Erschienen in: Philosophia Scientiæ ; 22 (2018), 3. - S. 233-255

"Wrongful Life" Reloaded: Logical empiricism's philosophy of biology 1934-1936 (Prague/Paris/Copenhagen): With historical and political intermezzos

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Résumé : Ce chapitre reprend, en l'enrichissant, un article antérieur sur la philosophie de la biologie de l'empirisme logique, en en examinant les thèses centrales telles qu'elles sont exprimées lors des rencontres de Prague (1934), de Paris (1935) et de Copenhague (1936), rencontres décisives pour le développement du mouvement et son rayonnement dans le monde occidental. Je montre que l'empirisme logique n'a pas contribué au développement de la philosophie de la biologie, comme il l'a fait pour celui de la philosophie de la physique ou des mathématiques. Les raisons de cet échec sont triples : 1°) les empiristes logiques n'avaient qu'une vague connaissance des sciences biologiques ; 2°) ils se sont focalisés sur un cadre stérile (idéologique), l'antivitalisme et le réductionisme, qu'ils prenaient pour la philosophie de la biologie ; 3°) cela les a empêchés de traiter des véritables problèmes de la biologie. Entre les différentes sections de ce chapitre, j'insère des « intermezzos » qui replacent différents protagonistes de ces rencontres dans un contexte plus large (la grande guerre, les persécutions, le langage).

Abstract: I offer a revision ("reload") of an earlier paper on logical-empiricism's philosophy of biology by locating its central theses in the context of the international conferences of Prague (1934), Paris (1935), and Copenhagen (1936), so important for the development of logical empiricism and its spread in the Western world. My theses are that logical empiricism did not contribute in the same way to the development of the philosophy of biology, as it did, e.g., to the development of philosophy of mathematics or physics. The reasons for this failure were: (1°) logical empiricists were largely ignorant of the biological sciences; (2°) they concentrated on an unproductive ("ideological") framework (anti-vitalism, reduction) that they took to be the

Philosophia Scientiæ, 22(3), 2018, 233–255.

philosophy of biology; (3°) this prevented them from dealing with actual problems of biological science. Between the various sections of the paper, I insert "intermezzos" that present several conference participants within a wider historical context (i.e., the Great War, persecution, language).

1 Introduction[1]

> J'estime que nous avons plus que personne des raisons d'être reconnaissants à nos amis français d'avoir organisé ce congrès.

With these words Philipp Frank began his *Allocution inaugurale* to the *Congrès international de philosophie scientifique* on September 15, 1935 in the Palais-Royal in Paris.[2]

I think they also fit well eighty years later for the *commemorative* event at Château de Cerisy, and I would like to thank the organizers of the conference, as well as the editors of this volume, for all the work they have done, not least for graciously coping with the high bureaucratic standards of the marvelous Château de Cerisy.

This paper is a revised edition of one published in 1999 [Wolters 1999]. In the meantime, many things have changed. Its central thesis, however, has essentially remained the same: the logical empiricist philosophy of biology is not exactly a success story—quite different from logical empiricism in general. In my earlier paper, I called it a case of "wrongful life". "Wrongful life" is one of the peculiarities of the American legal system that cannot be digested without difficulty for many people who grew up in Europe. Here is what Wikipedia tells us:

> Typically a child and the parents will sue a doctor or a hospital for failing to provide information about the disability during the pregnancy, or a genetic disposition before the pregnancy. Had the mother been aware of this information, it is argued, she would have had an abortion, or chosen not to conceive at all.[3]

1. The "intermezzos" serve to place our topic within a wider historical context that the participants were most probably well aware of.

2. "I believe we have more reasons than anyone to be grateful to our French friends for having organized this conference" [Frank 1936a, 13].

3. `https://en.wikipedia.org/wiki/Wrongful_life`, accessed February 28, 2016. In Germany (and probably in other European countries), tort for wrongful life legal actions are unconstitutional because they imply that the life of a disabled child is less valuable than the life of a healthy one. This does not exclude, however, claims for damages that result from elevated costs for the disabled child, in case of the doctors or hospitals providing incorrect information.

Notwithstanding my great sympathies, I do not regard myself as the legal guardian of logical empiricism. I would rather like to stick to philosophical and historical analysis. My thesis is that early logical empiricism—as it presented itself at the conferences at Prague (1934), Paris (1935), and Copenhagen (1936)—failed to develop a healthy philosophy of biology, understood as the philosophical analysis of the presuppositions, structure, and consequences of biological science. There is, however, a proviso with respect to this negative assessment. Logical empiricists were aware of their shortcomings and showed plenty of goodwill. One even notices significant improvements over the course of those three years between Prague and Copenhagen. In my view, the major congenital defects of logical empiricism's philosophy of biology are:

1. the wrong people dealt with it,
2. an unproductive ("ideological") framework was understood as the philosophy of biology, which, finally,
3. prevented actual problems related to biological science from being dealt with.

Intermezzo I – Paris 1935 – An outstanding conference

At this point, I would like to insert into my argument the first of a few intermezzos in order to digress a bit from the sad topic of "wrongful life" and place Paris 1935 within a general historical context. The Paris Congress of 1935 was, in my view, the greatest congress ever in the philosophy of science. Two factors make Paris stick out: the *first* is that it took a whole preliminary conference to prepare: the "*Vorkonferenz des Ersten Internationalen Kongresses für die Einheit der Wissenschaft*"[4] in Prague from August 31 to September 2, 1934. The *second* factor that makes Paris stick out is the extraordinary scientific quality of the participants. It somehow reminds me of the Solvay Conferences in theoretical physics.[5] Even at first glance, the program of the *Vorkonferenz* is awe-inspiring.[6] I guess that quite a few readers of this paper are acquainted with the people on the program at Prague: Kazimierz Ajdukiewicz, Rudolf Carnap, Philipp Frank, Jørgen Jørgensen, Charles W. Morris, Otto Neurath, Hans Reichenbach, Jan Łukasiewicz, Alfred Tarski, and Edgar Zilsel. We, furthermore, know that there were others around, but not on the program, among them Maria Kokoszyńska, Janina

4. "Preparatory Congress for the First International Congress for the Unity of Science", [*Erkenntnis* 1936a].

5. A good overview can be found at `https://en.wikipedia.org/wiki/Solvay_Conference` (accessed June 4, 2018).

6. [*Erkenntnis* 1935c, 2]. There we also find the other names mentioned here, with the exception of Karl Popper.

Hosiasson-Lindenbaum, Ernest Nagel, Moritz Schlick, and Karl Popper.[7] In addition to preparing Paris there was a second motive for organizing the Prague *Vorkonferenz*, namely, as (probably) Neurath put it: "to acquaint the representatives of the various tendencies" of what he called "anti-metaphysical empiricism" [*Erkenntnis* 1935c, 1]. This seems to have worked out nicely: Carnap, who taught at Prague University at that time, notes in his diary with a great sigh of relief at the end of the International Philosophy Congress, which followed the *Vorkonferenz*:

> Finally, day of rest. [...] On the occasion of the Congress, *were invited to our place and came*: Łukasiewicz and his wife, Neurath, [Carl Gustav] Hempel and Eva, Jørgensen and his wife, Ajdukiewicz, Tarski, Hosiasson, *Frau* [Marja] Kokoszyńska, [Eino] Kaila, Schlick, [Felix] Kaufmann and his wife, and [Kurt] Grelling. *Invited but did not come*: the Franks, [Louis] Rougier, Reichenbach, [Roman] Jakobson.

Nicely enough, Carnap also notes those whom he had *not* invited:

> Åke Petzäll and his wife, [Karl] Menger, Neider, Ms Fraenkel [wife of Abraham Fraenkel], [Paul] Hertz, [Ernest] Nagel, Dürr, Morris (but he was invited earlier), Smith, Zilsel, Popper (met him for lunch), [Leo] Strauss, [Walter] Hollitscher (met him before briefly in an afternoon), Meiner, [Arne] Naess.[8]

Unfortunately, Carnap does not reveal what his invitation criteria were. We meet almost all of the Prague people and many more a year later in Paris. Have a look at the Paris participant list (in alphabetical order) [*Erkenntnis* 1935b], [Stadler 2015, 366–371]

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7. Karl Popper reports that he took the page proof of the *Logik der Forschung* (rewritten in English by the author as *The Logic of Scientific Discovery*) with him to Prague [Popper 2012, 126]. There he discussed his rejection of induction, particularly with Janina Hosiasson, who "could not believe that anybody could seriously argue against induction". The contributions of Hosiasson, Ernest Nagel and Moritz Schlick at the International Congress of Philosophy that followed the *Vorkonferenz* were published in *Erkenntnis* 5 (1935), together with the papers of the *Vorkonferenz*.

8. "Mo, 10.09.1934. Endlich Ruhetag [...] Bei Gelegenheit des Kongresses waren *bei uns eingeladen und gekommen*: Łukasiewicz und Frau, Neurath, Hempel und Eva, Jørgensen und Frau, Ajdukiewicz, Tarski, Hosiasson, Frau Kokoschińska, Kaila, Schlick, Kaufmann und Frau, Grelling. – *eingeladen, aber nicht gekommen*: Franks, Rougier, Reichenbach, Jacobson. – *nicht eingeladen*: Petzäll und Frau, Menger, Neider, Frau Fraenkel, Hertz, Nagel, Dürr, Morris (aber früher), Smith, Zilsel, Popper (aber vorher mittags), Strauß, Hollitscher (vorher einen Nachmittag kurz), Meiner, Naess" [PAUK, RC 025-75-12]. [Unless otherwise stated, all translations of quotes that appear within this essay are my own.]

Kasimir [Kazimierz] Ajdukiewicz
Alfred Ayer
Bernfeld [Siegfried?]
Friedrich Bachmann
Albrecht Becker
A. [Abram] Cornelius Benjamin
Hugo Bergmann
Albert Bollengier
Georges Bouligand
Richard Braithwaite
Egon Brunswik*
Rudolf Carnap
Claude Chevalley
Leon Chwistek
Dimitri Cuclin
André Darbon
Jean-Louis Destouches
Federigo Enriques
Herbert Feigl
Bruno de Finetti
Philipp Frank
Robert Gibrat
Ferdinand Gonseth
Thomas Greenwood
Kurt Grelling
Charles-Eugène Guye
Eduard Habermann
Olaf Helmer
Carl Gustav Hempel
Fritz Heinemann
Walter Hollitscher
A. Honnelaître
Janina Hosiasson-Lindenbaum
Jasiniowski
Stanisław Jaśkowski
Jørgen Jørgensen
Gustave Juvet
Stanisław Kobyłecki
Marja Kokoszyńska
Tadeusz Kotarbiński
Albert Lautman
Pierre Lecomte du Noüy
Adolf Lindenbaum
Jan Łukasiewicz
G. Malfitano
Basilio Mania
Jean Mariani
Louis Massignon
Paul Masson-Oursel
Georges Matisse
Jacques Métadier
Charles [W.] Morris
Otto Neurath
Paul Oppenheim
Julien Pacotte
Alessandro Padoa
Gérard Pétiau
Karl R. Popper
Edward Poznański
Hans Reichenbach
Paul Renaud
Antoinette [Virieux] Reymond
Jules Richard
Louis Rougier
Edgar Rubin
Bertrand Russell
Moritz Schlick*
Heinrich Scholz
Paul Schrecker
[Paul?] Siwek
Eugeniu Sperantia
Alfred Tarski
Einar Tegen
Edgar Tranekjaer Rasmussen
Jean Ullmo
General Joseph Vuillemin
Emil J. Walter
Joseph Henry Woodger
Adam Wiegner
Aleksander Wundheiler
Zygmunt Zawirski
P. [Panayotis] Zervos
Edgar Zilsel

(* The papers of Brunswik and Schlick were read to the audience, because the authors "were unable to appear personally"). [*Erkenntnis* 1935d, 379]

Have you heard of any big conference in the philosophy of science with some eighty speakers, and so many first-rate people among them? Or, to put it differently, can you imagine a meeting commemorating the commemorative conference at Cerisy eighty years from now, in 2095. Would people be likely to know one quarter to half of the participants at Cerisy through their own work?

This is the end of Intermezzo I. We will now return to wrongful life and the first congenital defect of logical empiricism's philosophy of biology.

2 The wrong people

Checking the programs of the Prague, Paris, and Copenhagen conferences confirms the impression of readers of the 1929 *Manifesto* of the Vienna Circle. The leading figures of early logical empiricism had their scientific background

in mathematics or physics, or—in the case of Neurath—in economics. Nobody had studied, or seems to have been particularly interested in, biology. No member of the inner circle of logical empiricism[9] was to any extent aware of the epistemological and methodological problems that had arisen, e.g., in the context of genetics or evolutionary theory. While logical empiricists in physics and mathematics were the philosophical avant-garde, they knew next to nothing about biology. What they actually talked about in a sort of biological context (vitalism and reductionism) was rather irrelevant for understanding contemporary biological research.[10]

I would like to emphasize, however, that early logical empiricists *were aware* of their shortcomings with respect to biology and soon started to search for help outside their circle. At the Prague *Vorkonferenz*, the philosophy of biology was practically still inexistent. Not even one of the twelve or so talks dealt with it.[11] For the main event in Paris, however, the *Vorkonferenz* gives the programmatic promise that there "the logical foundations of the *Wissenschaften in their entirety* [*emphasis mine*] should be treated, and not only those of mathematics and physics".[12] This promise seems to have been taken seriously, indeed. Hardcore empiricists of the mathematical-physical persuasion suddenly started dealing with the topic of biology: in the summer semester of 1935, at the University of Prague, Carnap, together with Frank, launched a Colloquium on the "Philosophical Foundations of Natural

9. At the hard core of the Circle, I count from Vienna: Rudolf Carnap, Herbert Feigl, Philipp Frank, Otto Neurath, Moritz Schlick, and Edgar Zilsel; from Berlin: Carl G. Hempel and Hans Reichenbach, and several of the Polish allies, among them Kazimierz Ajdukiewicz, Janina Hosiasson, and Alfred Tarski. One should note, however, that the Berliners had, remarkably, opened up to people from medicine and psychology [cf. Stadler 2015, xxvii].

10. There is a rather bewildering criticism of my 1999 paper in [Nicholson & Gawne 2015]. On the one hand, the authors, who have a favorable view of organicism, claim "to show that logical empiricism and vitalism were of minimal importance to the philosophy of biology during the first half of the twentieth century" [Nicholson & Gawne 2015, 347]. On the other hand, they quote me as a "representative example" of the following view: "early philosophy of biology has regularly been dismissed as futile because it has been associated with [...] a discredited research program [i.e., logical empiricism]" [Nicholson & Gawne 2015, 348]. In my 1999 paper as well as in the present one, I show, indeed, that logical empiricism was of minimal importance to the philosophy of biology. However, I do not speak out about "early philosophy of biology in general, nor do I associate "early philosophy of biology" exclusively with logical empiricism. I simply give a critique of the logical-empiricist approach and nothing else. I am grateful to Jean Gayon (Paris) for pointing out the [Nicholson & Gawne 2015] paper to me.

11. Strangely enough, there was a section called "Physics, Probability, Biology" [cf. Stadler 2015, 357]. Zilsel's "Jordan's Attempt to Save Vitalism through Quantum Mechanics" was probably regarded as belonging to "Biology".

12. "Die logischen Grundlagen des Gesamtgebietes der Wissenschaften sollten behandelt werden, nicht nur die der Mathematik und Physik" [*Erkenntnis* 1935c, 1].

Science" [*Grundlagenfragen der Naturwissenschaften*], the first part of which was intended to deal with "Physics and Biology".

Second, Carnap, Neurath, and others tried to involve biologists in the Paris conference. Here are a few quotes:

Neurath to the organizing committee for Paris ("The Five")[13] on March 6, 1935:

> It would be important to get biologists and so on, Woodger and so on.[14]

Carnap to Neurath on May 10, 1935:

> Please, get in contact with Dr. J. H. Woodger [...] because of his talk on biology. He has declared his readiness.[15]

Neurath to "The Five" on May 28, 1935:

> Morris thinks that more biologists and sociologists would be desirable on the big committee. He proposes J. H. Woodger (he will give a talk!!!), J. B. S. [John Burdon Sanderson] Haldane, Joseph Needham.[16]

Finally, Neurath to Carnap on July 15, 1935:

> On the whole we must strive to give priority to *more concrete* problems. Frank complains much that there is so little about special sciences. Not even physics. Therefore, Woodger should be at the very beginning and give a plenary talk, and *together* [?, meaning unclear, G. W.]. If Woodger is good, then this is, finally, something new. Biology in logistic packaging. That must not get lost in a special session.[17]

Neurath's program also mentions a talk by the Swiss physicist Charles-Eugène Guye (1866-1942), one of Albert Einstein's teachers at the Swiss Polytechnic

13. "The Five" were: Carnap, Frank, Neurath, Reichenbach, and Rougier [*Erkenntnis* 1935a, 299].

14. "Es wäre wichtig, Biologen usw. zu bekommen, Woodger, usw." [PAUK, RC 029-11-75].

15. "Bitte setze Dich mit Dr. J. H. Woodger [...] wegen seines Biologievortrags in Verbindung. Er hat sich dazu bereit erklärt" [PAUK, RC-029-09-56].

16. "Morris meint, mehr Biologen und Soziologen erwünscht im großen Komitee. Er schlägt vor J. H. Woodger (Er wird einen Vortrag halten!!!!). J. B. S. Haldane, Joseph Needham" [PAUK, RC 029-09-51].

17. "Im Ganzen müssen wir uns bemühen, die *konkreteren* Probleme in den Vordergrund zu schieben. Frank klagt sehr, dass so wenig Einzelwissenschaftliches kommt, usw. Nicht einmal Physik. Daher soll *Woodger* vorn sein und *gemeinsam* [?]. Das ist – wenn Woodger tüchtig ist – endlich mal was *Neues*. Biologie in logistischer Aufmachung. Das darf noch [doch?] nicht in einer Sektion untergehn" [PAUK, RC029-09-24].

Institute in Zurich, entitled "On the Transition from Physical Chemistry to Biology". There are, however, no indications that this talk was ever given.

A look at the actual program[18] shows that, of the roughly eighty talks and comments of the Congress, exactly three deal with biology. The first of these was Philipp Frank's "The Divide between Physical and Biological Sciences, Seen in the Light of Modern Physical Theories".[19] The talk given by Pierre Lecomte du Noüy (1883-1947), a mathematician and biophysicist, was "On the Unity of Method in the Comparison of Physical and Biological Sciences",[20] and, finally, Joseph Henry Woodger's talk was on "An Axiom System for Biology". As is well known, Philipp Frank had become professor of physics in Prague in 1912 on the recommendation of Einstein as his successor. To the best of my knowledge, this is Frank's first dealing with biology.

Off to Copenhagen! Between June 21 and 26, 1936, the Second International Congress for the Unity of Science took place. Its topic was "The Problem of Causality—With Special Consideration of Physics and Biology".[21] That "biology" appeared in the title of the Congress was a step forward, of course. In addition, the personnel had clearly improved. The first speaker was the most colorful English biologist J. B. S. Haldane (1892-1964), who was inter alia one of the pioneers of the mathematical theory of evolution and of population genetics. Second, the Russian-American scholar Nicolas Rashevsky (1899-1972), one of the founders of mathematical biology, and, third, Georges Matisse (1874-1961), a more encyclopedic mind with a background in physics, who had already given a talk on philosophical pseudo-problems in Paris,[22] and whom we will encounter shortly in a rather different context.

Intermezzo II – Philosophers at war

In 1915, twenty years before the Paris Conference, several participants lay in the trenches of World War I and tried to kill each other. Carnap, for example, had already enlisted during the first days of the Great War and proudly notes in his diary on August 10, 1914: "medical examination [...] accepted with the artillery."[23] A year later and one-hundred years before the

18. Cf. [Stadler 1997, 406–412]. Stadler reproduces the program as given in the tables of contents of the volumes of the [Actes 1936]. Strangely enough, the important talk of Joseph Henry Woodger is missing there. It is mentioned, however, in both the program that Neurath published before the Congress and in his report about it in [*Erkenntnis* 1935b,d, 295, 385].

19. Read in French: "L'abîme entre les sciences physiques et biologiques, vu à la lumière des théories physiques modernes."

20. Also read in French: "Sur l'unité de la méthode dans les sciences physiques et biologiques comparées."

21. Cf. [Stadler 2015, 372 *ff.*]. A collection of talks and summaries is in [*Erkenntnis* 1936a, 275–450].

22. Published in [Actes 1936, 41–49].

23. "Untersuchung [...] bei der Artillerie angenommen" [PAUK, RC 025-71-06].

Cerisy commemorative conference we find Carnap, in September 1915, on drill in the *Riesengebirge*, a mountainous area, now part of the Czech Republic. On September 1, he notes: "I strongly feel like joining a machine gun course."[24] His enthusiasm, however, is marred by the fact that he had messed up a course for becoming a lieutenant, and still had to serve as a sergeant [*Oberjäger*]:

> In the evening in the "Brown Stag" again all lieutenants; feel very well among them, cordially grant them their good fortune, are nice to me. But I cannot get rid of the secondary object that I, too, could be where they are.[25]

A few days later he writes:

> The ill feeling about the other lieutenants has gone, but I feel very unsatisfied. [...] It's high time that I get to the battlefield.[26]

A year later, in September 1916, Carnap finally became a lieutenant. He was now in the trenches of Verdun [PAUK, RC 025-71-12-1], and might have shot at French philosophers. By early 1918 at the latest, however, Carnap had become a pacifist. He was ordered by his commander [PAUK, RC 089-72-03 (September 11, 1918)] not to send any more circulars to his friends like the one entitled "German Defeat—Senseless Fate or Guilt". There one reads among other things:

> That state of mind in Europe, which rendered the Great War inevitable and until now its termination impossible had its principle breeding ground in Germany. [...] I can here only briefly point to Germany's attitude at the Hague conferences,[27] and the hatred of the other peoples that resulted from this attitude; to the indifference and the ridicule, compared to other peoples, of our public opinion with respect to what happened at the Hague; to the weeks prior to the outbreak of the war; to the beginning of the year 1917, when the submarine war foiled the initial approaches to peace; to January 1918 with Wilson's peace program and the military rule in Berlin. At latest now, in the context of the current

24. "Ich bekomme große Lust zum MG Kursus" [PAUK, RC 025-71-08].

25. [PAUK, RC 025-71-08]: "Abends im Braunen Hirsch wieder alle Leutnants; fühle mich sehr wohl unter ihnen, gönne ihnen das Glück herzlich, sind nett zu mir. Ich kann aber den ständigen Nebengedanken nicht loswerden: so weit könnte ich jetzt auch sein" (September 5, 1915).

26. [PAUK, RC 025-71-08]: "Die Missstimmung über die anderen Leutnants bin ich los, aber fühle mich doch sehr unbefriedigt. [...] Es wird höchste Zeit, dass ich bald ins Feld komme" (September 12, 1915).

27. Carnap relates here to the first and second Hague conferences (1899 and 1907). During these two conferences, a number of states achieved conventions about laws of war, peaceful settlement of disputes, and so on. The German *Reich* played a rather destructive role, particularly in the context of disarmament.

> constitutional reforms, everyone must recognize how much in our country martial points of view were superior to political ones.[28]

For Carnap, it took a war to make him an anti-militarist. Reichenbach, in contrast, had already been an anti-militarist prior to the war. In March 1914, the 23-year-old student published a remarkable article, entitled "Militarism and Youth":

> What people with a healthy sense put off with respect to the effects of this education system is the inner untruthfulness that it nurses in young people, the dishonesty of the judgment about the problems of modern politics and the social life, the self-conceit of true national feeling that does not consist in crying hurrahs and in the glorification of militarism. Rather it tries to express itself in going to the bottom and in deepening the culture that is characteristic of one's own people. [...] Poor youth that throw away, for playing soldier, the most beautiful right of young people, i.e., having the possibility to live in a completely humane way![29]

It would be very interesting to have reports about philosophers of science, particularly on the French and British fronts. They almost certainly exist, but, unfortunately, I do not know of any.

Overall, I have found that the young philosophers of science in Germany showed comparatively little enthusiasm for the Great War [Wolters 2017]. During the war, we find no war propagandist among them. Nonetheless, twenty years later, in Paris, one notorious German propagandist was among the speakers. He was a convert to scientific philosophy. In 1915, however, when Heinrich Scholz—who later became a logician—published three propaganda

28. [PAUK: RC 089-72-04, 15]: "*Die* Geistesverfassung Europas, die den Weltkrieg unvermeidbar und dann seine Beendigung bisher unmöglich machte, hat ihren Hauptnährboden in Deutschland. [...] Ich kann hier nur kurz hinweisen auf Deutschlands Haltung bei den Haager Conferenzen und den Hass der anderen Völker als Folge davon; auf die Gleichgültigkeit und den Spott unserer öffentlichen Meinung gegenüber dem, was im Haag geschah, im Vergleich zu den anderen Völkern; auf die Wochen vor Ausbruch des Krieges, auf den Anfang des Jahres 1917, als eine schon begonnene Anbahnung zum Frieden durch den U-Bootkrieg zunichte gemacht wurde; auf den Januar 1918 mit den Ereignissen des Wilson'schen Friedensprogramms und der Berliner Militärherrschaft. Spätestens jetzt bei den Verfassungsreformen dieser Tage müssen doch jedem die Augen darüber aufgehen, wie sehr bei uns der kriegerische Gesichtspunkt dem politischen übergeordnet war."

29. [Reichenbach 1914, 1237 *ff.*]: "Was den gesund Empfindenden an der Wirkung dieses Erziehungssystems abschrecken muss, das ist die innere Unwahrhaftigkeit, die hier in der Jugend großgezogen wird, die Unehrlichkeit des Urteils über die Probleme der modernen Politik und des sozialen Lebens, die Verblendung des wahren Nationalgefühls, das nicht in Hurrageschrei und Verherrlichung des Militarismus besteht, sondern in der Ergründung und Vertiefung der dem Volke eigenartigen Kultur seinen Ausdruck sucht. [...] Arme Jugend! Die das schönste Recht der Jugend, ganz Mensch sein zu dürfen, hergibt, um Soldat zu spielen!"

brochures, he was still a protestant theologian. Moreover, in 1917, when a fourth such pamphlet followed, he received a chair in systematic theology at Breslau, now the Polish Wrocław. Incidentally, I also found that at least one of the French participants at Copenhagen, Georges Matisse—given the titles of his brochures—seemed to be a propagandist, but only at first glance. In 1915, he published *Les Allemands – destructeurs de cathédrales et de trésors du passé* [*The Germans – Destroyers of Cathedrals and Treasures of the Past*], a title that invites comparisons with the so-called Islamic State or the Taliban these days. The other brochure was explicitly addressed to the Germans: *Aux Allemands: pourquoi n'êtes-vous pas aimés dans le monde?* [*To the Germans: Why Does the World Not Like You?*] [Matisse 1915]. Unfortunately, both brochures remained untranslated and, thus, reached only a small number of their addressees.[30] This is the all the more regrettable because truthful Allied reports about German Islamic-State-like activities in Belgium and Northern France were denounced in Germany as enemy propaganda. The other brochure is an analysis by the self-confessed Germanophile Matisse[31] of the rise of a feeling of superiority among German elites that sounds, indeed, very fitting to me, having read dozens of war talks and manifestos by German professors. Matisse correctly qualifies the unrealistic German feeling of superiority that these papers exhibit as a prejudice [*préjugé*] and rightly summarizes that "Nothing deforms judgment more than patriotism. Patriotism is a religion. As with every religion, it promotes unsympathetic attitudes, intolerance, and exclusivity".[32]—These days we see, by the way, a similar disproportion between hyperbolic self-assessments and sad reality, for example, in large parts of the Islamic world or in Russia.

I know of only two self-confessed pacifists among European philosophers. Both were close to scientific philosophy: Bertrand Russell and Louis Couturat. Russell, who at Paris was arguably the most prominent participant, went to jail for his fight against compulsory military service, while Couturat was—on

30. In German Public Libraries, I could not trace a single copy of the first, and only two of the second.

31. Cf. [Matisse 1915, 11 *ff.*]: "Lorsque je vins, il y a une vingtaine d'années, en Allemagne, je fus séduit par le charme des petites villages du centre de la Thuringe, qu'entourent des collines boisées d'une beauté sobre et intime. La vie qu'on y menait alors, l'accueil bienveillant des habitants, leur amabilité souriante, leur bonne grâce familiale m'inspirèrent une sympathie profonde pour le *peuple* allemand, et pour son caractère dans ce qu'il a de foncier. Elle n'est pas éteinte depuis. Quelques amis ne me le pardonnent guère aujourd'hui." – ["I have traveled in Germany for about twenty years now, and have been ravished by the charm of the small villages of the center of Thuringia that surround sylvan hills of sober and intimate beauty. The life one led then, the benevolent reception of the inhabitants, their smiling amiability, and their nice *gemuetlich* grace inspired in me a deep sympathy for the German *people* and for what is at the bottom of their character. It has not dissolved since. Some friends hardly forgive me for that."]

32. [Matisse 1915, 18]: "Rien ne déforme plus le jugement que le patriotisme. Le patriotisme est une religion. Comme toute religion il rend incompréhensif, intolérant, exclusif."

August 3, 1914—among the first civilian victims of war. The French Wikipedia notes: "his vehicle was hit, indeed, by a vehicle that carried the mobilization orders of the French army."[33] By 1915, Russell had, in fact, already given a short evaluation of the Great War that I find to be the best I have ever seen:

> This war is trivial, for all its vastness. No great principle is at stake, no great human purpose is involved on either side.
> [Hoeres 2004]

3 Wrong ("ideological") framework

With logical empiricists, there tends to be a curious terminological insecurity with regard to providing a precise label for the work they do. This insecurity, which I am going to document here from the Prague *Vorkonferenz*, is an indication of divergent ideas of what the whole movement was about. Neurath, the tireless organizer of unity, regards "*anti-metaphysical empiricism*" as the mantra that should bind together the "various tendencies". Charles W. Morris speaks of "scientific empiricism" and later of "scientific philosophy", which Hempel, in his German summary, translates as "wissenschaftliche Philosophie" [*Erkenntnis* 1935c, 149]. Neurath is happy to adopt "scientism" [*Szientismus*], and two lines later uses "logicizing empiricism" [*logisierender Emprismus*]. Ajdukiewicz speaks of "scientific world perspective" [*wissenschaftliche Weltperspektive*] and in another paper of "logistic anti-irrationalism"; Carnap distinguishes the wider *Wissenschaftslehre*, i.e., something like present day science studies, from the narrower, discipline-related logical analysis of science [*Wissenschaftslogik*].[34] However, in the correspondence that Neurath conducted in preparing Paris, the "Unity of Science" seemed to become the expression that was intended to unite the movement. In fact, the German title of Paris is "Erster Internationaler Kongress für Einheit der Wissenschaft", while the addition to that title in French is "Congrès international de philosophie scientifique" [*Erkenntnis* 1935a, 300]. In Copenhagen, *Erkenntnis* gives only the German "Einheit der Wissenschaft". [*Erkenntnis* 1936b, vi, 137]. At later congresses, the English "Unity of Science" became the label.

Unfortunately, Morris and Carnap could not establish *their* terminological ideas. It seems fair to regard "anti-metaphysics" and "unified science" as the key labels for most logical empiricists in the 1930s. For the Berlin branch, however—as seems also to have been the case in Poland—anti-metaphysics was not of primary concern, while it was a philosophical cornerstone for

33. "[...] sa voiture fut en effet heurtée par la voiture portant les ordres de mobilisation de l'armée française", `https://fr.wikipedia.org/wiki/Louis_Couturat`, accessed October 10, 2014.

34. [*Erkenntnis* 1935c, 1 (Neurath I); 6 (Morris I), 142 (Morris II); 16 (Neurath II); 16 (Neurath III); 22 (Ajdukiewicz I), 151 (Ajdukiewicz II); 30 (Carnap)].

many in Vienna. In Berlin, anti-metaphysics resulted, as it were, from well-conducted philosophy of science, while in Vienna things worked the other way round.[35] However, the difference in rank and emphasis that the battle against metaphysics took on in Berlin and Vienna, respectively, does not seem to have been discussed explicitly between the two centers. Berlin had no objection to anti-metaphysics, and Vienna was not disappointed in that regard as long as Berlin delivered intellectual arms and contributed, with its infrastructure, to the dissemination of the scientific world-conception as an antidote to metaphysics. Anti-metaphysics, in the context of biology, meant excluding from living nature every possibility of teleology, or action of non-mechanical, and therefore possibly divine, forces. This means that anti-metaphysics, in the context of philosophy of biology, relates to none other than the good old mechanism vs. vitalism controversy.

Unified science, in turn, basically meant the reduction of biology to physics. Physics is *the* model of empirical science. I think that this backward-looking job description of philosophy of biology, i.e., anti-metaphysics and reduction, is responsible for more than three decades of stagnation of logical empiricism in this important philosophical field. In other words, problems alien to biological science determined the agenda for philosophy of biology. One can note, however, nonetheless, during the three years between Prague and Copenhagen, a growing dissatisfaction among the protagonists and the demand to approach biology in a different way.

Intermezzo III: Cruel fates

Paris 1935 was not only a congress that united people of unusual excellence. Unusual would also be an apt description for the cruel fate that awaited a large number of the participants. To talk only about those whose biographies I know sufficiently well, 10 years after Paris, in 1945, at the end of World War II, the following people had fled the occupied parts of Europe: Brunswik, Carnap, Leon Chwistek, Frank, Heinemann, Hollitscher, Lecomte du Noüy, Oppenheim, Popper, Tarski, Zilsel. Others, such as Enriques, had to hide, while Heinemann, Hempel, Neurath, and Reichenbach were, in 1935, already refugees from Germany and Austria, respectively.

The first to be murdered was Schlick, who in 1936 was shot by a psychologically-disturbed student, whose crime was certainly favored by the Viennese clerico-fascist environment, hostile to enlightenment-oriented logical empiricism.[36] Grelling, Lautman, Janina Hossiasson-Lindenbaum and her husband Adolf Lindenbaum were murdered in German concentration camps or directly by the Gestapo.

35. Cf. the self-presentation of the two groups in [*Erkenntnis* 1930, 72–74].

36. Stadler gives a fascinating documentation of the case. The murderer received a ten-year sentence [Stadler 2015, 869–909]. By 1938, however, he had already been released from jail.

Imagine the idea that ten years from now about 20 percent of the participants at the Cerisy conference were to become emigrants and some were to be murdered.

4 No contemporary problems of biological science

I mentioned earlier that the Paris organizers had identified biology as a field to be given special consideration. The first step in this direction was the colloquium "Physics and Biology", organized by Carnap and Frank at Prague University during the summer semester of 1935. It started on March 18, 1935 with Frank, who talked about "What do the new theories of physics mean for boundary questions between physics and biology?"[37] Unfortunately, we do not know anything about the content of the talk. It most likely did not differ very much from what Frank said in Paris a few months later.

On May 27, 1935 Carnap himself gave a talk on "The Relations between Biology and Physics: From the Point of View of the Logic of Science" [*Die Beziehungen zwischen Biologie und Physik, vom Standpunkt der Wissenschaftslogik*] in the context of his Prague lecture series "*System der Wissenschaft*". According to Carnap's notes for this lecture, it is the "task of biology: explanation of processes in living bodies through *compilation of biological laws* [...] that have to be added to the physical laws in order to explain the processes in living bodies".[38] The relationship between the entire disciplines of physics and biology is hence reduced to the "*relationship between biological and physical laws*".[39] Carnap sees two possibilities to formulate this thesis: First, "all biological concepts are via definition *reducible to physical concepts* [...]. Thus: all *concrete statements* and *all laws* of biology can be formulated in a physicalist language".[40] Second, "possibility of deduction". Whether biology may be deduced from physics is for Carnap an "open question". In any case, he is convinced: "Today not possible:

37. Carnap notes: "Heute Referat von Frank: 'Was bedeuten die neueren Theorien der Physik für die Grenzfragen zwischen Physik und Biologie?' Frank trägt gut vor" [PAUK, RC 025-75-13]. – ["Today Frank's talk: 'What do the new theories of physics mean?' Frank performs well"].

38. "Aufgabe der Biologie: Erklärung der Vorgänge an lebenden Körpern durch *Aufstellung der biologischen Gesetze* [... d.h.] Gesetze, die zu den physikalischen hinzukommen werden müssen, um die Vorgänge an lebenden Körpern zu erklären" [PAUK, RC 110-07-07].

39. "Beziehung zwischen Biologie und Physik = *Beziehung zwischen biologischen und physikalischen Gesetzen*" [PAUK, RC 110-07-07].

40. "[...] alle biologischen Begriffe sind durch Definitionen *zurückführbar auf physikalische Begriffe*. [...] also: alle *konkreten Sätze* und *alle Gesetze* der Biologie sind *formulierbar* in einer physikalistischen Sprache" [PAUK, RC 110-07-07].

particular biological laws. Whether possible later we do not know."[41] After some polemics against Hans Driesch's neo-vitalism, Carnap takes a clearly physicalist position:

> I *do not attach importance* to the *terminological* question ("biology is a branch of physics"). [...] *My thesis* is simply: the relationship of *biology* to the physics of the non-living is *analogous* to the relationship of the *theory of electricity* to the physics of the non-electrical.[42]

In short, Carnap's talk doesn't provide a great deal of philosophical analysis regarding biological science; rather, he presents the usual anti-vitalist and reductionist theories that characterize early logical empiricism, as we have already seen. Carnap and the others simply could do no better because they did not understand sufficiently well what contemporary biology was about. Perhaps Carnap did not even understand what his biology colleagues said. In his diary, Carnap notes:

> Mo, 27.05.1935. Dentist—5 lecture. 7:15-9:30 colloquium. My talk 'The relations between biology and physics, from the point of view of the logic of science'. [the plant physiologist Ernst] Pringsheim and [the botanist Adolf Alois] Pascher agree overall. [The plant physiologist and historian of science Josef] Gicklhorn has reservations against "too much physics", but formulates them very unclearly.[43]

In searching for actual topics related to the philosophy of biology, I have checked the entire volumes of *Erkenntnis* in order to ascertain whether evolution is dealt with. I have only found one article by the botanist Walter Zimmermann (1892-1980), who writes about the topic of evolution [*Phylogenie*], which is so central to both biology and philosophy of biology. On a couple of pages, Zimmermann contrasts morphology in a "phylogenic" perspective with idealist morphology [Zimmermann 1937, 25 *ff.*].

In the biology section in Paris there were talks by Philipp Frank (1884-1966), Pierre Lecomte du Noüy (1883-1947)—a biophysicist who, at the time

41. "Heute nicht möglich: *eigene biologische Gesetze*. Ob später einmal möglich, wissen wir nicht" [PAUK, RC 110-07-07].

42. "Auf die *terminologische* Frage ('Biologie ist Zweig der Physik') will ich *nicht Wert* legen [...] *Meine These* ist nur: Verhältnis der Biologie zur Physik des Nicht-Belebten *analog* dem Verhältnis der *Elektrizitätslehre* zur Physik des Nicht-Elektrischen" [PAUK, RC 110-07-07].

43. "Mo, 27.05.1935 Zahnarzt. 5 Vorlesung. 7:15 – 9:30 Colloquium. Mein Vortrag 'Die Beziehungen zwischen Biologie und Physik, vom Standpunkt der Wissenschaftslogik'. Pringsheim und Pascher sind im ganzen einverstanden. Gicklhorn hat Bedenken wegen 'zu viel Physik', formuliert sie aber sehr unklar" [PAUK, RC25-75-13].

of the conference, acted as head of the biophysics division of the Institut Pasteur[44]—and J. H. Woodger (1894-1981).

It would be an exaggeration to say that the three talks could be considered as contributions to the philosophy of biology on a par with those made to the philosophy of physics or mathematics. Frank rejects positions that invoke Niels Bohr's interpretation of Werner Heisenberg's uncertainty principle in order to claim "that there exist in biological science laws of a spiritualist, holist, or organicist sort instead of the laws that are used in physical science to determine observed phenomena."[45] Rather, the task is "to explain life in a mechanistic way".[46] Lecomte du Noüy's talk "On the unity of method in physical and biological sciences compared to each other" is, in my view, the most interesting. Unlike Frank, he warns against adopting physicalism in biology, and hints at what was later called "supervenience". He summarizes:

> I hope to have shown [...] one of the essential differences between problems posed by living matter, by organized beings and by raw matter. The ultimate elements are identical. One might imagine that the analytical method pushed to the extreme would be necessary and sufficient to deliver answers to all our questions. [...] It seems, on the contrary, however, that the biological problem superposes itself at a certain level of complexity on the physical and chemical problem. It seems that the analysis is incapable of connecting the teachings obtained beyond a certain threshold with those the biological methods disclose on this side.[47]

Woodger, the great hope of the organizers, turned out to be a failure. He presented his unworldly idea of axiomatizing biology. Carnap, who had promoted his invitation, notes disappointedly in his diary on September 16, 1935: "far too difficult, he speaks without the slightest empathy for the poor audience."[48] In fact, poor Woodger's talk was, for whatever reason,

44. The English Wikipedia entry (unlike the French one) is very informative. Cf. `https://en.wikipedia.org/wiki/Pasteur_Institute`, accessed June 4, 2015.

45. Philipp Frank, "L'abîme entre les sciences physiques et biologiques vu à la lumière des théories physiques modernes", in [Actes 1936, 3]: "qu'il y ait dans les sciences biologiques des lois de caractère spiritualiste, totalitaire ou organiciste au lieu des lois qui interviennent pour régir les phénomènes observés dans les sciences physiques."

46. [Frank 1936b, 1]: "expliquer la vie de façon mécanique."

47. "J'espère avoir montré [...] une des différences essentielles entre les problèmes posés par la matière vivante, par des êtres organisées et par la matière brute. Les éléments ultimes étant identiques, on pouvait imaginer que la méthode analytique poussée à l'extrême était nécessaire et suffisante pour fournir les réponses à toutes nos questions. [...] Il semble bien, au contraire, que le problème biologique se superpose, à un certain degré de complexité, au problème physique et chimique, et que l'analyse soit incapable de relier les renseignements obtenus au-delà d'un certain seuil, à ceux que les méthodes biologiques lui révèlent en deçà [Lecomte du Noüy 1936, 13].

48. "[...] viel zu schwierig, spricht ganz ohne Einfühlung in das arme Publikum" [PAUK, RC 025-75-13].

not published, and not even summarized in the proceedings of the Paris Congress.[49]

Overall, the promise, given in Prague, to deal with "the logical foundations" of biology as well, was far from being fully kept in Paris.

Off to Copenhagen again! Were things there better for the philosophy of biology? The short answer is, yes, to some extent. As mentioned already, there were three talks in the biology section at Copenhagen: J. B. S. Haldane (1892-1964), Nicolas Rashevsky (1899-1972), and Georges Matisse (1874-1961). Let us start with Matisse. He could not come to the Congress, but his talk was read to the audience. It aimed at rejecting finalistic approaches in biology by pointing to the fact that in inorganic systems one already finds what Matisse calls "structures orientées". Here is one of his examples:

> When an electric current passes through a solution, all metallic ions of a mineral salt in solution direct themselves towards the cathode, and the radicals toward the anode.[50]

Similarly, living systems should be seen in the context of a theory of structurally-ordered systems that display a regular order of their material components, often combined with a special direction of their elementary processes.[51]

Haldane's and Rashevsky's talks are just reports of what is going on in their respective fields. In the case of Haldane, this is population genetics, while Rashevsky explores the possibility of using physico-mathematical methods in biology, in particular on the level of single cells and functional groups of cells. While Haldane hardly mentions any philosophical problem, Rashevsky at least makes clear that the use of mathematical methods in biology requires

49. J. H. Woodger [Woodger 1937] probably gives a good idea of what he said in Paris. [Nicholson & Gawne 2014] quote me as assuming Woodger's "allegiance to logical empiricism" [Nicholson & Gawne 2014, 247]. The only thing I say about Woodger in my older paper is: "Woodger also can be regarded as *related* [my emphasis] to logical empiricism. His *Axiomatic Method in Biology* [Woodger 1937] certainly is an impressive piece of scholarly work, and it was praised in a review in *Erkenntnis*. But it is unclear to me if Woodger's rigorous axiomatization contributes to a deeper understanding of real biological science" [Wolters 1999, 199]. That Woodger, in some sense, was *related* to logical empiricism is clear. "Being related" to something or someone is, at least according to my understanding as a non-native speaker of English, different from "allegiance" to something or someone.

50. "Quand un courant électrique traverse une solution, tous les ions métalliques d'un sel minéral dissous se dirigent vers la cathode et les radicaux vers l'anode" [Matisse 1936, 370].

51. This is almost a translation of Carl Gustav Hempel's summary in [Hempel 1936, 374]: "Der Verf. selbst vertritt die Auffassung, dass die Lebenserscheinungen auf Grund einer Theorie der Systeme mit struktureller Organisation (d.h. mit regelmäßiger Ordnung ihrer materiellen Bestandteile und häufig mit besonderer Gerichtetheit der in ihnen stattfindenden Elementarprozesse) zu erklären seien."

idealization.[52] In my view, Frank, in his closing remarks to Copenhagen, gives a fair résumé:

> At the Congress, Haldane has talked about genetics and Rashevsky about the application of mathematico-physical methods in biology. We have invited these two researchers in order to receive new suggestions for the search for the logical structure of science that can be found in every purely scientific theory that is free of metaphysics.[53]

In Frank's view, the talks, thus, were less philosophical but offered rather *biological* raw material for future *philosophical* analysis.

Briefly, from Prague, via Paris to Copenhagen, we see a sort of positive gradient as to special problems in the philosophy of biology. It went from zero in Prague, via old questions in Paris, to information about current biological science that invited philosophical analysis in Copenhagen. In a sense, the ground was now prepared to start a philosophy of biology inspired by logical empiricism. It might well be due to political developments that one still had to wait.

Intermezzo IV – Languages

We read about Paris in the report in *Erkenntnis*, probably written by Otto Neurath:

> Congress languages were German, English, and French. Single speakers tended to use one congress language in one instance, and another in a different instance. Others acted as translators of their own talks. Bertrand Russell gave his warm obituary for [Gottlob] Frege in German. For the rest, the talks were translated in excerpt form as necessary, and only occasionally parts of the discussion also.[54]

52. Cf. [Haldane 1936], [Rashevsky 1936]. Veronika Hofer praises Haldane's paper as "a paradigmatically clear paper about the use of mathematical models in population genetics" [Hofer 2013, 354]. I have been unable to identify such models. What one can find at best is the presentation in simple matrices of empirical results about the connection of a certain property (e.g., intelligence) with certain genotypes and environments.

53. [Frank 1936b, 448]: "Auf dem Kongress hat *Haldane* über Vererbungslehre gesprochen, *Rashevski* über Anwendung mathematisch-physikalischer Gesichtspunkte in der Biologie. Wir haben diese beiden Forscher eingeladen, um neue Anregungen für das Suchen nach der logischen Struktur der Wissenschaft zu gewinnen, die man in jeder rein wissenschaftlichen, von Metaphysik freien Theorie finden kann."

54. "Kongresssprachen waren Deutsch, Englisch, Französisch, einzelne Redner bedienten sich bald der einen bald der anderen Kongresssprache, einzelne traten als Übersetzer ihrer eigenen Reden auf. Bertrand Russell hielt seinen warm empfundenen Nachruf auf Frege in deutscher Sprache. Im übrigen wurden die Vorträge nach Bedarf

Eighty years later, at the commemorative event at Cerisy, two of the Paris languages have remained, while German has gone. At most other international conferences nowadays, English is the only language. This is certainly a positive development. Having a *lingua franca* is a great asset, and there can be no doubt that English is the chosen language. In 1935, things were different. On the European continent, at least in Germany, more people had a certain knowledge of French than of English. After Prague, in late September/early October 1934, Carnap made his first trip to England. His short notes in his diary often relate to language: September 27, 1934: "Things are going very well, linguistically. I speak quite slowly, however." On October 2, 1934 he notes about a lunch with the Woodgers and Russell: "Russell, occasionally, speaks very good German. He proposes that I speak German and he English." – A bit later: "Partially very vivid conversation [of Russell] with Ms. Woodger, too fast, so that I cannot quite follow." – October 8, 1934: "*My first talk* 5:15 to 6:15. [...] In the beginning I read very slowly, look in-between at the audience. Only at the blackboard, I speak briefly without notes. I make an effort to pronounce distinctly; but it was possibly too slow."[55]—People at Paris, Prague, and Copenhagen were almost certainly in Carnap's linguistic position with respect to one or two of the congress languages.

The problems Carnap describes here are just one of the *dis*advantages that English as a *lingua franca* carries with it for most people who do not have English as their mother tongue. My paper here is just another proof of this. Many more asymmetries result from the fact that, unlike Latin in the Middle Ages, the academic *lingua franca* of our time is the first language in a number of countries.[56] I would like to make a counterfactual hypothesis: if, these days, a philosophical movement like logical empiricism were to arise outside the Anglophone world, in a language other than English, it would not surface on the international level, because Anglophone, particularly American, philosophy determines the topics of the international agenda, and—as a rule—takes no notice of publications in other languages. This was different in the 1930s, when Anglophone philosophers still knew foreign languages and read publications in those languages. In addition, the tireless organizational efforts of Neurath on an international scale, and, sadly, the emigration of the leading minds to the U.S., made it possible for logical empiricism to flourish internationally, not least in the U.S.

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auszugsweise übersetzt, nur gelegentlich auch Teile der Diskussion" [*Erkenntnis* 1935d, 379].

55. "Es geht sprachlich sehr gut, aber ich spreche ganz langsam." – "Russell spricht zwischendurch sehr gutes Deutsch. Er schlägt vor, dass ich deutsch und er englisch spreche. [...] Teilweise lebhaftes, zu schnelles Gespräch mit Frau Woodger, dem ich nicht ganz folgen kann." – "*Mein erster Vortrag* 51/4- 61/4 [...] Ich lese anfangs sehr langsam, sehe dazwischen die Leute an; nur an der Tafel spreche ich kurze Zeit frei. Ich bemühe mich, deutlich zu auszusprechen; aber es war wohl zu langsam" [PAUK, RC 025-75-12].

56. Cf. for a presentation of such asymmetries, e.g., [Wolters 2015].

5 Conclusion

Prague, Paris, and Copenhagen show the achievements (or, more precisely, non-achievements) of logical-empiricist philosophy of biology. In *Erkenntnis*, for example, one finds a great number of outstanding and now classical papers on philosophy of science. The only outstanding contribution to the philosophy of biology, however, is in my view Kurt Lewin's classic "The transition of the Aristotelian to the Galilean mode of thinking in biology and psychology" [*Der Übergang von der aristotelischen zur galileischen Denkweise in Biologie und Psychologie*]. Ironically, right from the outset, this paper takes exception to one of the pillars of logical-empiricist philosophy of biology:

> I do not have the intention to infer deductively from the history of physics in which direction biology "should" proceed. For I am not of the opinion that there is, after all, only one empirical science, namely physics, to which all others are reduced.[57]

In a footnote Lewin talks about "a thesis with respect to 'unified science' ", put forward by Carnap, to which Lewin attests "an absolutely speculative character similar to older conceptions. It satisfies as little the requirements of considering the factual development of science as it does the requirements of mathematics".[58]

To sum up: in *Erkenntnis*, the key journal of the movement, logical empiricists themselves did not contribute any remarkable work to the philosophy of biology. In addition, there does not seem to be any positive influence on the work related to the philosophy of biology of those biologists, physicians, and philosophers for whom logical empiricism provided a platform. The only exception, Lewin, dissociates himself from a central logical-empiricist tenet. Instead, it took another two to three decades (after Paris) before the great ideas about the logical analysis of science that logical empiricism had inaugurated would become fruitful for biology.[59]

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57. "Ich habe nicht die Absicht, aus der Geschichte der Physik deduktiv zu schließen, was die Biologie tun 'soll'. Denn ich bin nicht der Meinung, daß es letzten Endes nur eine einzige Wissenschaft, die Physik, gibt, auf die alle übrigen zurückgehen" [Lewin 1930, 423].

58. [Lewin 1930, 423]: "In den klaren Arbeiten von Carnap zur mathematischen Logik wird eine These über die 'Einheitswissenschaft' vertreten, die [...] ähnlich wie die älteren Gedankengänge einen durchaus spekulativen Charakter trägt und den Anforderungen einer 'empirischen' Berücksichtigung der faktischen Wissenschaftsentwicklung ebensowenig genügt wie den Anforderungen der Mathematik."

59. This turn might arguably be connected with Morton Beckner's [Beckner 1959]. I would like to thank my friend Peter Machamer (Pittsburgh) for calling my attention to Beckner.

Acknowledgments

I would like to thank Dr. Brigitte Parakenings of the Philosophisches Archiv der Universität Konstanz (PAUK) for providing me with transcriptions of shorthand diaries and other relevant archival material.

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