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هل تفرق الانعكاسية بين العلوم الإنسانية والعلوم الطبيعية؟

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ملخص

يرى العديد من الكتاب أن ما يميز العلوم الإنسانية عن العلوم الطبيعية هو أن عملية المعرفة في العلوم الإنسانية تغير بشكل انعكاسي الذات القائمة بهذه العملية. أكثر من ذلك، هم يعتبرون أن هذه الانعكاسية شرطا للوجود الأخلاقي. يفحص هذا المقال بشكل متعاطف هذا التأكيد على العمليات الانعكاسية، ولكنه يرفض الخلاصة المحددة القائلة بأن ظاهرة الانعكاسية تمكننا من تمييز العلوم الإنسانية. الأقسام الأولى تفحص المعاني المتعددة التي يحملها مفهوم الانعكاسية في العلوم النفسية والاجتماعية، في الفلسفة، وفي الحياة المادية، وتربط هذه المعاني بالفلسفة ما بعد الوضعية للعلوم الاجتماعية. تعالج المناقشة المشكلة التي تم طرحها (بأكثر أشكالها قوة في العلوم الإنسانية بواسطة فوكو) عن كون الانعكاس عن الانعكاسية نفسها. وتضع علامة استفهام كبيرة أمام الآمال لعودة الانثروبولوجيا (علم الإناسة) الفلسفية. أيا كانت الحجج الفلسفية، على كل حال، هناك بشكل واضح انعكاسية *عملية* في الإنسانيات والعلوم الإنسانية في حين أنها لا توجد في العلوم الطبيعية. وهذا يقود إلى الحجة القائلة بأنه توجد أنواع مختلفة من المعرفة للأغراض المختلفة وأنه لذلك يمكن أن يكون الاختلاف في الأغراض، وليس الانعكاسية ذاتها، هو الذي يخلق الاختلافات بين العلوم. أن الحقيقة والغرض الخاصين بالتفكير الذاتي هو الذي يميز العلوم الإنسانية. إذا كان ذلك صحيحا، فإنه يفسر لماذا يتحول سؤالا محدد المعالم بشكل واضح عن تصنيف المعرفة إلى أن يكون غير قابل للانفصال عن الأسئلة الوجودية والأخلاقية عن الهوية الإنسانية.

الحجة الانعكاسية في العلوم السيكولوجية والاجتماعية

لحقت "الانعكاسية" بدون شك بمعجم الكلمات الفلسفية العظيمة متعددة المعاني. يحق لنا أن نكون متأكدين من أن هذه الكلمة تشير إلى مجموعات من المناقشات الجدلية، وترتبط بمناطق للتساؤلات الفلسفية، أكثر منها تعبيرا عن موقف واضح مؤسس فلسفيا. في هذه المقالة، أنظر مرة أخرى إلى أحد مناطق التساؤلات هذه – الفرق بين العلوم الطبيعية والعلوم الإنسانية – وأتساءل هل، كما أكد عدد من الكتاب المؤثرين، الانعكاسية هي التي تصنع الفرق. سوف أنقد هذا التأكيد، وكنتيجة لذلك، سوف أعيد صياغة السؤال الأصلي ليكون أكثر دقة.

ما يحدد السؤال "هل تفرق الانعكاسية بين العلوم الإنسانية والعلوم الطبيعية؟"، هو الحجة التالية، هنا بكلمات روبن. ج. كولنجوود:

> إذا كان ذلك الذي نفهمه بشكل أفضل هو شيء آخر غير أنفسنا، على سبيل المثال، الصفات الكيميائية للمادة، فإن فهمنا المحسن لها لا يحسن، بأي طريقة، الشيء نفسه. ولكن، على الجانب الآخر، إذا كان هذا الذي نفهمه بشكل أفضل هو فهمنا ذاته، فإن التقدم في *هذا* العلم هو ليس فقط تقدم في المعرفة الذاتية لهذا العلم ولكنه تقدم في موضوعه أيضا. ... لذلك، التطور التاريخي للعلم الخاص بالطبيعة الإنسانية يترتب عليه تطور تاريخي في الطبيعة الإنسانية ذاتها. (كولنجوود، 1961 [1946]: 83-4)

هذا سوف يجعل من الممكن تعريف العلوم الإنسانية باعتبارها المجال العلمي الذي يؤسس لمعرفة العملية الانعكاسية والتي بالتالي تغير، أو حتى تنشئ، الطبيعة الإنسانية.

ما هو محل النظر هنا ليس ممارسة منطقية محايدة. هانز جورج جادامر ليس سوى واحدا من عدد من الفلاسفة الذي فحصوا كيف يكون الأسلوب الذي يتم من خلاله تمييز الإنسان من المجال الطبيعي، وبالتالي العلوم الإنسانية من العلوم الطبيعية، مرتبطا بإمكانيات الحياة الأخلاقية. بكلماته:

> الحضارة الإنسانية تختلف بشكل أساسي عن الطبيعة في أنها ليست مجرد مكان حيث تفعل القدرات والإمكانيات نفسها؛ الإنسان يكون ما هو من خلال ما يفعله وكيف يتصرف – بمعنى أنه يتصرف بطريقة معينة بسبب ما أصبح عليه. وهكذا يرى أرسطو "ethos" (روح الشعور الإنساني) على أنها مختلفة عن "physis" (الطبيعة) في كونها كمجال لا تعمل فيه قوانين الطبيعة، ولكنها مع ذلك ليست مجالا خاليا من القوانين، ولكن المؤسسات الإنسانية وأنماط السلوك المتوافقة... (جادامر، 1998 [1960]: 312)

ما نعرفه كإنسان، تقول هذه الحجج، أصبح كذلك من خلال الفعل الانعكاسي الذي يصنع الشعور الجماعي "ethos"؛ الطبيعة، على العكس من ذلك، هي مجال الـ"physis". يأخذ هذه الحجة

في الاعتبار، ليس ممكنا عزل السؤال الخاص بالعلاقات بين العلوم كموضوع محدد منطقيا، معرفيا، أو منهجيا. التساؤل عما تتضمنه الانعكاسية بالنسبة للعلوم الإنسانية هو بشكل لا يمكن تجنبه تساؤل عن "ما هو الإنسان" (إذا أعدنا صياغة الكلمات المشهورة لكانت)[1].

"الانعكاسية" هي مصطلح يشير إلى عدد من الموضوعات التي ترتبط بواسطة تشابه عائلي أكثر منه تعريفي. هناك الانعكاسية الأكاديمية في مجالات علمية معينة، لنقل النظرية الاجتماعية، تهتم بإقناع الزملاء باختبار التصورات التي تم التسليم بها، القيم والممارسات الخاصة بهذا المجال. في هذا السياق، يمكننا أن نسأل تجريبيا عن الكيفية والمدى وبأي طريقة يكون المجال انعكاسيا. هناك الانعكاسية الإبيستيمولوجية، وهذه تشير إلى الحجة التي تبرر الطريقة التي تحتوي بها أي مجموعة مترابطة من المعارف فرضيات أساسية، والتي، حتى ولو كانت في الواقع ليست محل تساؤل، يمكن من حيث المبدأ أن تصبح مركزا للانتباه النقدي. هذا المعنى قريب الارتباط بفكرة النقد. في حال دفعها إلى حدها الفلسفي الأقصى، الانعكاسية الإبيستيمولوجية تقودنا إلى التساؤل عن كل الفرضيات الأساسية، ونتيجة لذلك، ترتبط الكتابة الانعكاسية المتطرفة بشكل دائم بالتهكم الذاتي. هناك الانعكاسية العقلية، الثقافية، والمادية للعمليات التي تغير طبيعة الموضوع الذي ينشئ الانعكاس؛ ومن ثم، على سبيل المثال، الفعل اللغوي يغير التفكير الذي كان هو التعبير. ربما يكون هناك اختلافات مهمة في طبيعة هذه الأنواع من العمليات الانعكاسية بالنسبة لمناطق معينة في ثقافة معينة أو ما بين الثقافات المختلفة. أخيرا، هناك نوع من الانعكاسية الذي يظهر (على الأقل بالنسبة لديكارت) أنه يميز الوعي: التفكير أو الإحساس هو أيضا إدراك وجود تفكير أو إحساس. تبعا لفشتة أو هيجل، الانتباه إلى هذا النوع من الانعكاسية أصبح واحدا من الموضوعات الأساسية في الأنثروبولوجيا الفلسفية، محاولة الجمع بين المقاربات الفلسفية والإمبيريقية لوجود الوجود الإنساني. الاستعمالات الحالية تتحرك بين هذه السياقات العامة الأربعة للاستخدام. وهذا في بعض الأحيان يؤدي إلى الالتباس؛ وهكذا، على سبيل المثال، الاعتقاد بأن الوعي يمتلك *طبيعة* انعكاسية محايثة يتضمن نوع الدعوى الفلسفية، الأنثروبولوجية الذي تتساءل عنه الإبيستيمولوجيا الانعكاسية. آمل أن تصبح العلاقات المتداخلة بين الاستعمالات الأربعة أكثر وضوحا من خلال الحجج التي سوف تلي.

الكثير من الأدبيات المنشورة باللغة الإنجليزية عن الانعكاسية تتضخم كنتيجة للنقد الموجه إلى الوضعية في العلوم السيكولوجية والاجتماعية في أواخر الستينات وفي السبعينات من القرن العشرين. وكما أن مناصرو البرنامج الوضعي جادلوا بأنه سوف يقود إلى توحيد العلوم، فإن ناقديه أكدوا على ما يفصل تفسير الفعل الإنساني من تفسير التغير الطبيعي. وقد جادلوا بشكل مقنع بأن

المعرفة في المجال الإنساني تتطلب تفسيرات على أساس الأسباب "reasons" [بمعنى التفسير العقلي] أو النوايا، وليس فقط أو حتى على أساس الأسباب "causes" [بمعنى الأسباب الطبيعيـة]، وأن هـذا يميز العلوم الاجتماعية من الطبيعية[2]. الأدبيات المتعلقة بهذا التصور تضمنت عددا مـن التقريـرات التي ذهبت إلى أن موضوعات المعرفة في العلوم الطبيعية والعلوم الإنسانية تختلـف لأن الأخيـرة، وليست الأولى، تتغير كنتيجة للمعرفة التي يكتسبها العلماء عنها. وهذا التقرير هو الـذي أريـد أن أفحصه[3].

The statements of interest are elaborations of the kind of claim which the philosopher Stuart Hampshire made in the late 1950s: 'As the knowledge that we may have of our own mental powers is reflexive knowledge, the object of knowledge and the knowing subject change and extend their range together' (Hampshire, 1960: 255). At the same time, but in this case after a close reading of Wittgenstein, Peter Winch asserted: 'A new way of talking sufficiently important to rank as a new idea implies a new set of social relationships' (Winch, 1963: 122–3). The point was of course that the kind of positivist position then dominant in the social sciences, to the effect that empirical methods make it possible for the scientist to observe human behaviour from a theoretically and evaluatively neutral stance, is untenable. Rather, as these philosophers argued, what can be said about a person or people changes possibilities for that person or those people.

A number of later philosophers elaborated the argument. Thus Charles Taylor made the point that 'a fully competent human agent not only has some understanding (which may be also more or less *mis*understanding) of himself, but is partly constituted by this understanding' (Taylor, 1985b: 3). He went on to argue, given this kind of self-constituting process, that the human sciences cannot be predictive, because 'man is a self-defining animal. With changes in his self-definition go changes in what man is, such that he has to be understood in different terms' (Taylor, 1985b: 55). As he observed, and as many English-speaking philosophers of the social sciences appreciated, such claims re-expressed insights established within continental European hermeneutics. Philosophers such as Gadamer pointed to the manner in which the framework of knowledge which a scientist brings to bear on a text (or an aspect of culture represented as a text) has an active role in constituting what the text can be said to mean (Gadamer, 1998; also Ricoeur, 1981). Gadamer re-examined the long-running problem of establishing what sort of objective knowledge is possible in the human sphere, where the knowing subject is both subject and object of knowledge and where interpretation always and necessarily involves some prior knowledge of the subject. For Gadamer, such forms of the hermeneutic circle are conditions of knowledge not some limitation on it – not viciously circular, as a positivist critique would suppose. Taylor, like Gadamer, recognized the constructively reflexive nature of interpretation of what human subjects say and do. Alasdair MacIntyre, writing in a similar vein, with specific reference to psychology's problematic

status as a natural science, observed: 'Psychology is not only the study of human thinking, feeling, acting, and interacting: it has itself – like the other human sciences – brought into being new ways of thinking, feeling, acting, and interacting' (MacIntyre, 1985: 897). Elsewhere, discussing the transformation of notions of the self and of moral discourse since the 18th century, he generalized this point: 'It is wrong to separate the history of the self and its roles from the history of the language which self specifies and through which the roles are given expression. What we discover is a single history and not two parallel ones' (MacIntyre, 1981: 34). In other words, how we live and what we say about how we live are not independent variables but parts of a single, reflective circle.

This conclusion was not at all the prerogative of analytic or hermeneutic philosophers. The French historian of the human sciences, Georges Gusdorf, who had strong humanistic objections to positivism, wrote:

> Par un incessant choc en retour, chaque modification de l'image du monde retentit en une modification de l'image de l'homme. . . . Chaque discours scientifique est un discours symbolique; il dit ce qu'il dit et en même temps il exprime celui qui dit; son deuxième sens – ou son premier – est un sens anthropologique. L'homme est un créateur qui se crée lui-même tout au long de ses créations . . . (Gusdorf, 1977: 233)
>
> [By an unceasing return shock, each modification of the representation of the world has an echo in a modification of the representation of man. . . . Each scientific discourse is a symbolic discourse; it says what it says and at the same time it expresses he who says it; its second meaning – or its first – is an anthropological meaning. Man is a creator who creates himself along with his creations . . .]

Though his target was philosophical anthropology not positivism, and though he was implicitly scornful of Gusdorf's defence of humanism, Michel Foucault nevertheless similarly observed that, in the human sciences, thought is 'both knowledge and a modification of what it knows, reflection and a transformation of the mode of being of that on which it reflects. Whatever it touches it immediately causes to move . . .' (Foucault, 1970: 327).

It is worth pausing to note that it appears to be precisely in statements such as these, and especially through translation from the French where *les sciences de l'homme* and *les science humaines* denote institutionalized groupings of knowledge, that the redescription of the psychological and social sciences as the human sciences became common in the English-speaking world. This redescription, often though not always, also connoted a reclassification of the psychological and social sciences, stressing the connection of their forms of understanding with the humanities rather than with the natural sciences. That is, the notion of 'the human sciences' is historically associated with rejection

of the natural science model of explanation in the psychological and social sciences. As I am now discussing, it was a key element of this rejection to state that the human subject, being reflexive, requires special forms of understanding. The new interest in reflexive questions suggested that psychologists and social scientists had much to gain by looking to models of knowledge in the humanities rather than the natural sciences.

There were also reasons within particular disciplines for a new consciousness of human reflexivity. Within sociology, there was increased political consciousness about the way sociologists are themselves actors in the situations and institutions they describe. Alvin Gouldner, for example, in the early 1970s, called for a 'reflexive sociology' and argued that the future of sociological reason depends on making that reason transparent to the manner in which it represents the sociologist's engagement with the world as object of research (Gouldner, 1970; see Giddens, 1979: 47). Indeed, it became a sociological commonplace to describe social life as a condition which is continuously transformed through knowledge and representation of it. Anthony Giddens laid down the axiom that 'social science is actively bound up with its "subject matter", which in some part it helps reflexively to constitute' (Giddens, 1991a: xiv). Even more generally, he noted that the kind of knowledge which social scientists seek is knowledge of how people, through reflexive consciousness, create the worlds they inhabit. Social life is '*produced* by its component actors precisely in terms of their active constitution and reconstitution of frames of meaning whereby they organize their experience' (Giddens, 1993: 86; also quoted in Sandywell, 1996: xvii). Many social theorists therefore accepted, in Richard Bernstein's words (echoing Winch), that 'fundamental changes in the concepts, ideas and language used by men *necessarily* entail fundamental changes in their social relations' (Bernstein, 1979: 67). The philosopher Joseph Margolis wrote: people 'are preformed by social forces that form their competence to understand themselves, and . . . in exercising that ability, they alter themselves and others in the process, and alter the preformative conditions under which others, coming later, master a comparable but specifically different such competence' (Margolis, 1993: 165). More recently, Barry Sandywell argued at length that such reflexive argument, though commonplace, has not been fully thought through and, when it is, will require a wholesale shift in sociological reason (Sandywell, 1996).

A number of psychologists who are critical of unreflective practice in their multi-disciplinary field have made comparable arguments and claims. But, by contrast with sociology, the strongly institutionalized commitment to psychology as a natural science, and the fact that experimental and statistical methods are often rigorously enforced, has kept discussion on the margins of the field. A number of influential psychologists, however, including Kurt Danziger, Kenneth J. Gergen, Jill G. Morawski and Graham Richards, in

their different ways, have made the topic strikingly visible (Danziger, 1990, 1997: ch. 10; Gergen, 1973, 1982; Morawski, 1992; Richards, 1987, 2002; also Flanagan, 1981; Gigerenzer, 1992). Morawski, for example, analysed different implications of 'the property whereby the subject who undertakes inquiry shares characteristics with the object of that inquiry'. She then went on to write that 'all scientists . . . are imbricated in reflexive practices as they produce observational accounts of objects in the world that are influenced by their already existing understanding of those objects' (Morawski, 1992: 282–3). Danziger's book, *Constructing the Subject*, was especially influential, because he assembled detailed empirical evidence of the kind that psychologists themselves are likely to find convincing, as well as theoretical argument, in a history of how experimental practices have constructed particular kinds of subjects (Danziger, 1990). He demonstrated that a rigorously scientific social psychology must research the reflexive circle of the mutual constitution of inquiry and subject matter. Further, these psychologists, like the sociologist Gouldner, were concerned with the political implications of the knowledge-generating practices of their field. They linked argument about reflexivity in the theory of knowledge to the politics of making psychologists reflective about what forms of life their work helps constitute, not least within their own disciplines. The philosopher and sociologist of psychological knowledge, Martin Kusch, also greatly enriched the resources of such reflexive argument (Kusch, 1999).

Richards was so forcibly struck by the double identity of a person as both psychologist and psychological subject that he proposed formally identifying 'Psychology' (big P) with the discipline, and 'psychology' (little p) with the subject matter – mental processes, behaviour or whatever (Richards, 1987). I would add that, similarly, we refer to history or economics as disciplines and also to our place in history or to our economic state. The term 'history' 'may mean the "historical actuality" as well as the possible science of it' (Heidegger, 1967: 430). 'Politics' denotes a discipline or, rather, the disciplines of political theory and of political science, and it also denotes political life. These paired denotations have come about as part and parcel of the institutionalized practices of reflection on what people do.

As Richards also pointed out in the case of psychology, there are enormous implications for historical understanding if we seriously follow up the reflexive character of the human sciences.

> The history of Psychology thereby becomes one aspect of its own subject-matter, 'psychology'. The historian of Psychology is not only looking at the history of a particular discipline, but also at the history of what that discipline purports to be studying. . . . 'Doing Psychology' is the human activity of studying human activity, it is human psychology examining itself – and what it produces by way of new theories,

> ideas and beliefs about itself is also part of our psychology! (Richards, 2002: 7)

The result is a certain feeling of giddiness in contemplating the potential scope of the history of psychology or the potential scope of the history of the human sciences. History includes the history of knowledge, as in traditional histories of science, and also the history of people as psychological, social and language-using subjects (see Staeuble, 1991). What was once conventional history assumed that people 'stay still', but according to the reflexive argument, people create knowledge and this knowledge re-creates people. The history of the human sciences encompasses the history of human beings changing themselves. Richards wrote:

> We can only talk about that which we have a language for talking about – and as far as the psychological is concerned we have no way of knowing what psychological phenomena are, no way of giving them meaning, except in terms of that language. If this is so, then we are bound to accept . . . that *changes in psychological language signify psychological changes in their own right*. . . . Psychology produces its own subject matter. (Richards, 2002: 9)

He then concluded that only with the historical creation of concepts and language for the representation of human phenomena in psychological terms is it possible to call people psychological subjects. (On my understanding, parallel arguments apply to economic, geographical, historical and other dimensions of being human.) 'The very act of introducing such concepts changed the situation by providing people with new terms in which to experience themselves – and only *then* can they be properly said to refer to really occurring psychological phenomena' (Richards, 2002: 9). As Kusch argued: 'our psychological classifications are constitutive of our mental states and events. Our psychological vocabulary does not classify mental states and events that exist wholly independently of the vocabulary' (Kusch, 1999: 248; see Danziger, 1997; R. Smith, 2005).

These statements make clear that one very significant aspect of claims about the reflexive nature of the psychological and social sciences is the value they accord to historical knowledge. The social theorist John O'Neill wrote: 'Human action is essentially the unfolding of a cultural space and its historical dimensions, so that in a strict sense we never accomplish anything except as a collective and historical project. For the individual action involves, therefore, a constant dialogue with others, a recovery of the past' (O'Neill, 1972: 234; also quoted in Sandywell, 1996: 397). If reflexivity is a condition of knowledge, it follows that historical knowledge is essential to knowledge of the mutual constitution of science and its subject matter. *This* is the profoundly non-trivial argument for history as an academic practice, and this is

the deep-lying reason for what some observers call the historical turn in the social sciences. History of the human sciences is intrinsic to the human sciences. The argument for history is not that it is decorative, commemorative, pedagogical or consciousness-raising – though of course it may also serve such purposes – but that the reflexive constitution of human subjects makes knowledge historical.

REFLEXIVITY IN PHILOSOPHY AND TECHNOLOGY

I wish to mention two further strands of thought which place great weight on reflexivity. The first is summarized in books like Hilary Lawson's *Reflexivity: The Post-Modern Predicament*, and taken to be a crisis in the ability of reason to deal with the problems which face it or, as Allan Megill argued in *Prophets of Extremity*, to grant 'redemption' through knowledge (Lawson, 1985; Megill, 1985). These authors trace self-consciousness of reflexivity through Nietzsche's, Heidegger's, Foucault's and Derrida's questioning of claims that we have or can arrive at fixed, determinate propositions about the world, rather than propositions about other propositions. In Lawson's words: 'Our concepts are no longer regarded as transparent – either in reflecting the world or conveying ideas . . . to recognize the importance of language is to do so within language. To argue that the character of the world is in part due to the concepts employed, is to employ those concepts' (Lawson, 1985: 9). In addition to this, it hardly needs saying, Nietzsche achieved a reflexive manner of writing, exemplifying the way in which it is always possible to use language to subvert meaning, even of the very language expressing the subversion. This refusal to accept closure of meaning marks out reflexive writing and explains much about its – to the uninitiated – impenetrable style.

The second strand (also noted by Lawson) originated in analytic philosophers' critiques of logical positivism. All knowledge implicates premises unfounded in, or unsupported by, the body of knowledge of which they are part (see Putnam, 1981). In lay language, all knowledge contains an element of faith; in sociological language, all knowledge contains presuppositions originating in tradition, or in the institutionalized practices of a society, which the knowledge itself does not authorize. Any overall claim about the world cannot, logically, verify itself. Another way to express the point is to state that all knowledge has an element of circularity: a presupposition about what is the case is buried in the argument for a statement about what is the case.[4] Therefore, it is in principle always open to question the 'absolute' objectivity of a conclusion and at least some of the premises of any body of knowledge. Critique is *always* possible. Reflexive writing, expressed in

continuous re-examination of foundations or in disclosure of open-ended reference, enacts awareness of this.

The bare logical possibility of critique does not, of course, mean that critique will be thought either necessary or desirable. Much of the most visible conflict between contemporary authors in the natural sciences and the humanities originates with disagreement over this point. The natural scientists are confident that whatever presuppositions they have are justified by the way they make possible, as they see it, the progress of detailed and precise – and technologically highly efficacious – knowledge. By contrast, enthusiasm to write in a way that makes evident a continuously reflexive form of knowledge sweeps along many scholars in the humanities. All the same, whatever the difference in style and practice, the critical, philosophical thought remains. As one philosopher of the social sciences expresses it: 'The notion that there is a reality or a nature – human or otherwise – that subsists of itself and that we can know independent of our languages and our constructions, and of our interpretations and applications of them, is a powerfully attractive but deeply illusory idea' (Flathman, 2000: 3). It is this sense of the dependence of the world on language which underpins so many reflexive arguments.

The social fact, mundane but vastly important, is that in almost all social settings people, scientists obviously included, do not continuously examine their own premises. This was the insight T. S. Kuhn put into his notion of normal science and it is central to the very notion of an academic discipline (Kuhn, 1970; Kelley, 1997; Graham, Lepenies and Weingart, 1983; Wagner, Wittrock and Whitley, 1991; R. Smith, 1997). A group of researchers forms an intellectual discipline precisely by not questioning certain premises, and they do not question for the very good reason that it enables them to get on with generating the kind of knowledge for which their research is suited. Disciplines are the medium through which particular premises and practices in creating knowledge become socially institutionalized and embedded. Indeed, in time, this embedding gives the appearance of naturalness to a field's way of creating knowledge, with the result, at the extreme, that anyone who questions the disciplinary practice may be accused of questioning the possibility of objectivity and rationality itself. That accusation is wrong.[5] What writers who question the assumptions prevalent in a field are doing is questioning the form of objectivity and reason in the field in the name of a different enactment of objectivity and reason (one, for example, focused on the political situation to which, as a matter of social fact, scientists in a field contribute). Reflexive writing by psychologists and social scientists, as mentioned in the previous section, is important here. Such writing by scientists themselves, whose rationality is not lightly to be impugned, may have the rhetorical strength to persuade other scientists that reflexive arguments are not opposed to reason but, rather, reveal the true conditions of reason. Of course, the

dominant reaction of a field may be simply to marginalize writers who raise awkward arguments.

Some premises are distinctive of particular disciplines, while others are premises of rational inquiry as a whole. The latter, which appear to be principles of reasoning itself, include such premises as that knowledge should be consistent with itself. What I want to stress is that the choice of premises – remembering always the institutionally embedded nature of 'choice' – creates one rather than another view of the world. In Hilary Putnam's words:

> Signs do not intrinsically correspond to objects, independently of how those signs are employed and by whom. But a sign that is actually employed in a particular way by a particular community of users can correspond to particular objects within the conceptual scheme of those users. 'Objects' do not exist independently of conceptual schemes. We cut the world into objects when we introduce one or another scheme of description. (Putnam, 1981: 52; see Arbib and Hesse, 1986)

Or, in Wittgenstein's formulation: 'the *questions* that we raise and our *doubts* depend on the fact that some propositions are exempt from doubt, are as it were like hinges on which those turn. That is to say, it belongs to the logic of our scientific investigations that certain things are *in deed* not doubted. . . . If we want the door to turn, the hinges must stay put' (Wittgenstein, 1969: 44e). For scientists, as a matter of unreflective practice, these 'hinges' on which knowledge turns include assumptions about what it is for something to be real as well as about what is real in the world. But it is an implication of Putnam's and Wittgenstein's statements that we can, in principle, question what appears unquestionable (though some people will think that to do so questions reason itself).

It is obvious that across the contemporary natural sciences, social sciences and humanities there are very different practices and conventions about examining the in-built presuppositions not only of particular disciplines but of science in general. At one end of the spectrum of practice are the deconstructionists of cultural theory, whose discipline it is to build reflexive critique and a demonstration that closure of meaning is never complete into every statement of their discipline. At the opposite end of the spectrum, there are the natural scientists who know that a stone is a stone, or a gene a gene, and whose business it is to close meaning about the nature of these things and not reflexively to analyse the history and culture that named them.

There is, therefore, a clear and straightforward sense in which reflexivity, understood as a matter of *practice*, separates the human and natural sciences. Many people in the human sciences, as in the humanities – and indeed influenced by the humanities – have begun to practise reflexivity, while many natural scientists think there are much more interesting things to do. Reflexivity as a practice requires discipline, and it has generated its own institutions,

especially its own canon of authoritative sources. Natural scientists have completely different sources of authority. Yet, if by reflexivity we denote the examination of the foundations of presuppositions, or the manner in which knowledge changes its own object, there is, *in principle*, continuity between the natural and the human sciences. The activities of scientists in different fields do indeed differ, but it is a consequence of convention not logic.

Conventions, however, matter. It is one form of academic life to argue that the disciplined practices have proved their worth and sustain progressive research programmes. It is another form of life to argue that we must examine our premises or risk sustaining only one form of knowledge, and one way of life, at the expense of possibly better alternatives. A question about the classification of the sciences has therefore now become a question about the relationship between existing progressive research programmes and openness to different forms of knowledge. (It hardly requires saying that it is always open to debate what is 'progressive' and 'open'.) I can briefly illustrate this by referring to the writing of some evolutionary psychologists on relations between the natural sciences and other areas of scholarship. In their programmatic statement, which scientists cite as a founding text of evolutionary psychology, John Tooby and Lena Cosmides made much of the way their theoretical framework facilitates judging progress in knowledge. They contrasted this with the apparently directionless character of disciplines in the humanities and much of the social sciences (Tooby and Cosmides, 1992). In the hands of a writer like Steven Pinker, this argument became a direct challenge to the reader to compare all the fascinating progress that evolutionary psychologists are making with the antics and navel-gazing of the humanities and social sciences (Pinker, 1998). The rhetoric implied that doing science goes somewhere in a way that doing philosophy does not. But to convey this implication the rhetoric also minimized the possibility of reflexive questioning of the assumptions embedded in the author's own text, questions about what progress means or what different kinds of knowledge are for. Pinker's opinion was forceful; it nevertheless remains entirely reasonable to debate whether we value progress in science, as the evolutionary psychologists propose it, or whether we value a discipline, a science, with the tools to examine the epistemological, ethical and political content of research programmes. As Ernst Cassirer at one point observed: 'All theoretical concepts bear within themselves the character of "instruments." In the final analysis they are nothing other than tools, which we have fashioned for the solution of specific tasks and which must be continually refashioned' (Cassirer, 1961: 76). On this basis, we may ask: what tools, for which purposes?

I have stressed how far the separation of the natural and the human sciences is a matter of practice and not of the theory of knowledge since, as analytic philosophers and not only supposedly wild theorists in the cultural sciences have shown, all bodies of knowledge contain premises in principle open to

critique. But I also want to question the separation by looking again at the view that knowledge of humans changes the object of knowledge while knowledge of the physical world does not. It is not obviously true. Once, for analytic purposes, we put the question of differences of practice aside, we can see that the very arguments which suggest that the human world changes along with our knowledge of it apply also to the physical world and our knowledge of it. If knowledge of the physical world is knowledge framed by one set of concepts rather than another, then it is in principle possible to change the framing concepts. And for all practical intents and purposes, except perhaps for people who believe that they have access to the noumenal, to the 'really real', beyond the reach of language, this amounts to the claim that the world changes along with our knowledge of it.

This claim undoubtedly raises questions in the theory of knowledge which I do not pretend to answer. But because so bald a statement may cause some people to bridle, I make three brief comments to soften this reaction. First, there are systems of metaphysics – A. N. Whitehead's organicism comes to mind – which do not separate the 'world' and the 'knower', and in which change is therefore understood to be an event in the whole (Whitehead, 1953). Indeed, much of the appeal of both pragmatism and phenomenology as approaches to knowledge has been that they rethink a taken-for-granted separation of the knowing process from its object. There are theories of perception, such as those associated with J. J. Gibson, which make a parallel argument in psychological terms (see Still and Good, 1998). Second, while it may appear self-evident that a telescopic observation of a galaxy does not change that galaxy, in the case of many other observations the matter is not at all so clear-cut. It is outside my competence to comment on the indeterminacy principle in physics, but descriptions for non-specialist audiences commonly state this principle as a refutation of the idea of observer independence. The observer's place in the physical world appears to be a necessary part of our representation of that world. In a number of other areas of science, as in much of biology and medicine, it is difficult to think of making observations which do not alter the nature of what is studied. Once we are fully in the area of the human sciences, as, for example, in studies of the economic market, any attempt to claim the object of study exists independently of our accounts of it will rightfully provoke accusations of ideology. Human scientists may of course study physical traces just like physical scientists. But any statement about what these traces are traces of is not independent of one rather than another form of human life. However it is, I think, the third comment that has most weight. It is simply and obviously this: knowledge understood as practice, as technology, manifestly changes the world.

Reflexivity is a phenomenon not only of ideas or reason but of material events.[6] Knowledge is a dimension of material and social change across the spectrum of human action from splitting the atom to psychotherapy. The

sciences of cybernetics, communication and self-organizing complex systems (which Russian scientists call synergetics), in particular, have devised formal ways of thinking about reflexivity in material processes. Few observers of science strive any longer to draw a hard and fast line between pure and applied knowledge, though there are contexts in which such a distinction has local meaning. Studies of the sociology of knowledge and of technology have come together to describe a continuous, though obviously locally differentiated, practice of ordering the world (Bijker, Hughes and Pinch, 1987). Bruno Latour's work has attempted to assign agent, knowledge-claim and object equal ontological status and to picture the world as a network, or set of vectors, in which power continuously redistributes itself (Latour, 1988; see Law and Hassard, 1999). If telescopic observation of galaxies does not alter those galaxies, in the ordinary sense of the word 'to alter', this is a matter of contingent limitations of power not of theoretical principle. Knowledge makes a difference in the world wherever it has the power to do so.

Recognition of the profound reflexivity of the human world of technology has made it possible to link the philosophical reflexivity associated with Nietzsche, Foucault and Derrida with contemporary cultural life. The current remaking of the world through virtual realities and re-engineered or even new life-forms accompanies the remaking of 'the self' through altered consciousness and new expressions of identity (Sandywell's 'reflexivity in the streets') (Sandywell, 1996: 114).[7] Reflexive questioning of what previously appeared to be the foundations of reason, and reflexive questioning of what previously appeared to be the material bounds of the natural, together re-create the bounds of the possible.

THE RELATION OF THE HUMAN SCIENCES AND THE NATURAL SCIENCES

This discussion has already reached two clear conclusions. First, while scholars in cultural studies, literary theory or the history of the human sciences engage in reflexive writing in a way natural scientists do not, and while this difference may in practice polarize academic communities, there is no reason in principle to think that natural science knowledge is free of presuppositions which could become the object of reflexive attention and, perhaps, change. The second conclusion is that technology and material practices generally demonstrate how the physical world, as well as the human world, changes as our knowledge of it changes.

A remark like Collingwood's – 'nature stays put, and is the same whether we understand it or not' – is therefore, on the face of it, simply wrong (Collingwood, 1961: 84). Similarly, it appears that Hampshire, MacIntyre, Taylor and Winch were wrong to the extent to which they claimed that the

reflexive implications of knowledge in the human sphere separate knowledge of that sphere from knowledge of physical nature. Reflexivity does not demarcate the human sciences. Presumably what Collingwood, and those who in this respect think like him, have in mind, is something like the claim that 'the being of nature' or, perhaps, 'natural law', remains the same however we formulate knowledge of it and however much we manipulate it for technological ends, while, these authors believe, it is the nature of human beings to establish their nature through thought. Clearly Collingwood's own position raised questions distinctive to an idealist epistemology. But what is particularly troubling for present purposes about Collingwood's and similar positions is the presupposition of a radical dualism, of the kind that evolutionary principles oppose, between reflexive mind and unreflexive physical nature. There is something more at stake in these philosophers' statements about human reflexivity, and this 'more', I suggest, expresses a philosophical anthropology. This needs explaining.

When philosophers distinguish knowledge about people from knowledge about nature, because the former changes its subject matter and the latter does not, they also express belief, in Taylor's words, in 'the fact that self-interpretations are constitutive of experience' while there is no such self-interpretation in nature (Taylor, 1985a: 37). 'What we are at any moment is, one might say, partly constituted by our self-understanding' (Taylor, 1985a: 189). According to this point of view, it is the self-interpreting nature of linguistic activity, mediated through community, which makes possible human subjects – and the knowledge (including scientific knowledge) which they claim about themselves. The analysis of self-interpretation, especially when English-language philosophers carry it out, appears an epistemological matter, concerned with the conditions of knowledge. All the same, the fact that there *is* such self-interpretation inevitably prompts questions about what sort of being (or state of being) there must be for that self-interpretation to occur. Such questions re-create the activity of philosophical anthropology more characteristic of continental European thought. What is at stake, it is now possible to suggest, is that it is this anthropology that leads to a demarcation between the human sciences and the natural sciences – that the important point being made is that it is human *self-knowledge* that changes people, not that *knowledge* changes people and not nature. It is the *possibility* of reflexive knowledge, not what is changed by the knowledge, that is central to claims to demarcate the human and natural sciences.

A clarification becomes necessary. It is important to distinguish argument for the existence of different kinds of knowledge or understanding in the natural sciences and in the human sciences from the argument for a distinction between natural and human objects in the world. The point matters because of the way proponents of the view that the natural sciences should subsume the human sciences tend to run together two different positions that

various opponents hold. It is one view that the natural and human sciences differ because they take as their subject matter different kinds of things in the world, and it is another view that they differ because they articulate different kinds of knowledge. (Of course, the latter claim may presuppose the former, but it does not have to.) Lack of attention to this distinction at times confuses debate about the relations between the sciences, as it did earlier arguments about the nature and relations of *Naturwissenschaft* and *Geisteswissenschaft*. But, as Heinrich Rickert made clear earlier, the argument defending the autonomous status of knowledge in the humanities does not depend on there being objects that cannot be the subject matter of natural science (Rickert, 1962: xvi). What Rickert rightly maintained was that knowledge of human cultural activity requires a form of knowledge which knowledge in the natural sciences does not have. His argument was that cultural activity expresses values, while natural activity does not.

I reiterate this point not to promote Rickert but to bring out what I think is the substantial point of opposition by Taylor and others to identifying the human sciences with the natural sciences. This opposition is founded on an understanding of the epistemological conditions given by the anthropological fact of reflexive consciousness and of the cultural worlds that are its expression. The opposition is not necessarily, or primarily, an argument for dualism or discontinuity between 'the human' and 'the natural'. Rather, it is an argument that only when we are clear about reflexive activity, about self-interpretation, will we be clear about the nature of scientific knowledge. It reverses the natural scientist's assumption that only when we are clear about nature will we be clear about people.

This kind of argument, which I am endorsing, does not start out with the claim that human beings are unique, not like other animals, by virtue of an entity like the Cartesian soul or the rational mind or because of a capacity for language. It is not an argument that requires us to prejudge what humans and animals share or do not share in common. Rather, the key claim is that the activity of reflexive reason demonstrates the possibility of different premises for different ways of thought. There are different ways of thought for different purposes, and it is the presence of different purposes, I want to suggest, which makes it possible to understand the differences between the natural sciences and the human sciences.

To make this step in the argument requires a yet further claim. It is most important to recognize that it is reflexive consciousness that makes it possible to have discourse with an evaluative character – whether moral, aesthetic or spiritual. The sources of judgement lie in reflexive activity not in scientific knowledge. I stated earlier that it is always possible to question at least some premises in any body of knowledge. As a result of this reflexive condition, the commitment to any body of knowledge includes a judgement, an evaluation of the significance of accepting one premise rather than another, in the

light of one purpose rather than another. By accepting different premises we build different judgements or evaluations of what is significant into the world.[8] Judgements, evaluations and purposes are at one and the same time individual and social, and our deepest premises – such as requirements of truthfulness, consistency and simplicity in science – are embedded, and perhaps hidden, in the culture. But the key point here is that such premises are not validated or even made clear by scientific knowledge. For knowledge of what truth, or consistency or simplicity is, as opposed to knowledge of what is held to be true, consistent or simple, other forms of understanding – philosophical, aesthetic, historical, sociological and, perhaps, religious – rather than natural science knowledge are necessary.

The grounds for differentiating the human sciences may, therefore, lie with the different purposes for which we have knowledge. What separates the natural sciences and the human sciences is not the claim that human beings have language or a soul, or that only they change with knowledge, but that it is part of the purpose of the human sciences (and humanities) *to make the reflexive process self-conscious*. As a result, we may note, it is perfectly reasonable to view a multiple discipline like psychology or social science as in part a natural science and in part, where it reflexively examines its own premises and self-constitution, a human science (understood as putting forward forms of knowledge comparable to knowledge in the humanities disciplines).

When philosophers make statements that human self-knowledge changes what it is to be human, they are primarily signifying, I suggest, the central value of reflexivity for what they identify as a distinctively valuable way of life. They are saying that in reflexive consciousness we come face to face with human self-knowledge in a manner that, and for purposes that, the natural sciences do not entertain.[9] Crucially, it is this that appears to make moral life possible. With this in mind, I suggest, we can make sense of humanistic intuitions and commitments, of the kind Isaiah Berlin, for example, noted in his autobiographical reflections: 'The fact that men are men and women are women and not dogs or cats or tables or chairs is an objective fact; and part of this objective fact is that there are certain values, and only those values, which men, while remaining men, can pursue' (Berlin, 1999: 51). On the face of it, such a claim prescribes an ideal rather than describes a state of affairs, and it is open to the charge of circularity. But, precisely so: such judgement makes sense if understood as part of a reflexive form of existence, the process of constituting what it is to be human by statements of what Berlin called 'objective fact'. The 'objective facts' here are the self-constituting practices of being human. Berlin's 'fact' is not part of knowledge in natural science; but it is part of moral knowledge.

Discussion of reflexivity has therefore led this article towards philosophical anthropology – understood in the broad sense of a philosophical exploration of what sort of condition being human is, not in the narrow sense

of the 20th-century German idealism that went under this name.[10] The apparently fairly circumscribed topic of the classification of the sciences, when coupled to the insight that human self-knowledge re-creates what it is to be human, has led directly into some very basic and, at least for the present, open-ended questions. But, and it is a large 'but', it is hardly possible to go further without recognizing that one major contemporary argument draws out reflexive arguments precisely to deny the possibility of anything resembling humanism or philosophical anthropology. I will make this clear with some brief remarks on Foucault's statements in *Les mots et les choses*.

Foucault was familiar with both the historical roots and contemporary expression of anthropology. Though *The Order of Things* exhibited a sharp animus towards the phenomenological anthropology of J.-P. Sartre and of Maurice Merleau-Ponty, it still took for granted Kant's pivotal significance for modern knowledge about the human subject (see Dreyfus and Rabinow, 1982). In this connection it is interesting that Foucault's secondary thesis, alongside the work on madness submitted in the Sorbonne in 1960, was a translation and introduction to Kant's lectures on 'anthropology from a pragmatic point of view' (Eribon, 1992: 110; see Kant, 1974). Kant, in addressing his own question, 'Was ist der Mann?', separated off the business of transcendental critique of the foundations of knowledge from the business of bringing enlightenment to practical understanding of experience, character and conduct in daily life. He termed the latter pragmatic anthropology.[11] As part of the former, in his third critique, the *Kritik der Urteilskraft*, he established a precedent for demarcating knowledge of what is human in terms of the teleological forms of understanding which he thought required by this subject matter. To have knowledge of what is human, he argued, we of necessity 'form' knowledge in the light of an intuition of finality, or purpose, in this manner of being (Kant, 1987; see Pinkard, 2002: 66–79). There is, this argument supposes, an inherent reaching after ends given in being human. This was the effective starting point of the modern tradition of philosophical anthropology, translated by Sartre, for example, into a claim for the irreducible freedom of what is human.

Foucault argued, however, that the whole tradition of philosophical anthropology stemming from Kant should be historicized, that is, accounted for as the expression of the search for knowledge within a temporally bounded horizon of truth, not founded, in Kant's term, 'transcendentally'. In this connection he made such notorious statements as that 'before the end of the eighteenth century, man did not exist' (Foucault, 1970: 308). *The Order of Things* radically questioned the possibility of a philosophical anthropology, and it did so by rejecting the whole notion that reflexivity can be grounded by ontology. Instead, so to speak, it turned reflexivity on itself.

The new knowledge which we call the human sciences, and which Foucault described coming into existence in the period between 1770 and 1830,

presupposes a being that is double, both subject and object of knowledge. This was what he called the 'empirico-transcendental doublet', the subject of philosophical anthropology: 'Man . . . is a strange empirico-transcendental doublet, since he is a being such that knowledge will be attained in him of what renders all knowledge possible' (Foucault, 1970: 318). When Descartes put forward the *cogito* as pure thinking, Foucault stated, he described the mind as rationally and *transparently* representing the world as thought. Descartes's 'I', therefore, had no density as subject and object of thought. In the 19th century, this changed, and the 'I' became the double subject and object of the human sciences. With the new human sciences came the paradoxes of reflexivity.

> If man is indeed, in the world, the locus of an empirico-transcendental doublet, if he is that paradoxical figure in which the empirical contents of knowledge necessarily release, of themselves, the conditions that have made them possible, then man cannot posit himself in the immediate and sovereign transparency of a *cogito*: nor, on the other hand, can he inhabit the objective inertia of something that, by rights, does not and never can lead to self-consciousness. (Foucault, 1970: 322)

That is, the modern person must struggle, as Kant struggled, to find transcendental grounds for asserting empirical knowledge, even though the condition of being human is not in fact a condition that can transcend itself. Nor can the modern person take refuge in the unreflective being of nature, as by claiming to have a nature given by the evolutionary process. Philosophical reflexivity, viewed in the terms of what Foucault at this stage of his writing called archaeology, is the condition of knowledge in the modern age, but it is not the eternal struggle of humanity to know itself.

Foucault therefore distinguished reflexivity as characteristic of the human sciences, but at the same time he, reflexively, argued (in this book) that such reflexivity is the form of thought of a particular regime of truth at a particular period of history. Thus, he concluded, if reflexivity does now mark out a field of disciplinary practices, it does so in consequence of the particular practices of governance which mark the modern world and not as a result of the ontology of being human.

Where does this leave the question of my article, the question whether reflexivity demarcates the human from the natural sciences? What Foucault and other writers who turn reflexivity on itself have done is confirm that it is in principle always possible to question at least some of the premises of a system of thought. This holds for philosophies that have attempted to ground an ontology of 'the human' as for any other philosophical system. No such system, such as the one Heidegger elaborated in *Being and Time*, has or could have unquestionable authority.[12] This appears to be the radical implication of taking reflexive arguments seriously. Thus, though Foucault shaped

discussion of the human sciences around the condition of reflexivity, he did so in a manner that strikingly distanced itself from any kind of concern with differentiating an ontology of 'the human'. And he specifically historicized reflexive knowledge itself. As it happens, Foucault did not discuss in any relevant way relations between the natural sciences and the human sciences (though his 1966 book identified common structures of discourse linking biological classification, political economy and the science of language). What we are left with, then, is a sense of the extraordinary difficulty of reducing discussions of reflexivity to any particular definable position, as well as of the vulnerability of any philosophical anthropology to critique. This is rather unsatisfying. At the same time, however, Foucault's own self-consciously reflexive arguments have done much to create a *practice* in the human sciences which is indeed different from that in the natural sciences. It would be my suggestion, therefore, if we are to advance beyond the choice of either returning to philosophical anthropology (but knowing it to contain unfounded assumptions) or allowing reflexive moves to revolve in endless circles, that we examine what people, including Foucault himself, *do*. This is not the least of the arguments for a historical turn in the human sciences.

CONCLUSION

It does not seem that there is much mileage to be had in separating 'the human' and 'the non-human', and hence the human sciences and the natural sciences, by claiming a fundamental difference of subject matter, as both religious and humanistic values have inclined many to do. Rather than demonstrating ontological separation of 'the human', what debates about reflexivity suggest is the openness of what is said about the world *in general* to reconstruction. The question of the classification of the sciences, and of the relation of the natural sciences to the human sciences, cannot be isolated as a topic of interest only to methodologists or philosophers of science. The attempt to distinguish the human sciences from the natural sciences leads back to Kant's question about what is human; the question about classification is a question about the very conditions of human self-understanding. This may suggest to some people that what is needed is a revival of philosophical anthropology. There is indeed something most distinctive in the way the human sciences concern themselves with the self-constituting nature of reflexive reason, a reason that is embodied as technological processes as well as in self-reflection. Philosophers who separated the human sciences from the natural sciences on the grounds of the reflexive effects of the former most valuably pointed in this direction. All the same, there is no escaping the capacity of reflexive arguments to turn on themselves and thus to render all philosophical or materialist anthropology open to critique. Whether, and in

which circumstances, we wish to engage in such reflexivity is a matter of convention and of judgement, and also a matter of politics, ethics and of ways of life. There is no neutral stance.

NOTES

[1] طرح كانت السؤال ('Was ist der Mensch?)، في بداية محاضراته عن المنطق والتي أعطاها للطلبة على مـدار سـنوات عديدة (كانت، 1992: 538).

[2] برنشتاين (1979) قدم مراجعة مثيرة للأدبيات الأكثر تأثيرا. ليس هناك حاجة هنا للعودة إلى المناقشات، التي بدأت بواسطة بيتـر وينش (1963)، الذي جادل بأن التفسير بواسطة التعقل (الأسباب العقلية) تتميز عن التفسير بواسطة الأسباب: أكثر الناس أصبحوا يقبلـون أن الأسباب العقلية يمكن فهما كأسباب. بالنسبة لتقيم لأطروحة وينش: لاسسمان (2000).

[3] هذا إلى جانب الحجم الكبير من الأدبيات المتعلقة بتأثير الانعكاسية على مفاهيم "الذات". وأن لست مهتما هنا بالتشكيل الحداثي (أو ما بعد الحداثي) للهوية الشخصية أو الجمعية، ولكن على العكس الاهتمام هو بالسؤال عما إذا كان النوع من العلاقة الانعكاسية بين الاعتقاد والممارسة، الذي علق عليه العديد من المراقبين (لنظر على سبيل المثال، روز، 1998، 1999)، محدود بموضوع العلوم الإنسانية.

4 For the view that self-confirming arguments are characteristic of all forms of knowledge construction, see B. H. Smith (1997). And for rethinking objectivity in the light of such arguments, see Megill (1994).

5 This of course leads to the long-running debate about rationality and relativism, where there are real differences of view. But I do not propose to be side-tracked by recapitulating the positions.

6 This was brought home in comments to me by Andy Pickering (see Pickering, 1995a, 1995b).

7 For just two studies of distinctive reflexive change through technology, see Turkle (1984) and Fraser (2001). See also the discussion of what Ian Hacking called 'looping', relating belief about the possibility of repressed memory with the recovery of memory (Hacking, 1995). Such discussions, obviously enough, lead into the literature on postmodern culture and identity, in which many observers point to the reflexive nature of technology.

8 As it happens, there does appear reason to believe that only humans have the reflexive capacity requisite for this, and it appears tied to the social, historical world of language: 'Only human beings do more than merely categorise the stimulus world. Alone among the animal world, we can reflexively examine and dispute such categorisations. And for this the ability to negate is crucial' (Billig, 1993: 125).

9 I hope it is clear that I make no claim about a substantive 'self' but only an epistemic claim.

10 For a constructive commentary on the German sources, accessible to English-language readers, see Honneth and Joas (1988).

11 According to Zammito's (2002) persuasive account, Kant was, before his critical turn, attracted to an empirical understanding of being human ('anthropology') and elements of this persisted even after he had, 'critically', undertaken to provide the philosophical groundwork for claims to knowledge in general.

12 Heidegger, in the work which culminated in *Sein und Zeit*, undertook to make philosophical anthropology possible by providing it with an ontology. He characterized 'man' as *Dasein*, Being which in itself discloses itself to itself. *Dasein* is distinguished 'by the fact that, in its very Being, that Being is an *issue* for it. . . . It is peculiar to this entity that with and through its Being, this Being is disclosed to it' (Heidegger, 1967: 32).

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