacit script of knowledge that appears to defy encoding.

The argument developed here is that it is precisely the opposition drawn between these two kinds of know-how—tacit and explicit—which has fixed the sense of what we take to be our stock of economic knowledges. It has become just that much harder to think about one without the other and, in consequence, difficult to think about other forms of knowledge, especially those based upon *affect*, in the same breath as innovation and 'leading edge' qualities. Rather than entertain the prospect of industries dividing into those that are 'knowledge intensive', such as telecommunications, computing, multimedia, and finance, and those whose asset base remains more replete and ambiguous in terms of know-how, we may have more to gain by considering the diversity of knowledges within each and every industry—and how they *combine*.

The alternative, indeed the risk, if many insightful accounts of the contemporary economy are to remain locked, often unwittingly, into a tacit–explicit frame of

thinking is, first, that only certain industries, as indicated above, will be assumed to 'generate' knowledge useful to an economy and, second, that their economic geography too will become fixed as the global becomes the arena of explicit codifiable knowledges and the local its immobile relation. Neither the sectoral nor the geographical assumptions drawn, are particularly helpful.

In the first part of the paper, I make use of Michel Foucault's (1972; 1981) notion of discursive power to show how the apparently obvious tacit–explicit distinction constrains what it is possible to say about economic knowledge in general. Through the work mainly of the authors cited above, I try to show how, despite their varied grasp and use of the distinction, forms of knowledge other than the abstract codifiable variety are sidelined in the quest for replication.

Following that, I draw upon the work of Ernst Cassirer, a German philosopher writing in the first half of the 20th century on the diverse register of symbolic knowledges. Although his work on symbolic knowledges did not concern itself specifically with the economic, his identification of different cultural modes of knowing arguably has much to offer in helping us to recognise that there is more to knowledge than analysis and abstraction. The diversity of these knowledges leads into a discussion of their entangled geographies that belie any simple mapping onto the local and the global.

### **Power/economic knowledge**

In *The Archaeology of Knowledge* (1972) Foucault refers to the unity of a discourse as something which, far from being coherent or readily obvious, is held together by a 'system of dispersion' (page 38). By this, he meant that, despite the fact that a unified discourse may contain statements which differ in form or even contradict one another, it is nonetheless possible to discern a *regularity* in the *relations between statements* which provide a constant and unproblematic way of representing something which shifts in terms of appearance and description. It is as if there are certain ground rules which enable us to make all kinds of descriptions and opposing characterizations about, in this case, the nature of economic knowledge, yet those same rules limit what it is actually possible to say without appearing odd or beyond comprehension.

It is the restriction in the number of things that it is possible to say about something which points up the *power/knowledge relation* implicit within a discursive formation. Power and economic knowledge exist in a relation of immanence that lays down the lines by which we are able to articulate and make sense of something. There is an everyday sense to the way in which the 'obviousness' of a discourse works its way through the workplace so that tacit knowledge production based upon habit and convention becomes the stuff of people's lives, or the way that it fixes the norms of discussion and debate in management circles, or helps to shape the abundance of explicit knowledges communicated through business and economic journals. The stress placed by Foucault upon the power/knowledge relation as positive—the ability to do something once we have made sense of it (*pouvoir – savoir*)—is thus not so much about 'trammel lines' of knowing as it is about enabling a multiplicity of things to be said, in this instance, about creativity and economic knowledge, yet for such utterances to remain systematically governed in style and understanding.

This is a fairly nebulous claim given the breadth of the field, but it is possible to illustrate something of the *style* of the discourse of economic knowledge by looking at three rather different analyses of the role of knowledge and know-how in the contemporary economy. None of the analyses exhausts the field of enquiry, nor are they intended to be representative of any particular approach. Rather each one in its own way takes up a position in relation to creativity and know-how which presupposes a

similar understanding of economic knowledge as potentially detachable, open to manipulation, and capable of widespread global reproduction. Although the status of knowledge within the economy has shifted considerably since the 1970s, especially with the advent of postindustrialism and its many critics, the same division between tacit and explicit knowledges remains, as does the same way of looking at knowledges which appear less easy to tie down: those based upon sensation, expression, or affect. It is not, and I stress this point again, that these forms of know-how are judged the same by one and all, but rather that, by default in some cases, it is hard to think of them outside of their relation to more abstract, more globally detachable, forms of economic knowledge.

### Knowledge recipes

The first account, at the more considered end of economic journalism and political commentary, is Charles Leadbeater's *Living on Thin Air: The New Economy* (1999), which sets out a case for accepting knowledge as *the* critical driving force of a modern economy. It is a more considered text because, first, it acknowledges that knowledge within the economy is not something that is easily spread or transferred between corporate actors; rather "it can only be enacted through a process of understanding, through which people interpret information and make judgements on the basis of it" (page 29). Thus it is recognized that creativity is not merely about the formalization of previously unstated ways of doing things, but involves an interplay between tacit and explicit knowledges. And, second, it is noteworthy for its recognition that all things innovative in the 'new economy' do not revolve solely around science and technology.

"The knowledge-driven economy is not made up by a set of knowledge-intensive industries fed by science. This new economy is driven by new factors of production and sources of competitive advantage—innovation, design, branding, know-how—which are at work in all industries from retailing and agriculture to banking and software" (page 10).

Yet for all this sensitivity to tacit and expressive forms of economic knowledge across a range of industries, when pressed to make a general case for knowledge capitalism all too quickly he falls back upon the language of explicit codification: licensing, intellectual property rights, and patented reason. In a wittily entitled chapter, "Delia Smith not Adam Smith", which likens the process of knowledge creation and exploitation to that of licensed recipe distribution, where knowledge is spread by purchasing the right to use rather than to own something, we are left with a formal model of know-how based on replication. Any fuzziness associated with the process of tacit interpretation or interest in the nongraspable side to intangible production disappears once the need for *explicit* codification moves centre stage. The need to communicate ideas and practices in a replicable fashion, to tie down knowledge in peoples' heads or in the way that they do things, simply overshadows any concern that the main source of added value may actually *elude* a formal process of encoding.

Many of these ideas seem to draw their inspiration from the work of Danny Quah (1996a; 1996b; 1997). More rigorous in analysis and more specific in its claims, Quah's work focuses upon the growth of products in the new economy whose value appears to owe little to their physical manifestation—software packages, on-line goods, gene sequences, and the like. In other words, their output is weightless and under copyright protection such products are not exhausted by use, but rather consumed by the many in different locations at more or less the same time. Such products, in Quah's terms, are infinitely expandable and instantaneously universal.

Where Quah is concerned with the specific characteristics of this type of growth for consumption processes and income distribution, Leadbeater, however, wishes to

generalize the ‘thin air business’. Leadbeater’s story is an abstract one which, often unwittingly, loses the expressive or affective side to economic action principally because the quest for creativity and knowledge favours intangibilities that can be easily codified and reproduced. Thus where the aesthetic enters into the economy through branding or design, or the expressive becomes evident through an image-driven product, it is an instrumental logic which quickly prevails not the affective dimension in all its replete and ambiguous moments. To do otherwise, it would seem, is to invite misunderstanding and incomprehension about what knowledge generation—as a process—is deemed to be all about. After all, Delia Smith, the cookery writer, advocates mixing already available ingredients to a precise formula, but that does not mean to say that there is nothing sensuous about food production. It’s merely that this dimension defies easy codification and falls out of Leadbeater’s work.

The point, however, is that, once tacit and explicit knowledges become the only reference point through which economic knowledge make sense, it makes it that much harder to perceive the sensual and expressive as anything other than a form of implicit, and therefore *ungraspable*, knowledge. Yet it is possible, for example, to appreciate certain musical compositions without being able to specify the chord combinations, or to recognize and react to works of art and design without being able to articulate their reasoning, or to judge the mood of a visual composition with being entirely aware of the cues involved. It is not so much that these examples of affective know-how are ungraspable, as it is that their replete and ambiguous nature does not lend itself to *abstract* codification. Although Michael Polanyi (1966; 1967; 1969) tended to elide aesthetic knowing and matters of art with tacit understanding, he was quite at ease with the idea that it is possible to grasp their fullness by attending from particular ‘clues’, other than those of an abstract formal nature. Such clues, nonetheless, involve a form of encoding which is simply more ambiguous, more expressive, than is generally understood in the economic knowledge literature. Yet it is the language of abstract codification and the parlance of science and innovation which invariably comes to the fore when it is time to make sense of economic knowledge and put it to work or, indeed, to transmit it globally.

In common with Quah, Leadbeater equates the costless reproduction of knowledge recipes with the global scale of economic activities. Unlike Quah, however, he is attentative to the local embeddedness of knowledge-creating networks. The importance of proximity and face-to-face interaction to the establishment and transmission of hard-to-communicate knowledges is not lost on Leadbeater, in much the same way that some geographers have been quick to seize upon the significance of place for the exchange of unarticulated, tacit knowledges prized for their innovative know-how (see, for example, Gertler, 1995; Gertler et al, 2000; Storper, 1997; Storper and Salais, 1997). Clearly, there is something of value in this insight, but that does not mean that we have to *generalize* the divide between local tacit knowledges and their global codified counterpart, as if that were the only spatial template which makes economic sense. And yet, that is how it does appear, as a somewhat ‘obvious’ piece of static geography reflected in the tacit–explicit knowledge divide. That is, as a discursive *style* of reasoning which lays down the lines by which we are able to make sense of the generation and diffusion of economic knowledge in the contemporary economy.

### **Knowledge brokers**

The immanent nature of the power/economic knowledge relation is also evident in the limits of what Robert Reich is able to say and voice about symbolic knowledges at work in the present-day economy. Different in both tone and substance from Leadbeater’s assessment, Reich’s early account nonetheless falls within a similar discursive style by

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presupposing that the only knowledges which really matter in today's fast-moving global economy are those which are open to manipulation in a systematic way: as part of a process of abstraction and explication. It matters less that Reich's account glosses the ambiguous side to imaginative know-how, however, as this dimension is apparent in his thinking and governs what he has to say about the repleteness of economic symbols.

In the insubstantial world of service work that he outlines in *The Work of Nations* (1993), Reich identifies the manipulation of symbolic knowledges as one of three broad categories of work in the new service-based economy (alongside routine services and personal services). He argues that the analysis of data, words, oral and visual representation, forms a critical part of what most professions do to add value to goods and services. The manipulation of symbols is the process by which new knowledge comes into play, leading, for example, to the introduction of new software technologies, inventive legal arguments, innovative financial instruments, new advertizing techniques, or a breakthrough in architectural design. Although the output of such activities is by no means always radical in departure, the work with numbers, sounds, words, and images presupposes an appreciation of the various symbolic codes which make meaning and innovation possible.

Reich refers to those who perform this kind of work as symbolic analysts.

"Symbolic analysts solve, identify, and broker problems by manipulating symbols. They simplify reality into abstract images that can be rearranged, juggled, experimented with, communicated to other specialists, and then, eventually, transformed back into reality. The manipulations are done with analytic tools, sharpened by experience. The tools may be mathematical algorithms, legal arguments, financial gimmicks, scientific principles, psychological insights about how to persuade or to amuse, systems of induction or deduction, or any other set of techniques for doing conceptual puzzles" (page 178).

What is refreshing about this line of debate is that the creative play of symbolic work is not limited to a particular sector of the economy; symbolic analysis is a practice which cuts across industries involving engineers as much as financiers, production designers as well as marketing strategists. Having said that, the process of manipulation seems to be remarkably similar regardless of the symbolic brokerage in question. Abstraction and analysis, reason and conceptualization, remain the mainstay of the cerebral activities involved, with little or no attention paid to what it might mean to work with symbols that are not overtly cognitive or ambiguous in style.

As such, Reich's understanding of symbolic function bears all the hallmarks of Leadbeater's recipes. The stress placed upon the systematic manipulation of abstract symbols involving the exercise of judgment on the basis of reason rather than representation or expression amounts to a form of knowledge that would not be out of place in an R&D centre where the abstract coupling of knowledge and innovation is feted. Equally, Reich's assumption that the barriers to cross-border flows of knowledge have fallen sufficiently to enable symbolic analysts, in this instance North American professionals, to extract global profits from their recipes runs parallel to Leadbeater's thinking.

In fairness to Reich, however, his is one of the few attempts within the economic domain seriously to entertain the slippery relationship between symbolic activity and creative play. In his more recent work, *The Future of Success: Work and Life in the New Economy* (2001), he opens up this relationship to further scrutiny by foregrounding the importance of creative insight in general rather than simply the abstract skills of manipulation. He acknowledges that in his previous work he was guilty of overstressing the importance of analytic skills of the kind associated with the new information and

communication technologies. Indeed, he goes so far as to distance himself from the very idea of ‘knowledge workers’

“because any particular body of knowledge is now so easily encoded in software. The real value these people add to the economy derives instead from their creativity—their insights into what can be done in a particular medium (software, finance, law, entertainment, music, physics, and so on), what can be done for a particular market, and how best to organize work in order to bring these two perspectives together. They are *creative workers*” (page 48).

Rather than toying with abstract pieces of know-how, then, we are offered a more embodied sense of innovation, where the creative workers themselves are immersed in mindful pleasure, engrossed in the very act of conceiving possibilities rich in heuristic power. What is lost in this absorbed scenario, however, is any sense of the different symbolic registers involved in the process and the fact that creativity may itself be dependent upon an ability to work *through* the ambiguity of symbolic materials that are graspable, yet not only in abstract terms. In the rejection of symbolic analysis as a practice, any concern for the symbolic basis of economic knowledge disappears with it.

### **Knowledge overload**

In contrast to the two previous accounts, the cultural interventions into economic matters by Scott Lash and John Urry have been distinguished by their willingness to embrace wholeheartedly aesthetic as well as abstract forms of economic knowledge in what they take to be a shift towards an information-saturated, service-rich, communications-laden economy. Despite this welcome breadth of coverage, however, their style of reasoning reproduces the opposition between tacit and codifiable knowledges which, by default, hands back economic knowledge to the practices of patented abstraction.

In *Economies of Signs and Space* (1994), Lash and Urry stress the contemporary importance of the sign or symbolic content of commodities over their material content, and thereby draw explicit attention to what appears to be the broadly insubstantial nature of contemporary wealth production. On their understanding, the production of signs has predominantly taken two forms: a cognitive form, which is exemplified through the flow of information, digital codes, and other abstract symbols, and an aesthetic form, which in the broadest of genres engages the expressive side to economic life. The latter is directed at the world of affects, although widely interpreted to include much of what conventionally falls under the play of representation—the mix of images in advertizing, the sign-value of material objects, the semiotic work of branding, and so forth. Overall, this symbolic activity is said to add up to an aestheticization of the economic, which takes place within the sphere of production as well as in the circuits of exchange and consumption.

Significantly, Lash and Urry do not restrict symbolic work to a particular sector of the economy. They recognize, for example, that the design process is as much an integral part of manufacturing as it is of fashion or any number of consumer services. Yet they do make a strong case for considering cognitive signs separately from aesthetic signs, insofar as the process of manipulation and negotiation involves two distinct forms of reflexivity and knowledge. Knowledge on the basis of cognitive reflexivity operates on the understanding that the analytic principles—be they concerned with legal principles, financial calculations or forms of insurance risk assessment—are themselves open to question and subject to renegotiation. Knowledge via aesthetic reflexivity meanwhile operates on a hermeneutic basis whereby subjects—say in the sphere of consumption, retail, and fashion—are actively involved in the construction of their own identities through their engagement with lifestyle and consumer choices. The symbolic interplay that constructs consumer codes is thus not

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something that is handed down through a marketing tradition but is itself open to manipulation by active consumers.

It is not necessary to agree with these examples of reflexivity, however, to admit that the cognitive and the aesthetic are two different ways of apprehending and knowing the world. Even though the aesthetic is defined by Lash and Urry in an excessively broad fashion to cover much more than the expressive side to economic meaning, the differences in symbolic function performed by the cognitive and the aesthetic are deemed sufficient to warrant separate epistemological treatment. Although the cognitive and the aesthetic are conceived as separate domains of symbolic activity, each with its own specific mode of operation, that does not mean that Lash and Urry consider them to be on an equivalent epistemological footing, however.

Only the former, it seems, the cognitive stream of codes and abstract symbols which make up what is taken to be the ‘new economy’, are subject to protocols of judgment designed to sift out knowledge from bits of data and information that form the background hum to a digital economy. Cognitive reflexivity, they argue, presupposes judgment, whereas aesthetic reflexivity is grounded in conventions of taste and the everyday.

“Aesthetic reflexivity is instantiated in an increasing number of spheres of everyday life... If knowledge-intensive production of goods and services is embodied in the utility of the latter, design-intensivity is embodied in the ‘expressive’ component of goods and services, a component having significance from the goods of the culture industries to the ‘managed heart’ of flight attendants... Aesthetic or hermeneutic reflexivity is embodied in the background assumptions, in the unarticulated practices in which meaning is routinely created in ‘new’ communities—in subcultures, in imagined communities and in the ‘invented communities’ of, for example, ecological and other late twentieth century movements” (page 6).

Habit and convention, what we routinely agree as members of taste communities thus becomes the means by which ‘knowledge’ is accessed in the aesthetic realm. There is no specific operation of judgment involved whereby some appeal to a kind of universality is made which draws a line, however vague, between knowledge and cultural convention [or a ‘universal subjectivity’ as Kant (1987) would have it]. The predispositions of a taste community, those who on a day-to-day basis ‘know’ the codes and conventions which inform cultural economic activities and use them to shape collective practices, thus become the arbiters of the aesthetic domain. Aesthetic knowledge shades into culture generally and any specificity that may have arisen from the exercise of judgment is lost. Almost by default, therefore, cognitive knowledge of the explicit abstract sort comes to stand in for economic knowledge proper.

This disavowal of judgment from the aesthetic realm, however, is not without consequences; the most significant of which is that it effectively hands back economic knowledge to codification. Lash in *Another Modernity: A Different Rationality* (1999) and elsewhere compounds this division when he counterposes two modernities, one based upon the ‘hard’ knowledge and cognition of the Enlightenment tradition and the other based upon the ‘soft’ expressiveness of modernism as cultural experience. In what he heralds as the fusion of these qualities in a new order of technological culture (the techno-scientists and techno-artists of the digital cultural economy), the outcome reads less like the hybrid economy that he envisages and more like the evacuation of epistemology from the domain of the economic. The celebration of the fusion of commodities and capital, on the one hand, with signs and symbols, on the other, so that a global information culture is produced which simply *is*, which stands in for nothing in particular, merely abandons the ground of economic knowledge to those

who feel less uncomfortable with tying down meaning or embracing the certainty offered by patented reason.

In many ways this is unfortunate, because both Lash and Urry do hold a clear sense of the importance of the aesthetic to the economy. In counterposing the aesthetic and the cognitive, however, they reproduce a dichotomy that overstates the differences between economic activities in terms of their knowledge content. The issue is, indeed, about the fusion of economy and culture as Lash would have it, but this is not captured by positing the rise of a new technological culture or, as in *Economies of Signs and Space*, by talking about a global/abstract network of flows and relations *and* a local hermeneutic reflexive culture, where meaning is achieved through shared conventions. Rather, the task is somewhat more mundane, involving a consideration of the distinctive combination of various kinds of symbolic dexterities and knowledges within and across the activities which make up the present-day economy.

Different industries, or rather the economic activities which constitute them, play across a variety of symbolic registers—abstract, expressive, affective, and aesthetic—and combine them in ways which stress certain kinds of symbolic usage at the expense of others. So we should not be led into thinking, for example, that fashion and film occupy the symbolic realm of the expressive and aesthetic, whereas finance and engineering are confined to the abstract and the cognitive realms of industry and output. On the contrary, in the case of film, for instance, an assessment of the industry's output would include an appreciation of its aesthetic qualities, in respect of both its visual impact and its narrative construction, *and* a technical assessment of its sound, lighting, and editing quality, *as well as* judgment on how well the products are marketed and promoted imaginatively. Various forms of symbolic production are thus combined *within* a particular industry, although each would blend and weight the different symbolic functions according to their overall nature and specificity. Even something as hard-nosed and rational as the business of credit, and the use of money more generally, has an expressive meaning, the knowledge of which cannot be deciphered solely through a series of abstract manipulations.

Yet the binary understandings of economic knowledge between the cognitive and the aesthetic, between the tacit and the explicit, which seem to slip into our thinking make it that much harder to acknowledge this mix of symbolic know-how. In fact, in all three accounts, despite the different things that they have to say about creativity and knowledge, they each presuppose a version of the above binary which makes it altogether difficult to talk about economic knowledge *outside* of its relationship to explicit codification of one sort or another.

Thus the idea that sensuous and expressive knowledges are graspable, but not through explicit cues, or that the playful creativity of the different symbolic registers may actually rest upon their very ambiguity, or that unformed know-how may be picked up through distanced contacts and translated in new and novel ways, are all hard to entertain. Yet if we are to take seriously the broadly insubstantial nature of wealth production, and the intangible assets of knowledge and competence upon which it is supposed to rest, then it is perhaps timely to consider what might be involved other than patented or copyrighted abstraction.

One way to shed light on the different kinds of symbolic knowledges in play within the contemporary economy is to work through the different registers in a more systematic fashion before contemplating their mix. To do this, I wish to draw upon the work of the German philosopher of culture, Ernst Cassirer, who in the first half of the 20th century became convinced early on that there was more to 'knowledge' than simply abstraction, 'thick' or 'thin' for that matter.



### Cultural modes of knowing

As someone interested in the cultural sciences of the time as much as the natural sciences, Cassirer's ideas reflected to some extent the heady intellectual and cultural atmosphere of Berlin at the beginning of the 20th century filtered through his more formal grounding in matters of logic, metaphysics, and the 'exact' sciences (Verene, 1979). In particular, his interrogation of the mathematically minded, 'exact' sciences like physics led him to question the privileged position that such thinking occupied at that time as the benchmark of knowledge (Krois, 1987). Above all, it led him to consider the various ways—conceptual, perceptual, affective—in which it is possible to 'know' the world and how it is rendered *meaningful*.

The nub of the issue for Cassirer was that the formal reasoning of natural scientific knowledge, and the abstract judgments of mathematics in particular, although valid as a form of theoretical meaning, did not amount to a prototype for all knowledge. It was only *one* form of meaning amongst others; *one* conceptual system of meaning embedded within a shared cultural framework of signs and symbols. Other ways of symbolically apprehending the world which do not coincide with abstract conceptual signs, such as the expressive qualities of art or the referential qualities of language, also invoke meaning, although within quite different frameworks of knowledge and knowing. On this view, it is simply misleading to reserve the accolade, 'knowledge', for one kind of symbolic formation when others of a different nature open up a quite different type of understanding and access to the world (Cassirer, 1953; 1955; 1957).

We should be clear about what is meant by 'access' here, as the term gives us a clue as to the nature of Cassirer's symbolic knowledges. Symbolic knowledges, for Cassirer, do not simply reflect a world 'out there'; rather they provide a means of apprehending and comprehending it (Krois, 1987). The validity of a symbolic formation does not rest upon its ability to provide a copy of the material world. On the contrary, it derives its validity from within; that is, from within an organized system of relations between signs which produce meaning that are fixed by convention. The numerical symbols of mathematics are one such system, the aesthetic symbols of light and shade and harmony are another, and so on. The relationship between symbolic knowledges and the material world is a mediated one, therefore, in which meaning is dependent not upon particular numbers, musical sounds, specific images, or the marks we place on a piece of paper, but upon their *symbolic function*: what they express, represent, or signify.

Much of this argument is conducted in Cassirer's three-volume *The Philosophy of Symbolic Forms*, although it is the final volume, published in 1929 and subtitled "The phenomenology of knowledge", which develops the broad standpoint that sensation alongside imagination and understanding may all be placed on an equivalent epistemological footing.

### Knowing through affect

The third volume of Cassirer's cultural philosophy is given over to the exposition of three symbolic functions: those of expression, representation, and signification. Broadly speaking, the first of these functions, symbolic expression, has close affinities to contemporary concerns with embodied or experiential forms of knowledge which stress their nonrepresentational nature (see Shusterman, 1997; Thrift, 1999). As a kind of practical theory, the mode of understanding sought has less to do with abstract notions of discovery and more to do with, what Nigel Thrift refers to as, "different possible ways in which we might relate ourselves to our surroundings" (1999, page 304). The stress here is upon an immediate nondiscursive mode of experience which, according to Shusterman, has bodily feeling as its locus. The intense, often visceral,

nature of immediate experience recalled by Shusterman and its significance for somatic aesthetics runs in parallel to Cassirer's observation that expressive meaning is related directly to sense perception and bodily awareness. As John Krois summarizes, "insofar as perceived phenomena appear to us as agitating, soothing, gloomy, joyful, pacifying or otherwise exhibiting a mood, they exemplify what Cassirer calls expressive symbolism" (1987, page 86).

Expressive symbolism is perhaps best understood as a structure of feeling where, for example, a stylish piece of fashion or the lyrics of a new musical composition 'move' us in some way that is unrelated to, say, the latest 'language' of fashion or the technical competence by which the music is reproduced. For Cassirer, what stimulates us in relation to design or lyrical composition is not only their respective popular or linguistic appeal; it is, in the case of the former, the harmony of the design, its colour and form, or in relation to music, the unison of sounds, the specific rhythm, tone, and pitch which brings a certain satisfaction to the ear. In common with all forms of aesthetic knowledge, an appreciation of film, art, design, music, display, and others rests upon their sensuous form—the feelings they express—not simply upon their technical or analytical excellence. In short, there is a creative content to such affects that cannot readily be measured by any abstract yardstick.

The novel point here, as developed by Cassirer, is that, whereas such aesthetic appreciation may be viewed as the result of a series of unformed feelings, the process of understanding involved is far from passive. On the contrary, the very production of expressive meaning is itself dependent upon the symbolic codes which make the experience an objective cultural moment. As Cassirer argues in relation to aesthetic experience:

"Art is expression, but it is an active, not a passive mode of expression. It is imagination, but it is, productive, not merely reproductive imagination. Artistic emotion is creative emotion; it is that emotion which we feel when we live the life of a form. Every form has not only a static being; it has a dynamic force and a dynamic life of its own. Light, colour, mass, weight are not experienced in the same way in a work of art as in our common experience ... [For the cultural producer] the words, the colours, the lines, the spatial forms and designs, the musical sounds are not only technical means of reproduction; they are the very conditions, they are the essential moments of the productive artistic process itself" (1979, pages 160–161).

In other words, when one attempts to articulate the affective moments involved, these cannot be grasped outside of the constitutive symbolic domain of which they are a part. It is this domain, where words, sounds, and images function as an expressive system of signs, which makes possible cultural understanding, *regardless* of whether such features can be fully articulated by those involved in the appreciation of a particular art form like film or music. More to the point, it makes it possible to consider the expressive as a form of symbolization which is not subjective or reducible to so-called universal instincts, but as integral to the cultural meaning of objects and practices. George Revill (2000) develops this point in relation to musical immediacy as a culturally performative practice which is only accessible through a symbolic order. Following Simon Frith, he argues that to turn:

"... 'bio-acoustic' facts into musical principles requires rhythmic, metric, timbric, tonal, melodic, instrumental or harmonic *organisation*. Such *musical* organisation requires some kind of *social* organisation and cultural context before it can be created, understood or otherwise invested with meaning" (Frith, 1998, page 102; cited in Revill, 2000, page 605).

Thus in relation to the range of activities associated with the law, entertainment, or engineering design, say, practices which ‘move’ people or are evocative in style may be viewed as part of an objective cultural schema, the symbolism of which may be replete and full bodied but nonetheless communicable. In relation to an artful piece of legal reasoning or a demonstrative concert performance, for example, or a novel piece of service R&D, where meaning may come through affect rather than signification, the cues may form part of a more ambiguous symbolic order, yet still approximate to something that we can call expressive knowledge.

### Knowing through codes

In contrast, the second of Cassirer’s symbolic functions, representation, is perhaps the most familiar means by which shared cultural meanings become established. Once a word or image stands in for or depicts something else, the expressive or sensual side diminishes and the referential dimension takes centre stage. Language is the most obvious system of representation, although in the broad semiological approach of Roland Barthes any object or activity can function ‘like a language’ in the production of cultural meanings. In his classic text, *Mythologies* (1973), Barthes opened up a rich symbolic seam which, for example, made it possible to talk of a ‘language’ of fashion where clothes function as identity codes for particular social and cultural groupings. Provided that dress codes are understood and that the difference between items of fashion are marked symbolically, a wider realm of signs is communicated that is open to manipulation through advertizing, styling, branding, and marketing.

This takes us closer to what it is about representational systems such as language that enables Cassirer to speak about their ‘mythical’ or imaginative properties. At the core of this understanding is the now widely accepted view that language is fundamentally ambiguous in its relation to the material world. In fact, it is this very ambiguity which reveals the extent to which representation, as a form of knowledge, may stand for little that is actually deemed the ‘real’ world. Or as Cassirer succinctly expressed it, language “*begins* only where our immediate relation to sensory impression and sensory affectivity *ceases*” (1957, page 189). In this sense, anything that functions like a language, as a system or representation, may involve an imaginative play of signs which nonetheless provide ‘access’ to a particular ‘world’, be it cultural, political, or economic. This is perhaps where most of Lash and Urry’s stress on the symbolically saturated nature of economic goods is in evidence. As the site of playful representation, the semiotic work of advertizing, branding, and the like involves the skilful deployment of symbols, regardless of whether or not the signs themselves represent anything in particular. Although they place such playful work of representation under the term aesthetic, it is perhaps more useful to treat their fascination with ‘postmodern goods’ as the result of a contrived exercise in the formation of judgments around taste and distinction.

The third of Cassirer’s symbolic functions, signification, amounts to what was for him the most developed knowledge accomplishment: the systematic manipulation of abstract symbols. This takes us back firmly to the ground of formal reasoning, cognition, and abstract judgment. If symbolic expression is at one end of the knowledge spectrum then symbolic abstraction is to be found at the other. This, for Cassirer, was principally the world of mathematics, geometry, and physics, where reason has progressed far beyond representation with the introduction of numerical concepts and notations that corresponded to earlier nonnumerical forms. According to Krois,

“A purely symbolic conception of number regards it neither in terms of psychological activity nor in reference to things, but as a specific form of symbolic interpretation with a validity of its own. In the philosophy of mathematics the

series of natural numbers is regarded as a relational ‘order in progression’ without reference to the counting subject. The validity of mathematics is thereby enclosed in the medium of mathematics itself. The full development of mathematics disregards the question of how well it copies the world; rather, mathematics is perceived as a way of having or understanding a world. The same holds for all symbolic forms. The symbolic interpretation does not copy a given world; it makes a world accessible” (1987, page 84–85).

Having access to such an abstract world, for Cassirer, having the ability to simplify reality in this way, to analyse and extend reasoning, so that, for example, the world may be grasped by fewer axioms and principles, held out the prospect of being able to think about new possibilities which have yet to be encountered. The more that one is able to articulate a set of possibilities, say, in biotechnology or software development, in abstract terms, the greater the ability to manipulate them symbolically and thus conceive of alternatives and variations which give rise to fresh understandings. This, unmistakably, is the landscape of ‘scientific’ innovation, where cognitive frontiers are pushed back and knowledge extended through experimentation and ‘pure’ thought.

If this sounds familiar then that is because Leadbeater’s, and relatedly Reich’s account of a knowledge-based economy, where physical assets represent something of an encumbrance in the new economy, is not so far removed from this frontier land. The raw materials of know-how and ingenuity which take a ‘pure’ knowledge (not information) form in this landscape feed on a sense of intangible innovation and thus promote a sense of worth that is less material, more abstractly honed. And of course, this kind of manipulation is also the most amenable to replication and reproduction in simple form.

### **Entangled knowledges, entangled geographies**

One of the potential pitfalls of juxtaposing Cassirer’s systematic account of the different symbolic registers with a set of binary understandings of economic knowledge is that it misses what is interesting about economic know-how: the inseparability of different forms of symbolic knowledge in each and every area of the economy. As implied in the example of the film industry earlier, the technical and the aesthetic coexist and combine in ways which give the sector its distinctive blend of symbolic knowledges. It is neither possible nor desirable to draw a clear line between ‘hard’ and ‘soft’ knowledge options, insofar as they combine to produce the kinds of aesthetic innovation which have long characterized the industry’s practices. The same may be said of finance and the new forms of money and their associated risk instruments which make it possible to combine rational calculative practices with more imaginative representations of what money can do in a fast-fleeting world that are far removed from conventional monetary routines (see Pryke and Allen, 2000). Symbolic innovation in this context works across the symbolic registers in a particular way, echoing Cassirer’s argument that meaning, or rather economic meaning, is dependent not upon any specific notation or image, but upon what they express, represent, or signify. In short, economic knowledge and meaning are dependent upon symbolic function and it is their entangled natures which differentiate one set of economic activities, one industry, from another.

On a day-to-day business level, this is perhaps well known, yet the visceral messiness that makes up much economic practice somehow does not seem to register as part of the knowledge dynamic of so-called ‘weightless’ or ‘thin air’ economies. Despite an obvious willingness to embrace the cultural and the expressive as part of what goes on in economic life, writers as different as Lash and Leadbeater both seem unable to translate aural, visual, or expressive works without recourse to some form

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of explicit abstraction. For Lash, in his hybrid domain of techno-culture, the tactile and the ambiguous become the 'ground' for the new information age, refigured by the digital networks to become something recognizably formal in cultural terms. And for Leadbeater, for all his concern with intangible assets and implicit knowledges, the excess that is creativity still somehow becomes subject to the business of replication and reproduction in codifiable forms.

The stress upon abstracting ideas and practices so that they may be communicated in a replicable fashion also presents a particular problem for understanding the entangled geographies of economic knowledge. As noted previously, the frequency with which unarticulated tacit knowledges have been associated with the local or regional context and the more explicit codified knowledges with the global arena has made it difficult to perceive the translation of *all* kinds of intertwined knowledges as both a proximate *and* a distanced affair. The tendency to map the tacit–explicit distinction onto the local–global scale manifests itself in a variety of ways in the economic geography literature. The 'learning economy' and 'learning regions' literature has probably done most to consolidate this impression (in particular Lundvall and Johnson, 1994; Malmberg et al, 1996; Maskell, 1999; Maskell and Malmberg, 1999; Morgan, 1995; 1997; and relatedly Malecki, 2000). In other respects, this impression has been reinforced by much of the literature on socioeconomic networks, in particular those studies inspired by Mark Granovetter (1985), and aspects of the debate over the significance of Marshallian industrial districts. Yet it is not as if tacit innovative know-how does not travel well, whereas abstract codifiable knowledges, in contrast, spread themselves like a thin film across the globe.

Of course, there is ample evidence in the literature to support the view that ways of doing things which can be shown, yet not explicitly stated, favour close relations of proximity and contact, but that does not imply that such knowledges are solely the creation of spatially confined sets of social relations. Tacit knowledges, as well as those generated through affect (for they are not always the same thing, the latter may be graspable in forms other than codified abstraction), may be polysemic, but that does not rule out the possibility of their translation through dispersed relationships 'at a distance' or through mobile sets of transactions. Thrift's (1994) consideration of financial centres as arenas of activity, where knowledge is tightly bound within networks not places, is an example of such forms of tangled association. Alongside the importance of face-to-face contact in the City of London, for instance, Thrift argues that

"... the increase in mobility actually seems to have helped the City to continue to cohere. The City is now an important transcendent space for international financiers, a place to do business. It has become a global node for circulating stories, sizing up people and doing deals. At any one time, much of the city's population will consist of visitors, but they are not incidental. They are part of why the City continues to exist. They are part of the communicative commotion that places the City" (page 351).

In a similar vein, Thrift (1998) has argued that the circulation of business knowledges, especially those around management practices, has involved both a performed and a written media element that is placed yet essentially mobile. In the translation of managerial practices throughout business networks, ideas and practices take seed which owe much to their skilful adoption through a combination of seminars, conferences, business journals, and periodicals. This, to be sure, is not to argue that such translations are costless or indeed ubiquitous, merely that both proximate and distanced relations are involved.

What matters geographically is not the fact of local embeddedness, but that through relations of copresence people are able to internalize shared understandings.

Some such understandings and their symbolic system of meaning may well be place specific, but others may be grasped through distanced networks. The translation of ideas and practices, as opposed to their simple transmission, are just as likely to involve people moving to and through 'local' contexts, to which they bring their own stock of symbolic knowledges and dexterities.

There is a sense in which a preoccupation with embedded forms of knowledge has masked the mobile relational character of knowledge translation. Particular places, learning regions, and industrial districts are not so much static locations as sites through which ideas and practices come together and disperse, only to be remixed anew elsewhere.

The work of Nick Henry and Steven Pinch (2000a; 2000b) on the spatialization of knowledge in the UK motor sport industry has attempted to convey this circulation and production of know-how through the image of 'churning'. On this view, people and ideas are continually 'churned' in the knowledge community that is the UK motor sport industry. On the one hand, people move through the industry, from firm to firm, as part of their career trajectory, but also as part of the high firm turnover in the sector. In doing so, they bring with them ideas and practices about possibilities which are advanced, reconfigured, and unsettled as they too are confronted with the knowledge that things are done differently here rather than there.

On the other hand, Henry and Pinch point to knowledge and know-how itself moving between sites rather than the people, through the exchange of ideas that comes from people gathering at track events and meetings or the numerous component suppliers who go from one racing car company to the next servicing their vehicles. This is not so much a 'leakage' of knowledge, as conventionally understood, but rather a circulation of ways of doing things which has helped to shape best practice and innovation in the motor sport community as a whole. And, in the process, both people and their ideas, as well as the sites themselves become entangled.

There is, as I said before, no one spatial template through which economic knowledge generation and translation takes place, nor any simple progression from one geographical scale to the next which mirrors some kind of continuum from the tacit to the fully codified, global version. There are more or less entangled geographies of economic know-how, replete with more or less ambiguous symbolic schemata, also to consider.

## Conclusion

In a paper which began by reflecting upon the light and insubstantial nature of much contemporary economic activity, I have tried to show how the intangible economic assets of knowledge and competence do not have to be approached as either abstract or codifiable. The economic pressure to detach know-how of whatever kind, be it in manufacturing or something less bulky, to tie it down and reproduce it in a recipe format, does not mean that we have to live forever on 'thin abstractions'. That it is possible to *know* in ways other than through analysis and abstraction is perhaps the point of Cassirer's ruminations. In drawing attention to what affects us, often in more ambiguous, seemingly less straightforward ways, it may be possible to take stock of a different set of economic knowledges: those based upon the senses, emotions, and feelings, that would otherwise fade into the backdrop of everyday business innovation.

I should perhaps stress the point that this is not a plea to pay closer attention to forms of knowledge which circulate within those industries which wear the label 'culture' on their sector sleeve. Whether in design engineering or multimedia, the trading of financial futures or the business of fine arts, economic knowledge rests upon a combination of symbolic functions and uses, with the *particular* combination

distinguishing one set of economic activities from another. The embodied nature of cognition, the cognitive role of feeling, the expressive side to abstraction are permutations which play across different economic activities. That this may sound a little strange in economic terms is perhaps because it is rather odd. For it is hard, at the risk of what might seem endless repetition, to make sense of economic know-how outside of its relationship to something which is potentially detachable, open to manipulation, and capable of widespread reproduction.

Of course, tacit and ambiguous knowledges are valued, but less for what they are and more for their potential explication and thus exploitation. This is not simply because of some slavish market-driven logic, but also because it appears necessary to take up a position somewhere within the discourse of tacit and explicit knowledges to be able to say anything meaningful on the subject. To do otherwise, it would seem, is to invite misunderstanding and possible incomprehension about the role of economic knowledge today. Therein lies the *power* of discursive closure.

It would also seem that this power lends itself to geographical closure, too, with the language of tacit embedded forms of knowledge mapping onto spatial notions of proximity and contact to suggest that the former are essentially territorially specific assets, confined to a region or place. Why this understanding should have taken hold in the manner that it has is perhaps evident from the type of case studies available. What is less clear is whether the more ambiguous, but not necessarily ungraspable, forms of economic know-how discussed here lend themselves to such an easy geography. If explicit codification is besides the point for such knowledges, then so too may be any simple local–global divide as the basis for their production and circulation, as indeed it may be for other economic knowledges.

**Acknowledgements.** This paper arose out of themes first developed in a chapter for Bryson et al (2000) *Knowledge, Space, Economy*. I would like to thank Paul du Gay, Joanna Foord, David Hesmondhalgh, Steve Hinchliffe, Michael Pryke, and Grahame Thompson for their insight and comment on many of the ideas presented in the paper, as well as those generously provided by the three anonymous referees.

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