

THE HERMENEUTICS OF SCIENTIFIC LANGUAGE IN GOETHE'S CRITIQUE OF NEWTON

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Vollends hat die deutsche Philosophie von Leibniz bis Hegel immer wieder versucht, die neue Wissenschaft der Physik durch eine philosophische und spekulative Wissenschaft zu ergänzen [...] Ich erinnere nur an den Widerspruch Goethes gegen Newton, der von Schelling, Hegel und Schopenhauer in gleicher Weise geteilt wurde.

HANS-GEORG GADAMER, *Wahrheit und Methode*

1. Introduction

Writing in 1882, the German physiologist Emil Du Bois-Reymond (1818–1896) offered the following assessment of Goethe as a scientist. Invoking the holy trinity of scientific modernity – empiricism, causality and mechanism – he observed:

Von dieser Art der Thätigkeit, und dem geistigen Bedürfniss, welches sie voraussetzt und zu befriedigen sucht, hatte GOETHE sichtlich keine Ahnung. Mechanische Zergliederung erwähnt er nur, um sie mit gereizter Feindseligkeit von sich zu weisen. Sein Theoretisiren beschränkt sich darauf, aus einem Urphänomen, wie er es nennt, welches aber schon ein sehr verwickeltes ist, andere Phänomene hervorgehen zu lassen, etwa wie ein Nebelbild dem anderen folgt, ohne einleuchtenden ursächlichen Zusammenhang. Der Begriff der mechanischen Causalität war es, der GOETHE gänzlich abging. Deshalb blieb seine Farbenlehre, abgesehen von deren subjectivem Theil, trotz den leidenschaftlichen Bemühungen eines langen Lebens, die todtgeborene Spielerei eines autodidaktischen Dilettanten; deshalb konnte er sich mit den Physikern nicht verständigen; deshalb war NEWTON's Grösse ihm verschlossen; und deshalb sah er in der wissenschaftlichen Optik eines YOUNG, eines FRESNEL nur eine Katzenpastete.¹⁾

Since Du Bois-Reymond passed this damning judgement, many eminent German scientists and philosophers, including Hermann von Helmholtz, Ernst Cassirer, Werner Heisenberg, and Gernot Böhme, among others,²⁾ have argued that

¹⁾ EMIL DU BOIS-REYMOND, *Goethe und kein Ende*, Leipzig 1883, p. 29.

²⁾ HERMANN VON HELMHOLTZ, *Goethes Vorahnungen kommender naturwissenschaftlicher Ideen*, Berlin 1892; – ERNST CASSIRER, *Goethe und die mathematische Physik. Eine erkenntnistheoretische Studie*, in: *Idee und Gestalt. Goethe, Schiller, Hölderlin, Kleist*, Berlin 1921; –

while Goethe's scientific theories offer a humanist counter-model to the excessively rationalist research culture of scientific modernity, they do not contribute to real science: a body of knowledge that progresses toward objective results through the accumulation of empirical research. As Carl Friedrich von Weizsäcker wrote his book ›Tragweite der Wissenschaft‹ (1990):

Wir heutigen Physiker sind in unserem Fach Schüler Newtons und nicht Goethes. Aber wir wissen, daß diese Wissenschaft nicht absolute Wahrheit, sondern ein bestimmtes methodisches Verfahren ist. Wir sind genötigt, über Gefahr und Grenzen dieses Verfahrens nachzudenken. So haben wir Anlaß, gerade nach dem in Goethes Wissenschaft zu fragen, was anders ist als in der herrschenden Naturwissenschaft.³⁾

The view taken in this paper is that Goethe's scientific research has often been assessed according to a narrow, empirical and mechanistic definition of science as *Naturwissenschaft*, at the expense of an examination of the role that his writings on scientific method may have played in an altogether more general conception of science, encompassed by the German term *Wissenschaft*, meaning systematic knowledge in all academic disciplines, including the humanities. Through an examination of one of Goethe's earliest and most important essays on scientific method – ›Der Versuch als Vermittler von Objekt und Subjekt‹ – coupled with a discussion of some philosophical arguments appearing in Goethe's scientific *magnum opus* (›Zur Farbenlehre‹), I hope to show that Goethe's scientific thought has implications that extend beyond the realm of the natural sciences, foreshadowing an epistemological crisis in relation to *Wissen* or knowledge in general.

Here it must be said that the approach taken in this paper is not altogether new. During the last decade or so, scholars such as Dennis L. Sepper, R. H. Stephenson, H. B. Nisbet, Daniel Steuer, John Neubauer, Jost Schieren and Robert J. Richards have contributed to a general reassessment of the philosophical significance of Goethe's scientific studies.⁴⁾ This reassessment has also been accompanied by new

WERNER HEISENBERG, Das Naturbild Goethes und die technisch-naturwissenschaftliche Welt, in: Goethe 29 (1967), pp. 27–42; – GERNOT BÖHME, Ist Goethes Farbenlehre Wissenschaft?, in: Alternativen der Wissenschaft, Frankfurt/M. 1993, p. 123–154.

³⁾ CARL FRIEDRICH VON WEIZSÄCKER, Über einige Begriffe aus der Naturwissenschaft Goethes, in: Tragweite der Wissenschaft, Stuttgart 1990, p. 457.

⁴⁾ DENNIS L. SEPPER, Goethe contra Newton. Polemics and the project for a new science of color, Cambridge 1988; – R. H. STEPHENSON, Goethe's Conception of Knowledge and Science, Edinburgh 1995; – H. B. NISBET, Religion and Philosophy, in: The Cambridge Companion to Goethe, ed. LESLEY SHARPE, Cambridge 2002, pp. 219–231; – DANIEL STEUER, Die stillen Grenzen der Theorie. Übergänge zwischen Sprache und Erfahrung bei Goethe und Wittgenstein, Köln 1999; – DANIEL STEUER, In defence of experience. Goethe's natural investigations and scientific culture, in: SHARPE, pp. 160–178; – JOHN NEUBAUER, Ich lehre nicht, ich erzähle, Geschichte und Geschichten in Goethes naturwissenschaftlichen Schriften, in: Goethe Jahrbuch 114 (1997), pp. 163–173; – JOHN NEUBAUER, Goethe and the Language of Science, in: The Third Culture. Literature and Science, ed. ELINOR S. SCHAFFER, Berlin 1998, pp. 51–65; – JOST SCHIEREN, Anschauende Urteilskraft, Düsseldorf 1998; – ROBERT J. RICHARDS, The Romantic Conception of Life. Science and Philosophy in the Age of Goethe, Chicago 2002. I have written an extensive review essay on the volume by RICHARDS, see: ANGUS NICHOLLS, On Science and Subjectivity, in: History of the Human Sciences, 18.1 (2005), pp. 143–158.

investigations into Goethe's reception of Kant's critical philosophy – investigations that have been part of a more general attempt to revise the notion that Goethe was a decidedly un-philosophical and intuitive genius, rather than a thinker with his own philosophically informed scientific methodology. Goethe is himself partially responsible for this cliché of Goethe scholarship, having famously stated that “für Philosophie im eigentlichen Sinne hatte ich kein Organ”.⁵⁾ But the image of Goethe as a non-philosophical genius was probably first created by one of the most philosophical of German authors. In a letter to Goethe dated 23 August 1794, Friedrich Schiller offers the following description of his friend, a description that Goethe was at times more than willing to accept, and that has played an enormously influential role in the history of Goethe scholarship:

In Ihrer richtigen Intuition liegt alles und weit vollständiger, was die Analysis mühsam sucht, und nur weil es als ein Ganzes in Ihnen liegt, ist Ihnen Ihr eigener Reichtum verborgen [...] Philosophie [...] kann bloß zergliedern, was ihr gegeben wird, aber das Geben selbst ist nicht die Sache des Analytikers, sondern des Genies.⁶⁾

The image of Goethe presented here echoes Plato's description of poets as non-rational and inspired figures who have no conceptual understanding of their own works, a description that is central to the historical division between philosophy and poetry, and to the eighteenth century conceptualisation of genius.⁷⁾ But as I hope this paper will show, it is simply not valid to suggest that Goethe's way of doing epistemology and science was naïve, poetic, un-philosophical, and intuitive, thereby requiring the corrective influence of Schiller's neo-Kantian critique. The notion that Goethe first came to an understanding of Kant via the influence of Schiller is a myth that has reinforced the image of Goethe as a naïve and intuitive thinker with no coherent epistemology. Géza von Molnár's 1994 study of Goethe's Kant reception – ›Goethes Kantstudien‹ – has shown conclusively that Goethe studied both the ›Kritik der reinen Vernunft‹ and the ›Kritik der Urteilkraft‹ during 1790 and 1791, some three to four years before the date of his so-called official conversion to Kantianism by Schiller in 1794.⁸⁾ In a different context to the present one, I have also, in a recent publication, undertaken a reassessment of Goethe's relation to Kant in the wake of Molnár's findings.⁹⁾

What remains to be worked out, however, are the broader philosophical implications of Goethe's readings of Kant in his scientific studies, and the possible importance of these readings for Goethe's position in the history of ideas. In this

⁵⁾ GOETHE, *Einwirkung der neueren Philosophie*, in: *Sämtliche Werke. Nach Epochen seines Schaffens* (Münchener Ausgabe), eds. KARL RICHTER, HERBERT G. GÖPFERT, NORBERT MILLER and GERHARD SAUDER, vol. 12, München 1985–1998, p. 94. The Münchener Ausgabe of Goethe's works will hereafter be cited with the letters MA, followed by volume and page numbers.

⁶⁾ SCHILLER an Goethe, Jena, den 23. August 1794, in: MA, vol. 8.1, pp. 12–16.

⁷⁾ See PLATO, *Ion*, 534b.

⁸⁾ GÉZA VON MOLNÁR, *Goethes Kantstudien*, Weimar 1994.

⁹⁾ ANGUS NICHOLLS, *Kantian Science and the Limits of Subjectivity*, in: *Goethe's Concept of the Daemonic. After Ancients*, Rochester, New York 2006, pp. 167–201.

respect, the present paper has two aims: Firstly, it will attempt to show that we can find in ›Der Versuch als Vermittler von Objekt und Subjekt‹ a Goethe who is definitely influenced by the ›Kritik der reinen Vernunft‹, and possibly also the ›Kritik der Urteilskraft‹. Secondly, I will argue that Goethe's reception of Kant in the above mentioned essay, as well as in certain sections of ›Zur Farbenlehre‹, raises significant epistemological issues about the nature of scientific modernity – issues that would go on to preoccupy one of Germany's most important twentieth century philosophers: Hans-Georg Gadamer.

2. Schiller, Kant and the *Urpflanze*

How, then, did Goethe come to be acquainted with the thought of Kant? Before dealing with the earliest stages of Goethe's Kant reception, it is useful to consider Goethe's recollection, in the autobiographical fragment ›Glückliches Ereignis‹, of the meeting with Schiller in 1794 that has traditionally been seen as marking the most decisive moment of Goethe's Kantian turn. A thorough consideration of the philosophical issues at stake in this meeting can only be achieved through a brief account of Goethe's quest for a phenomenon that he called the *Urpflanze*.

In September 1786, Goethe departed on his first journey to Italy, a journey famously recorded in the ›Italienische Reise‹.¹⁰) The purpose of this journey was to undertake studies of classical art, as well as detailed investigations into the natural world, particularly geological formations and plant life. Goethe's approach to natural objects was at this time characterised by an emphasis upon detailed empirical observation, sketching and notation. After arriving in Naples in May 1787, Goethe underwent what he imagined was a moment of scientific illumination in relation to his observations of plant life. In a letter from the ›Italienische Reise‹ dated 17 May 1787 and written to his philosophical mentor of the 1770s (Johann Gottfried Herder),

¹⁰) It is necessary here to note that although Goethe's ›Italienische Reise‹ records events in Goethe's life that took place between the years of 1786–1788, the actual book itself was only published under the title ›Italienische Reise‹ as late as 1829, in the edition of Goethe's works known as the ›Ausgabe letzter Hand‹. Goethe first mentions working on the ›Italienische Reise‹ as a book in letters written in late 1813 and early 1814. The first two volumes of the book were published in 1816 and 1817 under the title ›Aus meinem Leben. Zweiter Abtheilung Erster und Zweiter Teil‹. A third volume was then worked upon by Goethe intermittently between 1819 and 1829. All three volumes were finally published together in 1829, under the title ›Italienische Reise‹, in the ›Ausgabe letzter Hand‹. But the ›Italienische Reise‹ nevertheless arose from notes and letters which Goethe wrote between the years of 1786–1788. In his commentary to the ›Italienische Reise‹ that appears in the ›Hamburger Ausgabe‹ of Goethe's works, Herbert von Einem observes that we should regard the book more as an edited version of earlier notes and letters, than as a completely new creation undertaken by Goethe in the early nineteenth century. With regard to the first part of the ›Italienische Reise‹ (from which the above quote is taken, and with which we are presently concerned) Herbert von Einem observes that "der erste Teil dem Reisejournal sehr getreu folgt und die beschwingte Stimmung jener ersten Wochen und Monate rein wiedergibt." JOHANN WOLFGANG GOETHE, Werke. Hamburger Ausgabe, ed. ERICH TRUNZ, vol. 11, Hamburg 1972, p. 574.

Goethe suggests that through direct observation of natural objects, a kind of inner necessity can be intuited through a mode of apprehension central to Herder's philosophy: *Einfühlung* (which when translated literally into English means "feeling-in"). The grandiose scale of Goethe's ambitions is reflected in his view that:

Die Urpflanze wird das wunderlichste Geschöpf von der Welt, um welches mich die Natur selbst beneiden soll. Mit diesem Modell und dem Schlüssel dazu, kann man alsdann noch Pflanzen in's Unendliche erfinden, die konsequent sein müssen, daß heißt: die, wenn sie auch nicht existieren, doch existieren könnten und nicht etwa malerische oder dichterische Schatten und Scheine sind, sondern eine innerliche Wahrheit und Notwendigkeit haben. Dasselbe Gesetz wird sich auf alles übrige Lebendige anwenden lassen.¹¹⁾

If there is a kind of scientific methodology at work here, it must be described as being totally pre-Kantian, since there is a sense here that Goethe believes that there can be real contact, feeling-in and understanding between the observer, the *Ding an sich* and its ultimate purpose or design, without any role being played by the *a priori* categories of the understanding, or the faculty of reason.¹²⁾ Yet despite the euphoric tone in Goethe's letter, he was unsure as to whether the *Urpflanze* might be an actual empirical object, or only a theoretical idea. In a letter to Herder dated 17 April 1787, Goethe seems to suggest that he might really find the *Urpflanze* growing on some Italian hillside,¹³⁾ but on 25 March 1787 he wonders whether his *Urpflanze* may be so "sublimiert" as to be useless as a model for understanding actual botanical objects,¹⁴⁾ a self-critique that presages Schiller's later description of the *Urpflanze* as being akin to a Kantian idea.

It has, until recently, widely been maintained that there was no decisive resolution of the ambiguity in the idea of the *Urpflanze* until Goethe's discussion on this subject with Friedrich Schiller in 1794. Schiller was at that time the leading avatar of Kant's critical philosophy in Goethe's intellectual circle. At a meeting of the Natural History Society in Jena held on 20 July 1794, a presentation was given by A. J. Batsch on the subject of botany. Following this presentation, Schiller commented privately to Goethe about the speaker's fragmentary manner of dealing with nature. Warming to this topic, Goethe replied that one could easily adopt a different approach to the natural world, by portraying it not as a series of individual fragments, but rather as "wirkend und lebendig", and as "aus dem Ganzen in die Teile strebend."¹⁵⁾ Proceeding to Schiller's house, Goethe went on to offer his host a summary of his hypothesis that, when viewed from the perspective of metamorphosis, individual plants might be understood as modifications of a universal design,

¹¹⁾ GOETHE, *Italienische Reise*, in: *Sämtliche Werke. Briefe, Tagebücher und Gespräche* (Frankfurter Ausgabe), ed. HENDRIK BIRUS et al., vol. 1,15/1, Frankfurt/M. 1985–2003, p. 346. The Frankfurter Ausgabe will hereafter cited as FA, followed by section, volume and page number.

¹²⁾ Here I follow the interpretation of NEUBAUER, *Goethe and the Language of Science* (cit. fn. 4), pp. 52f.

¹³⁾ GOETHE, *Italienische Reise* (cit. fn. 11), pp. 285f.

¹⁴⁾ *Ibid.*, p. 239.

¹⁵⁾ GOETHE, *Glückliches Ereignis*, in: FA 1,24, p. 436.

archetype or essential form. This notion is, at the very least, suggestive of his earlier concept of the *Urpflanze*, which had been altered in the six or so years since the end of his first Italian journey in 1788.

During this period, Goethe had published his theories regarding plant formation in a small volume entitled ›Versuch die Metamorphose der Pflanzen zu erklären‹ (1790). The scientific hypothesis of this book is that all of the individual parts of plants – for example, seed leaves, nodes, buds, stems, sepals, petals, stamens and pistils, leading ultimately to fruit and new seeds – can be understood as modifications or transmutations of a pre-existing organ or essential part.¹⁶ These modifications are seen as arising from the twin forces of expansion and contraction that Goethe thought to be resident in matter,¹⁷ an idea that he probably derived from his reading of Kant's ›Metaphysische Anfangsgründe der Naturwissenschaft‹ during 1789.¹⁸ Petals, for example, may arise from an expansion of the sepals, while stamens develop through a contraction of the petals.¹⁹ Although Goethe does not specify definitively the identity of the essential part that is subjected to these transformations, at the conclusion of his treatise he suggests that “das Blatt” might be seen as best approximating the organ that underlies all plant development.²⁰ In this way, the *Urpflanze* had now become neither a mythical plant that Goethe might find in Sicilian gardens, nor a Platonic form abstracted from empirical observations; rather, it was a concrete, essential form (*das Blatt*) with an inherent teleology that could be observed and experienced in its various manifestations in individual plants.

As an orthodox Kantian who had already studied Kant's critical philosophy at some length, Schiller's response to Goethe's theory of the *Urpflanze* was predictable, although Goethe was apparently shocked and annoyed by it at the time. According to Goethe's recollection in ›Glückliches Ereignis‹, Schiller argued that the *Urpflanze* could never be an object of empirical experience, exclaiming “das ist keine Erfahrung, das ist eine Idee.”²¹ The *Urpflanze* was, in Schiller's opinion, an example of something akin to Kant's notion of the transcendental ideas of pure reason. In the language of the ›Kritik der reinen Vernunft‹ (A edition 1781, B edition 1787), the function of these ideas is not, in Kant's view, to refer to actual, empirical objects, but rather to point towards a heuristic or regulative unity that might bring together separate acts of the understanding into an overarching, synthetic whole.²² In other words, such an idea could only belong to the observer's *a priori* cognitive faculties, and not to external nature.

¹⁶ GOETHE, Versuch die Metamorphose der Pflanzen zu erklären, in: FA 1,24, p. 110.

¹⁷ Ibid., pp. 132f.

¹⁸ Goethe attributes this notion to Kant in his ›Campagne in Frankreich‹, GOETHE, FA 1,16, p. 520. On this issue, see also RICHARDS, The Romantic Conception of Life (cit. fn. 4), p. 429.

¹⁹ GOETHE, Versuch die Metamorphose der Pflanzen zu erklären (cit. fn. 16), pp. 122–125.

²⁰ Ibid., p. 150.

²¹ GOETHE, Glückliches Ereignis (cit. fn. 15), p. 437.

²² IMMANUEL KANT, Kritik der reinen Vernunft (A 327/B 383), in: Werke in sechs Bänden, ed. WILHELM WEISCHEDL, vol. 2, Darmstadt 1983, p. 331.

In the ›Kritik der Urteilkraft‹ (1790) Kant clarifies how reason may function in the context of scientific observations. He undertakes this task in the second part of the volume – entitled the “Kritik der teleologischen Urteilkraft” – and it is likely that this aspect of Kantian thought also plays a role in Schiller's reaction to Goethe's theory of the *Urpflanze*. Like the scientific establishment of his day, Kant believed that the most plausible and acceptable explanations for natural occurrences are to be found in the cause and effect hypotheses offered by Newtonian mechanics. At the same time, Kant also thought that organisms and their constituent parts display such a high degree of organization, generative integration and reciprocity, that a teleology or design beyond simple cause-effect relationships is necessarily suggested to the scientific observer. Thus, just as the observation of some artworks produces aesthetic judgements like beauty, so too do certain features of organisms – like, for example, the different parts of plants studied by Goethe – point towards an idea of the organism as a *Naturzweck*. Science, according to Kant, is on firm ground when it posits mechanistic cause-effect relationships between the parts of organisms, since they conform to the laws of nature that correspond with the *a priori* categories of the understanding. When, on the other hand, it speculates as to the final ends or purposes of organisms and their parts, it is on much shakier ground, since such ends or purposes do not follow necessarily from the *a priori* categories; rather, they constitute reflective, teleological judgements formulated freely by reason – judgements that can play only a regulative, heuristic role in scientific methodology. Thus, for Kant, the scientist can proceed “als ob” the separate parts of plants are organized according to an overarching teleology, but to assert that this is necessarily and objectively the case would be to overstep the limits of reason that Kant had delineated so carefully in the ›Kritik der reinen Vernunft‹.

It is more or less this Kantian critique of teleological scientific judgments that Schiller applied to Goethe's theory of the *Urpflanze* in 1794. But was Goethe completely unaware of this aspect of the third *Kritik* at this time? The popular image of Goethe propagated by Schiller in the essay ›Über Anmut und Würde‹ (1793) as well as in his famous letter to Goethe dated 23 August 1794, is that of the instinctive and decidedly non-theoretical genius, the intuitive “Augenmensch” who more or less unconsciously arrives at similar results to those achieved by the conscious, speculative philosopher: namely, Schiller himself.²³⁾ Moreover, Goethe's response to Schiller's Kantian critique of the *Urpflanze* tends only to confirm this image of the intuitive poet: “das kann mir sehr lieb sein daß ich Ideen habe ohne es zu wissen, und sie sogar mit Augen sehe“.²⁴⁾

Yet letters written by members of Goethe's intellectual circle reveal that he began studying the first *Kritik* in 1789 and the third *Kritik* in the year of its publication (1790), some four to five years before the purportedly decisive meeting

²³⁾ SCHILLER an Goethe, Jena, den 23. August 1794 (cit. fn. 6), pp. 12–16.

²⁴⁾ GOETHE, Glückliches Ereignis (cit. fn. 15), p. 437.

with Schiller.²⁵) In his book ›Goethes Kantstudien‹, Géza von Molnár investigates the actual editions of the first and third *Kritiken* that Goethe read and annotated during these years. If we take the interpretative leap of assuming that the heavily annotated sections are those that most attracted Goethe's scholarly interest, then it becomes very clear that Goethe was, as early as the winter of 1790–1791, particularly interested in the *a priori* conceptual elements of cognition discussed by Kant in both the first and third *Kritiken*.

Goethe's extensive annotations of the "Kritik der teleologischen Urteilstkraft", the scientific component of the third *Kritik*, are especially relevant to the question of the *Urpflanze*. When, for example, Kant uses the example of a tree to clarify his idea that an organism is cognized as a *Naturzweck* when its constituent parts display a high level of reciprocity and integration,²⁶) Goethe's annotations show, according to Molnár, that he finds in Kant's passage confirmation of his notion that plants develop teleologically out of an essential form common to all botanical species.²⁷) These annotations do not, however, resolve the question as to whether Goethe believes (*à la* Kant) that this teleology is merely an aspect of his own cognitive equipment, or whether it is actually resident in the external world *an sich*. Goethe only addresses this question in a much later fragment, entitled ›Anschauende Urteilstkraft‹ (written in 1817) where, after the manner of Kant, he describes such teleological reflections as being risky adventures of reason.²⁸) Nevertheless, far from confirming the image of an intuitive scientist, Goethe's early annotations of the first and third *Kritiken*, combined with the essay that I shall presently consider (›Der Versuch als Vermittler von Objekt und Subjekt‹) demonstrate that, at the very least, Goethe was already on the way to developing a Kantian scientific epistemology prior to his discussion of the *Urpflanze* with Schiller in 1794.

For his part, Kant was aware that it would be quite tempting to take the step from the *als ob*, from the heuristic or regulative notion that the parts of an organism like a plant are related to a universal conception of the whole, to the more radical proposition that there might be an objective, indwelling design or intention to nature, expressed in the purposes of individual organisms like plants, and identifiable through ideas like the *Urpflanze*. This step was of course taken quite openly and explicitly by Schelling, who saw nature in terms of an intentionality associated with transcendental subjectivity. From this perspective, according to Schelling, nature

²⁵) CHRISTOPH MARTIN WIELAND an Karl Leonard Reinhold, den 18. Februar 1789, in: Goethes Gespräche, ed. WOLFGANG HERWIG, vol. 1, Zürich 1965–1987, p. 470. – CHRISTIAN GOTTFRIED KÖRNER an Friedrich Schiller, den 6. October 1790, in: Goethes Gespräche, vol. 1, p. 497. Both of these letters are discussed by RICHARDS, *The Romantic Conception of Life* (cit. fn. 4), pp. 427–430.

²⁶) KANT, Kritik der Urteilstkraft, (§64) in: Werke in sechs Bänden (cit. fn. 21), vol. 5, pp. 482f.

²⁷) MOLNÁR, Goethes Kantstudien (cit. fn. 8), pp. 123f.

²⁸) GOETHE, Anschauende Urteilstkraft, in: FA 1,24, p. 448. See also, on this subject, DANIEL STEUER, *In Defence of Experience. Goethe's Natural Investigations and Scientific Culture* (cit. fn. 4), pp. 168f.

could be seen as “sichtbarer Geist” – a pulsating organic force with an indwelling purpose ascertainable by humans, since we too are part of that purpose.²⁹⁾ But the essay that I wish to address now, ›Der Versuch als Vermittler von Objekt und Subjekt‹ was written in 1792, prior to the appearance of Schelling's ›Ideen zu einer Philosophie der Natur‹ in 1797. At the same time, however, Goethe's essay seems to anticipate, at least to a certain degree, some of the arguments of Schelling's text, while also pointing to more general problems pertaining not just to *Naturwissenschaft*, but also to *Wissenschaft* or systematic knowledge in general.

3. ›Der Versuch als Vermittler von Objekt und Subjekt‹

In the introduction to this paper, I suggested that the reception history of Goethe's scientific writings has focused on the question of his purported contribution (or lack thereof) to a mechanistic model of natural sciences, at the expense of an appreciation of their possible significance for questions pertaining to *Wissenschaft* or systematic knowledge in general, including knowledge in the humanities. The relationship between the natural sciences and the humanities is also addressed in an essay by Hans-Georg Gadamer that appeared in 1953, some seven years prior to the publication of ›Wahrheit und Methode‹ in 1960. In this essay, entitled ›Wahrheit in den Geisteswissenschaften‹, Gadamer makes the following observations pertaining to the historical period in which Kant and Goethe wrote:

In der Tat ließe sich zeigen, daß die Entwicklung der Geisteswissenschaften in den letzten hundert Jahren sich zwar das Vorbild der Naturwissenschaften ständig vor Augen hielt, daß aber ihre stärksten und wesentlichsten Impulse nicht aus dem großartigen Pathos dieser Erfahrungswissenschaften stammten, sondern aus dem Geist der Romantik und des deutschen Idealismus. Es ist in ihnen ein Wissen um die Grenzen der Aufklärung und der Methode in der Wissenschaft lebendig.³⁰⁾

Gadamer's argument is that the contemporary humanities arose in conjunction with the revolutions in scientific method that took place in the natural sciences during the seventeenth and eighteenth centuries. Thus, precisely because of the emphasis placed upon method, empiricism and verifiability in the natural sciences during the Enlightenment, the humanities were also expected to produce the goods to an equivalent degree. The problem here is that what precisely “the goods” are in many of the humanities is a far more contestable and contentious matter than is the case in the natural sciences. When, for example, contemporary scholars in the humanities write grant applications anticipating the results of their research, it is often difficult to establish what these results will be, and the difficulty increases even more so when the ideas of objective value and truth are attached to these results.

²⁹⁾ F. W. J. SCHELLING, *Ideen zu einer Philosophie der Natur*, in: *Werke*, eds. WILHELM G. JACOBS, JÖRG JANTZEN and WALTER SCHIECHE, vol. 5, Stuttgart 1976, p. 107.

³⁰⁾ HANS-GEORG GADAMER, *Wahrheit in den Geisteswissenschaften*, in: *Gesammelte Werke*, vol. 2, Tübingen 1986, p. 38. Works from Gadamer's *Gesammelte Werke* will hereafter be cited with the letters GGW, followed by volume and page numbers.

In the absence of objective and empirically verifiable data, who determines value and truth in the humanities? In 1953, Gadamer had his own unequivocal answer to this question:

Es folgt [...] aus unseren Überlegungen, warum die Lage der Geisteswissenschaften im Massenzeitalter so besonders prekär ist. In einer durchorganisierten Gesellschaft spielt sich jede Interessengruppe nach dem Maße ihrer ökonomischen und sozialen Macht aus. Sie wertet auch die wissenschaftliche Forschung danach, wie weit deren Ergebnisse ihrer eigenen Macht nützen oder schaden [...] In den Geisteswissenschaften [...] greift dieser Druck sozusagen von innen an. Sie sind selber in der Gefahr, das für wahr zu halten, was den Interessen dieser Mächte entspricht. Weil ihrer Arbeit ein Moment der Ungewißheit anhaftet, ist ihnen die Zustimmung anderer von besonderem Gewicht.³¹⁾

Gadamer points out that precisely because truth is, in the many areas of the humanities, not susceptible of empirical verification, the “Zustimmung” of others, particularly those in positions of both institutional and financial power, takes on a greater weight – a weight that may either consciously or unconsciously shape the way in which research questions are posed and answered. Moreover, the question as to how truth and value are attached to the human sciences is made all the more pressing for Gadamer precisely because the natural sciences, despite their apparently superior precision in terms of achieving objective results, are unable to answer certain questions which, if only by default, end up falling within the purview of the human sciences. The natural sciences, according to Gadamer, “erfassen nicht alles Wissenswerte, nicht einmal das am meisten Wissenswerte, nämlich die letzten Zwecke, deren alle Beherrschung der Mittel der Natur und des Menschen zu dienen haben.”³²⁾

How, then, does Gadamer’s discussion of the relationship between truth and power in both the natural and human sciences resonate with Goethe’s essay ›Der Versuch als Vermittler von Objekt und Subjekt? There is no suggestion here that Goethe was aware of the relationship between truth and power to the same degree that Gadamer, writing after the philosophy of Nietzsche and less than a decade after the end of National Socialism in Germany, would have been.³³⁾ At the same time, however, Goethe has much to say in his essay on the question as to how particular experiments may lead to the truths that we want to find, rather than the truth *an sich*, and this aspect of his work can be attributed to two separate influences: on the one hand, his increasing familiarity with Kant’s critical philosophy; and on the other, what John Neubauer calls Goethe’s “first polemical reaction to Newton’s scientific method and its emphasis on the *experimentum crucis* [crucial or decisive experiment] in colour theory”.³⁴⁾

³¹⁾ *Ibid.*, p. 41.

³²⁾ *Ibid.*, p. 37.

³³⁾ On this question, see GADAMER’S discussion with DÖRTE VON WESTERNHAGEN on the influence of National Socialism upon German philosophy, The real Nazis had no interest at all in us, in: Gadamer in Conversation, ed. and translated by RICHARD E. PALMER, New Haven 2001, pp. 115–132.

³⁴⁾ NEUBAUER, Goethe and the Language of Science (cit. fn. 4), p. 56.

The opening passage of Goethe's essay shows the extent to which he had moved beyond the intuitive notion of science that he elaborated to Herder in his earliest reports on the *Urpflanze*:

Sobald der Mensch die Gegenstände um sich her gewahr wird, betrachtet er sie in Bezug auf sich selbst, und mit Recht. Denn es hängt sein ganzes Schicksal davon ab, ob sie ihm gefallen oder mißfallen, ob sie ihn anziehen oder abstoßen, ob sie ihm nutzen oder schaden. Diese ganz natürliche Art die Sachen anzusehen und zu beurteilen scheint so leicht zu sein als sie notwendig ist, und doch ist der Mensch dabei tausend Irrtümern ausgesetzt, die ihn oft beschämen und ihm das Leben verbittern. Ein weit schwereres Tagewerk übernehmen diejenigen, deren lebhafter Trieb nach Kenntnis die Gegenstände der Natur an sich selbst und in ihren Verhältnissen untereinander zu beobachten strebt: denn sie vermissen bald den Maßstab der ihnen zu Hülfe kam, wenn sie als Menschen die Dinge in Bezug auf sich betrachteten. Es fehlt ihnen der Maßstab des Gefallens und Mißfallens, des Anziehens und Abstoßens, des Nutzens und Schadens, diesem sollen sie ganz entsagen, sie sollen als gleichgültige und gleichsam göttliche Wesen suchen und untersuchen was ist und nicht was behagt.³⁵⁾

Goethe begins his discussion by pointing out that a purely subjective approach to natural objects may lead the scientific investigator into a thousand errors. Unlike Goethe's earlier, eminently grandiose project of finding a secret or law that he thought might be applicable to all other living organisms, this essay preaches the gospel of *Entsagung*, and circumspection. Intuition and *Einfühlung* are to be regarded with suspicion, as often these modes of perception may be likely to tell us more about the predilections and desires of the observer than they do about the object being observed. Goethe proposes that a more difficult but also more rewarding task for the scientist is to strive (*streben*) to observe nature's objects "an sich selbst". The construction "an sich selbst" is probably derived from Kant's limit concept of the *Ding an sich* – which demarcates things as they might be independently of human perception. Goethe's use of the verb *streben* may also suggest that he recognises the impossibility of achieving absolute objectivity in scientific research – which would, in Kantian terms, amount to knowledge of objects *an sich*.

Later in the essay, the influence of Kant's critical philosophy comes even more clearly into view. With regard to the relationship between empirical evidence and its deployment, Goethe makes the following crucial observation:

Daß die Erfahrung, wie in allem was der Mensch unternimmt, so auch in der Naturlehre, von der ich gegenwärtig vorzüglich spreche, den größten Einfluß habe und haben sollte, wird niemand leugnen, so wenig als man den Seelenkräften, in welchen diese Erfahrungen aufgefaßt, zusammengekommen, geordnet und ausgebildet werden, ihre hohe und gleichsam schöpferisch unabhängige Kraft absprechen wird. Allein wie diese Erfahrungen zu machen und wie sie zu nutzen, wie unsere Kräfte auszubilden und zu brauchen, das kann weder so allgemein bekannt noch anerkannt sein.³⁶⁾

Goethe observes that while empirical evidence should be of the utmost importance in any scientific experiment, a major role is also played by what he calls the

³⁵⁾ GOETHE, Der Versuch als Vermittler von Objekt und Subjekt, in: FA 1, 25, p. 26.

³⁶⁾ *Ibid.*, pp. 27f.

creative and independent *Seelenkräfte*. But what roles do the so-called *Seelenkräfte* or inner faculties play in scientific research and can the effects of these *Seelenkräfte* be apprehended and controlled scientifically? The answers to these questions may lie in exactly what Goethe means when he uses the term *Versuch*, a word with both literary and scientific connotations that tend to exceed its rather one dimensional translation into English as “experiment”.

In its most literal and everyday sense, *etwas zu versuchen* means to attempt something or to try something out. However, the Grimms’ *Deutsches Wörterbuch* (published in 1860) reveals that during the eighteenth century *der Versuch* also came to mean “essay” – a written formulation of a particular problem. Finally, the brothers Grimm also show that since the seventeenth century, and especially for Goethe, the term *der Versuch* approximated the Latin term *experimentum* or experiment. For Goethe, *der Versuch* is a procedure that attempts to reproduce, under artificially constructed conditions, an empirical phenomenon first observed by chance in nature. In this sense *der Versuch* is the product of a language- and concept-laden intentionality, or in other words, the product of what Goethe calls the *Seelenkräfte*. Seen in this way, *der Versuch* must, at least to a certain extent, be a question that presupposes its own answers. It is precisely this process of intentionally reproducing empirical phenomena in order to achieve an anticipated outcome, which Goethe sees as necessarily involving what he calls the *Seelenkräfte* or inner faculties.

Defined in the Kantian terms of which Goethe would have been aware in 1792, *der Versuch* involves two levels of mediation or reproduction. The first of these occurs in the initial act of perception itself, when external phenomena are perceived in terms of the *Anschauungen* of space and time and the categories of the understanding. The second level arises when this initial act of perception is then artificially re-enacted according to the hypothesis of the experiment. In the language of the first *Kritik*, the formulation of such a hypothesis corresponds with the faculty of *Vernunft*. According to Kant, the function of reason is to bring together the concepts of the understanding in order to formulate propositions that explain *why* things are the way they are. Here it is apposite to use the example of plant development as a means of clarification. The concept or category of causality tells us *that* the seed causes the plant to grow. An idea of pure reason, however, would go further – explaining *why*, on future occasions, and in an ultimate sense, this would be the case. In short, the concepts of the understanding tell us only about particular and immediate experiences, while the ideas of reason amount to law-like propositions that extend beyond the boundaries of sense experience, pointing towards a greater unity under which separate acts of the understanding may be brought together.

In the third *Kritik*, Kant clarifies further how reason may function in a scientific context by drawing an analogy between the aesthetic and scientific modes of cognition. Just as beautiful works of art suggest to us an inherent purposiveness or design, so too, says Kant, do natural organisms like plants seem to develop according to an overarching teleology or purpose. Yet just as beauty is not available to the artist as a concrete, empirical reality that can be conformed to in advance when

writing a poem, so too is the teleology apparently situated in natural objects only a heuristic and regulative idea that is resident in the perceiving subject, and not in the objects of nature. It is when we confuse our linguistically mediated teleological ideas about nature with nature *an sich* that problems arise, since these ideas are only *our* constructions – that is to say, we can never know if they are actually “out there” in nature. Géza von Molnár's ›Goethes Kantstudien‹ demonstrates that Goethe was at least aware, in 1790/1791, of the Kantian notion that science involves representations or reproductions of nature according to purposive ideas. He was also, moreover, probably aware that these ideas are human constructions that may in fact not be resident in nature *an sich*, and which may also distort, overlook or elide the particularities of the objects under investigation.

When the question of reproduction and its relation to issues of modern epistemology arises, Walter Benjamin's essay ›Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit‹ comes to mind. An important factor often overlooked in considerations of Benjamin's essay is that at least in its second version (that written in late 1935 and early 1936) its central concept – that of *die Aura* – is carried over by Benjamin into the field of modern art not only from ancient cultural relics, but also from the realm of nature. *Die Aura*, according to Benjamin, is the “einmalige Erscheinung einer Ferne, so nah sie sein mag. An einem Sommernachmittag ruhend einem Gebirgszug am Horizont oder einem Zweig folgen, der seinen Schatten auf den Ruhenden wirft – das heißt die Aura dieser Berge, dieses Zweiges atmen.”³⁷⁾

For Benjamin, the aura of an object is absolutely unique because it is determined by the particular spatial and temporal configuration of its appearance, a configuration that includes the distance between the subject and object. Reproduction, according to Benjamin, stems from the desire to overcome this distance, through the mediation and assimilation of the object by technological means. Precisely because of the uniqueness and particularity of *die Aura*, the conditions and techniques of technological mediation and reproduction cause it to wither and die. Reproduction is therefore that which attempts the *Überwindung* of the uniqueness of each object and its aura. This notion of reproduction as *Überwindung* or overcoming recalls yet another resonance of the word *Versuch* isolated by the Grimms. The Grimms inform us that, in antiquated usage, the term *Versuch* could refer to an enemy attack or invasion, an attempt to take over. Goethe's writings on scientific method anticipated this aggressive aspect of the scientific *Versuch* to a significant degree. Goethe was acutely aware that any scientific experiment must necessarily attempt to bring the freedom, particularity and uniqueness of the individual object within the confines of an abstract conceptual scheme – a scheme often given physical embodiment by technological instruments and conceptual embodiment in language.

³⁷⁾ WALTER BENJAMIN, *Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit* (Zweite Fassung), in: *Gesammelte Schriften*, eds. ROLF TIEDEMANN and HERMANN SCHWEPENHÄUSER, vol. 1.2, Frankfurt/M. 1974, p. 479.

Perhaps the most famous example of this awareness exists in Goethe's polemics against the *experimentum crucis* that led to the theory of colour outlined by Newton in his *Opticks*. Newton hypothesised that white light is corpuscular, being made up of different individual "rays" that are refrangible to differing degrees, thereby producing a geometrically calculable spectrum of colours. This hypothesis was of course seemingly borne out by his famous prism experiments, in which white light was refracted into the separate colours of the spectrum and then later recombined into its original state. What Goethe objects to in these experiments is the corpuscular concept of the "ray" deployed by Newton. As early as 1800, when doing his preparatory work for ›Zur Farbenlehre‹, Goethe had argued that Newton's reasoning is circular, in that the existence of individual rays within a corpuscular conception of white light is silently assumed by Newton from the outset, and then purportedly "confirmed" by an experiment that seeks only to prove the "ray" hypothesis, thereby discounting other possible explanations for colour. "Lichtstrahlen", he points out, sind hypothetische Wesen, von denen man in der Erfahrung nicht sprechen sollte [...] Wenn wir ein Phänomen vorzeigen, so sieht der andre wohl was wir sehen. Wenn wir ein Phänomen aussprechen, beschreiben, besprechen, so übersetzen wir es schon in unsre Menschengsprache. Was hier schon für Schwierigkeiten sind, was für Mängel uns bedrohen, ist offenbar. Erste Terminologie paßt auf ein beschränkt isoliert Phänomen; wird auch angewendet auf ein weiteres. Zuletzt wird das gar nicht mehr Passende doch noch fortgebraucht. Vorsicht. Mathematiker übersetzen auch das Phänomen in ihre Sprache.³⁸⁾

It is precisely because Newton dogmatically translates natural phenomena into the language of mathematics that he belongs, according to Goethe, to those who see

das Licht isolirt als Körper der an sich und in Verhältnissen mancherley Veränderungen erleiden kann. Hier kommen nun korpuskular, globular, mechanische und ähnliche Erklärungen der Licht- und Farbenwirkungen zum Vorschein. Das Licht läßt sich ausdehnen und zusammenziehen zerstreuen über einander drängen beschleunigen retardiren genug es läßt mit sich machen was man will [...] Solche bisher nur gelegentlich gleichnißweise gebrauchte Ausdrücke macht endlich Neuton dogmatisch indem er die Farben als intergrirende Theile des Lichts darzustellen unternimmt.³⁹⁾

Dennis L. Sepper, Roger Stephenson and Daniel Steuer have all recently shown that these polemics have often been misunderstood by mainstream scientists as a misplaced and extraordinarily unsuccessful attack upon the *results* of Newton's refrangibility experiments. Goethe, according to Sepper, Stephenson and Steuer, does not attack Newton's finding that when light is passed through a prism configured in a particular way, its rays can be split into the separate colours of the spectrum. But Goethe *does* object to the implication that such a phenomenon represents nature *an sich*, rather than nature re-organised and reproduced according to the intentionality

³⁸⁾ GOETHE, Anfänge der Farbenlehre, in: Die Schriften zur Naturwissenschaft (Leopoldina Ausgabe), ed. DOROTHEA KUHN, vol. 1,3, Weimar 1951, pp. 300f.

³⁹⁾ GOETHE, Zur Farbenlehre, historischer Teil, Ergänzungen und Erläuterungen, in: GOETHE, Die Schriften zur Naturwissenschaft (Leopoldina Ausgabe), ed. DOROTHEA KUHN, vol. 2,6, Weimar 1959, pp. 72, 75.

of a pre-established and unreflected conceptual scheme.⁴⁰ As Goethe himself puts it in the introduction to the “Polemischer Teil” of the *Farbenlehre* (written in 1806), Daß bei einem Vortrag natürlicher Dinge der Lehrer die Wahl habe, entweder von den Erfahrungen zu den Grundsätzen, oder von den Grundsätzen zu den Erfahrungen seinen Weg zu nehmen, versteht sich von selbst; daß er sich beider Methoden wechselsweise bediene, ist wohl auch vergönnt, ja manchmal notwendig. Daß aber Newton eine solche gemischte Art des Vortrags zu seinem Zweck advokatenmäßig mißbraucht, indem er das, was erst eingeführt, abgeleitet, erklärt, bewiesen werden sollte, schon als bekannt annimmt, und sodann aus der großen Masse der Phänomene nur diejenigen herausucht, welche scheinbar und notdürftig zu dem einmal ausgesprochenen passen, dies liegt uns ob, anschaulich zu machen.⁴¹

Newton is depicted here as being akin to the unreflective scientist of ›Der Versuch als Vermittler von Objekt und Subjekt‹, who forces nature to conform to his preconceived theoretical apparatus without undertaking a necessary examination of its mediating function, and its underlying conceptual basis. Since, however, Newton was able to repeat his experiments concerning refrangibility successfully, this polemic does not and cannot function as a refutation of Newton's experimental results; rather, as Daniel Steuer observes, Goethe's critique is “hermeneutisch begründet”, objecting to “das Interpretieren und Arrangieren von Experimenten im Dienste einer vorbeschlossenen Metaphysik”.⁴² Seen in these terms, Goethe's critique of Newton amounts to a powerful cultural critique of Newton's scientific methodology, and, in broader terms, the scientific methodology of the Enlightenment.

When I speak of the Enlightenment, I also include Immanuel Kant, the author of the famous essay ›Was ist Aufklärung?‹, within this category. A central argument of the Enlightenment exists in Kant's proposition that the ideas of reason correspond with the freedom from natural necessity enjoyed by humans. In the third *Kritik*, this freedom consists in the subject's ability to understand particular organisms under a universal law freely legislated by reason through reflective judgments. Seen in this way Goethe's capacity to posit the *Urpflanze* as a law of development governing all manifestations of plant life may correspond with a kind freedom. This rational form of freedom would, however, always be subject to two very significant qualifications: first, the reflective judgements associated with scientific research can only ever be abstract and heuristic – that is, remaining confined to the Kantian realm of the *als ob*; second, it is precisely the abstract and heuristic element of such research that would compromise the freedom and particularity of the individual object – its *Aura*, to use Benjamin's term – by attempting to subsume it under a universal law legislated by reason.

In fact as early as 1792, Goethe argues that the purported freedom to posit such universal laws is probably compromised by forces beyond the complete control and

⁴⁰ SEPPER, Goethe contra Newton (cit. fn. 4), p. 147; – STEPHENSON, Goethe's Conception of Knowledge and Science (cit. fn. 4), pp. 25ff.; – STEUER, Die stillen Grenzen der Theorie (cit. fn. 4), pp. 209–215.

⁴¹ GOETHE, Zur Farbenlehre, in: MA, vol. 10, p. 278.

⁴² STEUER, Die stillen Grenzen der Theorie (cit. fn. 4), p. 169.

awareness of the subject – forces that, for want of a better term, might be called the scientific unconscious. He does so by raising serious doubts as to whether scientific judgements based upon experiments can be purely rational or even completely aware of their own underlying motives:

Man kann sich daher nicht genug in acht nehmen, aus Versuchen nicht zu geschwind zu folgen: denn beim Übergang von der Erfahrung zum Urteil, von der Erkenntnis zur Anwendung ist es, wo dem Menschen gleichsam wie an einem Passe alle seine inneren Feinde auflauren, Einbildungskraft, Ungeduld, Vorschnelligkeit, Selbstzufriedenheit, Steifheit, Gedankenform, vorgefaßte Meinung, Bequemlichkeit, Leichtsinns, Veränderlichkeit, und wie die ganze Schar mit ihrem Gefolge heißen mag, alle liegen hier im Hinterhalte und überwältigen unversehens sowohl den handelnden Weltmann als auch den stillen vor allen Leidenschaften gesichert scheinenden Beobachter.⁴³⁾

While it is certainly likely that Goethe's comments are directed first and foremost against Newton's *experimentum crucis*,⁴⁴⁾ these remarks also have a more general epistemological application, since the "innere Feinde" to which Goethe refers might be described as those aspects of human nature and the human situation that escape the confines of rational cognition, and elude the controls of scientific method. How might one theorise the existence of these inner enemies? Goethe's essay does not answer this question explicitly, but here two further German philosophers can help us: Friedrich Schelling and Hans-Georg Gadamer.

In relation to the alleged freedom from natural necessity enjoyed by human reason, Schelling's ›Ideen zu einer Philosophie der Natur‹ (1797) offers the following response: since reason is conditioned by nature, reason can neither free itself from natural forces, nor become fully conscious of its own motives. Odo Marquard describes this aspect of Schelling's *Naturphilosophie* as leading to a "Depotenzierung" (reduction of potential) of the rational capacities of the transcendental subject.⁴⁵⁾ In Goethe's terms, this might mean that we can never totally be objective and self-aware, first of all in the way we frame and organise our experiments, and secondly in the conclusions that we may draw from them.

It is, moreover, precisely the Romantic critique of Enlightenment reason offered by Goethe and his contemporaries that Gadamer sees as having differentiated the humanities from the natural sciences. The humanities, he famously argues in ›Wahrheit und Methode‹, were more accommodating of the idea that human rationality is conditioned by forces beyond its complete understanding and control, and in this connection their role has always been to critique the instrumental conception of rationality that has dominated *Wissenschaft* from the seventeenth century until the present. This is made abundantly clear in the foreword to the second edition of ›Wahrheit und Methode‹, where Gadamer writes:

⁴³⁾ GOETHE, *Der Versuch als Vermittler von Objekt und Subjekt* (cit. fn. 35), p. 30.

⁴⁴⁾ This is the view of both SEPPER, *Goethe contra Newton* (cit. fn. 4), p. 67; – and NEUBAUER, *Goethe and the Language of Science* (cit. fn. 4), p. 56.

⁴⁵⁾ ODO MARQUARD, *Transzendentaler Idealismus, Romantische Naturphilosophie, Psychoanalyse*, Köln 1987, p. 156.

Ich gehe [...] davon aus, daß die historischen Geisteswissenschaften, wie sie aus der deutschen Romantik hervorgingen und sich mit dem Geist der modernen Wissenschaft durchdrangen, ein humanistisches Erbe verwalten, das sie gegenüber allen anderen Arten moderner Forschung auszeichnet und in die Nähe ganz andersartiger außerwissenschaftlicher Erfahrungen, insbesondere der der Kunst, bringt.⁴⁶⁾

The extent to which Gadamer sees Goethe as having played a key role in this process is revealed in an essay in which Goethe's epistemological world-view is presented as anticipating some of the key arguments of twentieth century philosophical hermeneutics – an essay to which we shall presently turn.

4. *Gadamer's Goethe, or Goethe's Gadamer?*

Among Gadamer's numerous invocations of and references to Goethe and his age,⁴⁷⁾ the essay ›Goethe und die Philosophie‹, written in 1942 and published in 1947, represents his most thorough attempt to understand Goethe's attitude towards philosophy in general and his epistemological approach to nature in particular.⁴⁸⁾ The early stages of this essay are by no means remarkable, as Gadamer begins by referring to some standard features of the young Goethe's philosophical world-view: the pantheism of Spinoza as mediated through the influence of Herder, the dynamic individualism of Leibniz's ›Monadologie‹, along with Goethe's suspicion towards metaphysical concepts in general. Gadamer also reiterates a notion that, by 1942, had become one of the central clichés of Goethe scholarship, when he states that at the time of Goethe's discussion with Schiller on the *Urpflanze* in 1794, the former had no knowledge of Kant, but was converted to a kind of Kantianism as a result of this fortuitous meeting of minds.

It is only in the second half of his essay that Gadamer makes what seemed to him at the time to be nothing less than a remarkable discovery concerning the late Goethe's relation to philosophy. A central piece of evidence in Gadamer's argument is the following passage from a letter written by Goethe to Christoph Ludwig Friedrich Schultz on 18 September 1831, in which Goethe observes:

Ich danke der kritischen und idealistischen Philosophie, daß sie mich auf mich selbst aufmerksam gemacht hat, das ist ein ungeheurer Gewinn; sie kommt aber nie zum Objekt, dieses müssen wir so gut wie der gemeine Menschenverstand zugeben, um am unwandelbaren Verhältniß zu ihm die Freude des Lebens zu genießen.⁴⁹⁾

⁴⁶⁾ HANS-GEORG GADAMER, Vorwort zur 2. Auflage, Wahrheit und Methode, in: GGW, vol. 2, p. 438.

⁴⁷⁾ See, for example, the following essays by GADAMER: Goethe und die sittliche Welt (1949), in: GGW, vol. 9, pp. 72–79; – Vom geistigen Lauf des Menschen (1949), in: GGW, vol. 9, pp. 80–111; – Das Türmerlied in Goethes ›Faust‹ (1982), in: GGW, vol. 9, pp. 122–127; – Die Natürlichkeit von Goethes Sprache (1985), in: GGW, vol. 9, pp. 128–141; – Goethe und Mozart – das Problem der Oper (1991), in: GGW, vol. 9, pp. 112–121.

⁴⁸⁾ GADAMER, Goethe und die Philosophie, in GGW, vol. 9, pp. 56–71.

⁴⁹⁾ GOETHE an Christoph Ludwig Schultz, den 18. September 1831, in: FA 2,11, p. 466.

This letter seems to express a rather ambivalent and very Goethean kind of pleasure: that of “Entsagung” or renunciation. The unbridgeable gap between subject and object, a gap that makes all Kantian scientific judgements heuristic and provisional as opposed to actual and determinative, is precisely what inspires the scientist or artist (namely, Goethe himself) to speculate about nature having teleological ends and causes. Yet as Goethe himself observes in a short fragment written in 1817 and entitled ›Anschauende Urteilskraft‹, precisely because of the limits set by Kant’s critical philosophy, such speculations can only be “schalkhaft ironisch”, remaining confined within the limits of empirical experience while at the same time pointing beyond them.⁵⁰ Here we find in condensed epistemological form the dialectic between *Sehnsucht* and *Entsagung* that is so characteristic of Goethe’s later literary works – particularly ›Wilhelm Meister‹. But the sentiments expressed in ›Anschauende Urteilskraft‹ and in the 1831 letter to Schultz represent, according to Gadamer, something more than grist for Goethe’s literary mill or the typical Goethean scepticism about the benefits of philosophy; they are, he contends, evidence of a change not just in Goethe’s personal thinking, but also in the history of philosophy per se.⁵¹

What is this change? Goethe, argues Gadamer, is one of the first thinkers to contextualise Kantian idealism by seeing the Kantian subject as limited in its freedom and capacity for self-reflection precisely because it is ineluctably located within nature. Historically situated at a pivotal cross-road in the development of German idealism, Goethe, according to Gadamer, took the path of Schelling and Hegel rather than that of Fichte:

Auch Goethe gehörte zu denen, die mehr an Natur als an Freiheit glauben. Der Fichteschen Entwicklung der gesamten Wissenschaftslehre aus dem Freiheitsbewußtsein der absoluten Tathandlung vermochte Goethe also gewiß nichts abzugewinnen. Mit einem Denker, dem die Natur nur „Material der Pflicht“ war, konnte er sich nicht vereinigen, er, der auch die Freiheit und uns selbst möglichst als Natur zu traktieren suchte. Für diesen Gegensatz ist bezeichnend, wie Goethe zu Fichtes Wendung: „Die von uns unabhängige Natur (das Nicht-Ich)“ am Rand notiert: „Aber doch mit uns verbunden, deren lebendige Teile wir sind“. Was Goethe so von Fichte trennt, eben das verbindet ihn aber mit den späteren idealistischen Denkern, denn eben dies ist der Einsatzpunkt der von Schelling und Hegel entwickelten Philosophie und der Punkt ihrer härtesten Differenz mit Fichte: das Wesen der Natur als mit dem des Geistes und des freien Selbstbewußtseins einig zu begreifen.⁵²

While the evidence presented by Gadamer concerning Goethe’s antipathy towards the subjective idealism of Fichte is incontrovertible, there is at the same time something suspect about the connection that he posits between Goethe and the respective philosophical worldviews of Schelling and Hegel. Goethe’s reception of Schelling can at best be characterised as a complicated mixture of enthusiasm and

⁵⁰) GOETHE, *Anschauende Urteilskraft*, in: FA, 1,24, p. 447.

⁵¹) GADAMER, *Goethe und die Philosophie* (cit. fn. 48), p. 65.

⁵²) *Ibd.*, p. 66.

ambivalence.⁵³⁾ Although Friedrich Schlegel reported in July 1800 that Goethe always spoke of Schelling's *Naturphilosophie* "mit besonderer Liebe",⁵⁴⁾ Goethe was sceptical about Schelling's claim that his *Naturphilosophie* could demonstrate a seamless continuity between the human mind and the "mind" or purposiveness of nature. In a letter dated 21 and 25 February 1798, for example, Goethe writes that Schelling "bedächtigt verschweigt" the very things in nature that contradict the arguments of his *Naturphilosophie*, and it is for this reason that Goethe complains "was habe ich denn an einer Idee die mich nötigt meinen Vorrat von Phänomenen zu verkümmern".⁵⁵⁾ Here Goethe characterizes Schelling as being akin to the scientist in ›Der Versuch als Vermittler von Objekt und Subjekt‹, who is not so much interested in "was ist" but in "was behagt" – what fits with the theory being proposed. Likewise, Gadamer himself notes that the "radikale Beweisenergie" of Hegel's dialectic must have seemed suspicious to Goethe,⁵⁶⁾ who tended to theorise the relationship between subject and object as one of discontinuity rather than opposition progressively overcome via a process of *Aufhebung*.

On closer inspection, it seems that the rather hasty links that Gadamer sketches between Goethe and idealist philosophers like Schelling and Hegel are only a preparatory basis for Gadamer's real argument; namely, that Goethe's suspicion toward metaphysics anticipates Gadamer's own method: that of philosophical hermeneutics. In this connection, it is significant that Gadamer begins his essay by pointing out that "den eigenen Standort gegenüber Goethe zu bestimmen, ist [...] schon immer ein echtes Anliegen des philosophischen Bewußtseins".⁵⁷⁾ This is the case not only with regard to the relationships between Goethe and his philosophically inclined contemporaries like Schiller, Schelling and Hegel, but also in relation to early twentieth century thinkers like Wilhelm Dilthey, Georg Simmel, and Georg Lukács, all of whom found in Goethe a convenient figure upon whom to project their socio-philosophical preoccupations.⁵⁸⁾ Gadamer sees Goethe as one of the earliest critics of idealist philosophy, placing him in a tradition that anticipates the critique of objective truth found in Nietzsche and in twentieth century German thought, but that also constitutes a return to the origins of philosophy in ancient Greece:

⁵³⁾ On this issue, see JEREMY ADLER, *Science, Philosophy and Poetry in the Dialogue between Goethe and Schelling*, in: *The Third Culture. Literature and Science* (cit. fn. 4), pp. 66–102, in particular, p. 71; – NISBET, *Religion and Philosophy* (cit. fn. 4), pp. 228f.

⁵⁴⁾ FRIEDRICH SCHLEGEL an August Wilhelm Schlegel, den 26. Juli 1800, in: *Goethes Gespräche* (cit. fn. 25), p. 751.

⁵⁵⁾ GOETHE an Schiller, 21. und 25. August 1798, in: MA, vol. 8.1, p. 536. Goethe also engages in an extended critique of Schelling's *Naturphilosophie* in the following letter: GOETHE an Schiller, Weimar, 6. Januar 1798, in: MA, vol. 8.1, p. 489.

⁵⁶⁾ GADAMER, *Goethe und die Philosophie* (cit. fn. 48), p. 67.

⁵⁷⁾ *Ibid.*, p. 57.

⁵⁸⁾ See, in this connection, WILHELM DILTHEY, *Das Erlebnis und die Dichtung*, Leipzig 1906; – GEORG SIMMEL, *Goethe*, Leipzig 1913; – Kant und Goethe. *Zur Geschichte der modernen Weltanschauung*, Leipzig: 1916; – GEORG LUKÁCS, *Goethe und seine Zeit*, Bern 1947.

Im Sinne der Antike ist auch er [Goethe] Philosoph und ist den Ursprüngen näher als seine großen philosophischen Zeitgenossen. Denn er teilt nicht den Glauben seines Zeitalters an die Autonomie der Vernunft – er sieht ihre menschliche Bedingtheit. Entscheidend aber ist, daß er diese Bedingtheit nicht als eine Schranke der Wahrheit, sondern als den menschlichen Weg zur Weisheit begreift. Damit liegt in seiner Abwehr der Philosophie eine eigene philosophische Erkenntnis verhüllt, die sich am deutlichsten in dem verrät, was er unter Wahrheit verstand. Hier steht er in einer grundsätzlichen Abkehr von dem traditionellen Begriff der gegenständlichen Wahrheit und ordnet sich damit in eine Bewegung ein, die von Herder über Nietzsche bis in die Gegenwart hineinreicht.⁵⁹⁾

The critique of objective truth to which Gadamer alludes in this passage is already present, albeit in a decidedly under-theorised form, in ›Der Versuch als Vermittler von Objekt und Subjekt‹. The “innere Feinde” that Goethe argues are always present in scientific judgements suggest that the human subject will always fall short of the objectivity demanded by the scientific method of the Enlightenment, but Goethe fails in this short essay to argue in a convincing fashion why this is the case. More substantial arguments for the conditionedness of human reason are, however, made by Goethe in ›Zur Farbenlehre‹, and Gadamer would have been well advised to seek out affinities between his own epistemology and that of Goethe in this text, since Goethe’s critique of Newton turns upon two factors that are central to Gadamer’s own position in ›Wahrheit und Methode‹: namely, the roles played by language and tradition in scientific judgements.

Gadamer’s positions on language and tradition can most easily be recognised in his critique of Dilthey, since for Gadamer Dilthey’s thought stages the final death throes of claims to scientific objectivity made by the *Geisteswissenschaften*. In the section of ›Wahrheit und Methode‹ entitled “Diltheys Verstrickung in die Aporien des Historismus”, Gadamer shows how Dilthey attempted to provide a secure epistemological ground for the human sciences – a ground that could, in its rigour, compete with the positivism that had become the successful basis of the natural sciences. While Dilthey recognised the central problem of historicism – namely, that all knowledge is relative to the historical position of the perceiving subject – he at the same time believed that this relativity could be ameliorated and perhaps even overcome through a process combining self-reflection and empathy. In encountering a text from an earlier historical epoch, the researcher should theoretically be capable, according to Dilthey, of overcoming the prejudices of his or her own historical worldview, and of empathetically projecting his or herself back into the *Lebenswelt* of the text.⁶⁰⁾ It is through such a process that Dilthey thought something like objective knowledge in the human sciences could be achieved, and in this sense Dilthey’s method was, as Gadamer observes, based upon an experimental model derived from the natural sciences:

⁵⁹⁾ GADAMER, *Goethe und die Philosophie* (cit. fn. 48), pp. 70f.

⁶⁰⁾ See, on this subject, WILHELM DILTHEY, *Das Verstehen anderer Personen und ihrer Lebensäußerungen*, in: *Gesammelte Schriften*, vol. 7, Stuttgart 1958, pp. 205–227.

Es ist keineswegs eine äußerliche Anpassung der geisteswissenschaftlichen Methodik an das Verfahren der Naturwissenschaften, das Diltheys Reflexion leitet, sondern er gewahrt in beiden eine echte Gemeinsamkeit. Erhebung über die subjektive Zufälligkeit der Beobachtung ist das Wesen der experimentellen Methode, und mit ihrer Hilfe gelingt die Erkenntnis der Gesetzmäßigkeit der Natur. Ebenso erstreben die Geisteswissenschaften eine methodische Erhebung über die subjektive Zufälligkeit des eigenen Standortes durch die Überlieferung, die ihm zugänglich ist, und erreichen dadurch Objektivität der historischen Erkenntnis.⁶¹⁾

As Gadamer shows in the remainder of ›Wahrheit und Methode‹, the problem with Dilthey's experimental method is that its tools – namely, *Sprache* and *Überlieferung* – determine *a priori* the researcher's subjectivity and therefore also the very nature of scientific inquiry in the *Geisteswissenschaften*. Since this process of determination is an aspect of human existence *per se*, it can never fully be brought into consciousness by the researcher, no matter how self-reflective they might be. This is because “die Selbstbesinnung ist nur ein Flackern im geschlossenen Stromkreis des geschichtlichen Lebens. Darum sind die Vorurteile [prejudices] des einzelnen weit mehr als seine Urteile die geschichtliche Wirklichkeit seines Seins.”⁶²⁾ While Dilthey's experimental method perpetuates what Gadamer regards as the Enlightenment's prejudice against prejudice, Gadamer sees prejudice as an irreducible aspect of understanding that is mediated by *Überlieferung* (tradition), and tradition – that which forms the very ground of one's prejudices – has its essence in *Sprache* or language.⁶³⁾

How close does Goethe's critique of Newton in ›Zur Farbenlehre‹ come to the views on *Überlieferung* and *Sprache* expressed by Gadamer in ›Wahrheit und Methode‹? This question is too large to be answered comprehensively in the present paper, but a few preliminary observations are nevertheless possible. From the outset, it needs to be pointed out that while Goethe's scientific method always retained the Kantian distinction between subject and object first outlined in ›Der Versuch als Vermittler‹, Gadamer dispenses with this distinction altogether, since experience is for Gadamer always accompanied by an intentionality shaped by tradition and embodied in language. It is always, argues Gadamer,

eine menschliche, d. h. eine sprachverfaßte Welt, die sich, in welcher Überlieferung auch immer, darstellt [...] Das aber ist von grundsätzlicher Bedeutung. Denn damit wird der Gebrauch des Begriffs „Welt an sich“ problematisch. Der Maßstab für die fortschreitende Erweiterung des eigenen Weltbildes wird nicht durch die außer aller Sprachlichkeit gelegene „Welt an sich“ gebildet. Vielmehr bedeutet die unendliche Perfektibilität der menschlichen Welterfahrung, daß man, in welcher Sprache immer man sich bewegt, nie zu etwas anderem gelangt als zu einem immer mehr erweiterten Aspekt, einer „Ansicht“ der Welt.⁶⁴⁾

One can scarcely imagine Goethe agreeing with the proposition that there can only be ever-expanding views of the world without any truth “an sich”. This is be-

⁶¹⁾ GADAMER, *Wahrheit und Methode*, in: GGW, vol. 1, p. 240.

⁶²⁾ *Ibid.*, p. 281.

⁶³⁾ *Ibid.*, p. 393.

⁶⁴⁾ *Ibid.*, p. 451.

cause Goethe, despite his critique of mainstream scientists like Newton, held fast to an objective concept of “nature” that is based on the certainty of there being a collection of external objects differentiated from the self, objects that can at least approximately be known through a process of self-reflective experimentation. The fact that Nietzsche appears between Goethe and Gadamer in the historical continuum of German thought is just one explanation for this radical difference in their respective world-views. At the same time, however, Goethe’s critique of Newton in ›Zur Farbenlehre‹ anticipates significantly Gadamer’s vision of a “sprachverfaßte Welt” in which scientific terminology is mediated by an historical tradition of which the researcher can only ever be approximately aware.

A useful introduction to the importance of philosophy in ›Zur Farbenlehre‹ is provided by Goethe in section 716 of the “Didaktischer Teil”. Here Goethe observes that although one can hardly demand that a physicist also be a philosopher, it is reasonable to expect that he should have sufficient philosophical education in order to differentiate between his own apprehension of the world and world in itself. Goethe then applies this eminently Kantian distinction to the physicist’s use of language, observing that the physicist:

soll sich eine Methode bilden, die dem Anschauen gemäß ist; er soll sich hüten, das Anschauen in Begriffe, den Begriff in Worte zu verwandeln, und mit diesen Worten, als wären’s Gegenstände, umzugehen und zu verfahren [...]⁶⁵

This passage demonstrates that ›Zur Farbenlehre‹ contains a variety of post-Kantian epistemology that emphasises the role played by language in the formation of scientific judgements. Goethe elaborates upon this language-centred epistemology in sections 751–757 of “Didaktischer Teil”, which appear under the title “Schlussbetrachtung über Sprache und Terminologie”. “Sprache”, according to Goethe in section 751, can only ever be symbolic and figurative (“bildlich”), and it therefore presents us only with a mediated reflection of the phenomena that it attempts to describe. This is particularly the case with regard to natural phenomena, which Goethe thinks are often better characterised as processes or activities (“Tätigkeiten”), rather than as fixed and immutable objects (“Gegenstände”). Any linguistic representation of living phenomena consequently runs the risk of being a formulaic deadening and distortion of them, and the scientist must therefore always be conscious of a necessary discontinuity between the phenomena he investigates and the terminology that he uses to describe them.⁶⁶

“Das Zeichen [...] an die Stelle der Sache zu setzen” is, argues Goethe in section 754, the chief danger in any scientific account of natural phenonema.⁶⁷ If language functions as a collection of signs that represents external reality, then it may be all too easy to confuse one’s linguistically mediated representation of reality with reality *an sich*. Goethe argues that this danger is particularly prevalent in his own

⁶⁵) GOETHE, *Zur Farbenlehre* (cit. fn. 41), p. 215.

⁶⁶) *Ibid.*, p. 226.

⁶⁷) *Ibid.*, p. 227.

age, since the increasing division and specialisation of knowledge makes available to the scientist a wide variety of terms that are used in order to refer to even the simplest of natural phenomena. When these terms become part of the scientific vernacular it may be easy to forget their conceptual history and the debates that led to their installation as commonplaces of scientific thought. Goethe does not, however, suggest that scientists should renounce the use of language altogether in an attempt to recapture some unmediated version of nature. On the contrary, he calls for a highly self-conscious and self-reflective usage of language within scientific contexts. So while Goethe freely admits that language is indispensable to any scientific enterprise, he also maintains that “nur ein mäßiger anspruchloser Gebrauch mit Überzeugung und Bewußtsein kann Vorteil bringen.”⁶⁸)

Such a measured and self-aware use of language requires that one recognise the historical conditions under which particular scientific terminologies and methodologies came into being. It is this task – in hermeneutical terms, the task of gauging the effect of tradition upon scientific language and procedure – that Goethe undertakes in his ›Materialien zur Geschichte der Farbenlehre‹. Goethe's general position on the relationship between scientific judgements and tradition is summed up in the following sentence: “der Konflikt des Individuums mit der unmittelbaren Erfahrung und der mittelbaren Überlieferung, ist eigentlich die Geschichte der Wissenschaften”.⁶⁹) It is possible to discern from the structure of this formulation that despite his awareness of tradition and its effects, Goethe's epistemology remains essentially neo-Kantian and therefore eminently pre-Gadamerian. Unlike Gadamer, who (along with Wilhelm von Humboldt) sees languages as world-views and who seriously doubts whether meaningful mental experiences are possible at all outside of language,⁷⁰) Goethe maintains in the above sentence a division between what he calls “unmittelbare Erfahrung” on the one hand and “mittelbare Überlieferung” on the other.

For Goethe, language does not necessarily have an *a priori* influence one's *experience* of external phenomena; rather, it is at the point of “Übergang von der Erfahrung zum Urteil” discussed in ›Der Versuch als Vermittler‹ that the scientist's use of language must be at its most cautious and self-reflective. This is because “jede Wortüberlieferung [... ist ...] bedenklich”.⁷¹) When a scientist uses particular terminology, he implicitly takes on the world-view and tradition from which such terminology originally emerged. If this tradition is invoked consciously and carefully, then its distorting effects can be better understood and therefore to some extent controlled. But if the scientist draws upon “das Überlieferte” with insufficient awareness and self-reflection, or through a mistaken reconstruction of its original scientific context, “so wird es ihm unbewußt begegnen.”⁷²) This is precisely the case

⁶⁸) Ibid.

⁶⁹) GOETHE, *Materialien zur Geschichte der Farbenlehre*, in: MA, vol. 10, p. 570.

⁷⁰) GADAMER, *Wahrheit und Methode* (cit. fn. 61), pp. 421, 445.

⁷¹) GOETHE, *Materialien zur Geschichte der Farbenlehre* (cit. fn. 69), p. 569.

⁷²) Ibid., p. 561.

with regard to Newton's use of the concept of the ray, which, as Goethe points out in the ›Materialien zur Geschichte der Farbenlehre‹, emerged from an earlier tradition of corpuscular theories of light.⁷³⁾

Some one-hundred and fifty years after the publication of ›Zur Farbenlehre‹, Hans-Georg Gadamer wrote in ›Wahrheit und Methode‹ that hermeneutics constitutes a philosophical method that is equally relevant for both the human and the natural sciences. This is because, according to Gadamer, “Von der Mitte der Sprache aus erwies sich die vergegenständlichend verfahrenende Naturerkenntnis und der Begriff des Ansichseins, der der Intention aller Erkenntnis entpricht, als das Resultat einer Abstraktion.”⁷⁴⁾ The purpose of this paper has been to show that while Goethe does not follow Gadamer in dispensing completely with Kant's limit concept of the *Ding an sich*, he does display a hermeneutical awareness of the roles played by subjectivity, tradition, and especially language in the formation of scientific judgements, an awareness that emerged from his own extensive and independent encounters with Kant's critical philosophy. For this reason, the notion that Goethe was an intuitive and non-philosophical scientist is still in need of correction. Indeed, as Gadamer himself observes in the passage used as the epigraph for this paper, Goethe needs to be seen as belonging to a movement in the history of Western thought that sought to supplement the science of modern physics with a more self-reflective, philosophical and speculative conception of science.⁷⁵⁾ Looking back at Goethe through the lens provided by the work of Gadamer, one might even call this conception of science an early form of philosophical hermeneutics.

⁷³⁾ See GOETHE, *Zur Farbenlehre*, historischer Teil, Ergänzungen und Erläuterungen (cit. fn. 39), p. 72.

⁷⁴⁾ GADAMER, *Wahrheit und Methode* (cit. fn. 61), p. 479.

⁷⁵⁾ *Ibid.*, p. 464.