

an extract from

Metaphor and Materiality
*German Literature and the
World-View of Science
1780–1955*



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INTRODUCTION



In his study of the role of science in the work of Adalbert Stifter, Martin Selge notes that ‘die Geschichte des Verhältnisses von Naturwissenschaft und Dichtung ist noch ungeschrieben’.¹ Since he wrote this in 1976 some fine contributions to the study of science and literature have been published.² And yet there remains a serious lacuna in cultural studies, one which is symptomatic of the fragmentation and specialization of knowledge in the modern era. The current study is intended as a contribution to the closure of this gap. Through readings of texts central to the German literary canon which span some 150 years, I hope to demonstrate the vital role literature has played in exploring the cultural implications of new scientific ideas and in challenging the authority of the scientific world-view.

According to Jürgen Habermas, in the modern world science affects the *Lebenswelt* of ordinary people only through its application in technology:

Die Erkenntnisse der Atomphysik bleiben, für sich genommen, ohne Folgen für die Interpretation unserer Lebenswelt — insofern ist die Kluft zwischen jenen beiden Kulturen unvermeidlich. Erst wenn wir mit Hilfe der physikalischen Theorien Kernspaltungen durchführen, erst wenn die Informationen für die Entfaltung produktiver oder destruktiver Kräfte verwertet werden, können ihre unwälzenden *praktischen Folgen* in das literarische Bewußtsein der Lebenswelt eindringen — Gedichte entstehen im Anblick von Hiroshima und nicht durch die Verarbeitung von Hypothesen über die Umwandlung von Masse in Energie.³

It is undeniable that the dropping of atomic bombs on Japan brought home to writers such as Bertolt Brecht the devastating implications of nuclear research. However, I believe Habermas was incorrect to suggest that literature has failed to grasp the theoretical potentialities of science, as Brecht’s play *Leben des Galilei* and the other texts discussed in the present study demonstrate. Instead I will argue that the two discourses, far from being divided by a gulf of mutual

incomprehension, exist in a close relationship, one which research into the history and philosophy of science suggests is by no means unidirectional. Furthermore, I believe it is undeniable that both literature and science contribute to and are influenced by their sociohistorical context. The metaphors of science are as much part of our culture as are those of aesthetics or philosophy, but scientific metaphors acquire unique authority by virtue of their origin in a discourse which claims privileged access to true knowledge about the world. Literature, as a plural and multivalent discourse which opens people's eyes to the fundamental complexity and ambiguity of reality, acts to deconstruct the univocal truth-claims of scientific metaphors. By so doing, literature engenders new interpretations and new metaphors of reality which supplement rather than subvert the discourse of science.

What then do we understand when we read the phrase 'literature and science'? As Gillian Beer has observed, in an essay for the Society for Literature and Science, the use of the seemingly neutral word 'and' creates hermeneutic complexity:

Literature *and* science: science *and* literature: what is the force of the connective? It polarises the two domains; it yokes them together in a privileged pair, separated from other cultural expressions. It also sorts them hierarchically according to which is mentioned first, so that they become prime term and concessive term: *science* and literature; *literature* and science. One is given the originating role, the other that of dependent, providing 'context' or 'background'. Power struggles are masked by the deliberately evenhanded and non-directive 'and'.⁴

As Beer suggests, the word 'and' can be understood as enforcing a hierarchy, asserting the primacy of one category over another. A possibly unwarranted privileging of one modality can be implied. Moreover, are we creating a binary opposition with the phrase 'literature and science'? Or does the phrase suggest a comparison rather than an opposition, a comparison in which each term serves to both challenge and modify its neighbour?

Unfortunately the notion that literature and science are in opposition has become a truism. It is suggested that two delimited categories exist, one of which—science—is informing and acting upon the other. A hierarchy of influence has become firmly established in the public consciousness. However, the trend in current research, and one to which I also wish to contribute, is to look for

common ground between the discourses: to locate a discursive space in which literature and science can be considered equally without denying the unique contributions each has to make to human understanding. From this perspective C. P. Snow's (in)famous analysis of the two inherently opposed cultures of scientists and 'literary intellectuals' seems as *passé* as his prediction that science would eliminate the disparity between rich and poor nations by the year 2000.⁵ As I shall demonstrate, the notion of the Two Cultures, although popularly accepted, represents a simplistic account of the relationship between the arts and sciences: the reality is of course far more complex.

When I began my research in 1993, the idea of combining literature and science in one project generally provoked surprised reactions from colleagues in each discipline. Since then the work of writers such as Tom Stoppard and Ian McEwan has ensured the topicality of the subject. My intention throughout the writing of this study has been to examine the interrelation of literature and science from the perspective of literature, an activity which has often perceived and indeed defined itself as being in reaction to the claims of science. In the following chapters I attempt to cast a fresh light on the uneasy relationship between literature and science. The current work is not intended as a contribution to the history and philosophy of science, nor as an exhaustive overview of all the literary texts that engage with science. Rather, my work is meant as a contribution to literary thematics; and to this end I have allowed myself to be selective: to work in detail on key texts whose interpretative richness is the measure of the complexity of their response to the implications of modern science.

Notes to Introduction

1. M. Selge, *Adalbert Stifter: Poesie aus dem Geist der Naturwissenschaft* (Studien zur Poetik und Geschichte der Literatur, 45; Stuttgart, 1976), 9.
2. See e.g. Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*, 2nd edn. (London, 1985); Andrew Cunningham and Nicholas Jardine (eds.), *Romanticism and the Sciences* (Cambridge, 1990); Joseph Federico, *Confronting Modernity: Rationality, Science, and Communication in German Literature of the 1980s* (Columbia, SC, 1992); Elinor S. Shaffer (ed.), *The Third Culture: Literature and Science* (Berlin, 1998). For further reading see Walter Schatzberg, R. A. Waite and J. K. Johnson (eds.), *The Relations of Literature and Science: An Annotated Bibliography of Scholarship, 1880–1980* (New York, 1987).

3. 'Technischer Fortschritt und soziale Lebenswelt', in J. Habermas, *Technik und Wissenschaft als Ideologie* (Frankfurt a. M., 1968), 107. Elisabeth Emter also engages critically with Habermas's argument: *Literatur und Quantentheorie: Die Rezeption der modernen Physik in Schriften zur Literatur und Philosophie deutschsprachiger Autoren (1925–1970)* (Quellen und Forschungen zur Literatur- und Kulturgeschichte, 2 (236); Berlin, 1995), 11–15; cf. Federico, *Confronting Modernity*, 1–13. For a more positive estimation of Habermas, see Josef Kopperschmidt, 'Literarisches Sprechen im Zeitalter der Wissenschaften', in *Sprachnot und Wirklichkeitszerfall: Dargestellt an Beispielen neuerer Literatur*, ed. Elisabeth Meier (Düsseldorf, 1972), 62–97, esp. 86–8.
4. G. Beer, 'Discourses of the island', in *Literature and Science as Modes of Expression*, ed. Frederick Amrine (Boston Studies in the Philosophy of Science, 115; Dordrecht, 1989), 1. On the hermeneutics of this phrase, see also Ludmilla J. Jordanova's Introduction to *Languages of Nature: Critical Essays on Science and Literature*, ed. L. Jordanova (London, 1986), 17, and Joseph W. Slade, 'Beyond the two cultures: science, technology, and literature', in *Beyond the Two Cultures: Essays on Science, Technology, and Literature*, ed. J. W. Slade and Judith Yaross Lee (Ames, 1990), 3–16.
5. C. P. Snow, *The Two Cultures, and A Second Look: An Expanded Version of the Two Cultures and the Scientific Revolution* (Cambridge, 1964), 22, 42. On the Two Cultures, see Antoon Berentsen, 'Vom Urnebel zum Zukunftsstaat': *Zum Problem der Popularisierung der Naturwissenschaften in der deutschen Literatur (1880–1910)* (Studien zu deutscher Vergangenheit und Gegenwart, 2; Berlin, 1986), 1–15; Helmut Heißenbüttel, 'Literatur und Wissenschaft', *Akzente* 12 (1965), 171–91; Kopperschmidt, 'Literarisches Sprechen', 75–84; Helmut Kreuzer (ed.), *Literarische und naturwissenschaftliche Intelligenz: Dialog über die 'zwei Kulturen'* (Stuttgart, 1969); George Levine, 'One culture: science and literature', in *One Culture: Essays in Science and Literature*, ed. G. Levine (Madison, 1987), 3–32; and Wolfgang Wild, 'Naturwissenschaften und Geisteswissenschaften: Immer noch zwei getrennte Kulturen?', *Universitas* 42 (1987), 25–36.