

HISTORY OF BIOLOGY IN THE NETHERLANDS

A HISTORICAL SKETCH

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As in most countries, the history of biology as an academic discipline is of relatively recent origin in the Netherlands. The first full-time professionals were appointed in the late 1950s and early 1960s. Their number has never been large, and one sometimes worries that the entire population may one day be wiped out by sheer 'drift'. Yet so far we've managed to stay alive – in fact, the prospects are not too bad at the moment.

As elsewhere, the professional historians of biology in the Netherlands were preceded by generations of enthusiastic amateurs. We shall not even try to give all of them their due share in this overview, restricting our account to some general remarks on developments over the last century and to a few representative twentieth-century figures.

The historical genres to flourish the most in the pre-professional era were biographies, publications of the 'life and work' type, and commemorative volumes. A useful bibliography of the more important works published from the beginning of the century up to the early 1960s can be found in a review compiled by Frans Verdoorn in 1963.¹ Among the Dutch biologists who showed more than a fleeting interest in the history of their discipline and whose works clearly transcend the status of occasional writings, two of the most outstanding are F.W.T. Hunger and A. Schierbeek. They paved the way for the professionalization of the discipline in the Netherlands, particularly in that their activities and publications aroused a lasting interest in the history of biology in Dutch academic circles.

Hunger (1874-1952)² graduated from Leiden University and worked as a botanist in several institutions in Germany, Belgium and the Dutch East Indies. He was director of the *Algemeen Proefstation* in Java from 1906 to 1910. His historical interest was probably stimulated by his sojourn in the Indies, because his first con-

¹ F. Verdoorn, "Beknopt overzicht van hetgeen gedurende de laatste halve eeuw door Nederlanders, mede in de Indische Archipel, Suriname en de Nederlandse Antillen bijgedragen is tot de biohistorie," in *Vijftig jaren beoefening van de geschiedenis der geneeskunde, wiskunde en natuurwetenschappen in Nederland 1913-1963*, ed. B.P.M. Schulte (Genootschap GeWiNa, 1963), pp. 42-68.

² For Hunger, see J.A. Vollgraff, "Friedrich Wilhelm Tobias Hunger," *Archives internationales d'histoire des sciences* 31, 1952, pp. 361-362.



F.W.T. Hunger

tribution to the genre can be found in a series of articles on the cultivation of plants in the tropics. Later, Renaissance botany became his favourite historical subject. His most substantial contributions were devoted to the herbalists Rembert Dodonaeus and Carolus Clusius. Hunger's *magnum opus* was a highly idiosyncratic, but also highly sensitive and still invaluable two-volume biography of Clusius, which presented a wealth of new information on Clusius' life and botanical activities.³ There is no sign here of the habituation passing for appropriate detachedness that can get the better of the dyed-in-the-wool professional. Clusius was Hunger's hero,

³ F.W.T. Hunger, *Charles de L'Ecluse (Carolus Clusius). Nederlandsch Kruidkundige 1526-1609*, 2 vols. ('s-Gravenhage, 1927 and 1942).

and for all the disadvantages such deference entails, one is easily won over by the unbridled enthusiasm that flows from every page.

More or less the same can be said of Schierbeek's works on Antoni van Leeuwenhoek. Although Hunger was, in our view, the more perceptive and culturally more broadly oriented historian, as regards their enthusiasm they were well matched. Abraham Schierbeek (1887-1974)⁴ took his degree as a biologist in Groningen and worked as a *gymnasium* teacher in The Hague. His spare time was crammed with activities, of which his historical studies and his endeavours to popularize the history of biology formed only one aspect, though an important one. In 1920 Schierbeek published his first article on Leeuwenhoek. With unabated energy he would from that time on pursue his studies of this pioneer of microscopy, resulting in scores of articles and books. The crown of his life's work was a two-volume scientific biography of Leeuwenhoek, published in 1950/1951.⁵ Leeuwenhoek's popularity, in the Netherlands and abroad, can largely be traced back to Schierbeek's assiduity in promoting his heritage. He also took a leading part in the foundation of the Leeuwenhoek Commission by the Royal Netherlands Academy of Arts and Sciences in 1931, which resolved to publish a complete critical edition of Leeuwenhoek's letters. Schierbeek's share in this ongoing project consisted of editing volumes three to five. (Until now, twelve volumes have appeared, and several more are to follow.)

Although Leeuwenhoek's work was the focus of Schierbeek's interest, he also managed to publish extensively on a wide variety of other subjects. To give only a glimpse of his omnivorous tastes as a historian of biology, his other works include monographs on Swammerdam, Goethe and Darwin, two textbooks on the history of biology, and a history of evolutionary biology. This versatility did entail a certain superficiality, however, and one should not look for penetrating analyses here.

The publications of these amateur historians of biology testify to the sheer joy they derived from the study of history and, for us at least, this makes up for much of the obvious shortcomings of their historical approach. It is a tired cliché that the early history of science writing may suffer from a presentist bias, tends to overemphasize the contributions of 'great men', and often equates 'progress' with the finding of 'truth', and so on. The works of the Dutch amateurs dating from the first half of this century are no different in this respect, and since their prejudices are easily discernible, we could leave it at this. Yet there is reason to pursue the matter a little further. Though far from being unique in themselves, the biases in Dutch work mirror the particular circumstances under which the study of the history of biology, and of the history of science in general, began to gain momentum in the Netherlands. These circumstances were determined by the rise of a strongly nationalistic movement in Dutch science in the 1880s, which not only acted as an incentive for historical work but also influenced its aims and methods. To en-

⁴ For Schierbeek, see P. Smit, "In Memoriam Abraham Schierbeek (1887-1974)," *Archives internationales d'histoire des sciences* 25, 1975, pp. 95-96; P.W. van der Pas, "In memoriam Dr. Abraham Schierbeek," *Janus* 62, 1975, pp. 1-12.

⁵ A. Schierbeek, *Antoni van Leeuwenhoek. Zijn Leven en Werken*, 2 vols. (Lochem, 1950/1951).



Abraham Schierbeek

able us to gain a better historiographical understanding it is instructive to devote a few lines to this movement.

The first time that the movement expressed itself forcefully was in 1887, at the foundation of the NNGC, the *Nederlandsch Natuur- en Geneeskundig Congres* (Dutch society of natural and medical sciences).⁶ It was the first Dutch 'nomadic'

⁶ The NNGC has received little attention from historians. A short impression of the society's history can be found in J.H. Daams, "Uit de geschiedenis van het Nederlands Natuur- en Geneeskundig Congres," in: *Van vonk tot vlam. 100 jaar natuurwetenschap in Nederland. Het Nederlands Natuur- en Geneeskundig Congres 1887-1987* (Amsterdam, 1989), pp. 13-23. The nationalistic ideology of the NNGC and the views on the relation between science and society advocated within the NNGC have

or 'peripatetic' society, which had no particular home and gathered regularly in different regions of the country. Its models were, among others, the Swiss Société Helvétique and the British Association for the Advancement of Science. The main purpose of the society was, as the biologist Melchior Treub (one of its originators) expressed it: "to [spur on] our natural scientists and physicians to still more independent research, but especially [to revive], time and again, the notion that mutual stimulation and cooperation in scientific matters must lead: *ad majorem patriae gloriam*."⁷ The italics in this quote are Treub's, and he might have had this passage set in bold as well, because for the initiators of the NNGC it was indeed the nation's glory that was at stake. As the president of the society, the physician B.J. Stokvis made clear in a grandiloquent opening speech at the first meeting, the sciences in the Netherlands were dangerously in decline.⁸ In the seventeenth and eighteenth centuries great men like Stevin, Huygens, Leeuwenhoek, Swammerdam and Boerhaave had, in an unbroken chain, ensured the nation's foremost scientific position among the leading European countries, but in the nineteenth century the chain had broken and the nation's ranking was being dramatically lowered.⁹ This tide must be turned, Stokvis declaimed, and the NNGC should be a spearhead for this rescue operation.

The idea that such an operation was of the utmost importance, and that Dutch science could indeed regain its leading position, was for Stokvis an article of unfaltering faith. Although science was an international enterprise, there was nevertheless a close connection between science and nationality, not only because the nation had to provide a fertile soil in which the sciences might thrive, but particularly because the aptitude for scientific research was in large measure determined by national character. And in Stokvis' view the aptitude of the Dutch was exceptional. The traits that enabled them to become scientists of the highest repute, were exemplified by the above-mentioned celebrities of the Republic: they "know of no school ... they travel and roam ... their powers of perception are delicate to the degree that the facts of the matter are reflected in them with photographic accuracy ... they possess such dexterity, that they are the foremost technicians of their age, they are honest through and through ... they are orthodox but tolerant citizens, simple, without any arrogance, and filled with gratitude towards the God of their fathers ... none of them lack imagination."¹⁰ Stokvis continued like this for several pages, describing the Dutch as endowed with

been explored by R.P.W. Visser, "Het 'Nederlandsch Natuur- en Geneeskundig Congres' over de relatie natuurwetenschap en samenleving, 1887-1900," in *De produktie, distributie en consumptie van cultuur*, ed. W.W. Mijnhardt (Amsterdam/Atlanta: Rodopi, 1990), in press.

⁷ M. Treub, "Eene Feest-Vergadering," *De Gids* 43, 1879, pp. 128-156, on p. 134.

⁸ B.J. Stokvis, "Openingsrede," *Handelingen van het Eerste Nederlandsch Natuur- en Geneeskundig Congres* (Haarlem, 1888), pp. 15-30.

⁹ To underline this point, Stokvis referred to A. de Candolle's priority list of scientific nations in his *Histoire des sciences et des savants depuis deux siècles ...* (Genève/Bâle, 1873¹, 1885²). According to de Candolle, Dutch science had ranked second (after Switzerland) during the whole of the eighteenth century, but had dropped to seventh position in the second half of the nineteenth century.

¹⁰ *Ibid.*, p. 14.

"unremitting industry, dogged patience, iron tenacity, common sense, clear insight, ardent love of freedom," and so on. He was therefore convinced that the setback scientific research in the Netherlands had suffered could only be temporary. The Dutch had not lost their professed abilities, and a joint effort would doubtlessly lead to quick recovery.

Stokvis' speech met with wide acclaim. At the third meeting of the NNGC the chemist J.H. van 't Hoff felt compelled to point to a trait that had apparently escaped Stokvis' notion, the Dutch phlegm, which enabled them to remain clear-sighted in the face of success – a situation in which a German scientist, van 't Hoff added, was liable to go mad with excitement.¹¹ At the first and the seventh meeting of the society the physicist J. Bosscha hammered away at the vital importance of science for the nation by claiming that science increased the nation's fame and enhanced a powerful nationality; he even contended that science was one of the nation's principal reasons for existence.¹² These themes struck a sensitive chord in many Dutch scientists. It should be added that the NNGC, as the principal forum for the promotion of Dutch science, could within a few months of its foundation boast a membership of over six hundred, increasing to over a thousand after five years, and that it became the biggest scientific society in the Netherlands, its membership including the vast majority of Dutch scientists. The issues touched upon by Stokvis continued to be among the main driving forces behind the society, as can be gleaned from the chairmen's speeches at the society's twenty-fifth and fiftieth anniversary meetings, where these concerns were restated. By then, however, the chairmen could add that the tide seemed to have turned, for Dutch science had regained at least part of its prestige.¹³

The relevance of all this for our theme is that the NNGC marked out the history of science as a key instrument in stimulating the nation's scientific recovery. Examples from the past could illustrate the natural aptitude of the Dutch for scientific research, and instill an obligation into the present generation to restore the country to its leading position. For Stokvis, as we saw, the achievements of his countrymen in the seventeenth and eighteenth centuries were a core element in his argument: Dutch science could and should retrieve the glory of the past. A recurrent theme in the proceedings of the congress was the need for a national museum for the history of science, in which the 'treasures of the past' could stimulate the present generation to emulate the achievements of the Dutch pioneers. Within the NNGC a strong advocate for such a museum was the physician E.C. van Leersum. At the society's meeting of 1907 he mounted an exhibition

¹¹ J.H. van 't Hoff, "De physiologische betekenis der jongste stroomingen op natuur- en scheikundig gebied," *Handelingen van het Derde ... Congres* (Utrecht, 1891), p. 27.

¹² J. Bosscha, "Over het leven en de werken van Van Marum," *Handelingen van het Eerste ... Congres* (Haarlem, 1888), pp. 63-78. *Idem*, "Openingsrede," *Handelingen van het Zevende ... Congres* (Haarlem, 1899), pp. 1-20.

¹³ H. Zwaardemaker, "De voetstappen onzer wetenschap," in *Vereeniging "Het Nederlandsch Natuur- en Geneeskundig Congres." Herdenking van het 25-jarig bestaan* (s.l., s.a.), pp. 5-23; J. Boeke, "Herdenking van het 50-jarig bestaan ...," *Handelingen van het XXVIe ... Congres* (Haarlem, 1937), pp. 1-22.

of Dutch scientific instruments, and the same nationalistic rhetoric that pervaded the speeches of Stokvis and Bosscha is present in his address at the opening of this exhibition. Van Leersum especially emphasized the practical sense of the Dutch.¹⁴ Although he was disappointed in his hopes that the government would provide the funds to keep the exhibited collection of instruments together, the plans for a museum finally materialized in 1928. Its intended national character was deliberately expressed in its name: *Nederlandsch Historisch Natuurwetenschappelijk Museum*.¹⁵ (The museum is now called Museum Boerhaave, National Museum of the History of Science and Medicine.) Another clear sign of the importance that was attached to historical studies was the foundation, in 1913, of the Dutch Society for the History of Science, of which van Leersum was one of the originators and first president. Indicative of the same trend are the publication of the *Opuscula selecta Neerlandicorum de arte medica*, a series of 'Dutch classics' in the life sciences begun in 1907, and the foundation of the Leeuwenhoek Commission in 1931, which was entrusted with the publication of Leeuwenhoek's collected letters. Again, adherents of the NNGC ideology took a leading part in these enterprises.

Thus, what we could call for short the NNGC ideology played a considerable part in the increasing interest in the history of science in the Netherlands. Also, its nationalistic tenor goes a long way towards explaining the nature and purpose of many historical studies undertaken in the first decades of this century, as well as their most conspicuous biases. Examples abound; we shall mention just a handful. W.F.R. Suringar, in an historical overview of Dutch contributions to botany, felt justified in listing not only the works of Belgian scientists as belonging to the Dutch heritage, but also those of foreigners who had lived in the Netherlands long enough for their achievements to be seen as products of the Dutch scientific milieu. (He did notice, not without regret, that this strategy lost him a few Dutch botanists working abroad.)¹⁶ According to the introduction to the first volume, the complete edition of the Leeuwenhoek letters was to be "a monument erected by Dutch scientists in honour of the great Dutchman Leeuwenhoek." Also, the edition was expressly intended for scientists, not for historians. The editors of the *Opuscula selecta* described their task as "our national duty." Works like Treub's *'s Lands Plantentuin te Buitenzorg. 1817-1892* (Batavia, 1892), M.J. Sirks *Indisch Natuuronderzoek* (Amsterdam, 1915) and A.A. Pulle's *History of the Investigation of the Flora of Surinam* (Leiden, 1906) were not intended to be mere historical overviews of research carried out in the Dutch colonies, but also had a propagandistic aim: in the past the Dutch had been leaders in their fields, and a renewed effort was needed to regain this position.

¹⁴ See E.C. van Leersum, "Mededeelingen over de tentoonstelling," *Handelingen van het Elfde ... Congres* (Haarlem, 1907), pp. 21-33.

¹⁵ M. Rooseboom, "Museum," in *Vijftig jaren beoefening van de geschiedenis der geneeskunde, wiskunde en natuurwetenschappen in Nederland 1913-1963*, ed. B.P.M. Schulte (Genootschap GeWiNa, 1963), pp. 89-107, esp. pp. 96-97.

¹⁶ W.F.R. Suringar, "Openingsrede," *Handelingen van het Tweede ... Congres* (Leiden, 1889), pp. 1-22.

The same ideological elements are present in the works of Hunger and Schierbeek. Their focus of interest, as we have already seen, was on the 'heroes' of Dutch biology. For Schierbeek as well as Hunger, an important part of their mission was to promote the national scientific heritage and thereby to contribute to the prestige of Dutch biology and the self-esteem of Dutch biologists. Hunger virtually confiscated Clusius for the Netherlands (even though he only spoke French) on the grounds that his birthplace Arras (in the former county of Artois, now in France) belonged to the Spanish Netherlands at the time. Schierbeek was singularly preoccupied with matters of priority and repeatedly wrote articles the sole purpose of which was to demonstrate that it was a Dutchman who should be credited with the priority for this or that discovery, or that it was a Dutch pioneer who was the originator of a certain biological discipline. Both Schierbeek and Hunger took pains to demonstrate that Leeuwenhoek and Clusius possessed exactly those qualities that Stokvis and others had enumerated: diligence, truthfulness, calmness, common sense, and so on; Schierbeek in particular did not fail to label these qualities as 'typically Dutch'. Their message was clearly that these traits had always been at the root of Dutch scientific achievement. Schierbeek and Hunger alike took personal offence if an author adopted a critical stance toward their heroes. Hunger gave them hell. "Shame on you," he barked at an author who suspected Clusius of having made exorbitant profits in the tulip-bulb trade; "you are a dangerous bungler ... your petty story will not injure Clusius' reputation for virtue ..." ¹⁷ And Schierbeek was appalled at the bacteriologist Baas Becking's characterization of Leeuwenhoek's personality as dull and dumb. Such a qualification could only have derived from a mere whim; anyone who had read Leeuwenhoek's works would know better. ¹⁸

To be sure, it was their genuine love of history that stimulated Hunger and Schierbeek to undertake their studies in the first place, and this is not altered by pointing to the nationalistic biases in their works. We should add that Schierbeek in particular has been of tremendous importance in the popularization of the history of biology in the Netherlands. He felt that there was a lot to learn from the study of the history of science, not least for the younger generation. His many popular books and his lecturing as a *privaat docent* (private lecturer) in the history and didactics of biology testify to the unremitting zeal with which he pursued his mission. In this respect he went beyond the NNGC ideology, for the NNGC had deemed it necessary to suspend all efforts at popularization. Their motto was, as Stokvis expressed it, concentration, not dilution. ¹⁹

Hunger and Schierbeek were of course aware that their services to Dutch biology might open up a new academic niche for themselves. They both vented their ambitions by lecturing for several years as unpaid *privaat docenten* at the University of Leiden. Their hopes for professorships, however, proved idle.

¹⁷ Hunger (n. 3), *Carolus Clusius*, vol. 2, p. 249.

¹⁸ Schierbeek (n. 4), *Antoni van Leeuwenhoek*, vol. 1, pp. 21, 50, 64.

¹⁹ Stokvis (n. 8), "Openingsrede," p. 29.

Our overall impression is that the style of nationalism that pervaded many works in the history of biology up to the 1930s, rapidly lost ground after the war. The 1950s also witnessed an increasing awareness of what was going on in the history of science in the world at large, an awareness that was conspicuously absent from the work of the Dutch amateurs whom we have discussed so far. The ideas of Sarton, for instance, though not unknown to them, do not seem to have affected the pre-war amateurs in any discernible way. Frans Verdoorn, the first amateur to succeed in attaining professorial status, formed a sole exception to this rule. Verdoorn was *hors catégorie* in many respects, and his ideas were to dominate the profession in the 1960s and early 1970s.

Frans Verdoorn (1906-1984) took his degree as a biologist at Utrecht University in 1933.²⁰ By then he was already an internationally acknowledged specialist in the fields of bryology and hepaticology,²¹ having published and edited several series of bryological works and a *Manual of Bryology* (1932). In 1933 Verdoorn founded the *Chronica Botanica* Company, which brought forth the legendary *Chronica Botanica* series, an "international annual census of plant science research."

Right from the beginning of his career Verdoorn's publications conveyed his lively historical interest, and in the late 1930s this predilection began to gain the upper hand. In 1937, for instance, he started the *Index botanicorum* project, a highly ambitious venture with collaborators from all over the world, which was to result in an international biographical encyclopaedia of botanists.²² In 1944 the shift in Verdoorn's interests became manifest even in the *Chronica Botanica* series, which from then on was to be: "an international collection of studies in the methodology and history of biology and agriculture."

The threat of war made Verdoorn decide to emigrate to the U.S.; in 1940 he settled in Waltham, a suburb of Boston, Mass. His activities in America in the 1940s and 1950s could have filled the lives of two restless men. To mention just a few: Verdoorn was botanical secretary of the International Union of Biological Sciences (1935-1953); advisor to the Board for the Netherlands Indies, entrusted with the organization of the Central Depository Library for the Indies; and organizing director of the Los Angeles State and County Arboretum (1948-1949). Meanwhile, his publishing activities continued unabated. In 1948, for instance, he started the *Pallas* series, a collection of reprints of classic scientific works, and in 1952 he published George Sarton's *Horus. A Guide to the History of Science*. Besides all this, contributions on a wide range of topics appeared from his hand,

²⁰ For more biographical details, see A.P.M. Sanders, "In Memoriam. Frans Verdoorn, bryologist, publisher and biohistorian," *Janus* 71, 1984, pp. 165-179; P.Smit, "Van biografie tot biohistorie", *U.B.I. Wendingen. Incidentele mededelingen van het Biohistorisch Instituut te Utrecht* N.S. 4, October 1976; S.P. Gradstein and P.W. Richards, "Obituary Verdoorn," *Journal of bryology* 14, 1986, pp. 203-213; J. Ewan, "Frans Verdoorn, 24 July 1906 - 18 May 1984," *Isis* 78, 1987, pp. 415-416.

²¹ Bryophyta: moss; Hepaticae: liverworts.

²² See F. Verdoorn, "The Index Botanicorum", *Chronica botanica* 3, 1937, pp. 335-336. The project was never finished; probably it grew too big to be handled.

including *Science and Scientists in the Netherlands Indies* (with Pieter Honig, 1945), publications on international scientific affairs – Verdoorn was an eloquent advocate of scientific internationalism – and studies on his favourite subject, the history of botany and botanical gardens.

In 1951 Verdoorn was one of the founders of the Boston Biohistorical Club, intended as a continuation of Harvey Cushing's Boston Medical History Club. George Sarton acted as chairman, Verdoorn as recorder. Around this time Verdoorn began to think about the creation of a biohistorical research institute. Discussion of his plans with the Utrecht botanist J. Lanjouw eventually resulted in an invitation to establish such an institute at Utrecht University. Verdoorn sold the *Chronica Botanica* Co. and in 1959 set up shop in the Utrecht Biohistorical Institute. He was to remain here, as director of the institute and as Professor of Biohistory, until his retirement in 1976.

What was meant by this neologism 'biohistory'? For the members of the Boston club who coined the term, biohistory was the historical exploration of the many borderlands between the life sciences and the humanities. It is obvious that Sarton's was at work here, but the idea also harked back to the broad

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²³ F. Verdoorn, *Iter humaniora* (Utrecht, 1958).

²⁴ F. Verdoorn, "Biohistorie des sciences, Florence 3-9

where the natural sciences and humanities (particularly the fine arts and belles lettres) meet in some other way than outlined above," such as the representation of nature in the arts, the reconstruction of botanical gardens, historical cookery books and biological dictionaries.

Verdoorn stressed the tentative nature of this classification and more or less admitted that not all categories were equally distinct and clear. He was right, however, in claiming that "[the scheme at least] shows us how vast the borderlands are between the natural sciences and the humanities."²⁵

Verdoorn also presented this classification of biohistory in his inaugural lecture at Utrecht University in 1958. He emphasized that his discipline comprised much more than merely history of biology, and that it required the use of extensive literary resources. Biohistory should therefore have its own department, with its own library, and should not be subsumed under history or history of science departments. There is a revealing passage in Verdoorn's oration, in which the motives that drove the successful publisher to accept a university position are laid out clearly and nakedly, and one wonders why this passage – as far as we have been able to ascertain – has never evoked any comment: "Biohistorical institutes," Verdoorn stated, "are first and foremost biohistorical libraries, and biohistorians are above all bibliophiles."²⁶ Verdoorn's later publications testify to the fact that he has always clung to this creed.²⁷ For him the documentary function of his Biohistorical Institute was one of its principal reasons for existence, if not the most important one. Or, as hindsight enables us to put it, the seeds of the eventual downfall of Verdoorn's 'biohistorical ideology', were present from the beginning.

During his Utrecht professorate Verdoorn devoted himself almost exclusively to the elaboration and elucidation of his biohistorical classification and ideology. He undertook no 'typically' biohistorical research and, ironically, the research papers he produced are straightforward history-of-science papers, mostly of a biographical nature. There are, moreover, only a handful of them, for all Verdoorn's energy went into the systematization of the biohistorical subject matter.

First he tried to fill out the scheme presented in his inaugural lecture in more detail. From a manuscript for a *Vademecum biohistoricum*, which was to give a bibliographic survey of the discipline, it appears that by 1964 Verdoorn had expanded and subdivided his classification to such a degree that the contents table of the *Vademecum* alone ran to thirteen pages.²⁸ Yet Verdoorn was far from satisfied. Two years later he completely revised the classification and redefined biohistory as "the historical relationships of plants, animals and man in science,

²⁵ *Ibid.*, p. 767.

²⁶ Verdoorn (n. 23), *Iter biohistoricum*, p. 15.

²⁷ See, for example, F. Verdoorn, "History of science institutions and their universities," *Janus* 58, 1972, pp. 278-288, on p. 281.

²⁸ The manuscript is preserved in the former Utrecht Biohistorical Institute, now the Institute for the History of Science.

early medicine, and culture.²⁹ However, the new classification that went with this new definition could not satisfy Verdoorn for long either. In 1970, in an article entitled "De plant in de biohistorie," he overhauled his system once again in an effort to give a clearer picture of what he saw as the essential unity of the field.³⁰ He now took some kind of sociological/anthropological principle of division as his starting point, namely "the primary human motivations or drives."³¹ The best way to make clear what this principle of division led up to, is to quote Verdoorn *verbatim*: the eight "main colours of the biohistorical spectrum," as he called them, were:

- I. Thought – to be approached according to the norms of, in particular, primitive thought (polytheism, magic, allegory, etc.), the newer transcendental thinking, and further also by means of psychology and philosophy (particularly of logic and semantics).
- II. Speech and language – to be approached according to the norms of comparative, general and special linguistics in its diverse ramifications.
- III. Vocal and other musical expression of man, 'direct' (singing, and the like) or 'indirect' (by means of an instrument ...) – to be approached according to the norms of musicology and its ramifications.
- IV. The narrative (from myth to 'belles lettres') – to be approached according to the norms of general, special and comparative literary history.
- V. Visual expression – to be approached according to the norms of art history ...
- VI. Utilization (biocontrol) – to be approached according to the norms of, in part, the history of technology and, in part, the relevant types of cultural history and history of science.
- VII. Knowledge (empirical and organized, pure and applied) – to be approached according to the norms of historiography, mostly with some kind of philosophical slant.
- VIII. Concerning certain relationships in human society (the 'social aspects') – sometimes to be approached according to the norms of sociology (often in a combination with sociology), sometimes according to the norms of the diverse branches of non-physical anthropology (in particular of the behavioural sciences).³²

The new classification was followed by forty pages of examples – quite enough to exhaust the most persevering reader – of each of the 'main colours' and of the many 'shades' that were obtained by mixing them.

It is clear that Verdoorn's biohistorical conception had over the years developed considerably in breadth; its biological roots were even scarcely recognizable in the end. Also, there is no denying that the system conveyed some sense of unity, and that the 'borderland aspects', which Verdoorn had always deemed the most interesting, now took pride of place. The history of biology, subsumed under category VII, Knowledge, was merely a line within the biohistorical spectrum, and that was what it should be, in Verdoorn's mind; giving it too much attention would

²⁹ F. Verdoorn, "From botanical biography towards animal iconology", *Acta botanica Neerlandica* 15, 1966, pp. 86-94, on p. 89.

³⁰ F. Verdoorn, "De plant in de biohistorie", *Jaarboek der Koninklijke Nederlandse Botanische Vereniging over 1970* (1971), pp. 29-84.

³¹ *Ibid.*, pp. 37-38.

³² *Ibid.*, p. 38.



Frans Verdoorn

lead to a "clerk-like declension of our spirits," he once remarked.³³

Apparently Verdoorn was now content with his system of biohistory; at least he did not change it further. But even now that its classification was in order, the biohistorical subject matter itself remained untouched. Verdoorn produced no concrete biohistorical studies; nor can the work of his staff members be characterized as typically biohistorical in any sense. Especially in the later years of Verdoorn's professorate, the work of his staff took on an increasingly straightforward history-of-biology character. The biohistorical ideology never reached beyond its table of contents. After Verdoorn's retirement in 1976 it was abandoned altogether and replaced by a programme in the history of biology.

The two figures that Frans Verdoorn admired most were Carolus Linnaeus and George Sarton. He resembled both, in certain respects, and this can help to explain the failure of his biohistorical adventure.

"All biologists," Verdoorn said in his inaugural lecture, "especially if they are trained as systematists, suffer from the Linnaean inclination that, whatever they do or do not know of a subject, they feel an urgent need to provide a correct nomenclature and a suitable classification."³⁴ Verdoorn had indeed started his career as a systematist, and he evidently suffered severely from the Linnaean inclination to classify, reclassify, and reclassify again. For him, as for Linnaeus, classification became an end in itself.

We can push the analogy a little further. The body of Linnaeus' *Systema Naturae* was an enumeration of the external characteristics of its component parts, the genera and the species. Verdoorn proceeded along the same lines by characterizing each part of his biohistorical system with a compilation of bibliographical references. His *Vademecum biohistoricum* and his "De plant in de biohistorie" are vivid examples. The overriding importance which Verdoorn attached to the documentary function of the Biohistorical Institute must be seen in the same context. Its library was his 'biohistory cabinet', the material expression of his biohistorical system. And true to the Linnaean spirit, Verdoorn gave high priority to the acquisition of new specimens for his book cabinet, and to their description and classification – a tendency reinforced by the fact that Verdoorn was a bibliophile of the first order.

In itself, there is of course nothing wrong with these classificatory and bibliographical preoccupations, but Verdoorn transformed a research tool into an end in itself. All his time and energy went into the perfecting of his system and his library. By academic measures, this was simply a miscalculation; it takes more than this to demonstrate the viability and the right to existence of a new discipline.

This brings us to the Sartonian aspects of Verdoorn's personality. Let us begin, however, by qualifying Sarton's influence. There can be no doubt that Sarton's

³³ F. Verdoorn, "Medicine and arts. Introduction to a special session on medicine and the humanities," *Proceedings of the XXIII Congress on the History of Medicine (London, 2-9 September 1972)*, vol. 2 (London, 1974) pp. 865-869, on p. 868.

³⁴ Verdoorn (n. 23), *Iter biohistoricum*, p. 9.

ideas had a formative influence on Verdoorn's biohistorical ideology, and it was no coincidence that it began to take shape in the early 1950s, when Verdoorn and Sarton regularly associated with each other. "[Talking] with him ... doubtlessly was the strongest, single influence I ever underwent," Verdoorn said at his inauguration,³⁵ and in a letter to her father he wrote "my whole idea of viewing the borderlands between the biological and humane sciences as a whole is mainly a result of your teaching and writing."³⁶ Verdoorn's enthusiasm for Sarton's ideas did not extend to the latter's 'new humanism', however. He distanced himself from such 'radical' views as, for instance, "History itself is no concern to us ... To build up [the] future, to make it beautiful [is rather the aim]."³⁷ There is also an ideological element in Verdoorn's writings, but on the whole his interests remained of a purely historical nature. He knew, without regret, that biohistory would never attract more than a small circle of devotees. What Verdoorn had in mind when he talked about his 'biohistorical ideology' was a purely individual ideal of humanistic education and a broad cultural-historical orientation, which could enrich the mind and serve as an antidote to narrow specialism. While Sarton's 'new humanism' drew upon a nineteenth-century, positivistic belief in progress, Verdoorn's ideology reminds one of the age-old ideal of the unity of arts and sciences, or of the omnivorous cultural appetites of the eighteenth-century Dutch patrician.

There is nevertheless a striking Sartonian element running through the whole of Verdoorn's biohistorical career. Actually it could better be called a resemblance in the negative, a systematic neglect on both their parts.

As Thackray and Merton have shown in an incisive essay, Sarton has been of tremendous importance for the recognition of history of science as a discipline, but he failed to provide the field with a clearly circumscribed cognitive identity, which could have formed a basis for its professionalization.³⁸ Sarton left no school behind him; towards the end of his life his historical approach was outdated, and his 'new humanism' did not sink in. He was the champion of a discipline that, where its content and methodological standard are concerned, was shaped by others. Besides his role as a propagandist, however crucial, his contribution consisted mainly of supplying research aids: bibliographies, handbooks, encyclopaedic overviews and, of course, a journal. Sarton's principal work, the *Introduction to the History of Science*, is also more of a reference book, an historical encyclopaedia of the sciences, than an account of the methods and problems of the field or a full-blown 'history of science'.

Exactly the same can be said of Verdoorn. He failed to give biohistory a

³⁵ *Ibid.*, p. 22.

³⁶ Letter 13-3-1956, Institute for the History of Science, Utrecht.

³⁷ G. Sarton, *The life of science* (New York, 1948), pp. 57-58. In his "Problems of botanical historiography" (*Archives internationales d'histoire des sciences* 15, 1951, pp. 448-457, on p. 451) Verdoorn declared: "The enthusiastic historians of science declared at one time, with DUBOIS-REYMOND, that the history of natural science is the real history of mankind ... These are, in my opinion, exaggerated statements."

³⁸ A. Thackray and R.K. Merton, "On discipline building. The paradoxes of George Sarton", *Isis* 63, 1972, pp. 473-495.

cognitive identity, to formulate the specific problems and methods that might have legitimized its independent status. Nor did he publish any results of research that might have made these matters clear in an implicit way. Just like Sarton, Verdoorn concentrated on proselytizing and on supplying resources – critical bibliographies, classifications of the discipline, etc., and as in Sarton's case this was not enough to sanction the formation of an independent discipline. Not even Verdoorn's great advantage over Sarton, namely that his professorate and his institute almost fell into his lap, could rescue the discipline in the end. In the long term, the lack of a clear-cut cognitive profile proved fatal.

History of science has attained disciplinary status, while biohistory has disappeared. Might not some kind of biohistorical Koyré rise one day who will make up for the missing parts in Verdoorn's biohistorical ideology? It seems unlikely. In the final analysis, what Verdoorn wanted was an institute for art historical, literary, ethnobiological, linguistic, and all kinds of historical research, all centred on a common subject, to wit the historical relationships between plants, animals and men. Naturally there are endless possibilities for research here and studies that fit into Verdoorn's classification are undertaken all the time. Yet the point that really matters is this: are there any compelling reasons for merging all these fields of study into a new and independent discipline? Do the relations between plants, animals and men represent a problem that is so unique, do they ask for a methodology that is so specific, that they should be separated *en bloc* from the existing disciplines and brought together in an independent new one? It is significant that Verdoorn, for all his efforts to demonstrate the 'unity' of biohistory, has failed to make clear what it was, exactly, that bound the diverse approaches together. There should at least be *something*, besides the common subject matter, if one does not want every 'borderland' between two disciplines to lay claim to discipline status. Or, to put this differently, it is not a matter of subject alone, but also of ideas about this subject. It is these ideas that one seeks for in vain within Verdoorn's numerous expositions of biohistory. As we see it, the case is hopeless; Verdoorn's biohistorical system, although he moulded it into a unity from a taxonomic point of view, is not a natural system in the Linnaean sense, but an artificial one, a contrived unity of things that have no natural relationship.

Happily, the story of Verdoorn does not end in complete disaster. The invaluable possessions of the Biohistorical Institute, acquired over the years by Verdoorn with unrivalled dedication and business sense, have remained intact. Utrecht now possesses a history of biology library that is unique in Europe, perhaps even in the world. Also the mere fact that there is a programme in the history of biology in Utrecht – the only one in the Netherlands – must be considered as part of Verdoorn's heritage. His activities were as essential for the rise of the history of biology in our country as Sarton's were for the history of science in general. The history of biology programme (headed by Pieter Smit, and since 1986 by Robert P.W. Visser) was started in 1976, after Verdoorn had retired, and it was preserved when the Biohistorical Institute merged with the Institute for the History of Science in 1986.

Until quite recently most research projects carried out within the programme's framework were consciously aimed at a better understanding of cognitive, 'internal' aspects of the development of biology. This emphasis on a clearly defined problem field must be seen as a reaction to Verdoorn's tendency to let his interests roam freely in all directions and to bite off more than he could chew. As a result, productivity increased considerably, but another consequence of this self-imposed limitation was that the new developments in the field that forcefully manifested themselves in the late 1970s, at first met with little response from Utrecht historians of biology. Research into the social history of biology, for instance, was first taken up elsewhere, in social studies of science and science-studies units at the universities of Amsterdam, Twente and Maastricht. Utrecht has now also considerably broadened its field of interest, although the investigation of conceptual issues has not lost its importance, if only because there is still much to do in this area and no socially oriented study can, in our view, bear fruit if the science involved is not properly understood. An extensive overview of current research in the (social) history of biology in the Netherlands will appear in one of the next issues of *Tractrix*.

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