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# Beth's Philosophical Intentions. An Introduction

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**Abstract.** Behind the study of logic and the philosophy of science one finds various quite different interests at work - elitist, mathematical, scientific, philosophical, practical, or religious. Beth belonged to the small group of logicians who respected all of these points of departure, perhaps with exception of the elitist brand. Beth's basic intentions as a thinker are disclosed in his correspondence with the Swiss philosopher M. Aebi, forerunner in one of Beth's favourite fields of interest; in fiery discussions with anti-democratic European and indifferent American philosophers; in the testimony of his colleague A. Heyting. Beth's critiques and analyses of older forms of thought are corroborated by written outputs of several extremist minds.<sup>1</sup>

**Résumé.** A l'arrière-plan de la logique et de la philosophie de la science on décèle les intentions les plus diverses ; élitistes, mathématiques, scientifiques, philosophiques, utilitaires ou religieuses. Beth appartenait au petit groupe de logiciens qui prenaient en considération tous ces points de vue excepté peut-être l'élitisme. Les intentions

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<sup>1</sup> Though I have often had occasion to write on problems that are dealt with in the present paper, thanks to the spirited cooperation bestowed upon me by Henk Visser, who took time to provide me with letters from the Beth archive that I had not yet seen, I can now further corroborate my earlier analyses and conclusions. I add my sincere thanks to Paula Velthuys-Bechthold for [Velthuys-Bechthold 1995], as well as to her predecessors Anneke Ribberink and Paul van Ulsen.

américains indifférents en matière politique, ainsi que dans le témoignage de son collègue A. Heyting. Les critiques et analyses faites par Beth des formes traditionnelles de la pensée sont confirmées dans les écrits de plusieurs penseurs extrémistes.

**1. Beth's philosophy: a riddle.** Evert Willem Beth was one of the two, or three, most important authors of philosophical work produced in the Netherlands.

Among analytical professionals Beth's logical and semantical work is famous. His delight in the intricacies and formal technicalities in logic and metamathematics is quite unforgettable. He excelled in (meta)logical engineering, and this, fortunately, is recognized.

His footing in the logical history of ideas, however, though of no lesser value and perhaps of even greater distinctiveness, is less well known, or suppressed, not talked about. The same is true of his empirical programme. Some mathematicians try to *define* Beth as an able commentator of "Amsterdam intuitionism", and that's that.

In fact, Beth's general vision of the incorporation of logical problems into the general cultural activity was so unwished for that neither the international society of professional logicians nor the Dutch philosophical world has been able to absorb it.

Beth was, with heart and soul, a logician. Given his physical constitution one is allowed to say that he - in order to promote his objectives - worked himself to death.

What precisely could these objectives have been? What did he himself disclose about this in writing?

**2. A Memorial Colloquium.** Shortly after Beth's death in 1964 a Beth Memorial Colloquium took place at the Centre Henri Poincaré (Paris). It was arranged by his friend J.-L. Destouches, the director of the institute, who pointed to Beth's bonds with France:

Evert W. Beth était un grand ami de la France où il aimait venir, non seulement pour son travail, mais aussi pour ses vacances. Il parlait très bien notre langue et comptait ici de nombreux amis.

Il a joué un rôle important dans le développement de la Logique en France, où les doctrines de Henri Poincaré avaient créé un climat peu favorable à cette discipline. ... On lui doit des livres écrits en français,

qui ont joué le rôle de manuels de Logique pour nos étudiants.  
[Destouches 1967, Allocution]

In concluding the conference the mathematician A. Heyting, his good colleague in Amsterdam, summed up his impression of Beth in these words:

Beth n'était pas seulement logicien, il était aussi, et même en premier lieu, philosophe. Ce qui l'intéressait surtout c'était la contribution de la science moderne à la philosophie. [Heyting 1967]

Other participants paid little or no attention to Beth's central ambitions. In the United States the situation was no different:

**3. "Your policy in France": Beth to Alonzo Church.** Let us go back to the year 1951. Beth is a member of the editorial board of the American *Journal of Symbolic Logic*; he has been so since before World War II. Alonzo Church was its editor-in-chief.

On 11 June 1951 Beth notifies Church of his dissatisfaction with a review Church has sent to him in advance for his information. It is a review of Beth's own *Fondements logiques des mathématiques*, published in Paris and Louvain the year before [Beth 1950]. The review, intended for publication in the *JSL*, is negative, pointing out a number of technical inaccuracies and mistakes; it is however not yet printed, and Beth asks Church to ask the reviewer to revise it. He (correctly) holds that several of the errors the reviewer mentions can hardly be characterized as errors at all, and certainly not as serious mistakes. No less important, this is the *only* aspect of the book to which the American reviewer pays attention. In view of the general purpose of the book and the setting in which it is published Beth regards this as extremely unreasonable. In the correspondence that follows he writes:

I do not question the competence of Miss Novak [the reviewer]. Nor do I fail to recognize that, to my regret, my "Fondements" contain a number of errors. ... I think that a review which restricts itself to listing some of these errors and adds a number of would-be mistakes, cannot do justice to my book. [Beth to Church 11.06.1951]

Church answers with a letter of 22 June, saying that he personally accepts the review and will publish it. Beth's long reply to this on June 30 runs to three tightly typed pages. The second half is of a general logico-philosophical interest:

It seems to me that your outlook on the situation as a whole is entirely mistaken and that, no less than the reviewer, [you] fail to realize the fact that the book was written for French readers. Since 1940, the following books have been published in France [here five names of authors follow]. ... For this reason, the publication of the review is unjust. Now your argument is that the books I mentioned are not by recognized logicians and therefore less harmful. But this is certainly not the opinion of prospective readers. In their opinion, the authors I mentioned are recognized specialists in logic, and this opinion will be corroborated by the reviews in the Journal. [Beth to Church 30.06.1951]

Now an important remark follows - a reference to what he has already said in an earlier letter:

In this connection I cannot help reminding you of my letter of July 29, 1950, in which I warned you against the repercussions of your policy in France. ... I think it will be clear that I cannot under the present circumstances, remain a consulting editor of the Journal. I therefore wish to submit to you my resignation, leaving it to you to decide at which date within the current year you prefer to drop my name from the cover. [Beth to Church 30.06.1951]

The letter ends on an extremely civil note.

This is the first question I shall take up: Did Beth really mean what he wrote to Alonzo Church in 1951? And did he mean it in a serious manner? Or was he mainly badly hurt? I knew him well, but that is not enough. I shall offer a number of textual arguments to show that, hurt or not, he did mean what he wrote.

#### **4. Logic and the realities of human thought: Aebi on Immanuel Kant.** The Beth-Church correspondence referred to took place in 1950 and 1951.

In 1947 the Swiss philosopher Magdalena Aebi had published a book that bore the following title: *Kant's Begründung der "Deutschen Philosophie"*. Her book contains a detailed critique of the logical foundations of Immanuel Kant's *Critique of Pure Reason*, in particular of his "transcendental" logic.

The book is not one of the usual prostrations before Kantian texts. In the course of 525 pages she tears Kant's "transcendental logic" to pieces. Let me mention one crucial logical point. Aebi systematically criticizes Kant for

perpetrating a fallacy of four terms - right in the logical heart of his (pre-Fregean) philosophy. Aebi points out:

(1) that the possibility of carrying out a valid *introduction* - a valid "metaphysical deduction" - *of a category or pure concept* rests upon the validity of Kant's "transcendental deduction"; (2) that the transcendental deduction is an argument in the first syllogistic figure; (3) which according to Aebi is in the mood Barbara; (4) that this argument (as well as, after Kant, Hegel's Argument by Analogy, EMB.) contains a *quaternio terminorum*, the fallacy of four terms, the middle term being used in two different senses.

Kant offers more than one version of his "transcendental" deduction, but (1)-(4) holds for each of them [Aebi 1947, 317-24]. If one wants to understand Aebi and Beth, it is important to think through what all this suggests in practical political terms.<sup>2</sup>

**5. Beth on Aebi on Kant.** Aebi sends a copy to Professor Beth in Amsterdam.

From the nineteen-thirties Beth, at first a Neo-Kantian himself, had experienced at close quarters the insufficiency of Neo-Kantianism as a prophylactic against liaisons with inhumanity.

Neo-Kantianism did not *cause* evil, but it was too weak to prevent evil. The weakest point in Kant's philosophy was logic. The logic Kant recommended was so poor that it could prevent neither the outbreak of irrationalisms nor their success. The chairman for many years of the Neo-Kantian Society for *Critical Philosophy*, Tobie Goedewagen, via Hegelianism became a Nazi and a member of the SS. The mathematician L.E.J. Brouwer was often characterized as a Neo-Kantian of sorts. It did not much help, Brouwer was in his youth inhumane and during the occupation he leaned towards fellow-travelling. In 1944 Beth publishes a small history of logic of which an enlarged second edition appears in 1948. In this book he laments Kant's "extremely conservative", "reactionary" influence on the development of logic [Beth 1948a, 46, 51-54].<sup>3</sup>

<sup>2</sup> Cf. n. 15. A technical discussion of Aebi's logical arguments would make this paper too long. Something may be found in [Barth 1974, 375ff].

<sup>3</sup> Also relevant: [Beth 1948a, 18f, 42], on Kant's promotion of the interpretation of *individual* propositions as universal - undoubtedly a stimulant for confidence in "the general" so-and-so.

1948 is also the year of the Amsterdam post-WWII congress on logic, methodology and the philosophy of the exact sciences. An extensive correspondence between Aebi and Beth takes place. Beth is immensely interested and encourages her to come to Amsterdam. He disagrees with Aebi only on one point: rather than to Kant's genetic disposition these insufficiencies of Kant's critical mind were probably due to a weak and insufficient education.

Beth writes no less than *three* reviews, all exceptionally favourable, of Aebi's book. One appears in the *Neue Zürcher Zeitung*: "Eine neue Metakritik - Zum Buche 'Kants Begründung der deutschen Philosophie' von Magdalena Aebi", and two in the Netherlands, one in *Elsevier*: "The Fall of Kantianism", and one in *Algemeen Nederlands Tijdschrift voor Wijsbegeerte en Psychologie*:

In the book under review here things are put forth that for many people, also in our country, will make for extremely painful reading, but which nevertheless sooner or later had to be said. ... [T]he fact that she has said them demonstrates her moral sincerity and her intellectual courage. I hope that her merits for Western philosophy will be acknowledged.

Writing to Beth on 6 September Aebi encloses two other reviews of her book, written by important thinkers who were likewise on her side: the Geneva economist Wilhelm Röpke and, surprisingly, the psychiatrist Carl G. Jung in Küsnacht - *the* Carl Jung. Both are quite enthusiastic about the seriousness of Dr. Aebi's approach: "Ich glaube, dass Sie etwas höchst verdienstvolles vollbracht haben ... und so haben Sie recht auf allgemeinen und lebhaften Dank" [Röpke to Aebi 5.02.1948].

Others reacted differently. Dutch Kantians - of whom there were many at that time - were almost as flabbergasted by her book as were many of their German colleagues. I mention one, a professor at Leyden, who laments: "What a pity that the men who might have measured their strength against hers seem to be extinct, or at least to keep silent" [Beerling 1949].

Beth, a man and a logician at that, did not keep silent. He measured his strength with hers and concluded for all the world to see that she was in all likelihood completely right.

Some years later, in 1954, Beth receives a letter directly from Julius Ebbinghaus, a professor in philosophy in Marburg an der Lahn, accompanied by a copy of Ebbinghaus' own review of Aebi's critique. Ebbinghaus knew about Beth's high opinion of her analysis and could not disagree more.

What precisely was it that made Ebbinghaus' reaction so negative? In his answer to Ebbinghaus Beth writes:

What I take exception to in your own and many other reviews is, firstly, a form of argumentation that is quite foreign to me ... The weakness of the criticisms of Aebi's book that I have seen is ... that they, in advance, present the attempt to demonstrate a mistake in Kant as unreasonable and the unreasonableness of such an attempt as evident. In my opinion, given the situation that a clear interpretation of Kant that is generally seen as universally compelling, is lacking, an endeavour like Aebi's must on the contrary be accepted as fully rational (*vernunftgemäß*); thereafter and on this basis one could proceed to determine in an objective manner to what extent the present endeavour is also a success.

I shall have to admit that your gross rejection of the book is, to me, absolutely ununderstandable. I have repeatedly occupied myself with Kant (a study of Kant's division of judgments into analytic and synthetic judgments will be forwarded to you when it has been published), and I have the impression that her critics have not at all understood the problematic underlying Aebi's book. [Beth to Ebbinghaus 23.05.1954].<sup>4</sup>

In *The Foundations of Mathematics* of 1959 Beth brings up Aebi's treatise on Kantian foundations:

The bankruptcy of Kantianism and of German Idealism, which for nearly a century had prevented the *diffusion of up-to-date conceptions* regarding the foundations of mathematics, has become more and more evident, for instance from a recent and important book by Magdalena Aebi. [Beth 1965, 615, italics added]

So far we have only referred to the prevention of such diffusion in Germany in the thirties and forties. Now what about France?<sup>5</sup> We shall come to it, though by a detour.

**6. An attack on science and "rationalism" in France.** In the nineteen-eighties I took up the Beth-Church correspondence of 1951 in a couple of talks and published a paper on it. Some Dutch mathematicians of an intuitionist provenance found the topic and Beth's reactions ridiculous, a scandal - shameful to Beth's reputation. I did not agree, but there matters stood.

<sup>4</sup> English translations of Beth's German correspondence or other non-English texts by the present author.

<sup>5</sup> Nineteen years after its publication an English philosopher, in his own examination of Kant's *Analytic*, says: "Part of the trouble is that Kant's use of 'object' is viciously ambiguous" [Bennett 1966, 13]. He does not refer to Aebi's book.

Then, at Professor Heinzmann's Henri Poincaré conference in 1994, I had the good luck to hear the lecture given by Professor Vax of the Université de Nancy. Professor Vax discussed how, in France, the diffusion and development of logic as a branch of academic study was for a long time nearly impossible, in large part through the dominance of the philosophical field by Léon Brunschvicg, professor of philosophy and no lover of recent developments in logic.

Again, let us go back to 1951, the year of Beth's correspondence with Church and his subsequent withdrawal from the *JSL*. In that same year a Dutch Hegelian publishes a long essay, running to 52 pages, on Aebi's book [Van der Meulen 1951]. Professor Beth in Amsterdam reviews this essay in the following terms [inv. no. 587]:

The author is one of the first to try to take Kant under his protection against the criticism advanced against the latter's transcendental logic by Magdalena Aebi in her sensational book on *Kant's Begründung der deutschen Philosophie* (Basel 1947). His philosophical and scientific education is, however, so far in no way sufficient to make him a match to the task he has taken upon himself. Of the development in particular of the field of the philosophy of the exact sciences, which form the background of Aebi's argumentation, he clearly has no idea at all. Thus he speaks of "die selbst-vergessen Logiker d.h. die Logistiker" (p. 10), about "the ineradicable allegation of an incompatibility of the Kantian doctrine with the results in meta-geometry" (p. 20) ... Did he take his information on the points mentioned here exclusively from L. Brunschvicg's *Les étapes de la philosophie mathématique?* (That work dates from 1912; the edition mentioned by the author, from the year 1947, is an unaltered reprint.)

Signed E.W. Beth. So Beth was well acquainted with Brunschvicg's intuitionist leanings (see [Beth and Piaget 1966, 18f]). Elsewhere he refers to Brunschvicg's criticism both of logicism and of Cantorism - delicate technical developments that Beth was to take up in depth. Like Meyerson, Brunschvicg has "failed," Beth writes, "to show satisfactory understanding of the contemporary development of science." [Beth 1965, 617f]

At several places Beth also mentions another extremely influential Frenchman, the famous Jacques Maritain, who was once much taken with *primordial intuition* and held that "there is not only logical reason but also, and

prior to it, intuitive reason" (Maritain, as quoted in [Evans 1967]).<sup>6</sup> Beth parries Maritain's *Antimoderne* (1923) by an unusually frequent use of "modern logic".

As we have seen, Beth chose to leave the *Journal of Symbolic Logic*. In a letter addressed to another American logician, S.C. Kleene, Beth writes: "I am completely at a loss as to the motives behind Church's action or the lack of such motives." This last, seemingly casual remark - "or the lack of such motives" - is the crux of the discussion. Beth expected some of the same motivation in others, but he found little or nothing of the sort.

Five after Beth's death a Dutch historian writes emphatically about Bergson and the role of the "intuitive method" in France before the first World War: "We are not concerned with incidental gibes directed towards science, or with an innocent flirtation with 'mysticism', but with a consistently designed attack on the power of reason and science," carried out by a small army of philosophers and writers who deplored the results of "intellectualism". Bergson's "glorification of intuition" was "greedily raked in as a proof par excellence of French attributes". [Wesseling 1969, 52, 54].

**7. The Beth-Durkheim principle.** In a posthumously published volume of papers Beth wrote: "For a philosophical study of logic ... a further knowledge of the logic of non-Western cultures can be of importance." In the first place, says Beth,

we shall have to pay attention to the availability of equivalents of our current means of expression for negation, implication (if ... then), generalisation, and the modalities, and of semantical concepts such as true and false.

[O]ne has to count with the possibility that in connection with formal reasoning, and perhaps also in descriptions of formal reasoning, an appeal is made to other logical and semantical concepts than those that are current here and now. [Beth 1970, 131ff].

Durkheim had played an important role as a defender of the intellect as against intuition in science; another indication that Beth had good reasons to refer in his letter to Church to "the situation in France".

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<sup>6</sup> The two publications of Maritain that are of particular interest for our problem, his *Antimoderne* (1922) and his *Petite logique* (1923, 111933), are not mentioned in Evans' paper at all.

What Beth alludes to here may be called the phenomenon of "imaginal functional compensation" [cf. Barth 1994]. Émile Durkheim, though not a logician, was also clearly aware of such phenomena; cf. [Durkheim 1912]. As a component of analytic method the idea may therefore be referred to as "the (heuristic) Durkheim-Beth principle".

**8. An attack on science in the Netherlands.** A similar attack had, as we saw, taken place in the Netherlands, under the leadership of, among others, the mathematician Brouwer. This was not put in clear terms until the appearance in 1990 of a book written for an international mathematical readership. Referring to various writings of Brouwer's the author speaks of "a fanatic attack on human science" [Van Stigt 1990, 31]. Brouwer's theory of knowledge, says another author, though no real influence can be demonstrated, shows "remarkable parallels" with that of Henri Bergson [Schmitz 1990, 191f]. In 1996 a broader Dutch readership was informed about Brouwer's agitation against science: "Science was, in Brouwer's opinion, the 'last flower and petrification of culture'" [Fontijn 1996, 405]. The reference is to [Brouwer 1905, 42].

The first sign of this anti-scientific attitude in Brouwer is his [1905]. He himself hoped that it would some day be translated into English. It is perhaps of relevance that this hope was expressed in 1964, the year of Beth's death.

Beth, of course, had always knew that book only too well. When in 1959 he publishes his *Foundations of Mathematics - a study in the philosophy of science*, he has reached the respectable age of 51 as well as an impressive reputation in and outside the country. Yet is careful. He still does not list [Brouwer 1905] among Brouwer's works in his bibliography, though he does mention it twice in the text [Beth 1965, 630, 646n]. At that time no mathematician, no formal logician and no philosopher of science either would have taken him seriously if he did.<sup>7</sup> He expressed his philosophical disdain instead through a long quotation from a recent publication of Brouwer's ([Beth 1965, 618]).

**9. A Dutch Academy of Vital Wisdom, and a School of Wisdom in Darmstadt.** Let me start the next part of my argument with another question (see the end of Section 3): *Why* would a renowned Dutch philosopher, writing in the second half of the twentieth century, towards the end of his life assemble a volume of his essays under a title that translates as "Through Science to Wisdom"? This is the literal translation of the title of [Beth 1964] (cf. [Beth 1968]). Is this not too romantic a title for a book that does not itself rest upon

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<sup>7</sup> Cf. n. 9.

any concept of wisdom at all? Shortly before it appeared the Beth died, and no one could put the question to him. But he had chosen this title himself.

In order to explain this riddle - why did Beth choose such a title? - I go back to the years between his birth (1908) and his doctorate (1935).

Continental Europe in the first three decades of this century was much taken with notions of wisdom. The Netherlands were no exception to the rule. In 1915 a letter was circulated describing the plans for a centre, in Holland, for "levenswijsheid", "wisdom for life" - an autonomous International College for Philosophy [Van Everdingen 1976]. The letter was signed by van Eeden's friend, the young mystic and mathematician professor Brouwer, in his function of chairman of the interim committee, and six others.

The idea seems to derive from the poet and playwright Frederik van Eeden, a psychiatrist by profession [Fontijn 1996, 407f, 410f; 245ff, 256, 258, 260]. Earlier plans spoke of an "Academy of Higher Wisdom" [Fontijn 1996, 407].

The original programme for this school may be called remarkable. The signatories aspired to "a centralization of universal-philosophical life"; the Netherlands were to be the country where such a centralization was put into effect. Education would be given in the religious and philosophical systems of the world, in the philosophy of the West as well as in that of the East. A cultural epochal "crisis" had come about because the "foundations" of the era had not only become too materialistic, they were *too intellectual* as well. An earlier invitation to form a fraternity was addressed "To those of a Royal Spirit" [Schmitz 1990, 103-108].

Brouwer always remained an anti-logician. Ten years earlier, that is to say in 1905, he explicitly stated his complete dédain towards science as a value.

The 1915 circular presented the school as a future centre of wisdom. Not surprisingly, some of those who were involved in these plans came to fear a too lopsided stress on the philosophy of Eastern countries, which might well endanger one of the intentions of the programme: "the deepening and diffusion of the scientific attitude" [Van Everdingen 1976, 8]. When the following year the so-called *International School for Philosophy* was indeed established, it was without Brouwer and some other signatories.

In 1923 Evert Beth is fifteen. That year Graf Hermann Keyserling erects a *School of Wisdom* in the city of Darmstadt. Graf Hermann Keyserling (1880-1946) was a Baltic count of German stock, in those years a prominent and popular philosophical author.

Was Keyserling inspired by the school in Holland? Due to the ravages of the Second World War we do not know.

Evert Beth is the son of a mathematician and scholar, a renowned author of highly acclaimed studies of Newton's mechanics and the Calculus, a teacher of mathematics in Deventer. It is a highly cultured family, and Evert Beth loved his father very much. Some fifty years later he gives his (last) book the title "Through Science to Wisdom".

Whereas the plans for Dutch school at least make mention of an "exchange of thoughts", the School of Wisdom in Darmstadt prohibits discussion [Keyserling 1922, 464, 513, 517]. All spiritual nourishment it serves will be consumed in isolation. He speaks of "Silence as such". This is very similar to [Brouwer 1905, 71]. To Heidegger, silence was the highest form of speech.

## **10. Hoping for a chair in Utrecht (1946). Amsterdam (1946-1964).**

Beth's father later becomes the director of the secondary school in Amersfoort, the town where the new "free" Dutch school of philosophy was also erected. Evert is a university student at Utrecht, where he obtains two *doctoraal examens* (Masters' degrees), first in mathematics and physics, then in philosophy. He also took courses - in Amsterdam, Brussels, and Leyden - in numerous other subjects, from life insurance to law, and he enjoys all of it.

It was in Utrecht he took his doctor's degree (in 1935). After the war, around 1946, in Utrecht attempts are made to secure Evert Willem Beth for that university by appointing him to a new chair for philosophy. He is short-listed as No. 1; yet the chair is given to a (very capable) historian of classical philosophy, Dr Cornelius de Vogel.

Beth is now offered a chair in Amsterdam. One, perhaps the main force behind this appointment is the philosopher H. J. Pos, but the chair erected for Beth is positioned in the Institute of Mathematics. Undoubtedly with Heyting's support, yet "il n'ait jamais adhéré aux thèses philosophiques de Brouwer" [Heyting 1967].

Beth was not really happy with this development. He told his family that he would much have preferred the new chair in philosophy at Utrecht (this information comes from Beth's sister A.A.M. Beth). The reason he gave to his family was the preponderance of *socialists* at the University of Amsterdam.

This appointment to a special new chair within the department of mathematics took place at about the same time as the famous Brouwer, as a consequence of

his attitude during the Nazi-German occupation, was suspended from his. Such a context would not have been easy for anyone to tackle. In order to teach and develop his own philosophy within this setting Beth had now become critically dependent on Heyting. Heyting had been Brouwer's student and assistant and was, for his further chances in the Dutch academic world, strongly dependent on Brouwer, who after some time had been allowed to return. This constellation meant that inside the country Beth became organizationally dependent on the unoffending Heyting, and that he had to keep peace with Brouwer concerning philosophical vistas. Nor did he want to irritate or hurt Heyting - a sensitive, sensible, democratic and very likeable man whose position had been difficult enough.

To understand this is to realize that inside the country Beth could not speak his mind without running into unnecessary problems in his immediate surroundings. This may be the reason behind his choice of academic rhetoric before, say, 1959.

Add to this that another one of his new colleagues, the amiable professor H.M.J. Oldewelt, was a dedicated disciple of Bergson who vehemently propagated the latter's philosophy, and it will be clear that in Amsterdam, almost wherever he looked Beth was surrounded by mystical - "creationist" - intuitionists of one sort or another. In Utrecht he would have been on his own.

However, Beth was employed in Amsterdam from 1946 and remained there for the last eighteen years of his life.

The 1947 correspondence between Beth and Bocheński is interesting in this connection. Bocheński writes to Beth about a historical survey he is making, where he intends to use the expression "le grand logicien Brouwer". Bocheński wants to hear Beth's comments on the manuscript. Beth, like anyone else, respected Brouwer as a mathematician and appreciated the constructivist disposition in mathematics, but to Beth, that was not everything. (I shall have more about this in a moment). To Bocheński's request in 1947 Beth answers:

Je ne suis pas d'accord avec votre notice. Brouwer a toujours vivement combattu l'influence de la logique, soit traditionnelle, soit symbolique, dans la fondation des mathématiques. D'après lui il faut adapter la langue mathématique, donc aussi la logique, à la pensée mathématique. Par conséquent il considère les tentatives de fonder les mathématiques sur la logique comme cercle vicieux. (Beth to Bocheński, 31-05-1947)

**11. Different forms of mathematical thought. "Unintended results".** Eleven years later, in 1958, Beth writes a letter to Brouwer about a meeting that had taken place the day before; here Beth gave a lecture that seems to have

ended with a wild debate between the two. Brouwer has been retired since 1951, and Beth, still in his best years, now puts into writing:

(1) Mathematics and logic are not given us directly as particular entities. What is historically given presents itself as a complex of heterogeneous, albeit connecting, tendencies, activities and results.

(2) From this complex it is possible - by means of a kind of abstraction - to isolate a component, which through a suitable theoretical treatment may be elaborated into a general logic. ...

There are points of contact with intuitionism, but also a great number of points of difference. This is connected with, among other things, the fact that I do not have as a goal to [in advance] sing the praises of certain forms of logical reasoning; rather, it is my intention *to investigate how different forms of logical reasoning* - for instance of mathematical thought - are leading one to directly intended or unintended results.

*To contribute directly to the development of mathematics is certainly not what is primarily on my mind.* It is, therefore, a 'piece of good luck' that my most recent work has turned out to be fertile *also* in this sense. (To Brouwer 18-03-1958; italics added).

This is the clearest short formulation I have ever seen of Beth's goal: To investigate how different forms of logical reasoning may lead to intended but also to unintended results.

His *Foundations of Mathematics* attempts to do exactly that for mathematics itself, hence the title. His correspondence shows that saw the relation between logics and philosophies in exactly the same light.

In *Foundations* he also mentions the importance of a *diffusion of up-to-date conceptions* (regarding the foundations of mathematics). In other words, this book should be read as a state-of-the-art analysis of theoretical logic as of 1958-59: *it brought informed contributions of all hues*. Whereas Brouwer has been criticized for exactly the opposite conduct [Van Stigt 1990, 115, 195, 204] Beth makes use of *very frequent references to, and quotations from other thinkers.*

A dialogical logic in practice, suiting a skeptical epistemology à la Karl Popper. "Suppose the premises are all true and the conclusion wrong ..." In

1959 he takes a further conceptual step in the same direction: "We imagine the following game between two players, A and B ..." [Beth 1959b].<sup>8</sup>

**12. "Inhumane results".** Careful as he was, about this question Beth put more on paper. The year before he has a correspondence with an Amsterdam left-wing Christian existentialist who has, successively, taken different extreme political standpoints. His correspondent, who has no positive interest in logic's value as a philosophical tool, has just brought up Bertrand Russell's philosophy in a very critical way. Beth writes:

I would like to put to you, in all seriousness, the following question: are you familiar with *one* case in which practical application of Russell's theories have led to clearly inhumane results?

Without further clarification this question would be a knock-down argument, so I shall clarify as follows. If one brings forward against Marxism that in practice it leads to mass deportations, the Marxist will hardly come up with the answer that mass deportation is a humane measure; rather, he will say that mass deportation is less inhumane than capitalism and that in the battle with capitalism it is therefore acceptable.

That this answer is not satisfactory may be explained as follows. Mass deportations are *inhuman under all circumstances*, whereas it is not established that (for non-Marxists) that capitalism is necessarily inhuman under all circumstances. ...

I am prepared to take it from you that Heidegger's thought is "a continuous attempt to formulate sharply and consistently". *But what is the result of this attempt*, and, above all: according to which yard-stick is this result to be judged? (To B. Delfgaauw 5 December 1958; italics added.)

In this discussion, too, Brunschvicg is mentioned.

Beth wrote to Brouwer the mathematical mystic about forms of logical reasoning, for instance in mathematics, that could lead to directly intended or "*unintended results*". To the Christian existentialist he speaks of "*inhumane results*". The remarks on inhumane results are to be taken literally. This correspondent had an obscure early World-War-II history which Beth in all probability knew about.

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<sup>8</sup> Beth's view on logic and its function in society is based on a two-role practical attitude to "semiotics" which, however, remains implicit (an extraction of is attempted in [Barth 1985]).

Summing up: In letters from his last years Beth explains himself as a practical reformer to whom the facts of inhumanity were philosophically relevant. In his days not even political scientists shared this point of view.<sup>9</sup>

**13. Logic to some purpose: The emancipation of Falsity.** Beth understood logic as *rational critique*, a culturally relevant discipline with empirical, philosophical and practical components. A combination of logic and the history of ideas opens new vistas. Bocheński's series on logic and other philosophy in the Soviet Union, *Sovietica*, is a case in point.<sup>10</sup>

How did Beth attempt to reach his philosophical goals? The connection between his interests as a philosopher and his logical intentions goes via the development of a "Logic to some purpose"<sup>11</sup> - the purposes running from the foundations of mathematics and the physical sciences to the furtherance of liberal human mentalities.

[1] Beth realized that theories concerning logic, old and new, to a considerable degree reflect forms of cognition which are of unheeded importance for human thought; this holds also outside mathematics.

[2] He assumed that a world-wide improvement of (theoretical and) practical logic is one necessary condition for the long-term improvement of human thinking.

[3] Logical-cognitive empirical research, be it of a historical or a psychological or a linguistic character, will disclose the differences between contemporary modes of practical or theoretical thought and the weak points. We may quite safely say that he envisaged a "cognitive science" before the term existed, whose results were to be used to improve human thinking in general. The part of logic in this complex is that of an *empirical* philosophy of logic, and an *empirical* treatment of human logics.

<sup>9</sup> Cf. [Conquest 1997]: "... Mikhail Gorbachev has lately said, 'Cruelty was the main problem with Lenin.' There has never been much doubt about this; but the newly available documents were presumably suppressed because they showed the gloating inhumanity of the man. Not being an accepted political science concept, cruelty as such seems to have largely evaded academic treatment of the period."

<sup>10</sup> See, e.g., his own book *Die dogmatischen Grundlagen der sowjetischen Philosophie* (Stand 1958), Dordrecht-Holland 1958: D. Reidel, 1958; transl. as *The Dogmatic Principles of Soviet Philosophy* [As of 1958]. Synopsis of the 'Osnovy Marksistskoj Filosofii', with complete index, Dordrecht-Holland: D. Reidel, 1963.

<sup>11</sup> Adapted from the title of L. Susan Stebbing's *Thinking to Some Purpose* (1939 and later editions).

Philosophy is not allowed to lure its producer or its consumer to the exclusion of other thinkers, or to more rabid inhumane activity. The primary aim of the historico-empirical mapping and analysis of logics which he envisaged must be to assist the world so that this cannot take place.

Here Popper and Beth run up against two classical thinkers

whom Beth, at least, did not deal with. The one is Plotinus, who held that there is a highest soul than cannot err:

Mistakes are excluded as far as the highest, spiritual soul is concerned, they belong only to the lowest soul. (Plotinus)<sup>12</sup>

The other one is Saint Augustine, his disciple. One of Augustine's biographers chose for his two books on Augustine these titles: *Augustine's Quest of Wisdom, Augustine's Love of Wisdom*. "Wisdom" twice over.

Beth, as everyone knows, emphasized two-valued *semantics*, semantical model-theory, and the method of semantic tableaus (but cancelled the traditional dualism of "Being"). Tarski, Popper and Beth brought about the semantical and logical emancipation of the category of Falsity.<sup>13</sup> It is no longer a privative term only, to be defined as merely the absence of Truth, as it was in idealist logic. In Tarski's and Beth's logic (and Popper's epistemology) it makes no more sense to take Falsity as a "privation" of Truth than the other way round.

**14. So why did he call a book "Through Science to Wisdom"?** We have a problem of interpretation. This is its solution: the title of the book should not be read as a plea for a concept of wisdom. The emphasis lies on "science", and it must be read polemically: "Through science to wisdom (in as far as there is anything deserving of the name wisdom to be had)". From the assault on science in the countries of continental Europe, Beth drew the conclusion that in order to combat, at least countervail "the irrationalism of our

<sup>12</sup> Quoted from [Alt 1993, 119]. Cf. Bourke on St. Augustine: "The soul may err in its corporeal vision (and he uses as an example the illusion of the stick which appears broken at the water line); it may be mistaken in spiritual vision, about the likenesses of things corporeal. *It is never mistaken about the things which are seen intellectually; either it understands, and then its knowledge is true, or it does not understand, and then there is no truth.*" [Bourke 1945]; italics added.

<sup>13</sup> Perhaps Heyting's name should be included in this group, too - I say perhaps. He formalized constructivist logic, including the use of negation, though he did not much go into semantics. Brouwer's understanding of negation was of an idealist-ontological nature [cf. Van Stigt 1990].

age" one would have to lay bare the backbone of irrational thought. And, furthermore, to pay precisely as much attention to the notion of falsity as to the notion of truth; explicitly mentioning everyone, excluding no one, in a never-ending though changing discussion.

In his discussions of the concepts around the "General Triangle" Beth draws the following conclusion: this stock of ideas is "one of the roots of the new irrationalism".

Notice that he - of course - says "one of the roots", and not "*the* root". He adds that the outlook of the "Amsterdam intuitionism" in the foundations of mathematics certainly cannot be subsumed under rationalism, though it does not tally with "the more current forms of irrationalism". This does not prevent him from on the next page listing together "Descartes, Kant, Bolland and Brouwer", all of whom saw mathematical proof as being "only apparently" of a logical character, whereas the reasoning in reality proceeds by "intuitible (aanschouwelijke) constructions". And a couple of years later: "If intuitionistic thought is at all a legitimate form of mathematical thought ... we must, in particular, try to eliminate such subjective, and sometimes even mystical, elements as can be found in most intuitionistic writings".<sup>14</sup>

Many of Beth's titles mirror ideas of which he disapproved, in a manner expressing protest. Keyserling, Hugo Dingler and many others had published books called *Naturphilosophie*. Beth does not like the (idealist) concept of "*Naturphilosophie*" - *most* authors on this topic are not even informed. So in 1948 he publishes a book on his own on modern physics, and calls it - *Natuurphilosophie* [Beth 1948b]. As Heyting put it (in personal communication):

"Beth was a fighter, you know."

**15. Heidegger: "Return to Greek science!"** Though Heidegger plays a part in the Beth-Delfgaauw discussion mentioned above, Beth (to my knowledge) never refers to him in writing. However that may be, sizing Heidegger up against Beth adds to our understanding of the nexus of Beth's intentions.

One of Heidegger's obsessions was "the will to the essence of Science", which implied the necessity of a return to the classical Greek concept of science. "Heidegger seems literally to believe that science in the ancient Greek sense will realize the Nazi goal ... of gathering what is authentically German,"

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<sup>14</sup> [Beth 1956a], in: [Beth 1967, Sections 20-22: pp. 46-48], [Beth 1970, Ch. IV]; [Beth 1959b]. See also [Beth 1957b, 141-153, 164-165].

says a recent author. This goal could be reached through so-called *Wissenschaftslager*, camps of scientific reeducation.

Such themes are ventured in his infamous *Rektoratsrede* in 1933, on "the exposition of the essence of knowing and science", where he draws up the political responsibilities and duties of the *universities* [Rockmore 1997, 63f, 68, 101].

In 1929 Heidegger attacks the question of the preconditions of Aristotle's doctrine of Principles ["Vom Wesen des Grundes", 1929].

From 1944/45 onwards, if not earlier, Beth's growing fascination with Aristotle's fundamentalist conception of science and its influence on philosophical and general mentality is shown in his publications. In 1952 he lectures on this in Stanford and Los Angeles. In 1959 he devotes the first fifty pages of *The Foundations of Mathematics* to the classical Greek notion of science, pointing to "(Plato's and) Aristotle's Principle of the Absolute". In numerous publications he discusses how earlier philosophers depended on Aristotle's reference to "ekthesis", the "exposition" of an individual term, which had functioned as a stopgap for the formal rule we are familiar with today.

The Netherlands contained a goodly number of Heideggerians. The critical study of Heidegger may be dated back to around 1962 - before that time the question was under taboo - but it did not take off until the nineteen-eighties. The Heidegger archive is closed to scholars [Rockmore 1997, 25]. The Beth archive is not.

**16. "... a symbol of the Universal".** Beth scrutinized the discussions of "the Triangle" he found in Locke, Berkeley and Kant. In fact, I believe that Aebi's book has been a crucial stimulation, perhaps the original incitement for Beth to write his own 1956 paper on "proofs by exposition" (with reference to Bocheński) and the "the General Triangle", as discussed by Locke, Berkeley and - Kant.<sup>15</sup> The logical steps that can validate reasoning from *Some individual X*'s ... (existential instantiation, EI) or reasoning toward a universal conclusion *Every X* ... (universal generalization, UG), had not yet been clarified. Hence "the general X" was called upon to explain that such reasoning sometimes (e.g., in geometry) seemed compelling to everyone.

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<sup>15</sup> Cf. [Beth 1956a], [Beth 1956/1957a], [1964 (1959), 56, 192f]; [Beth and Piaget 1961, 7ff]; [Barth 1974].

It cannot be emphasized too strongly that Saint Augustine, too, though not a mathematician at all, had already attributed great epistemological importance to "the Triangle" - Augustine's favourite example of a "form".<sup>16</sup>

Beth did not, however, pay much attention to the exceedingly influential St. Augustine on "the Triangle". Nor did he discuss Augustine's elitist ideas of ways of arriving at "evident Knowledge" and "Wisdom". This may have had political reasons; to do so would have been quite risky in philosophical Holland, where the power of theology in philosophy was still strongly felt.

Beth chose other sources. To his discussions of irrational theories concerning EI and UG let us add two further examples of improper or untoward instantiation and generalization. These examples will demonstrate the necessity, for the purposes mentioned, of coupling the history of logic with the history of ideas.

Count Hermann Keyserling's School of Wisdom had as its goal

"to deepen a given Singular in its given specificity till it becomes a symbol of the Universal".<sup>17</sup>

What are we to make of this? What does it mean? It means that the School of Wisdom, intending to encourage the students to describe human beings in terms of "types", laid claims to train the pupil's ability to see what is "general" in any given individual. One could learn there, so the School claimed, to "see" any one individual or phenomenon in a group as a "symbol" for the group as a whole, i.e. as a paradigm case of some type. (Compare Locke, Berkeley and Kant on "the Triangle"!)

In other words, the students were to be trained in a special form of (un)logic: a primitive paradigmatic logic, based on the belief in the necessity - but also the *possibility* - of achieving existential instantiation and, from there, universal generalization, by means of Augustinian interiorist *Anschauung*, an Augustinian-Bergsonian intuition.

Finding this as the official objective for a "center of wisdom" is, given our wish to assess the importance of Beth's analyses, more than one could hope for.

<sup>16</sup> Cf. [Bourke 1992, 10], with reference to Augustine's *De genesi ad litteram, libri 12*, 401-15, and also to [Bourke 1945, Ch. 12]; cf. [Jaspers 1967, 121].

<sup>17</sup> "Only by synthesizing the particular under the general knowledge can come about" - "Nur durch Zusammenfassung des Besonderen unter dem Allgemeinen kommt Erkenntnis zustande", [Keyserling 1926, 69].

Beth missed out, it seems, on this important point in the history of ideas: the heritage from St. Augustine in European thought and habits of thought. It is hard to tell whether this is due to oversight or to political restraint. In any case, Beth's contributions to the history of logical ideas bequeath crucial instruments for an investigation of one of the crudest cases of that irrationalism which Beth set out to assail.

Vidkun Quisling, Norwegian army officer, herostratically famed as traitor to his country and in 1945 executed for high treason, was - incredible as it may sound - a closet philosopher. From him much can be learned on the practical import of the logical structures in human minds.

Quisling was devoted to "wisdom", and gave expression to this in many ways: he thought in terms of a "the true Stone of Wisdom [Philosophers' Stone], hard and clear as diamond", and in idealist "creative thought". "Between all wise men - hommes d'esprit - there is a freemasonry of sorts." In the interbellum Quisling, too, made plans for an order for the spiritual elite, a brotherhood, which he sometimes described as "an association of teacher and pupils".

This self-appointed political actor celebrated the wise man's capacity precisely to "discern the general in the individual". Quisling's first philosophical inspiration was Saint Augustine; the next (but not last) was Schopenhauer.

A discovery from recent years is that Quisling mentions the same pivotal dogma in the history of European intellectual life which was also the goal of the school in Darmstadt: to teach the doctrine of a *specific ability* which he ascribes to the Wise, an ability "to glimpse the general in the individual". This must take place "intuitively"; words can scarcely meet the demand. In what was intended to become the preface of a large philosophical work he hoped to write, we read [Barth 1996, 29]:

What particularly has been close to my heart is to show the unity, the connectedness of it all. And he whose spirit is not of the most pedestrian kind, will, by reading this book, be possessed of an *immediate, intuitive conviction* of what I thus have sought to describe in words. I say that anyone who, thanks to a somewhat *higher consciousness*, and not like the animals limited to an understanding of the individual, also begins, if only just so, to *glimpse the general in the individual*, will to a certain extent be part of *this great wisdom*, and as an immediate and therefore a true conviction at that. (Quisling)

Like most, perhaps all of the authors we have discussed so far, Quisling applied this to individual persons.

Quisling at first took it from Schopenhauer, his first philosophical idol. Schopenhauer wrote: "Plato rightly founded the whole of philosophy on his doctrine of ideas, i.e., the doctrine of *glimpsing the general in the individual*" - "... das Erblicken des Allgemeinen im Einzelnen", [Schopenhauer 1919, vol. 2, 543].

Quisling depended on the shibboleths Beth fought against: im-mediate evidence, immediate and therefore certain conviction, the whole cult of (intuitive) Wisdom.

**17. Conclusion. Aebi's and Beth's hypotheses vindicated.** The most characteristic features of Beth as a philosopher have after his death been subdued, hushed down. There are costs connected with mentioning them. Correspondingly, Aebi's book has, if I am not much mistaken, never been translated into English or French - a philosophical tragedy.

Quisling's case demonstrates that Beth's investigations as much concern the logic of individual human "examples" in political life as they concern the logic of individual figures in plane geometry. I regard this as a final confirmation of the importance of Beth's conclusions about Locke's general triangle and the roots of irrationalism.<sup>18</sup>

It is a triumph to Aebi as well. Quisling belongs among the factual objects of both Aebi's and Beth's arrows:

As an extension of Louis 14.'s maxim every man [*changed into the generic singular: J*] Man can therefore say: Dieu, c'est moi. Logos has descended to earth, has become flesh, and lives among us. The intuiting man recognizes with joy and admiration that he himself is God and feels lifted above all dormant forms.

The date on which he wrote this is unknown. I had published this already [Barth 1996, 34] when in one of Aebi's letters to Beth I found the following, which I may perhaps be allowed to render in Aebi's original German:

Ich sehe in der Tendenz der deutschen Systeme zu Verabsolutierungen als stark wirksam einen Hang zur Diktatur und zu diktatorischen Entscheidungen an, über die keine Diskussion mehr gestattet wird. Derjenige aber, der die Gesetze diktiert, ist das Ich, und dieses Ich wird -

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<sup>18</sup> An interesting discussion of Locke's intuitionism is found in Martin Lamm, *Swedenborg*, 1987 (1915), 28.

bei Schelling und Hegel - zur Gottheit erhoben. ... Die deutschen Systeme unterscheiden sich [...] hierin vom Absolutheitsbestreben des Platon und Aristoteles. [Aebi to Beth 06.09.1948]

Here a footnote follows:

Bei Kant selbst ist das "Absolutheitsstreben" wohl ursprünglich aus dem Erkenntnistrieb zu erklären. ... Was ich Kant vorwerfe, ist durchaus nicht dieses Streben an sich, sondern die groben Fehler, die er gemacht hat. Ich werfe ihm vor, dass seine Ableitungen nicht stimmen, dass er grobe Begriffsverwechslungen begangen hat. [Aebi to Beth, l.c.]

To know about the Quisling case, in all its dimensions, would have encouraged both Magdalena Aebi and Evert Willem Beth in their unusual research.

It is not uncommon among mathematicians to celebrate mathematics as the main entrance to God's mind, and to regard the mathematician as God's closest image - and to leave it at that. Mathematics comes "first". To associate Beth with this attitude would be infamy. Beth did not partake of this belief. Nor did he succumb to the strategy of life that Nabokov has symbolized as "Lushin's Defense" [Nabokov 1930] - a total withdrawal into the non-familiar, impractical, non-natural, "pure". Beth, himself an immensely gifted man and a very able mathematician, was not an elitist of any kind. Yet he accepted no nonsense from others. He was an individualist liberal democrat who set his scientific and cultural goals accordingly.

Thirty-five years have passed since the Memorial Colloquium. The climate has changed.<sup>19</sup> Perhaps now, finally, the full scope of Evert Willem Beth's philosophy can come to the fore.

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<sup>19</sup> Cf. Rockmore's discerning discussion of Heidegger's Nazism and his philosophy in terms of "failure to oppose", "failure to reject", "insufficient", in [Rockmore 1997, 33, 39, 41].

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