H. Floris Cohen

NOTE ABOUT AN UNFINISHED BOOK ON OSTWALD BY THE LATE CASPER HAKFOORT, AND ABOUT ITS AUTHOR

During much of the 1990s, Wilhelm Ostwald was at the center of the scholarly attention of Dr. Casper Hakfoort, a Dutch historian of science who died in 1999 at the relatively young age of 44. As his closest colleague during the period, in the note that follows I offer information concerning the book about Ostwald he left behind incompleted; sketch the approach he took in that book, and indicate how Casper came to Ostwald and what he found so gripping about both the man and his work. I then append two pieces to this note: a list of contents as drawn up by Casper, and his (highly provisional) introductory chapter.

In another piece, an obituary soon to be published in *Isis*, I have shown in some detail the curved road along which (after his academic studies in physics and in history and philosophy of science) Casper moved from his 1986 doctoral dissertation (published in English as *Optics in the Age of Euler. Conceptions of the Nature of Light 1700-1795*. Cambridge UP: 1995) to a concern for the debates about physical world-views at the turn of the 20th century, and from there to one protagonist of the debate in particular — Ostwald. In a sketch for a preface to his book Casper recounts what happened: he began "reading Ostwald's *Lebenslinien* — at night, in bed, I could not put down the three voluminous volumes before I had feverishly scanned them all." The force and (by and large) the originality of the historical apparatus he then began to develop so as to make sense of Ostwald as a thinker about science, culture, society, and religion resided above all, I think, in the concept of 'scientism' with which he approached Ostwald's work and (increasingly so) Ostwald's personality as well. As Casper showed in his article 'The Historiography of Scientism: A Critical Review'. *History of Science* xxxiii, 1995, p. 375-395, the notion of scientism in a variety of meanings has been around for a long time; still, Casper put it to new uses by applying it to persistent efforts over the centuries, from Hobbes and d'Holbach to Capra and Hawking in our own day, to make the latest science serve the construction of a world-view.

Conceptual analysis applied along such lines to Ostwald's energeticism stands at the center of what, in my view, remains Casper's masterpiece, his article 'Science Deified: Wilhelm Ostwald's Energeticist World-View and the History of Scientism', *Annals of Science* 49 (1992), p. 525-544. Here the full historiographical power of the concept of scientism begins to unfold. Soon upon Casper's decision to expand that article into a full-fledged book on Ostwald, an increasing concern with personal matters generally led him to inquire, in addition, into the making of so extreme a scientistic thinker as Ostwald undoubtedly was — what made this extraordinary man 'tick'? Hence, his book was to become, not a full 'life and works' (as Casper surely acknowledged Ostwald's achievement as a physical chemist but did not investigate it in much detail) nor a biography in the customary sense, but rather a sources-based study of Ostwald as a radical scientistic thinker: how Ostwald got that way; what his science and his urge to expand it meant for his personal life; to what specific views he was led thereby; also a range of contemporary responses from (mostly) critics, notably Ludwig Boltzmann and Max Weber. It is this, for perhaps ¾ part completed study which I now wish to introduce briefly to the reader so as to make its existence and basic features known to those interested in Wilhelm Ostwald.

As it stands, the whole book, notes included, contains some 55,000 words (on computer file it counts 427 kB). In the table below I have indicated for every chapter what sections were written at all; where there are gaps; where there are only summary statements or notes or queries in Dutch.

I cannot sufficiently stress the *provisional nature* even of those portions of the book that Casper did commit to paper. Not only did he leave nearly all quotations in the original German for the time being, and did he list their provenance only in summary fashion. A more fundamental provisionality concerns just about every word of the book as it stands. I know for sure from many conversations with him that he was far from fully satisfied with his own text. Our history of science group was familiar with Casper's exacting self-criticism, and we never saw that character trait come to fuller bloom (at times bordering on the self-destructive) than over this particular book, chapters 1–4 of which he found sufficiently advanced to put before our two-weekly discussion meetings. He kept struggling with his inclination to project aspects of his own life and character upon Ostwald's (that well-known biographers' dilemma); with what exactly should be the leading questions to ask and the guiding lines holding the book together; with his increasing doubts about the feasibility of the book as such. Still, during the last week he was to dedicate to work on the book, which he used for an inquiry into the best way finally to complete it, he wrote down, not only the list of contents reproduced below, but also a highly characteristic little note for himself which exudes a quiet confidence. I here translate the relevant portion of that note, which starts from the observation that it is too early yet to write a definitive preface and introduction:

"How, then, to go about completion?

By ascertaining [Dutch 'constateren' = German 'feststellen'] that

1. I have confidence in the general set-up and the theses of my 1st draft
2. the leading questions and their interdependence have become clear to me
3. I have gained clarity over the 'tone' of the book:
   - voyage of discovery, together with Ostwald, of expansion of science: clarification and placement in his own time
   - search, building forth upon Ostwald's own understanding, after the social and psychological functions of science for Ostwald and his contemporaries
4. for every chapter I shall keep asking
   - what is the question?
   - how is it linked to the remainder of the book?
   - what thesis/theses?"

These, to be sure, are attributes of Casper's intentions for completion, not necessarily of the chapters and sections of the book as he left it behind. It even follows that the introductory chapter Casper had written years earlier, and which follows below, would with certainty have been rewritten by him more or less *in toto*. I nonetheless reproduce it here because it offers a gripping 'entrée' into the book, through which we attain both a glimpse of what kept fascinating Casper about Ostwald and a useful outline of the overall set-up of his book. The impression the introductory chapter may in addition convey, that the book that follows is really a study in social/political context, however, is rather misleading. Actually, historical-conceptual analysis (Casper's strongest point in my opinion) is what the bulk of the book has to offer once the largely

biographical second chapter is left behind. In the 'definitive' list of contents of his final week of work on the book, Casper carefully noted what portions were meant to be (a) = conceptual; (b) = social/psychological; (c) = about critics.

Regarding any possible future fate of the book, let me first state that all notes, computer files, Xerox copies of numerous books and articles, etc. (and Casper never threw away anything), are being kept at the Department of History; WMW; University of Twente; PO Box 217; 7500 AE Enschede; Netherlands. Anybody with a serious interest in Casper's work is most welcome to adress an email message to me: h.f.cohen@wmw.utwente.nl.

[→*inserted on March 9, 2009*: The previous paragraph has meanwhile been superseded, in part because I am now connected to the University of Utrecht, with h.f.cohen@uu.nl for email adress, but chiefly because all these documents got lost in a fire that destroyed the building in Enschede that housed our department.]

As I am gaining a better grasp of Casper's intellectual legacy, I am increasingly doubtful whether completion of the book by somebody else (a possibility he was quite open to, as I do know for sure from conversation after he had fallen lethally ill) is at all feasible. Coherent portions, however, may well be up for reworking as independent articles, and in any case, on the part of his literary executors (his son and the undersigned) there is a willingness to share that legacy with serious investigators in conformity to scholarly values Casper kept taking with the utmost seriousness.

'SCIENCE AS PARADISE: WILHELM OSTWALD'S ENERGETICIST WORLD-VIEW'

LIST OF CONTENTS AS DRAWN UP DURING FINAL WEEK (with editor's notes in the third column)

title	**a/b/c***	**what written, to what extent**
PREFACE		1 page on sense of a personal bond with Ostwald
1. INTRODUCTION: PARADISE IS HERE	context b	complete
2. LEAVING HOME AND BECOMING A SCIENTIST	b	complete, but for a sentence here and there
3. ENERGETICS		
Inaugural lecture	a/b	complete
Giving birth to energetics	a/b	complete, except for section c. 'The origins and development of energetics': a few open places, and a few summary statements instead of the final paragraphs, but otherwise complete
Lübeck debate	a/c	• section a. 'The stakes and the issues' (on unification around 1700 vs. around 1900): a few summary sentences, but otherwise complete • b. 'The debate': complete, but for several open places and (on mathematical details and on some rival views) summary statements • c. 'Results': summary statements on energetics, otherwise (on Boltzmann's position) complete
Collapse and recovery	b	complete (i.e., 'Collapse', with 'Recovery' still in ch. 4)
4. NATURE AND HAPPINESS		opening section ('Recovery') complete
Philosophy of nature	a	extended account of *Vorlesungen*, complete but for notes in Dutch on ethics and on responses in general
Theory of happiness	a/b/c	• context of O.'s expounding the theory: not written • conceptual analysis of O.'s theory: complete,

		but for a few intermediate queries in Dutch • O.'s personal use of the theory: not written • Boltzmann's critique: complete, but for a few intermediate queries in Dutch why O. did not collapse this time: nothing but queries in Dutch
5. CULTURAL SCIENCE AND ETHICS		
Universal language & hierarchy of sciences	a/b	not written; one page of notes in Dutch only
Social theory, *Bildung* & natural science	b context	sketch of German social theory and of scientistic approaches to it: complete as far as it goes, but with many intermediate queries and a page of notes in Dutch at the end
Ostwald's energeticist theory	a	extended account of *Energetische Grundlagen der Kulturwissenschaft:* • 'Güteverhältnis': complete, with additional notes in Dutch • language: complete • law: passage on punishment complete; remainder only in notes in Dutch • economics (production, labor, money, market): complete, with intermediate notes in Dutch • science (and 'Gemeinschaft'): complete, with intermediate note in Dutch critical analysis of the book as a whole: only in rough outline, in 2 pages of notes in Dutch
Weber's critique	a/c	by and large complete; additional notes in Dutch
(Ostwald's moral theory)	a/b	---
6. SCIENCE AS RELIGION		devoted chiefly to *Religion und Monismus*
Becoming a preacher	b	O.'s becoming chairman of Monistenbund: only half a page of notes in Dutch
Public & functions	b/b context	O.'s aims with *Religion und Monismus*: complete
Historical development of Western culture	a	incomplete: account of 'Düsseldorf lecture' lacking; notes in Dutch on how to complete this section
Moral guidance and social organization	a	incomplete: notes in Dutch on how to complete this section
Emotional needs	a/b	passages on hunger, love, sociability: by and large complete as such, with intermediate notes in Dutch
(etc.)	a/b/c	5 pages outline in Dutch of *Religion und Monismus* and of 'Düsseldorf lecture'
7. EPILOGUE		---

CHAPTER 1

INTRODUCTION: PARADISE IS HERE

"Heute wirst du mit mir im Paradies sein."
J.S. Bach, *Actus tragicus*, BWV 106,
after Luke, 23:43

Science is, or soon will be, omnipotent, omnipresent, eternal, omniscient and perfectly good. All wishes and hopes, all goals and ideals, which mankind once, wrongly, pressed into the concept of God, will be fulfilled by science. People used to condense the best and the highest, the most valuable and loftiest they could think of in the concept of God. However, for those whose lives are guided by science, "the concept of science moves itself in the place that so far for less developed spirits had been taken by the concept of God". Science is the most effective and affluent way to personal and social happiness.[1] In short, science is paradise.

This was the merry message Wilhelm Ostwald had for the several thousand present at Sunday 10 September 1911 in the Hamburg *Conventgarten*. Ostwald, a Nobel laureate in chemistry, had developed energeticism, a comprehensive philosophy and world-view based on the concept of energy. Ostwald delivered his lecture at the First International Monists Conference, as chairman of the *Deutscher Monistenbund*, the German Monists Association. The Association, founded in 1906 on the initiative of Ernst Haeckel, the biologist and populariser of Darwin's evolutionary theory, appealed to those who "keine Befriedigung mehr {finden} in der alten, durch Tradition oder Herkommen geheiligten Weltanschauung" and who "suchen nach einer neuen, auf *naturwissenschaftlicher* Grundlage ruhenden *einheitlichen* Weltanschauung".[2]

The last words of chairman Ostwald at the Hamburg conference were: "Ich schließe den ersten Monistenkongreß und eröffne das monistische Jahrhundert." The response to his words was recorded as: "Minutenlanger, nicht endenwollender Jubel, die Menge bricht in immer neue Ovationen aus, langsam nur leert sich der Saal."[3] According to the editor of the conference proceedings Ostwald's opening of the monist century should be taken rather literally:

> Die Monisten datieren von jener Tagung jetzt schon nicht nur eine neue Periode ihrer eigenen Bewegung, sie sind zugleich der festen Zuversicht, daß man den Kongreß dereinst als Ausgangspunkt einer *neuen Kulturepoche* rechnen wird.[4]

Whether the monists' hope came true and the twentieth century has been the beginning of a new era in which the scientific view of the world became dominant, is open to debate. However this may be, Ostwald's provocative comparison of science with God, his proclamation of the beginning of the scientific era in human history and the jubilant response at the Hamburg *Conventgarten* testified to the self-confidence of those who in the beginning of the century believed in science as the authoritative and unifying foundation for social, cultural and political life.

The protagonists of science as a way of life responded to specific problems in Wilhelmian Germany. In the second half of the nineteenth century the sum effect of several developments had created a situation of social, cultural and political fragmentation. The rapid industrialisation had induced many to leave their *Heimat* at the country-side and to live a totally different life in the cities. Politically the industrial workers were organised by the socialist party, which was only slowly integrated in the political system of the united German *Kaiserreich*, created in 1871, which itself was

far from united. For example, the liberals, who had pleaded for the unification of Germany, were divided about the new *Reich*. The new political order had been brought about by the military power of Bismarck, which did not fulfill the dreams of liberty. As a result, some liberals did not support the *Reich* and Bismarck, whereas others did. As another example of the lack of unity in the united *Reich*, think of the waning role of religion, closely related to industrialisation. Christianity increasingly lost its unifying social and cultural role. The effects of secularisation were even greater because in Prussia and in many other German states the state and the church were closely connected. Religious education at the schools was obligatory and membership of the church was a condition for state jobs. The few that openly left the church became socially isolated and often felt the need for alternative organisations, which were anti-clerical and, consequently, were considered a danger for the state. For example, in the proceedings of the Hamburg conference, it was recalled that for many years the meetings of the local monists had been overseen by a policeman (who reportedly eventually became a convert to the monist cause).[5]

The lack of social, cultural and political unity, and the waning of traditional sources of authority elicited different responses. Fostering the interests of new groups by gaining political influence was one answer to the new situation; the socialist party was an example. Typically, a different route was taken by the *Bildungsbürger*, the educated elite of school teachers, higher civil servants, journalists and university professors. They set their hopes on the authority and unifying power of a world-view based on the *Bildung* they shared and were proud of. Idealist philosophy used to provide a unified system of values. In the neo-Kantian climate of the later nineteenth century the philosophical consensus had been broken. Nevertheless, many still expected from philosophy a new authoritative solution for cultural fragmentation.

The *Bildungsbürgertum* was not without its internal tensions. One of those tensions related to the growing role of technology and science, a development which was again closely connected with industrialisation. A rapidly growing number of the educated attended the *Realgymnasium* and became experts in science or engineering. In addition, as compared to those educated in the humanities, a larger proportion of the science-oriented graduates were from lower social back-grounds. As a result, the traditional *Bildungsbürger* did not easily accept the scientific and technological specialists as their equals. The tension between the two groups was reflected in the much-discussed divide between *Kultur* and *Zivilisation*.

Social and cultural fragmentation was a daily reality for the scientifically educated. Often they were in between two worlds, the old world of their parents and the new world of the educated elite. They had left their backgrounds and homelands, but in the cities where they lived and worked they were not accepted by the established *Bildungsbürger*. Nevertheless, the hoped-for *Bildungsbürger* often imitated the traditional sort of solution for fragmentation: they searched for a unifying world-view backed by an all-encompassing system of thought. Naturally they turned to the natural sciences as the authoritative source for such a world-view. By doing this they attempted to find a philosophical anchor in their personal lives, they fostered the emancipation of their own group and they claimed to have a universal solution for cultural fragmentation.

The science-based *Bildungsbürger* at the advent of the twentieth century had two major assets. They were able to point at the growing unification of natural science itself (though, as we will see, the

kind of unification was hotly debated by experts; Ostwald was one of them). Even more so, they could capitalize on the ample successes of science and science-based technology. Science had led to many results that were undreamt of, like the spectacular X-rays that made visible the once invisible. The success of science made it into the exclusive and undisputed authority in the domain of natural knowledge. In a situation in which neither the church nor traditional philosophy or *Bildung* could claim universal authority, nothing was more attractive than to expand the concepts and methods of natural science into all areas of knowledge, and to base upon this comprehensive and unified body of knowledge a *Lebensanschauung* that would dissolve social, cultural and political fragmentation.

The hopes and stakes for Ostwald and the monists were high. In pamphlets and lectures they emphasised that science was to replace God and institutionalised religion. In fact, science was to play an even greater role. In their search for personal happiness and cultural leadership, they longed not only for a substitute for religion, but also for a new home. Science and the Monists Association was to fulfil the roles once played by the family, the social background and the homeland of their youth. To feel at home, they attempted to create a science-based paradise of unity and authority.

In the realm of ideas allegedly scientific world-views had no contemporary rivals that could show both the trump cards of unification and authority. In the real world, however, the odds were quite different. There, the alienated and ambitious science-based *Bildungsbürger* encountered the powers of the state, the church and the traditionally educated. Consequently, Ostwald and the monists had to fight on many fronts. They fought for recognition of themselves and the scientific view of the world by the traditional *Bildungsbürger*. They opposed the church, the state and the social elite for their dogmatism and cultural conservatism. Though Ostwald and other monists sometimes joined the socialists in concrete issues like the campaign for leaving the church, most monists opposed socialism. Ostwald, for example, rejected the basic concept of struggle between the classes, which was anathema to his idea of cultural unity. In his view, all classes in society had their specific roles within a harmonious whole.

Ostwald's ideal society was modeled after his picture of the middle ages. At those times the church and religion provided both the contents and the authority for a unified system of thought for society, culture and the state. In the scientific era of humanity a similar unity of world-view and the state would be existent. According to Ostwald the basic difference between the religious era and the scientific one was the dogmatism of the former and the openness to change of the latter. Furthermore, in the scientific era it would not be necessary to have the equivalent of organised religion. Once all people were educated in a scientific way, they would live their lives guided by science, and organisations like the *Monistenbund* would be superfluous. In the meantime the monists should spread the happy message of the new Messiah, science.

Despite the unifying and non-political intentions of the monists, they became involved in contemporary politics. During the conference a resolution was passed concerning the *Reichstag* elections later that year. The members of the Association were advised to vote for those parties that promoted basic social and liberal rights. This resolution and a lecture in favour of non-religious moral education in the schools led church-allied and conservative newspapers to proclaim that finally the Monists Association showed its real political character. It was clear now that the monists backed the left-liberal *Block* against the cooperating conservatives and Christian parties. The strong

and numerous reactions from conservative and church-related circles to the 1911 conference testified that they feared the power of those who believed in science. Their adversaries' anguish increased the self-confidence of the monists. In particular, Ostwald's provocations that science would replace God and that he had opened the first monist century contributed to the success of the conference. Not only the elation and self-confidence of Ostwald and the monists but also the fierce reactions by their opponents were indications of the high point in the cultural prestige of science in Germany at the beginning of our century.

The 1911 conference was also a high point in Ostwald's personal life. Never before or after he won so much recognition and applause. When Haeckel in December 1910 offered him the chair of the *Monistenbund*, he knew the Association and its activities only in a general way. Nevertheless, Ostwald accepted, and he immediately became very active. Amongst other things, he stressed the *Gemeindebildende Kraft* of monism and encouraged the development of rituals. His 60th birthday, in 1913, was very much a monist gathering. In 191? two of his new-born grandchildren were received into the Association by a monist ceremony. At that occasion Ostwald held a speech in which he claimed to use scientific knowledge to edify the parents and others present. The text of the speech he published in the weekly *Sonntagspredigten* (Sunday sermons), a series of pamphlets he had started in March 1911. In the sermons he discussed all kinds of topics from the point of view of science. In particular he expounded his particular version of a scientific view of the world: energeticism, which he had developed during the first decade of the century. At the beginning of the second decade he obviously felt comfortable preaching the gospel of science and energeticism. In the Monists Association he seemed to have found his personal paradise, his new home.

In this book we will study the birth and gradual construction of Ostwald's energeticism. In Ostwald's life energeticism started as a scientific theory of energy: energetics. It was designed to unify the different areas and theories of physical science. After some initial support, energetics was generally rejected by the scientific world (Chapter 3). Nevertheless, Ostwald used it as the foundation for a philosophy of nature. This brought him some recognition as a philosopher. He proceeded by constructing a theory of happiness, culminating in a simple formula in which energy amounts determined the degree of (un)happiness. He claimed to have applied the formula successfully to his own life (Chapter 4). This all happened in the period from 1887 until 1906, when he was professor of chemistry at the university of Leipzig. At the age of 52, partly because of his quarrels with his colleagues from the *Geisteswissenschaften*, he resigned and settled at his manor *Energie* in the village of Großbothen. Here he added energeticist theories of culture and ethics to his system (Chapter 5). In his monist years he confronted, both in theory and in practice, the issue of science as a secular religion. His function as preacher and prophet of science in the Monists Association was the apotheosis of a development of more than twenty years (Chapter 6).

Using the concepts and methods of natural science outside its proper domain is not without its problems, both in practice and in principle. Ostwald was criticised for it by such eminent and different scholars as his colleague and friend Ludwig Boltzmann and the social scientist Max Weber. The story of the gradual creation of Ostwald's scientific world-view and its criticisms provides ample opportunity to ask questions about the conceptual structure, presuppositions, personal and social

functions of Ostwald's scientific view of the world. In an epilogue Ostwald's leading idea, science as paradise, is discussed by bringing together concepts and theses of three of his contemporaries: Weber, Ferdinand Tönnies and Sigmund Freud (Chapter 7).

First we turn to the background against which energetics and energeticism grew: Ostwald's youth and early career up till the moment that he became professor of chemistry at Leipzig university.

NOTES

1. W. Ostwald, "Die Wissenschaft", 108-111, quotation 109.

2. W. Breitenbach, *Die Gründung und Erste Entwicklung des Deutschen Monistenbundes* (Brackwede, 1913), 20-21 (emphasis in the original). W. Mattern, *Gründung und Erste Entwicklung des Deutschen Monistenbundes, 1906-1918* (dissertation Berlin, [1983]) provides a chronicle based on a selection of the available published sources. For a controversial judgement on Ernst Haeckel and the German Association of Monists, see D. Gasman, *The Scientific Origins of National Socialism: Ernst Haeckel and the German Monist League* (New York, 1971).

3. Quoted by Bloßfeldt (ed.), *Der erste internationale Monisten-Kongreß*, 154 (in the original the sentence is emphasised).

4. Ibid., Vorwort.

5. Ibid., 28.