C.U. Ariëns Kappers *1877-1946*

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The figure of C.U. Ariëns Kappers, towering above the fairly flat landscape of today's Dutch neurosciences, constitutes an appetite-whetting challenge for any biographer who is not content with purely sketching descriptive outlines of the life and work of the subject. The scope and depth of the biographer's tale depend on his estimation of the readers' expectations as much as on how much energy the biographer is willing to expend on probing the interior of the person behind the exterior, and on gathering records and data, in order to present a reasonably integrated and harmonious portrait.

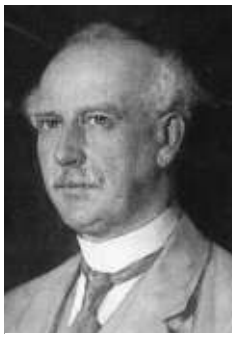

Figure .
C.U. Ariëns Kappers.

No sinecure indeed, particularly in the present case. On closer look, 'C.U.' (as we will denote him) appears to have been a complicated person, like C.T. van Valkenburg. Therefore, we might best aid the reader (and ourselves) by sketching the explicit contours of his life and work in some detail first, and then attempt to add to such a skeleton the implicit (though largely inferred) sinews, arteries and muscles of the living person. A full and definite biography, requiring years of interviews and archival-bibliographic research, remains to be written. It may well correct the historian's scientific reconstruction, not so much the dry record of what has been said and done, but rather what has not. Most of the pages below are based on printed sources, among them the autobiography, condensed by Van Kolfschooten ( ).

C.U. was born in the city of Groningen on August , , into a family in which academic education, and the penury that usually went hand-in-hand with it, was the rule rather than the exception. He was the second of three sons. His paternal great-grandfather (surname Kappers, first names Johannes Arjen) was a village physician in the province of Groningen, subsequently combining the function of general physician with that of burgomaster. He had one son (C.U.'s grandfather) who, after his academic study in Groningen, ran a chemist there. One of his sons (C.U.'s father) studied physics and mathematics and successfully defended first a doctor's thesis on oxidation and subsequently a second one in pharmaceutics. He obtained a position as a teacher in chemistry and botany at the Higher Burgher School (HBS) and one of regional school inspector, first in the town of Sappemeer, later in the town of Meppel, and ultimately in Leeuwarden, the capital of the province of Friesland, where he was appointed as director of the HBS. His career at the university and his professional career show a man of drive and ambition.

The name 'Ariëns' probably stems from his great-grandfather: the grandfather, being 'Arjen's son', presumably used the customary abbreviation 'Arjens' and the father may have changed 'Arjens' to 'Ariëns', using the original first name as an additional surname.

After the family's move to Leeuwarden, C.U.'s performance at school proved to be insufficient for him to be admitted to the first form of the HBS there, so he had to repeat the final two years of the elementary school. The first three years at the HBS, too, taxed his capacities, especially the subject of mathematics. However, as is often seen in male pubescence, a sudden mushrooming of mental and cognitive faculties occurred, and he passed the final two years of HBS with flying colours, particularly in the subject of mathematics, obtaining his diploma in . His ambitious father incited him to spend an additional year at the Gymnasium to acquire knowledge of Latin and Greek, because a Gymnasiumdiploma was requisite for enrolling at university and entering university exams. (The Limburg Act allowing HBS pupils to apply for university admittance was not passed in parliament until , some twenty years later). Having obeyed paternal wishes, C.U. enrolled in the Medical Faculty of Amsterdam in October . This university was probably chosen because C.U.'s elder brother, who had studied commerce in Duisburg (Germany), worked and lived in Amsterdam.

After the candidate exam in the fourth year of the curriculum, C.U. spent the afternoons in the laboratory of the histologist Prof. J. van Rees, because he wanted to become technically skilled in making microscopical preparations, especially the Ehrlich, Golgi, and Weigert stain techniques. In those years, the soaring flight of neuroanatomy and the new neuron-theory cannot have left the young student unmoved. C.U. went to Prof. C. Winkler asking him to pass judgement on his efforts and to coach him. Winkler alerted him to a student contest, offered by the University of Utrecht, which involved writing an essay on the development of nerve-sheaths, and the winner of which was to be awarded with a gold medal. Winkler offered him the use of his laboratory in the Binnengasthuis. C.U. won the gold medal, passed his B.M. ('doctoral' or 'masters' exam) soon after, and applied to the Committee of the famous Zoological Station at Napoli to work there during the winter months. He took lessons in Italian and volunteered to work on the information desk at the International Congress of Criminal Anthropology (Amsterdam, September), where C. Lombroso, E. Ferri, Sc. Sighele, G. Sergi and C. Parnisetti were the leading speakers. He thus established the appropriate connections, which produced invitations from these gentlemen to come and visit them should he come to Italy.

Thanks to a government grant, C.U. indeed left for Italy in October (having passed his 'semi-arts' exam) and was the guest of Lombroso in Torino, of Parnisetti in Alessandria, and occupant of the Dutch desk in Napoli. There, he regularly met the leading Hungarian neurohistologist Stefan Apàthy and the Estonian-born neurophysiologist Jakob, Count von Uexküll, colloquially known as 'the nerve-shaker', recipient of the *honoris causa* doctorate of the University of Utrecht.

Clearly, the sparkle conveyed by his father had kindled the *feu sacré*. The gifted

young man deployed a mass of energy: he passed the physician's licence exam on October , , obtained a position as an assistant to Prof. J. Rotgans (pathological anatomy) in the Binnengasthuis, continued Teleosts' and Selachii's histological work on the motor nuclei of the brainstem for his MD thesis (promotor: Prof. J. van Rees), and applied again (successfully) to work in the Zoological Station in Napoli immediately after he had obtained the MD degree (*cum laude* [with honours] on November ,). He worked in Napoli from November to May . On his way to Napoli he stopped over in Frankfurt to visit Ludwig Edinger, the founder of comparative neuroanatomy, at the Senckenbergisches Institut and presented him with an English translation (already!) of his thesis and a report of his work at the Napels Station. Clearly, his inclination towards comparative neuroanatomy directed his energies and he had already made the decision not to become the physician for which the university had trained him, nor to specialise as a clinical neurologist caring for the ill.

His efforts soon made his star ascend. C.U. was appointed 'privaat-docent' (i.e. associate professor) in Histology in Amsterdam, August . His lectures attracted more students than those read by his promotor and supervisor, the ordinarius Van Rees, as a result of which tensions arose. The situation (classic in university circles between the receding old and the advancing young) was solved smoothly by the arrival of Edinger's offer to C.U., to become assistant at the Senckenbergisches Institut. Following consultation with Winkler and Van Rees (the latter being undoubtedly relieved to see the young rival go), C.U. left for Frankfurt in August and soon became a departmental manager there. Prof. J.B. Johnston, anatomist in Virginia and author of *The nervous system of vertebrates*, translated C.U.'s thesis, which was published in the *J. Comp. Neurol.* in , in the fifteenth year of the journal's existence.

During the two years with Edinger, C.U. worked undisturbed and could assimilate the pertinent neuroanatomic literature which revealed a field in rapid evolution. Here, the thoughts he had vaguely formulated and started to direct with his doctoral thesis, were fertilised by Cajal's observations (of which he may have been aware) that the outgrowth of dendrites proceeds in the direction of arriving (afferent) stimuli, and matured by his work in Edinger's laboratory. A grand, central idea struck him suddenly in a synthesis of apparently heterogeneous and incoherent data: the concept of neurobiotaxis. This idea lifted well-known neuroanatomical findings to the higher level of neuromorphology, as Bolk so aptly put it in a speech ten years later. C.U. published the idea in the *Neurologisches Centralblatt* and read the first paper on it in the same year at the first International Congress of Psychiatry and Neurology in Amsterdam, September . The concept, to which we will recur below, made his name.

The neurobiotaxis-concept overshadows his later work, such as his studies on the problem of mechanical versus functional causation of the phylogenetic increase of cortical convolutions. C.U. perceptively pointed out that the folding of grey matter not only increases at the brain's exterior surface but also in its interior (olivary nucleus, dentate nucleus, geniculate body, optic tectum, reptilian lamellar nucleus). Even

his then authoritative three-volume text on the comparative neuroanatomy of vertebrates, translated into various modern languages (nowadays replaced by Nieuwenhuys' *nec plus ultra* text), only confirmed C.U.'s international repute, but did not transcend, like the neurobiotaxis-theory, from the neuroanatomical to the neuromorphological level of sophistication, i.e., from the descriptive to the interpretative. C.U. was to reap a richer harvest still.

In , in concert with Winkler, the inveterate bachelor and workaholic Bolk, arguably the greatest Dutch (neuro-) anatomist ever, inquired by letter of Edinger whether C.U. was a suitable candidate to head the new Central Institute for Brain Research in Amsterdam. In the Supervising Committee of the Royal Academy of Sciences, Bolk, Winkler, Van der Waals (of the intra-atomic forces) and Von Wijhe agreed and it thus came to pass that C.U. was appointed Director at the festive opening of the Central Brain Institute, Amsterdam, on Tuesday June , . C.T. van Valkenburg and Ernst de Vries were appointed deputy-director and assistant, respectively. Famous Waldeyer (of the neuron-theory), Winkler and C.U. read the official addresses (see *Algemeen Handelsblad* , June , , page).

During the next decade or so he steadily enlarged the Institute's collection of vertebrate cerebra, and published well over papers, the majority of them on neurobiotaxis, some of them on the brain of lower vertebrates, a few in books by others, as well as obituaries and eulogies on Victor Horsley, Ludwig Edinger, Arthur van Gehuchten and Cornelis Winkler. Remarkably, his early bibliography also includes two papers listing all medical journals held by Dutch libraries, testifying to the depth and scope of the meticulous documentation that underlies C.U.'s *magnum opus*.

The first edition of that study appeared in . It was made in collaboration with Aemilius Bernard Droogleever Fortuyn (born), a young colleague who succeeded Ernst de Vries in the Brain Institute from to , became senior lecturer in Histology in Leiden, went to the Peking Union Medical College in , and left with his wife, a biologist, for the USA in . As sole author, C.U. elaborated the text into a two-volume book, in German in / . A three-volume edition appeared in English in (reprinted in and posthumously) thanks to the nine years of translation and updating work carried out by Elisabeth Crosby in particular and also Carl Huber, which reflects the spell of charm C.U. had cast upon them. A French translation by E.H. Strasburger rolled off the printing presses in (again posthumously). All this established C.U.'s international authority on comparative neuroanatomy for three quarters of a century.

C.U. was awarded the Tilanus-medal by the 'Genootschap voor Natuur-, Genees-, en Heelkunde' [Association for natural and medical science and surgery] in , and became member of the Dutch Royal Academy of Sciences in . He went on an extensive trip to China to give a course of lectures in anatomy at the American sponsored Peking Union Medical College (-), returning via Manchuria, Korea, Japan and the USA, collecting the brain of a whale and brains of Japanese for the Amsterdam Institute. In the USA, he contacted well-known neuroanatomist C. L. Herrick (- ; of the eponymous Herrick's cells and Herrick's commissure)

who, together with his younger brother, had founded the prestigious *Journal of Comparative Neurology*. On board the ship on his return journey, he met the Dutch ambassador to the USA (Mr Van Royen), who later arranged to send the corrected manuscript of the edition back to the USA by diplomatic pouch.

A course of lectures in Denmark and Sweden ( ) was followed by the invitation of Yale University to accept a doctorate *honoris causa* as well as assume a chair and the directorship of a yet to be built, new Institute of Anatomy. This imminent development, conveyed by C.U. to the Academy and University authorities, promptly exerted its leverage effect: C.U. was appointed Extraordinarius in Amsterdam in . Winkler and Bolk saw to it that Dusser de Barenne obtained a position in New Haven. In September of that year, C.U. was absent again for a series of lectures at the American University in Beirut, using that opportunity to collect craniometric-anthropological data from Phoenician, Arab and Jewish skulls in Syria, Turkey and Palestine. As Dr. J.C. van der Horst – who had acted as C.U.'s *locum tenens* in the Institute during the latter's prolonged absence in / (China) – was unavailable (he had assumed a Senior Lecturership in Zoology at the Witwatersrand University Johannesburg), C.U. found Ernst de Vries (on a holiday from Peking) willing to stand in for him at the Institute. On returning home, C.U. learnt (June) that his closest friend and guardian angel, Prof. L. Bolk, had died.

In the year he received the distinction of the order of the Dutch Lion. The same year saw him in Scotland (University of Glasgow) for a doctorate *honoris causa*, and in Ireland (University of Dublin) for the John M. Purser lecture and a doctorate *honoris causa*. In he was in London (Ferrier lecture), in Chicago (doctorate *honoris causa*) as well as New York to exchange thoughts with the renowned anatomists Fred Tilney and Hendry Alsop Riley, and in in Philadelphia for the Mary Scott Newboll Lecture. At the London Neurological Congress in he read a long paper on the hypothalamic nuclei, subsequently went to Budapest as representative of both the universities of New Haven and Amsterdam on the occasion of the tri-centenary of Hungary's Pázmány University, and, in to the USA (membership of the American Academy) and Toronto (Congress of Anatomy). Just before World War II broke out, he attended the third International Congress of Neurology in Copenhagen. Halfway through most attendants left because of the imminent war, much to the disappointment of the president, the distinguished V. Christansen.

During the German occupation, he prolonged the lives of several hundred Jews, preventing their deportation by the S.S. to the gas chambers by providing them with 'scientific' craniometric proofs (in collaboration with the physical anthropologist Prof. A. de Froe) that they were not Jews. Of the ten academics who obtained their Ph.D. degree with C.U. as their promotor, the recently deceased David Moffie was, as the th, in , the last Jew to reach this top of the academic Olympus. Shortly after, Moffie was deported to a concentration camp in Poland, which he barely survived, while his young wife, separated from him in another camp, left her life. The son of C.U.'s elder brother, Jan Ariëns Kappers, received the qualification as a doctor/physician from his uncle in and succeeded C.U. as director of the Central Brain Institute in .

It is remarkable to note that, during C.U.'s long career as director of the Central Brain Institute and as professor of comparative neuroanatomy, the number of theses written under his direction remained restricted to only ten. C.U.'s own scientific production may be characterised as prolific. In this productivity two striking peaks can be distinguished, one between and , the other between and . Not all his papers were published in peer-reviewed journals and a number of his articles concern histological techniques or bibliographical matters.

As the librarian of the Netherlands Society of Psychiatry and Neurology he edited two inventories of available journals that were published as such. Being the editor-in-chief of *Folia Neurobiologica* a number of his scientific lectures were published later in this journal by himself. Many of his papers between and were published in the *Psychiatrische en Neurologische Bladen* when he was editor-in-chief of the journal. If one considers the large number of collaborators that worked under his aegis over the years within the Brain Institute, it is intriguing that CU almost never published a co-authored article.

Having made a resounding success of the Central Brain Institute, where close to foreign colleagues from all over the world and well over Dutch colleagues did their research during the years of C.U.'s directorship, his own professional scriptorial activity diminished to come to a halt after . He continued his lectures in anatomy in his usual stately and dignified manner – as the Leiden medical historian Prof. Luyendijk-Elshout who attended them told us – up to the closure of the university by the German occupational authorities. After the liberation of the Netherlands he tried, in vain, to prevent the unjustified demission of Prof. Brouwer.

Having spent a holiday in Switzerland in June , where he gave some lectures, he suffered a *mors subita* in the morning of July , . With his death, the grand era of comparative neuroanatomy, that knew such men as Cuvier, Edinger, Cajal, Elliot Smith, Judson Herrick, Apathy, Beccari and Boeke, all but ended, the magnificent opus of Prof. Nieuwenhuys (University of Nijmegen) constituting the last manifestation in a once vigorous domain of neuroscience. Wilhelm His's creation of a Brain Commission by joining many national academies in order to establish Institutes of Brain Research each of which was to be charged with research of a certain province of the field of neuroanatomy, now exists for a century. It initially included Amsterdam, Frankfurt am Main, Leipzig, Madrid, St. Petersburg, Vienna, and Zurich. However, only a few of them have survived (amongst them the Cajal Institute in Madrid). Despite its vitality and fame, the Amsterdam Institute, which has been directed by Prof. Swaab since , seems to be threatened with losing its independence as an Academy Institute within the near future for ... economical (??), political (?) or other hilarious motives. C.U. will turn in his grave.

The work

As Van Valkenburg (who left the Institute already after years of deputy-directorship, probably because their personalities were incompatible) pointed out, one can

discern three main foci of interest in C.U.'s work: neurobiotaxis, the folding of cerebral and cerebellar cortex, and craniometry.

During his research on the CNS of vertebrates, beginning in , widening in Napoli, and maturing in Frankfurt, C.U. noticed a gradual shift in the location of nucleus VI, nucleus VII, nucleus X (nucleus ambiguus) and nucleus XII in the medulla oblongata of the Ganoids (Teleosts, Selachii, in particular Lophius piscatorius and Lepidosteus) as to their topographical position. This shift *vis-à-vis* each other was striking when he arranged his findings according to the phylogenetic ascendence. In his first publications on this phenomenon he coined the term 'quadrille des noyaux'. In the search for an explanation for this 'dance' of those motor nuclei, the fortunate idea grabbed him to relate the nuclear quadrille to the adjacent (afferent) fibre tracts, providing strong or repeated stimuli to them.

In doing this, he succeeded in showing that the initially ventrally located nucleus VI migrates dorsad to occupy a position near the dorsal longitudinal fascicle subserving the coordinating fibre system, whereas the nucleus VII migrates from a rather dorsal position more ventrad to approach its corticospinal afferent contingent of fibres. Hence, the internal genu of facial fibres, so baffling to the uninitiated. The nucleus XII, initially lying ventrobasally, migrates progressively dorsad during phylogenesis, conspicuously so when fish-genus develop a tongue (gustatory afferents!), whereas the nucleus ambiguus X, the magnocellular part of X that originally has a dorsal position, descends to form another internal genu of its fibres, while the visceromotor parvocellular part retains the initial position. On the basis of associating change in sites of entire nuclei with the afferential input of fibres, C.U. formulated a functional explanation for anatomical topography, in short, a morphological principle of causation. He elaborated this 'law' of the decisive influence of strongest and/ or most frequent stimulation (energy input) in a number of papers between and .

The second focus of interest aimed at a similar explanation for the cortex development. Wilhelm His Sr. thought that cortical neuronal growth and migration was determined mechanically, i.e., along the direction of least resistance. Others entertained the idea of (re-) generation of axons along preformed paths, such as Schwan-cell tubes for regenerating axons of the proximal stump of a cut nerve. Cajal had voiced the suggestion that, during embryonal neurogenesis, outgrowth and direction of dendrites and axons was determined by trophic substances (repulsive or attractive), but admitted to be at a loss with respect to how to identify these hypothetical entities, as well as confessing to be unable to solve the mystery of the neuronal perikaryon's 'dynamic polarisation' – a mystery that remains unsolved today, but that does not concern us here.

C.U., in his Brain paper, pointed out that it is not only the cortices that exhibit progressive gyration (and 'sulcation') but that the internal grisea do so too: the cerebellar dentate nucleus, the inferior olivary, the lateral geniculate, the hippocampus, colliculi and the reptilean lamellar nucleus. He advanced the thesis that all this, under the influence of external habitat and life-style of the organism, is caused by

functional input factors: the increase in surface (instead of thickness) of the grisea is determined by (the size and/or strength of) afferent input. This is why, in phylogenetic ascendence, the archi- and palaeopallium, originating from the olfactory cortex, are progressively pushed asunder by the neocortex subserving new functions. Ernst de Vries convincingly argued the same distinction to be made within the striatum.

In later years, C.U.'s focus of interest gradually moved to physical neuro-anthropology (brain-casts) and craniometry (skull endocasts and brains), probably influenced by the lessons of L. Bolk and his knowledge of Dubois (Pithecanthropus erectus Java), Professor of Geology in Amsterdam. C.U. collected hundreds of brains and skulls for the Institute's collection during his far- flung voyages from the Mid-East, Far East and North America. He hoped to probe the question whether 'the brain forms its own shell', and to distinguish what (external) factors determine the cranial shape and volume of the many varieties of Homo sapiens since prehistoric times. Many booklets, lectures, and papers of C.U. testify to this, ultimately abortive, exercise.

Finally, his tendency to search for associations and relationships (between form and function, truly Aristotelian! Or between simultaneously activated brain-regions, etc.) led him to consider the parallelism between mind and matter, between psyche en cerebrum. His monograph 'Zielsinzicht en Levensopbouw' [insight into the mind and the structuring of life] betrays a fundamental mixture of protestant-religious upbringing, ethical imperatives, and influences from Spinoza ('Ethica' - the *liberum arbitrium* is an illusion; man is a modus of God; excellence is as difficult as it is rare...) and Bergson ('Elan vital'; 'Matière et Mémoire; l'Evolution créatrice'...), two philosophers which Van Valkenburg and C.U. often discussed between and . This last focus of interest, being metaphysical, of course is devoid of scientific significance, but is a part of his scriptorial oeuvre and therefore mentioned here.

The person

The reader may have inferred from the preceding text that C.U. was a neuroanatomist obsessed by his profession to the exclusion of the customary foibles to which the average living individual is heir. The dry records are restricted to documented facts. They seem indeed to imply such an image. Those, who wonder what went on behind the façade, will mainly have to revert to (re-) reading the condensed autobiography as the only source of self-revelation. To get a glimpse behind the coulisses one has to read between the lines and look for things unsaid.

C.U. was unquestionably an intellectually brilliant and creative man with an exceptional memory and an exhaustive grasp of pertinent literature. Those who knew and still remember him pointed out his stately bearing, measured gait, benevolent mien, unruffled composure, conciliatory nature and optimistic outlook. On pondering the text of the condensed autobiography, the realisation gradually dawns

upon the reader that in this man also dwelt a soul that appears to lack true warmth or deeply-running emotions, a soul tending to narcissism and ambition-inspired calculation (largely unconscious of that of course), inclined to seek out those of influence who hold the potential to promote his goals, and to exploit fellow-men, a soul that essentially remained lonely throughout life. The evidence for such a rather harsh surmise is as tentative as it is tenuous, but it is there if one looks for it.

These days, writing your autobiography is looked upon as narcissistic, as something to be expected from politicians and their likes. Of course, it may be a symptom of insecurity, of self-doubt, or a need for recognition. Certainly, it may have been a vanity acceptable in C.U.'s days, if we recall that Cajal, Von Koelliker, Von Monakow, Forel and Winkler also indulged in the same activity. But is the real need any other than what Narcissus hoped to satisfy by looking at his reflection in the water?

Let us proceed with the explorative exercise. Usually, one makes friends for life during the student years at university. Though C.U. was fortunate in having such friends as Luitzen Brouwer (the world-famous mathematician later on), J.J. van Loghem (bacteriologist), A.J.P. van den Broek (anatomist) and L. le Cosquino de Bussy (zoologist, indologist) among the members of the fraternity 'Dispuut Newton', he does not mention them later. In fact, he does not seem to have developed close friendships in his life, perhaps with the exception of the years older Louis Bolk and the mysterious Cooper (*vide infra*). He studied medicine, but choose a career, which safeguarded him freedom from (emotional) involvement with suffering patients. He scarcely mentions in emotional terms the quality of his relationship with his father, his brothers, and even his mother. He summarily disposes of his relationship to his wife and their marriage in half a page. Taken together, this indicates either a coldness of character, a lack of feeling or ... it betrays a conflict, a battle between the Apollinic and the Dionysian sides of his nature, in which he had decided that the harmonious grace of Apollo should prevail.

Numerous events further seem symptomatic of calculating ambition and exploitation: with inimitable finesse he got Winkler to coach his work for the essay that won him the gold medal; by studying Italian and through contacts made with world-famous Italian experts at the Anthropoly Congress in Amsterdam, he succeeded not only in receiving invitations from the latter but also obtained – an unexplained mystery – a governmental grant to work in Naples, while he was still a student. He persuaded the later anatomist J.B. Johnston to retranslate and correct his M.D. thesis and subsequently sent it to the prestigious *Journal of Comparative Neurology* for publication, where it was accepted.

A telling example of his charming and ruthless *modus operandi* was recalled by Palay ( ) in referring to Herrick's memoirs: A fire in the building which housed Herrick's office, laboratory and all the Journal's records and files, destroyed everything except a fire-proof safe. The latter contained Johnston's translation of C.U.'s text plus the author's footnotes and textual changes, written in blue ink in the margins. On opening the safe, the manuscript proved to be severely charred. Herrick, the dutiful editor, with utmost care, pried loose every leaf and, holding it at a certain

angle against the sunlight, transcribed the text and supplied missing or illegible parts of it from his own memory and experience, and typed it out. This final C.U./Johnston/Herrick product was despatched to Amsterdam; it returned, surprisingly, with very few changes. No mention is made of a word of thanks to Herrick who had spent most of his long summer holidays on the job, was nearly , and suffered from tuberculosis. Nor is any mention made of the obvious alternative, of C.U. sending a copy of Johnston's translation plus his own annotations to the editor Herrick, which would have saved the latter endless trouble.

He visited Edinger in Frankfurt to give him a copy of the thesis and a report of his work in Naples, which soon led to Edinger's offer of a position in Frankfurt as well as, later on, Edinger's support for the appointment to the Directorate of the Amsterdam Brain Institute. He induced colleagues in the Mid- and Far East and America to collect brains and skulls for his collection and subsequent publications, charmed Elisabeth Crosby into a nine-year lasting translation and update (together with Carl Huber) of his -volume work on comparative neuroanatomy, the corrected manuscript of which was expedited safely back by diplomatic pouch through the good offices of the Dutch ambassador to the USA whom he happened to meet aboard the ship on his return and with whom he managed to have daily hours of walking and talking on the deck. His 'good friend', the wealthy honourable Miss J. van Heekeren van Kell, about years his senior, with whom he made numerous trips abroad, was implicitly persuaded to donate a parcel of the land she owned near Loghem for the additional construction of a hall and a number of overnight-stay houses to accommodate the meetings of the 'Woodbrookers' in Barchem, a club of which she and C.U. were members.

Curiously, one looks in vain for signs of hobbies. Apart from having been an avid reader of the books by Jules Verne – which made such a lasting impression on him as a boy that he joined the Jules Verne Society from its start in (he was years old at that moment) – he was not a literature addict. Neither were sculpture – apart from a brief spate of clay modelling under the guidance of the sculptress R.M. van Dantzig (who later went to Brussels, having sculptured both Winkler's and C.U.'s bust) – nor music, nor painting, nor antique culture foci of his interest.

In his mid-thirties, C.U. – who one would regard as a man of iron logical discipline – displayed symptoms of a baffling irrational slant. He joined the ranks of the anti-alcohol 'Order of Good Templars' (as usual without noticeable social effects) and joined the 'Woodbrookers', a society of ethical, semi-religious, liberal, idealistic, and high-minded people (among them the historian G. van der Leeuw and the poet/writer Henriette Roland Holst). They shared a sincere yearning for God with the ideal to elevate the mental level of the underprivileged working-class as an apparent compensation for their deficient sense of reality testing. The movement resembled such phenomena as the 'Réveil' and the 'Moral Rearmament' ('Caux'). It did not prevent the World War. In the same vein, he visited prisons to read to the inmates. Moreover, C.U., who as a laboratory-man could not have the foggiest notions about the treatment of patients, instigated an association for 'Neurotherapy', the reports of which were published in a special section of the *Psychiatrische en Neurologische Bladen*

between and . The association soon died a taciturn death. All of the above are essentially good intentions on a floating abstract level, remaining as admirable as clearly impotent, subject to Brecht's dictum 'Erst das Fressen und dann die Moral'.

A final remark concerns another aspect. There is not a single indication in either the dry records or the autobiography of even the briefest infatuation, or flings with girls. It looked as though he would remain a bachelor, as his mentor Bolk had been. However, he married after crossing the proverbial threshold of senescence: at the age of . One can hardly interpret this as a loud and convincing clarion-call of irresistible heterosexual urges. He married Bea C. van Hunteln, the impressively affluent widow of E.A. Lehmann, who owned a large and stately mansion on the Overtoom in Amsterdam and used to be chauffeured about in her Rolls Royce. The marriage took place a short time after his friend Cooper – to whom (as he emphatically stated) he was very strongly attached during the decades that he, his mother, aunt and family's housekeeper lived in Cooper's house – had died. The marriage remained childless.

The image of the personality which emerges from the sources – and which of course is open to substantial modifications and additions should the present authors have had the time to read the full text of the autobiography and to interview surviving descendants of the family – is one of a unique man, an exquisite neuroscientist, an idealist, of whom (to borrow C.G. Jung's distinction) the beautifully polished Apollinic phenotype served to control and subdue a chthonic Dionysian turmoil of undercurrents, crosscurrents, and counter-currents. Born near the close of the rigid Victorian era, imbibed with protestant and idealistic culture in the *fin de siècle* when – as George Steiner argued – the West was optimistically convinced that it had reached the culmination of civilisation, and entering a century of modern science as well as of the unbelievable barbarism of Lenin, Hitler and two World Wars destroying much of it, his personality may be perceived as one mirroring abysmal conflicts. As such, he was a true child of his time.

Acknowledgements

The authors gratefully acknowledge the clarifying interviews with Dr J. Kruisbrink, Dr D. Moffie, Prof. A.M. Luyendijk-Elshout and Prof. R. Nieuwenhuys.

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