

wills, feels, and thinks, and thus rejected, as 'fixed and dead' the rigid a priori epistemology of Kant in favour of a developmental history that started 'from the totality of our being'.

This does not mean that Dilthey believed historians can look merely at the motives and the actions of individuals. For him the individual is always part of a certain culture, and to understand the individual is also to understand that culture. Dilthey's 'philosophy of life' (*Philosophie des Lebens*) is an expression of his belief that we must see and understand ourselves as part of the larger whole that has been created by human beings and that forms our social and historical reality. Furthermore 'every expression of life has meaning insofar as it is a sign which expresses something that is part of life. Life does not mean anything other than itself. There is nothing in it which points to a meaning beyond it.' The expressions of life form the subject matter of the human sciences. It is the realm of the method of understanding in the sense of *Verstehen*.

Although different times and different individuals may belong to cultures quite foreign to ours, we can, according to Dilthey, understand the historical and social processes in them because we are living individuals who know 'the process by which life tends to objectify itself in expressions'. Understanding is a process *sui generis*. We cannot explain it by reducing it to other, more basic processes. Nor should it be confused with 'understanding' in the ordinary sense, which signifies any kind of comprehension. Dilthey describes it as the 'rediscovery of the I in the Thou', or as a form of knowing that is concerned with intellectual processes. It is the comprehension of intentions, motives, feelings or thoughts as they are expressed in gestures, words, works of literature, legal codes, etc.

Dilthey is also famous for his analysis of *Weltanschauungen* or world views. Differentiating between three different types: materialism or positivism, objective idealism, and idealism of freedom, he himself could not identify with any one of them. All three of them appeared to him as honest but one-sided views of reality. Dilthey's greatest influence began

only after his death. Thus he has had some influence on the contemporary discussion of the philosophy of history. Although his concept of *Verstehen* is often misunderstood, it has generated a great deal of controversy. Dilthey also had an indirect influence on early sociological theories through the works of Max Weber and Talcott Parsons. Most importantly, perhaps, early existentialist thought, such as that of Karl Jaspers and Martin Heidegger, is unthinkable without Dilthey. Thus Heidegger claimed that his own analysis of temporality and historicity in *Being and Time* was 'solely concerned with preparing the way for the assimilation of the investigations of W. Dilthey'. And Bollnow's introduction to Dilthey was perhaps more an introduction to existential thinking than to Dilthey's theory.

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### Duhem, Pierre Maurice Marie

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### Main publications:

- (1886) *Le Potentiel thermodynamique*, Paris: Hermann.
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- (1892) 'Notation atomique et hypothèse atomistiques', *Revue des Questions Scientifiques* 31: 391–454.

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**Pierre Duhem was a major physicist at the turn of the nineteenth and twentieth centuries, a prolific contributor to the development of the theories of heat, physical chemistry, hydrodynamics and electrodynamics, but opposed to the atomism that ultimately**

triumphed. He was also a seminal writer on the philosophy of science and on the history of science—particularly the medieval period. The general character and themes of his work as it evolved have to be understood against the broad background of late nineteenth-century physics and philosophy, as well as his avowed Catholicism. Interpretation of his work is complicated by his habit of reusing earlier work in a new context in ways liable to blind the unwary reader to his changes of point of view. At the outset his views were obvious variations on late nineteenth-century positivist themes. Physical theory was to offer a purely symbolic representation of the facts and to assist the memory by providing a classification of them. It was quite distinct from metaphysics and from common-sense knowledge. How this could have been achieved can perhaps be seen from the much more detailed discussion offered by Moritz Schlick in his *Allgemeine Erkenntnislehre*, where the relationships established between different concepts are thought of as a kind of net giving each concept, and therefore the reality it represents, its place in the scheme of things. Duhem supported his approach with an instrumentalist account of atomistic symbolism in chemistry, and by some rationally reconstructed history of a kind already familiar in the work of Eugen Dühring and Ernst Mach. At this point he showed no sign of any interest in or knowledge of medieval science. The first criticisms were Catholic in origin. Duhem was attacked for allegedly disdaining metaphysics, and for conceding too much to scepticism, an important point for Catholics because of their official commitment to a semi-rationalist apologetic. Duhem's initial response, a quasi-Thomist account of the mutual independence of physics and metaphysics, was never afterwards repeated or referred to. His long-term response was twofold: to draw out of his initial doctrine that physical theories were symbolic systems a fully fledged doctrine of the theoreticity of facts, and to flesh out what he meant by classification into his still controversial doctrine of natural classification. Experimental laws depended on other theoretical commitments to state them, so

that the very notion of experimental refutation became logically ambiguous; so that, necessary as logic was to physical theory, it was not all-sufficient and not the ultimate arbiter. Experimental refutation and the response of physicists to it were matters of intuitive judgement. Physicists had to judge whether an experimental result refuted the theory or whether it was merely the effect of some other theory involved in the experimental situation. They also had to judge how to amend their theories in the light of accepted experimental refutations. Duhem also claimed that the goal of physics was the intuitively judged improving classification which increasingly reflected the ontological order. This doctrine of a fallible natural classification plays in Duhem's mature system of the *Théorie physique* a role like Popper's notion of fallible truth in his. As Duhem matured, he came increasingly to cite Pascal's *Pensées* at crucial points in his argument. Prone as he was to suggest in the first part of his career that the natural classification looked for by physicists would have a scholastic form, these suggestions do not reflect his deeply Pascalian temper, made very explicit at the end of his life in his *Science allemande*. His later historical work lends itself to a like conclusion. After a decade of work that denied the existence or relevance of medieval science he was genuinely surprised to discover evidence of it while working on the *Origines de la statique* in the early winter of 1903. Thereafter his historical work changed its character. He did not, though, align himself with the Catholic neoscholasticism of the period, but emphasizes those aspects of the Middle Ages with which it was least compatible, claiming indeed that Thomism was incoherent.

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