

Bernard Brouwer's Lecture Tours in the United States (1926 and 1933)

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Bernard Brouwer (1881-1949), the first ordinary professor of neurology in the Netherlands and a man of prominent stature among continental neurologists, was invited to read lectures at several university clinics in the United States in 1926 and 1933. In this article, we describe Brouwer's impressions from these tours to obtain a view of US neurology in the 1920s and 1930s compared with the state of Dutch neurology. We studied Brouwer's reports of the lecture tours and pertinent materials obtained from several institutes in the United States where he lectured. Brouwer read the Herter Lectures at The Johns Hopkins University (Baltimore, Md) in April 1926 and subsequently visited several American cities. His second tour was by invitation from the Association for Research in Nervous and Mental Disease in New York, NY (1933), and he accepted invitations to visit New Haven, Conn; Boston, Mass; and Montreal, Quebec. According to Brouwer, neuroanatomy in the United States was studied on a wider experimental basis than in Europe. American colleagues, frequently working in teams, tended to have their theoretical-scientific work led by direct practical results. The scientific level among various universities ranged more widely than in the Netherlands, where the levels were homogeneous. In the United States, Brouwer encountered a general willingness to engage in scientific investigations, usually manifesting already in young students and residents, their inquisitive minds being stimulated early. His US colleagues had more assistants in the clinics and laboratories than those in the Netherlands. American neurologists were particularly interested in the anatomic and physiologic features of the meninges and cerebrospinal fluid circulation. American neurosurgeons were vastly advanced in neurosurgery.

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DUTCH-AMERICAN CONNECTIONS

Between the 2 World Wars, neurological research blossomed. Although Dutch neurology tended to be German orientated, American influences are well recognized, in particular during the period of interest in this article, when several connections between Dutch and American neurology can be identified. The neurophysiologist Johannes Gregorius Dusser de Barenne (1885-1940) moved to Yale University in New Haven (1930), and the neurologist-

epileptologist Louis Jacob Joseph Muskens (1872-1937) spent a year with Charles Loomis Dana (1852-1935) at Cornell University Medical College in New York. Ada Potter, pupil of Cornelis Winkler (1855-1941), the first Dutch professor of psychiatry and neurology, worked in Iowa City, Iowa, and some years later, the neuroanatomist Walle J. H. Nauta (1916-1994) went to the Massachusetts Institute of Technology.¹ In addition, several American physicians went to Amsterdam, the Netherlands, to work at the Central Institute for Brain Research, directed by Cornelius Ubbo Ariëns Kappers (1877-1946), or at Brouwer's laboratory at the University or to Utrecht, the Netherlands, to work at Rudolf Magnus' Pharmacological Institute.

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Bernard Brouwer (1881-1949).

Bernard Brouwer (1881-1949), pupil of Winkler and the first professor of neurology after the division of the Amsterdam chair of neurology and psychiatry into 2 autonomous chairs, 1 for neurology and 1 for psychiatry, in 1923, was well trained in neuroanatomy (at the Central Institute for Brain Research) and clinical neurology (**Figure**).² In 1926 and 1933, he was invited to read lectures at several university clinics in the United States. We studied Brouwer's reports of these tours in Dutch journals. Moreover, we obtained materials from several institutes in the United States in which he lectured. In this article we describe Brouwer's impressions from the lecture tours he made to ob-

tain a view of US neurology in the 1920s and 1930s compared with the state of European neurology. Moreover, we present some American comments on his lectures.

BERNARDUS BROUWER

Brouwer studied medicine in Amsterdam; after graduation, he stayed at Constantin von Monakow's (1853-1930) neuroanatomic laboratory in Zurich, Switzerland. When he returned to Amsterdam, he became an assistant to J. A. K. Wertheim Salomonson (1864-1922; the first extraordinary professor of electrotherapy and neuropathology, 1899) and Winkler. He prepared his

thesis, "Deaf-Mutism and Acoustic Tracts" (cum laude, 1909), under Winkler, and in 1913 he became vice chairman of the Central Institute for Brain Research, next to Ariëns Kappers. The abundant material in this institute quickened Brouwer's scientific mind. Focusing on the comparative anatomy of the cerebellum, he soon showed, in accordance with Ludwig Edinger's concept, that phylogenetically young systems are prone to be selectively affected by certain pathologic processes and that the rostral part of the inferior olive is linked to the archicerebellum. By producing peripheral retinal and (semi)macular lesions, he studied the projection of the retinal fibers to the lateral geniculate body and occipital cortex in primates.³ Brouwer studied the topographic relationship of the various oculomotor subnuclei (1918),⁴ which earned him ephemeral eponymous fame (the "Brouwer scheme"). His conclusions were proven partly erroneous by later work, but he succeeded in establishing that the Perlia nucleus subserved ocular convergence. Furthermore, he studied the spinal conducting pathways of sensation.⁵ He was among the first to report the relationship between cerebellar atrophy (with "isolated disappearance of the Purkinje cells") and cancer (*in hoc casu*, a "pelvic sarcoma"), assuming the cause to be "probably a toxin produced by the tumor. . . ."⁶ Many of these findings would be presented during the lectures in the United States.

BROUWER'S 1926 LECTURE TOUR

In 1902, Christian Archibald Herter (1865-1910), from New York, and his wife donated \$25000 "for the formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science." According to the terms of the gift, an eminent worker in physiology or pathology was to be asked each year to deliver a lecture at The Johns Hopkins University on a subject with which he or she has been identified. Brouwer was invited to read the 17th annual series of the "Lectures on the Herter Foun-

dation" in 1926. The invitation was probably meant as a means of making personal acquaintance because Brouwer was invited by The Johns Hopkins University to assume a research-professorate in Neurology, "in which case I was offered to design a new clinic." However, he did not accept. "Following some discussions with the faculty, I declined the offer, because I did not wish to leave my country."⁷ He read the Herter Lectures in April 1926. Three of the subjects he had studied were presented: "The Projection of the Retina in the Brain" (April 6), "Pathology of Sensibility" (which we now denote as "sensation") (April 7), and "The Value of Phylogenetic Studies for Neuropathology" (April 8).

In his report of the 1926 lecture tours,⁸ we read that during his visit to Baltimore, Brouwer was struck by the intensive cooperation between the various institutes. He subsequently visited Washington, DC; Philadelphia, Pa; New York; Chicago, Ill; San Francisco, Calif; St Louis, Mo; and Rochester, Minn. In Philadelphia, "the center from which the neurological science in America had evolved," he met Charles K. Mills (1845-1931), who at age 80 years and entirely blind still had a clear mind and was often consulted for difficult cases. The physician who examined the patients told Mills what was found, he asked questions, and then he finally gave his opinion on the case. Brouwer was surprised to learn that all neurologists received their chief income from private practice, as the university did not provide a salary or provided only a little money. He speculated this to be "the reason why it was hardly possible to perform profound study of subjects in a systematic way." The system was well known throughout the United States, and this was why the authorities wanted to build a neurological center in Baltimore to be led by a professor "who will dedicate all his time to the clinic and the laboratory." The clinical material in Philadelphia was huge, as observed by Brouwer. William G. Spiller (1863-1940) and Charles Harrison Frazier (1870-1936) did much of the work there. Brouwer also met the neuropathologist William H. F. Addison (1880-?), who had worked at the Amster-

dam Central Institute for Brain Research on several occasions.

Brouwer subsequently stayed in New York, where he met neurologists Smith Ely Jelliffe (1866-1945), Frederick Tilney (1875-1938), Israel Strauss (1873-1955), Bernard Sachs (1858-1944), Robert Foster Kennedy (1884-1952), Charles Loomis Dana, and Isadore Abrahamson (1872-1933). On April 17, he read the Harvey Lecture "Comparative Anatomy and Neuropathology."⁹ He mentioned the interest in the same subject of Tilney and Henry Alsop Riley (1887-1966) and of Jelliffe and William A. White (1870-1937) in New York. Brouwer's work at the Central Institute for Brain Research mainly concerned the phylogenetic development of the central nervous system in sections of all classes of vertebrates. He talked about the relationship of the neocerebellum and paleocerebellum to the principal and accessory olives, respectively, as deduced from 2 cases of neocerebellar atrophy he had observed. Although not much was known about the physiologic significance of the olivary system, Brouwer and his colleague Abraham Gans (1885-1971) had observed "curious involuntary contractions in several groups of muscles" in a case with "extensive atrophy of the inferior olives, chiefly in the neocerebellar part. . . . These movements belong to the group of myoclonic contractions."⁹ He also talked about phylogenetic aspects of the crossing of optic nerve fibers when the eyes move to the front of the head and the appearance of the so-called nucleus of Perlia (for convergence). "As soon as both fields of vision fall further over each other, the left and right nucleus are no longer sharply separated from each other, but larger cells appear in the midline." Brouwer opined that the function of convergence is separately localized in the oculomotor nuclei, near the Edinger-Westphal nucleus for pupillary constriction. He concluded his lecture by reviewing his work on the pathologic features of sensation.

In Chicago, where Brouwer was impressed by the university buildings that had been erected "in analogy to the University of Cam-

bridge" (England), he met Charles Judson Herrick (1868-1960), who worked on the same subject, that is, comparative brain anatomy, as Ariëns Kappers and Brouwer. After a train journey of 3 days and nights, "the wagons [being] comfortably furnished,"⁸ Brouwer arrived in San Francisco in April. He lectured by invitation to the Fifty-fifth Annual Session of the California Medical Association in Oakland: "Pathology of Sensibility."¹⁰ He criticized Henry Head's findings of 2 distinct pathways for protopathic and epicritic sensibility and explained the functions of the posterior columns and spinothalamic pathway in terms of evolutionary processes, distinguishing a paleosensibility and a neosensibility. He emphasized that the paleosensibility

does not remain the same during evolution. . . . as is often seen in the central nervous system, the old parts develop further and are more finely organized in higher animals and in men . . . hence it is not correct, at the present stage of science, to speak of a higher form of sensibility which is conducted in the posterior columns and a lower form which is conducted in the anterolateral columns.

He concluded the paper by mentioning the recent introduction of Lipiodol, an iodized oil used as a contrast agent, in spinal cord radiographs by Sicard and Forestier, enabling him to have his surgeon operate on 5 spinal cord tumors in 1925.^{10,11}

Although he enjoyed the nature and the climate, he spoke less positively about the intellectual level in the West compared with in the East. He found that the University Hospital in San Francisco was well equipped and that there was much interest in research but that they lacked "men of great significance."⁸ This may reflect Robert Aird's remark, "Prior to 1948, the School of Medicine in San Francisco was the only medical school in the University of California system. Like most of the medical schools in the early 20th century, it was struggling to improve its status."¹² Brouwer's observation was confirmed in the *Centennial Anniversary Volume of the American Neurological Association*.¹³ The evolution of neurology and neurosurgery started after 1925,

and in 1930, there was only 1 active member from the Western states.¹³

The next city on his tour was St Louis, where “life is more calm and less hurried than in Chicago and New York.” However, there was “an intensive scientific life . . . two universities compete.”⁸ He was struck by the fact that in contrast to Washington University, women were not allowed to study at St Louis University. He had also observed this at Harvard and some other universities: “in my lectures for the students, I explicated the benefit of co-education at the universities.” Brouwer visited the psychiatric-neurological clinic of Sidney I. Schwab (1871-1947). He also met the neurologist William Washington Graves (1865-1949) and the neurosurgeon Ernest Sachs (1879-1958), who had worked with Victor Horsley (1857-1916) in London, England, and Hermann Oppenheim (1858-1919) in Berlin, Germany. He was introduced at the St Louis Medical Society by Graves,¹⁴ who, following a brief sketch on Dutch culture, introduced Brouwer as follows:

who is young in years but old in achievement. Wherever neurological literature is read, his name will be frequently found . . . I had the good fortune to meet him in 1924 when I was making a pilgrimage through Europe, and I can never forget the pleasant days I spent on that occasion.

In Rochester, Brouwer lectured at the Mayo Clinic, where he was “struck by the fact that these patients (65000 in the previous year) are examined accurately and exhaustively by many specialists, and are treated in a very humane and psychologically right way as well. . . . Neurology there is not very impressive.” He was disappointed not to meet the neurosurgeon Alfred Washington Adson (1887-1951). In Iowa City he met his compatriot Potter, Winkler’s colleague who had published *An Anatomical Guide to Experimental Researches of the Rabbit’s Brain* and was now working on the brains of higher mammals in the psychiatric clinic of professor Samuel T. Orton (1879-1948). Subsequently, Brouwer went to Boston, where he met Edward Wyllys Taylor (1866-1932), Stanley Cobb (1887-1968),

and James B. Ayer (1882-1963; “the discoverer of the suboccipital puncture”). He completed his tour in Atlantic City, NJ, near Philadelphia, where he attended the annual meeting of the American Neurological Association. He left the United States on June 5 after a visit of 61 days.

BROUWER’S VIEW OF AMERICAN NEUROLOGY

In the report of the lecture tour he presented some general comments on US neurology. Neuroanatomy, he opined, is studied separately from anatomy, and compared with in the Netherlands, it is performed in a predominantly experimental way. American colleagues, frequently working in teams, tended to have their theoretical-scientific work led rather by direct practical results. Referring to the work of the Baltimore anatomist Lewis Hill Weed (1886-1952), he believed that Americans, at the time, were particularly interested in the anatomic and physiologic features of the meninges and the cerebrospinal fluid. Weed discovered the effects of hypertonic and hypotonic infusions on cerebrospinal fluid pressure. Harvey Cushing (1869-1932), who had already done research on intracranial pressure in Hugo Kronecker’s (1839-1914) physiological laboratory in Berne, Switzerland,¹⁵ and Ernest Sachs applied the results. Brouwer was impressed by Cushing’s results, in particular with respect to tumor surgery. He had also met Walter Dandy (1886-1946), who demonstrated air ventriculography via puncture of the posterior ventricle. “American neurosurgery has made a deep impression on me. . . .” In 1927, he sent the Amsterdam surgeon Ignaz Oljenick (1888-1981) to Cushing to learn neurosurgery, which Oljenick did for 2 years. Oljenick became the first neurosurgeon at the new Amsterdam neurological institute that was opened in 1929. There were 120 beds, and the neurosurgeon could have as many beds at his disposal as he desired. Initially, he had approximately 25 beds.

Brouwer’s impression of the level of American universities was that there were many universities of minor quality and several very good

ones. “In this way there is an important difference with the relationships in the Netherlands, where the interuniversity levels do not vary much. . . .” He was also struck by “the love to perform scientific investigation. They start at a young age already. The inquiring mind is observed early.”⁸ In a letter to Monakow he wrote, “I found a vivid interest in neurological science everywhere. The Americans are very competent and diligently engaged in pathological and experimental-anatomical studies. The Rockefeller Institute is splendid” (written communication, June 24, 1926; translated by P.J.K.). Another difference he noticed was that there are more assistants in the clinics and laboratories in the United States than in the Netherlands. “The staff of one of the leading internists appeared not to consist of a group but of a crowd. They were with fifty.” He believed specialization to be implemented to a large extent, resulting in great advantages in technical respect, “but [it] has the disadvantage that only few are able to survey the whole field sufficiently. This drawback is overcome by intensive cooperation at the Mayo Clinic.” He also made some general observations on Americans, who “have enough common-sense, are practical, straightforward and do not pose as learned. . . .” He believed that they deliberate less and “above all [are] more brief than we do. They act more and above all faster. . . .” He experienced the intercourse between chiefs and subordinates at the institutes and between physicians and patients in the clinics to be comradely. He ended the discussion by expressing that “it would be sensible to improve the bonds between the US and the Netherlands. There is a great distance between us. Because of the sea, not because of the mind.”⁸

BROUWER’S SECOND LECTURE TOUR (1933)

Brouwer had another opportunity to carry out his wish, that is, to improve the bonds, during a second tour by invitation of the Association for Research in Nervous and Mental Disease in New York (1933), the theme of the meeting being “Localisation of Functions in the Cerebral Hemispheres.”¹⁶ At this tour, he

also accepted invitations to visit Yale University (meeting his compatriot Dusser de Barenne), Boston (Society for Nervous and Mental Disease), and McGill University, Montreal.

In New York, Brouwer was impressed by the Neurological Institute, where Tilney, Orton, James Ramsay Hunt (1874-1937), and Riley were practicing. More than 5000 patients visited the outpatient clinic in 1930. He was also impressed by the neurosurgical achievements of Charles Elsberg (1871-1948) and the low mortality rate (26 of 311 patients) of brain surgery. Air ventriculography was performed less often than at his previous visit because of a few mortal complications. Brouwer enjoyed the meeting at the Association for Research in Nervous and Mental Disease at the Commodore Hotel, estimating the number of participants at 300 or 400. He was impressed by the neuroanatomic work of Tilney and the neurophysiologic work of Dusser de Barenne on functional localization in the cortex based on extirpation and stimulation experiments. A case of frontal lobe syndrome was analyzed meticulously by Richard M. Brickner (1896-1959), and Wilder Graves Penfield (1891-1977) talked about unilateral lobotomies. The presentations were followed by vivid discussions.

These meetings of the 'Association for research in nervous and mental disease' remind one of the annual gatherings of the 'Société de Neurologie de Paris' and of the 'Deutscher Verein für Nervenärzte' . . . the presentations and discussions were of a high scientific level.¹⁶

In John Fulton's (1899-1960) diaries, we find the following notes on December 27 (1932)^{17(p167)}:

The dinner at the Harvard Club [New York] was given by Orton, president of the Association, for Dr Brouwer, who has come over to be the chief speaker at the meeting. Dusser de Barenne, Penfield, Kirby, Davis and a number of others attended the dinner and it proved to be much more festive than anyone had anticipated and didn't break up until after one o'clock.

The following day he attended Brouwer's lecture, "Certain Aspects

of the Anatomical Basis of the Phylogeny of Encephalization," at the meeting of the Association for Research in Nervous and Mental Disease. "Brouwer's paper was excellent . . . and Dusser talked rather too long. . . ." Several physicians in the audience, including Orton, discussed the paper.

Dr Brouwer also has laid emphasis on two factors which I think we are rather prone to forget, and those are the existence of great numbers of corticofugal fibers back from the cortex to the lower centers and the presence of distributions far and way beyond those which we ordinarily think of as we follow the grooves of sensory distributions. . . .¹⁸

Brouwer presented another paper on the second day, "The Projection of the Retina on the Cerebral Cortex in Man."

He stayed in Philadelphia for 2 days and was informed about the results of trigeminal neuralgia surgery by Spiller and Frazier. He noticed the board in the operating room of Frazier: "Total major operations for tic douloureux: 722."¹⁶

In the subsequent week, Brouwer and his wife went to New Haven, where they stayed for 8 days. Dusser de Barenne was professor of experimental physiology at Yale University. He had worked in Amsterdam, Utrecht (with Magnus on the physiology of posture), and Oxford (with Charles S. Sherrington, in 1924, on sensory symptoms after local application of strychnine to the cerebral cortex of rhesus monkeys) before he settled in New Haven (1930). His equipment impressed Brouwer: "His laboratory has been furnished entirely according to his ideas and is equipped with all modern instruments for scientific research."¹⁶ In his report, Brouwer mentioned in particular Dusser de Barenne's cortical stimulation experiments and the effect of peritopical novocaine, disinhibiting the adjacent cortical neurons. Dusser de Barenne had many influential co-workers and pupils, including Percival Bailey (1865-1922), Warren McCulloch (1898-1969), and Fulton.¹⁹ During his stay in New Haven, Brouwer met Fulton, Robert M. Yerkes (1876-1956), Walter Richard Miles (1885-1978; professor of psy-

chology and psychiatry), Arnold L. Gesell (1880-1961), and Ross Granville Harrison, Sr (1870-1959; professor of zoology).

Brouwer and Fulton corresponded at least since 1930,²⁰ when the latter asked Brouwer to send him a copy of the thesis of a pupil (Overbosch) on the optic tracts in cats. Fulton was particularly interested in the number of crossing fibers in the cat's chiasm (written communication, February 21, 1930).²¹ They probably first met in Berne during the First International Neurological Congress in 1931.²² In a letter from October of that year, Fulton referred to the discussion they had at dinner and asked Brouwer to write about other results of studies on the human optic nerve (written communication, October 12, 1931). Brouwer and Fulton met again at a dinner at Dusser de Barenne's house during Brouwer's second tour (1933). The following morning (January 6),^{17(p178)}

Brouwer spent his whole morning in the laboratory seeing our animals and discussing in great detail the work that we are attempting to do. I found it most stimulating to have him here and he was most appreciative. . . . In the evening we gave a dinner for the Brouwers. . . they are particularly amusing and continued to be so until about one a.m.

Brouwer gave several lectures at Yale. On January 9, he talked about "the cortical projection systems on the sensory side of the subcortical reflex arcs. He had most illuminating series of observations to record."^{17(p179)} Two days later we read^{17(p180)}:

I presided at the meeting [at the Yale Medical Society] later and had fun introducing Dr Brouwer as a man of his dimensions rather lends himself to a good introduction. His paper on the more general aspects of brain tumors was interesting in that it reflected in rather striking fashion the influence of Dr Cushing's neurosurgical clinic as exerted abroad. There was nothing very new in the lecture but it was all very amusingly described.

Fulton appreciated Brouwer's visit in New Haven: "Your presence here was an immense stimulus to all the group working in neurology and I only wish that we could in some way repay you for all that you gave us" (written communication, April 1,

1933). They also exchanged pupils. One of Fulton's pupils who stayed in Amsterdam was Margaret Kennard (1899-1976), who would be one of the pioneers in the experimental study of sparing and recovery of brain function.²³ In the letter dated March 15, 1934, Fulton asked Brouwer to receive his pupil, who had worked with him on the cerebral cortex of monkeys and chimpanzees for 3 years. She had received a 2-year fellowship from the Rockefeller Foundation. She intended to spend the time in Breslau, Germany, with Otfried Foerster (1873-1941), and with Brouwer in Amsterdam.

However, if Dr Foerster is not well, or if the conditions in Germany make it difficult for an American student, I should like very much to have Dr Kennard go directly to Amsterdam if it is possible for you to receive her. . . . She is easy in conversation, sociable and has a good many resources outside the field of medicine including interest in music and art.

In November 1934, Fulton expressed his gratitude for Kennard's welcome in Amsterdam: "We have been having most enthusiastic letters from Dr Kennard concerning her work in your laboratory. I deeply appreciate all that you and Mrs Brouwer have done for her. . . ." (written communication, November 2, 1934), and in December he wrote: "She writes that you have left no stone unturned to make her sojourn in Amsterdam not only very profitable, but exceedingly pleasant" (written communication, December 26, 1934).

After his visit to New Haven, Brouwer traveled to Boston, where he met Harvey Cushing, who "had not yet chosen from the various chairs, which had been offered to him since he retired."¹⁶ They had possibly met in September 1929, when Cushing was in the Netherlands, where he visited Amsterdam, Volendam,²⁴ and Haarlem, before he attended and spoke at the 13th International Ophthalmological Congress in Scheveningen (near The Hague).²⁵ In 1932, Cushing was appointed Doctor *Honoris Causa* in Medicine at the University of Amsterdam on the recommendation of Brouwer. As mentioned previ-

ously, Brouwer held Cushing in high esteem. By having Oljenick train under Cushing for 2 years (1927-1929) and founding a neurosurgical department in the new Amsterdam neurological clinic (1929), Brouwer may be considered to have made the cradle of Dutch neurosurgery. Next to Cushing, he met Cobb; Tracy Jackson Putnam (1894-1975), the surgeon, who had worked in Amsterdam previously; and Walter Cannon (1871-1945), with his colleague Philip Bard (1898-1977). The last city of Brouwer's tour was Montreal, where he met Penfield and Colin Kerr Russell (1877-1956). The latter had worked with Monakow in Zurich, where Brouwer stayed in 1906, so that they had subjects to talk about. Brouwer discussed the plans of a new neurological and neurosurgical institute that was offered to Penfield. The institute would be comparable to the one Brouwer had opened in Amsterdam 4 years previously, although neurosurgery would predominate in Montreal. Penfield would also have more laboratory space at his disposal. Brouwer expressed his expectation that "this new institute would be one of the leading centers in the area of neurology within a few years, not only because all instruments for research will be available, but above all because Penfield knows how to choose the right collaborators."¹⁶

In summary, Brouwer returned to Amsterdam with the impression that neuroanatomy and neurophysiology in the United States were studied on a wider experimental basis than in Europe and that American colleagues, frequently working in teams, tended to have their theoretical-scientific work led pragmatically by practical results. The scientific level among various universities ranged more widely from superb to mediocre than in the Netherlands, where the levels were homogeneous. In the United States, Brouwer encountered a widespread and basic willingness to engage in scientific medical research, an attitude usually manifesting early in young students and residents. Probably because of a combination of their dynamism; their talent for teamwork; their open-mindedness; their will to explore, probe, and im-

prove; their freedom from traditionalism; and their large-scale ambition, Brouwer's American colleagues attracted more (and also strongly motivated) assistants in the clinics, wards, and laboratories than could be possible in the Netherlands. He was deeply impressed by the advanced state of neurosurgery in the United States and, as a consequence, firmly resolved to initiate neurosurgery in the Netherlands on the exemplary American footing. Because of his visit, the American neuroscience example replaced the traditional German influence in Dutch neuroclinical circles, beginning in Amsterdam and, since then, ever more serving as a frame of orientation throughout the Netherlands.

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