

Walking a Fine Scientific Line: The Extraordinary Deeds of Dutch Neuroscientist C. U. Ariëns Kappers Before and During World War II

LAWRENCE A. ZEIDMAN¹ AND JAAP COHEN²

¹Department of Neurology and Rehabilitation, University of Illinois at Chicago, Chicago, IL USA

²NIOD - Institute for War, Holocaust and Genocide Studies, Amsterdam, The Netherlands

Dutch neuroscientist Cornelius Ubbo Ariëns Kappers is famous for pioneering neuroembryological work and for establishing the Amsterdam Central Institute for Brain Research. Less well known is his anthropological work, which ultimately played a role in saving Dutch Jews from deportation to their deaths during the Holocaust. Ariëns Kappers extensively campaigned against anti-Semitism and Nazi persecution during the 1930s. During World War II, he utilized his credentials to help create anthropological reports “proving” full-Jews were “actually” partial- or non-Jews to evade Nazi criteria, and at least 300 Jews were thus saved by Ariëns Kappers and colleagues. His earlier work demonstrating differences between Ashkenazic and Sephardic Jewish skull indices became the focus of an attempt to save hundreds of Dutch Portuguese Jews collectively from deportation. Ariëns Kappers and colleagues brilliantly understood how anthropology and neuroscience could be utilized to make a difference and to save lives during a tragic era.

Keywords C. U. Ariëns Kappers, neuroscientist, Holocaust, Netherlands, cephalic index

Introduction

Cornelius Ubbo Ariëns Kappers (1877–1946; [Fig. 1](#)) was a famous Dutch neuropathologist and neuroanatomist from Groningen ([McK Rioch, 1970](#)). While numerous biographies have addressed his contributions to neuroscience, and some have alluded to or mentioned his patriotic endeavors to resist the Nazis, none to our knowledge have comprehensively addressed his untiring efforts to criticize anti-Semitism and his contribution to saving many Jews from Nazi persecution and murder in occupied Holland during World War II. After a brief summary of Ariëns Kappers’ neuroscience background, we present his compelling story of resistance against the Nazis from 1933–1945.

Kappers came from a family of scholars and his father was the village physician. He enrolled in the University of Amsterdam Medical School in 1896, likely at the instigation of his father. There he discovered his love of comparative neuroanatomy that he pursued for the duration of his career ([Dott, 1947](#); [Keyser & Bruyn, 2002](#)). As a medical

Address correspondence to Lawrence A. Zeidman, University of Illinois at Chicago Medical Center, Department of Neurology and Rehabilitation (M/C 796), Neuropsychiatric Institute, 912 S. Wood Street, Room 855N, Chicago, IL 60612-7330, USA. E-mail: lzeidm1@uic.edu

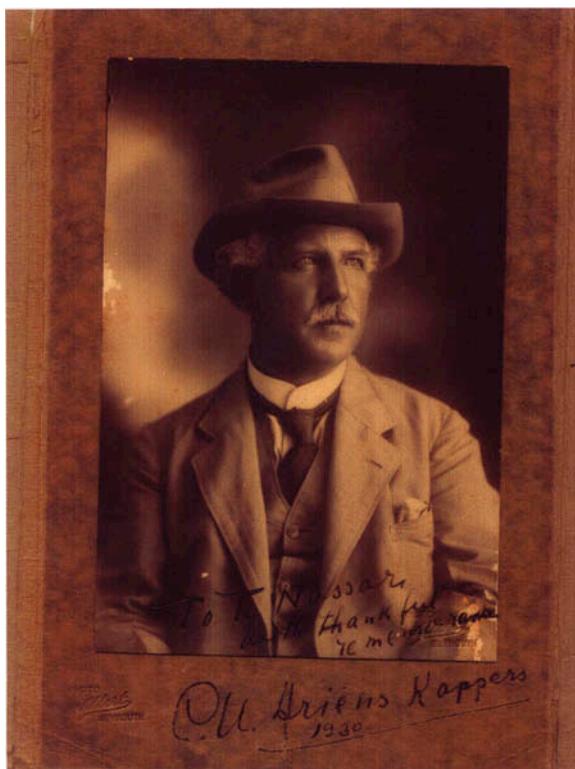


Figure 1. Cornelius Ariëns Kappers in 1930 in Beirut. Photo reprinted courtesy of American University of Beirut Libraries (<http://www.lb.aub.edu.lb/~websml/>). (Color figure available online.)

student, he worked with famous Dutch histologist J. Van Rees (1854–1928) on neurological specimen staining techniques and authored an original paper “Origin of the Myelin Sheaths and Sheaths of Schwann of Peripheral Nerves,” which won him a gold medal in a contest at the University of Utrecht (Dott, 1947; Keyser & Bruyn, 2002). In 1901, he conducted brain research in Naples, Italy, at the Zoological Station on the brain structure of teleostean and selacean fishes, which he used for his honors-winning 1904 medical doctoral thesis in Amsterdam (Dott, 1947; McK Rioch, 1970; Keyser & Bruyn, 2002). Ariëns Kappers became interested in physical anthropology while in Naples in 1901 when he worked with the (in)famous criminologist Cesare Lombroso,¹ who showed him “the tiniest microcephalic skull I have ever seen” (Ariëns Kappers, 2001, p. 35), although Ariëns Kappers did not become active in the field of physical anthropology until much later in his career. Ariëns Kappers worked between Amsterdam and Naples in 1905, teaching lectures in neurohistology after being appointed lecturer, and his lectures attracted more students

¹Cesare Lombroso (1835–1909) was an Italian criminologist who modified early-nineteenth-century phrenology principles based on late-nineteenth-century eugenics principles and formulated the theory of criminal anthropology. His ideas centered on the craniometric and anthropometric identification of criminals, which were largely discredited as unscientific and later disproven by statistical analyses of criminals and noncriminals, revealing no significant differences between the groups. Environmental theories of criminality later became more widely accepted. See: <http://www.cerebromente.org.br/n01/frenolog/lombroso.htm>

than his teacher Van Rees (Keyser & Bruyn, 2002). Though he was offered an appointment as a neuropathologist at the University of Amsterdam Hospital, in 1906, Ariëns Kappers instead accepted an offer to study and work at famed German neurologist and neuroanatomist Ludwig Edinger's (1855–1918) *Senckenbergisches Institut* (Pathological Research Institute) in Frankfurt-am-Main (Dott, 1947; McK Rioch, 1970; Keyser & Bruyn, 2002). Ariëns Kappers may have also left to avoid competition with Van Rees, with whom tensions had arisen due to Ariëns Kappers' rising stardom at the university. Ariëns Kappers worked in Frankfurt for two years and was made laboratory chief, expanding upon Edinger's neuro-evolutionary concepts of archi- and paleo-subdivisions of brain anatomy (Dott, 1947; McK Rioch, 1970; Keyser & Bruyn, 2002). Ariëns Kappers clearly was not inclined to become the physician or neurologist for which he had been trained but rather to further explore his interests in comparative neuroanatomy (Keyser & Bruyn, 2002).

In 1907, Ariëns Kappers made his name in neuroscience by introducing the novel concept of "neurobiotaxis," a theory that states that neuronal dendrites migrate and grow outward in the direction of arriving (afferent) stimuli. This theory transitioned descriptive neuroanatomy to the more interpretive concept of neuromorphology (Keyser & Bruyn, 2002). Ariëns Kappers' neurobiotaxis work was presented the same year at the International Congress of Psychiatry and Neurology in Amsterdam. Later work, perhaps overshadowed by neurobiotaxis, involved studies (Ariëns Kappers, 1908, 1909) on the mechanical versus functional phylogenetic etiology for the expansion of cortical convolutions, pointing out that grey matter folding not only occurs cortically but also subcortically (e.g., brainstem and thalamic nuclei, visual pathways).

In 1909, Ariëns Kappers was unanimously elected as the first Director of the newly founded *Centraal Instituut voor Hersenonderzoek* (Central Institute for Brain Research) in Amsterdam, where he would remain until his death in 1946 (Dott, 1947; McK Rioch, 1970; Keyser & Bruyn, 2002; Hofman & Johnson, 2011). There he built an internationally renowned institute and site for the training of many visiting scholars from around the world. He helped to amass a collection there (now called the "C. U. Ariëns Kappers Brain Collection") of 500 brains and about 30,000 sections of human and animal brains (Hofman & Johnson, 2011).

Ariëns Kappers became a member of the Dutch Royal Academy of Sciences in 1920 (Keyser & Bruyn, 2002) and notably declined a more personally rewarding offer as Chair of Anatomy and Embryology of the University of Leiden in 1918 so that he could remain at his institute in Amsterdam (Dott, 1947; McK Rioch, 1970). In 1920, he published his seminal work in German, the textbook *Anatomie des Nervensystems der Wirbeltiere und des Menschen* (Ariëns Kappers, 1920), which was later translated into an English volume in 1936, *The Comparative Anatomy of the Nervous System of Vertebrates, Including Man* (Ariëns Kappers, Huber, & Crosby, 1936). From 1923–1924, Ariëns Kappers gave anatomy lectures at the American-sponsored Peking Union Medical College and on his return collected many specimens in Asia for his brain institute. He lectured widely in America, Europe (Dott, 1947; Keyser & Bruyn, 2002; Hofman & Johnson, 2011) and, in 1929, gave a series of lectures at the American University in Beirut, using that opportunity to collect craniometric-anthropological data from, among others, Phoenician, Arab, and Samaritan skulls in Syria, Turkey, and Palestine (Keyser & Bruyn, 2002).

In 1928, Ariëns Kappers was awarded an honorary doctorate by Yale University, as well as an offer to assume the chairmanship of a yet to be built Institute of Anatomy (Keyser & Bruyn, 2002; Hofman & Johnson, 2011). This offer apparently had some "leverage effect," and in 1929, Ariëns Kappers was offered the new Chair of Comparative Neuroanatomy at the University of Amsterdam, which he would also hold until his death.

He also later received honorary degrees abroad in Chicago, Dublin, and Glasgow and was elected to the Royal Society of Edinburgh. It is said that “Much of present-day knowledge of the development, structure, and function of the brain is due to Ariëns Kappers’ pioneer work” (Dott, 1947, p. 20). A “C. U. Ariëns Kappers Award” is awarded by the Royal Netherlands Academy of Sciences every two years to a preeminent international neuroscientist (Hofman & Johnson, 2011).

Near-East Anthropology and Ariëns Kappers’s Connections to the Amsterdam Jewish Community

The French version (Ariëns Kappers & Strasburger, 1947) of Ariëns Kappers’ comparative neuroanatomy text, published posthumously in 1947, included a summary of his latter interest in cortical fissure formation in modern and prehistoric man and its impact on anthropology. This latter interest initially was sparked during his Asian sojourn in 1924 but was intensified during his visit to the Middle East in 1929 (Fig. 2) and led him to anthropological work in his later years (McK Rioch, 1970).

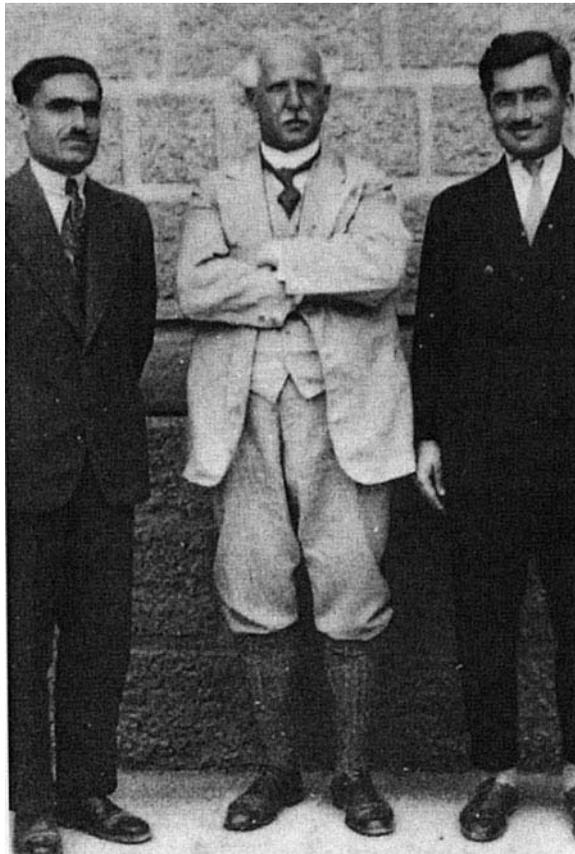


Figure 2. Ariëns Kappers at the American University of Beirut with Mr. Tamar Nasser (right), a Lebanese histologist and neuroanatomist, 1929. Photo reprinted courtesy of American University of Beirut Libraries (<http://www.lb.aub.edu.lb/~websml/>).

Ariëns Kappers had compared the convolitional patterns of *Pithecanthropus erectus* and Neanderthal man to anthropoid apes and modern man (Dott, 1947), and then he turned to more typical comparative “craniometric” anthropological studies of ancient and modern man of various racial groups.² Ariëns Kappers’ English language 1934 text (Ariëns Kappers & Parr, 1934), *An Introduction to the Anthropology of the Near-East in Recent Times, With a Chapter on Near Eastern Bloodgroups*, contains “cephalic index” curves and hematologic “indices” for many Middle Eastern and European peoples (2500 total), including that of Dutch Ashkenazi and Sephardic Jews. He had to use the cephalic index on living subjects (Fig. 3), instead of the “cranial index” (which is typically one index point lower), because he was unable to collect enough skulls from recent races. Ariëns Kappers points out in the “Introduction” of his 1934 text:

[T]he length-breadth [cephalic] index is the most valuable of all the indices that can be measured on the living. It is indeed of such importance that, if the other measurements that might be taken and the indices calculated from them would be about the same in two groups and the peak of the length-breadth indices of these groups would show a distinct and constant difference . . . the differing length-breadth index peak would be enough to exclude a direct kinship between these groups. (Ariëns Kappers & Parr, 1934, p. 1)

Ariëns Kappers further elaborated that the index was more important than absolute length and breadth measurements, as the latter could be smaller in a socioeconomically challenged group of the same race. Ariëns Kappers also acknowledged that the “value of the cephalic index as a hereditary feature and consequently as a means of establishing a racial relationship was discovered by Anders Retzius, and since has been often confirmed” (Ariëns Kappers & Parr, 1934, p. 2). Though skull measurements had been used previously to compare ape to human skulls, the cephalic index as a method to classify human races was first defined by Swedish anatomist Retzius (1796–1860) in 1842 and is calculated as the ratio of the maximum width of the head of an organism divided by its maximum (axial, front-to-back) length (and multiplied by 100 to create a percentage or index). Human populations were characterized as either dolichocephalic (long headed, index < 75), mesocephalic (moderate headed, index 75–80), or brachycephalic (short headed, index > 80), although the mesocephalic category was only later added by physical anthropologists (Retzius defined brachycephalic as an index > 75) (Larsell, 1924). Skull index theories became closely associated with the development of racial anthropology in the nineteenth and early-twentieth centuries, when ancient skulls were used to model population movements in terms of racial categories (Spiro, 2008). Following the Holocaust, craniometry became linked to extreme racial prejudice, and research on brain size and intelligence was highly criticized and fell into disuse (Rushton & Ankney, 2009). In recent decades, craniometry has been used to identify, compare, and research trends among the different species in human evolution (Beals, Smith, & Dodd, 1984). Ariëns Kappers also wrote that

²Importantly, the concept of “race” and racial groups, to define subgroups of the human species has become outdated and erroneous and contributed to racism and prejudice in the twentieth century and prior to that. Today, it is believed that race cannot be defined in many individuals whose lineage can be traced to a number of different continents, and DNA studies have confirmed that humans have the same genetic structure regardless of “race.” The superficial differences between groups of people from different regions are likely to due to long-term logical evolutionary adaptations to specific environmental stressors and have no meaning in defining intelligence or other qualities. (See <http://www.britannica.com/EBchecked/topic/488030/race>)

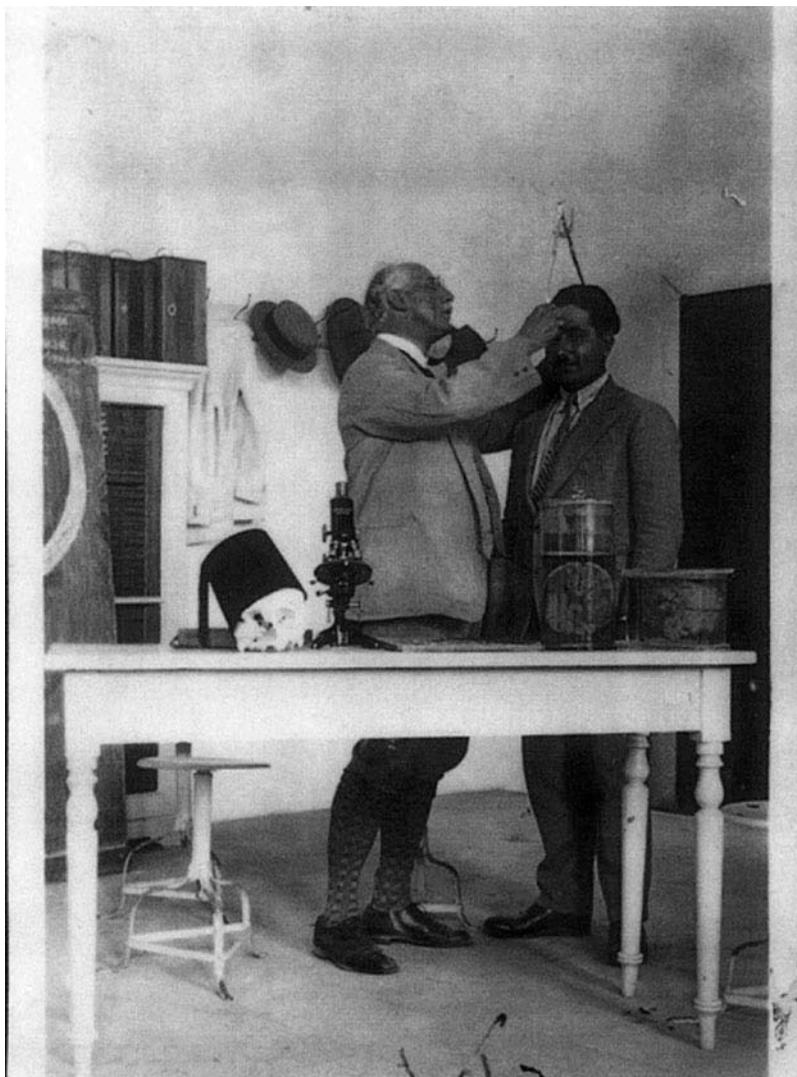


Figure 3. Ariëns Kappers demonstrating a skull measurement in Beirut, 1929. Photo reprinted courtesy of American University of Beirut Libraries (<http://www.lb.aub.edu.lb/~websml/>).

the hematologic indices discussed later in his book by American anthropologist and expert on blood groups of the Near East, Leland W. Parr, ran parallel to the cephalic indices.

Ariëns Kappers pointed out in a footnote, foreshadowing his later writings against Nazism:

Although it is self-evident that nations are not races it may be good to emphasize this here again, since expressions like the Persian race, the French race, especially the expression German race, are still occasionally seen. (Ariëns Kappers & Parr, 1934, p. 6)

He also wrote against the use of the term “Semitic” in this book, stating that

The expression “Semitic race or races” often used [to describe Hebrews, Arabs, and other Middle Eastern groups] is one of the most inappropriate expressions occurring in anthropology, just as confusing as the word Aryan. Although taken in the biblical sense it means to indicate people that are mutually related (being all descendants of Sem), practically the term only indicates people that speak a Semitic language . . . What then is the anthropological meaning of the expression “Semitic people”? None at all. (Ariëns Kappers & Parr, 1934, p. 43)

Ariëns Kappers noted that he recorded his results differently from most in the literature because he registered frequency curves to plot the cephalic indices for each race, instead of the average index for each group:

Whereas averages always more or less take away the differences existing in a group, or only express them by their spread and deviations, a frequency curve gives the complete analysis of its group. (Ariëns Kappers & Parr, 1934, p. 6)

His literature review revealed that the “Northern or Aschkenasim Jews” (92% of Jews), originating from the “fertile crescent or Mesopotamia . . . ethnically Subarean” (Ariëns Kappers & Parr, 1934, p. 61), have similar cephalic indices (83.5 vs. 83 and 87) and blood indices (2.91 vs. 2.31, 2.19, and 2.56) to Armenians, Khaldeans, and Lebanese (brachycephalic). The Sephardim (8% of Jews) likely originated from the “Southern Jews of Judea,” a population with significant intermarriage with Phoenicians (Canaanites) from Samaria, and had a cephalic peak index of 77 (mesocephalic) and blood index of 1.33, similar to the Syrian Arab cephalic index of 77 and blood index of 1.59. The 233 Dutch Ashkenazim measured in Amsterdam by Ariëns Kappers and Willem Klein (of Ashkenazi descent) had a cephalic index of 81–81.9, whereas the 235 Sephardim measured by Ariëns Kappers’ nephew Hans (who would later become his successor as director of the Central Institute for Brain Research) and Elsa D’Oliveira (of Sephardim descent) had a cephalic index peak of 78–78.9 (Fig. 4). Based on the Middle Eastern and Dutch indices, Ariëns Kappers postulated that the Ashkenazim from the “Northeast” are predominantly of the brachycephalic “Subarean” type, and the Sephardim are predominantly of the mesocephalic Canaanite-Phoenician or “Asiatic Mediterranean” type, but that significant “Mediterranean admixture” had occurred amongst the Ashkenazim and that there was a “hidden Ashkenasim component in the Sephardim” (Ariëns Kappers & Parr, 1934, p. 66). The smaller additional 78 peak on the Ashkenazim curve in Figure 4 and the portion of the Sephardic curve running parallel to the Ashkenazim curve support this conclusion (Ariëns Kappers & Parr, 1934).

Of note, Ariëns Kappers did not measure the Jewish skulls in the Near East (as all other ancient and modern peoples in the book), but in Amsterdam, where a large Jewish community existed. Regarding Ariëns Kappers’ assistants, by having Klein assist in measuring the Ashkenazi skulls and D’Oliveira measure the Sephardic ones, he followed the routine he had in the Near East, where his assistants always belonged to the group of people he was researching (Ariëns Kappers, 2001), even though D’Oliveira only had Sephardic roots and was not a bona fide member of the community. The Board of Directors of the Ashkenazi and Sephardic communities, respectively, were helpful by making arrangements for their members to take part in the research. Parr’s later chapter in the book on blood types established that Sephardic and Ashkenazic blood groups are quite distinct, and that Jews seem to be in almost every racial category based on blood typing. This prompted

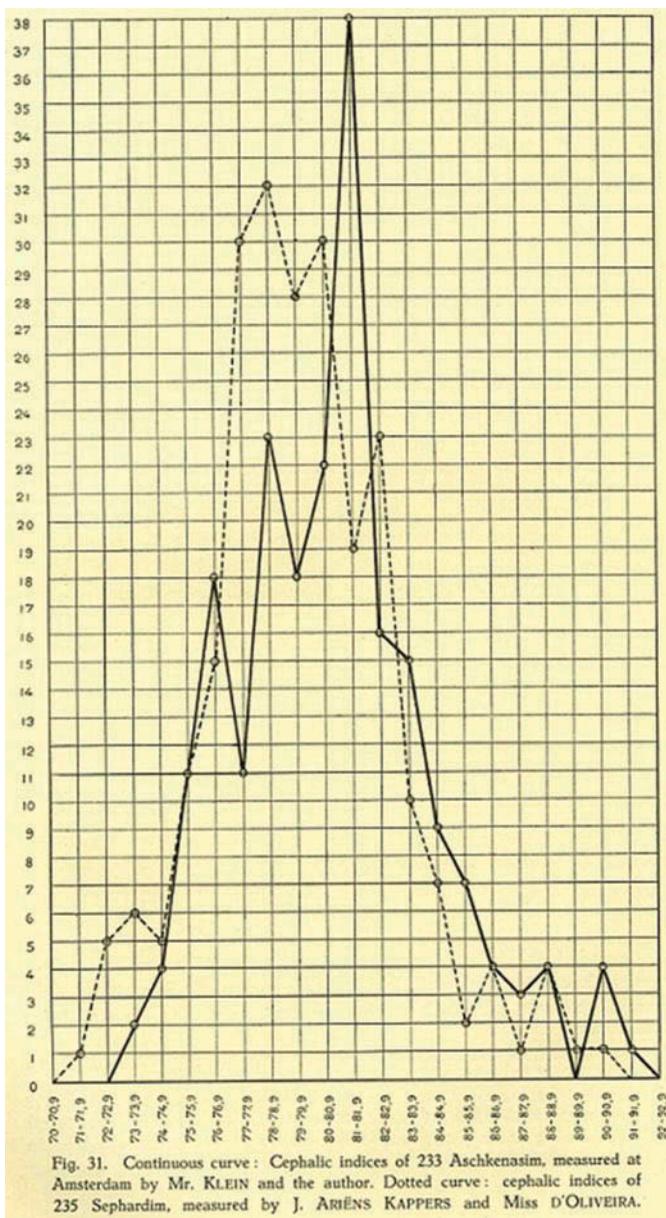


Figure 4. Ashkenazi (92%, brachycephalic) versus Sephardic (8%, mesocephalic) Jews — different cephalic indices (Ariëns Kappers & Parr, 1934, p. 63). The North Holland Publishing Company, which published this book, no longer exists. (Color figure available online.)

Parr's conclusion that "There is serologic evidence that the Jews are a religion rather than a race" (Ariëns Kappers, 1934, p. 195). Ariëns Kappers' craniometric studies on Jews and his connections to the Amsterdam Jewish community will be explored below.

Ariëns Kappers Strikes Out Against Anti-Semitism and Tries to Help Displaced German Jews

Given that Ariëns Kappers professionally speaking was both against the use of the term “race” to describe a nationality and against the use of the term “Semitic,” it may not be surprising that he embarked on a campaign, along with others, against anti-Semitism and the persecution of German Jews throughout the 1930s. But his personal relationship to Jews and his opinion of Jews, in general, seem to have impacted his desire even further to publicly protest against Nazi ideology. In a December 1938 issue of the Dutch social democratic weekly *Vrijheid, Arbeid, Brood* (Freedom, Work, Bread) dedicated to the persecution of the German Jews, Ariëns Kappers wrote the following statement alongside statements from two other professors:

Although it is hardly necessary to express my abhorrence for the things that are being done to the Jews in Germany, I would like — as a student of a German Jew, the late professor L. Edinger from Frankfurt am Main — to testify to the great gifts of mind and heart, which I found in him and many of his Jewish colleagues, as well as their sense to give support in times of social perils. I do, by the way, know that many German non-Jews think in the same way. Anti-Semitism must be strongly disapproved by anyone who knows how much the Jews have contributed to the promotion of sciences and arts. (Ariëns Kappers, 1938, p. 6)

Furthermore, in his memoirs, Ariëns Kappers also related a conversation he had with a German professor named Schüffner, a doctor who had married a Dutch woman and who was, before the war, always considered to be “one of us” (Ariëns Kappers, 2001, p. 215). However, after the German invasion, Schüffner became a Nazi supporter. Kappers told him

that I couldn’t understand why decent Germans, who were living in The Netherlands, didn’t unite themselves in order to try to end the deeds against the Jews, especially because [Nazi Reichskommissar of the Netherlands, Arthur] Seyss-Inquart had promised in his inaugural address “to respect the tradition of our country”. Schüffner answered literally: “When one of the pillars of the Hitler-building collapses, probably the whole building will collapse”, and, moreover: “What have the Americans done for the Negroes?” My answer was: “The Americans have rescued the Negroes from slavery and gave them their civil rights. However, how can you equalize Negroes with the Jews, men like Ehrlich and Wassermann in your discipline, and men like Weigert, Westphal, Edinger, Lewandowsky, Bielschowsky and so many others in mine!” He (Schüffner) wasn’t able to respond to this. His attitude was [even more] shocking, because the good status that his country (Germany) possessed in the medical sciences, was for a great deal because of its Jewish scientists. (Ariëns Kappers, 2001, pp. 216–217)

This statement notably reflects that, while Ariëns Kappers was staunchly against the persecution of Jews, he was not immune to racist thoughts of inferiority of African Americans that were still popular at the time. As early as April 21, 1933, just two weeks after Nazi Germany passed the “Law for the Restoration of the Professional Civil Service,” barring “non-Aryans” such as Jews and communists from holding academic positions in German

universities, Ariëns Kappers was one of 40 Dutch professors who founded a committee to help Jewish students and graduates from Germany (Het Vaderland, 1933a). Furthermore, in May, 1933, Ariëns Kappers was one of roughly 60 non-Jewish Dutch intellectuals who expressed their deep-felt anger about the persecution of Jews in Germany (Algemeen Handelsblad, 1933). A German manufacturer responded to the statement of the 60 Dutch intellectuals, stating that “the people who signed it are Marxists who are scared, because sometime also in the Netherlands national-socialism will prevail” (Het Vaderland, 1933b, p. 2). Undeterred by any backlash from Nazi Germany, in 1934, Ariëns Kappers was one of 23 on the “Committee to Oppose Anti-Semitism,” who wrote a brochure titled *Het Anti-Semitisch Gevaar* (The Anti-Semitic Danger) (Ariëns Kappers et al., 1934).

In 1935, Kappers was a member of the “Committee for particular Jewish concerns,” which asked some Dutch people of name and influence about their opinion of the treatment of Jews in Nazi Germany. In its publication “Voices of Dutchmen of the Treatment of the Jews in Germany,” Ariëns Kappers wrote a short essay about the Nuremberg racial laws removing the citizenship of Jews and preventing marital and sexual relations between Jews and non-Jews. He stated:

In case national-socialism preaches, that the so called Aryan race has deteriorated by “infection of alien blood” — and that this is the reason for the misfortune of Germany — this would be opposing the results of science. (Ariëns Kappers, 1935, p. 11)

Five publications (as well as the statement from “Freedom, Work, Bread” above) against anti-Semitism featured Ariëns Kappers in 1938. In January, Ariëns Kappers presented a paper at the Society for Jewish Sciences in Amsterdam about “some races in the Near East, especially Semitic peoples” (Algemeen Handelsblad, 1938a, p. 9). The content related to his *Introduction to the Anthropology of the Near East*. He stated that the Sephardim belong to the Irano-Mediterranean race. He finished his presentation by saying that “he felt privileged to speak in these surroundings about peoples, who in the present as well as in the past have contributed so much to the development of science and the arts” (Algemeen Handelsblad, 1938a, p. 9). The national socialist newspaper in the Netherlands, *Volk en Vaderland*, published a scathing criticism (Volk en Vaderland, 1938) in October of the “Doctors Emergency Fund,” of which Ariëns Kappers and 27 other Dutch physicians were members. The Emergency Fund sent a brochure to all Dutch physicians titled “No Jewish Physicians in Germany Anymore.” A pamphlet was added to the brochure, titled “A Black Day for German Medicine.” It was a protest against the Nuremberg Laws, which forbade Jewish doctors in Germany to practice their jobs. The national socialist newspaper pointed out that most of the undersigned were Jewish. Its commentary was the following:

The Dutch physicians, who heed the call of the “Judaized” doctors-Emergency Fund, are only assisting with their money an action, which has as its goal to replace them with Jewish physicians from Germany and Austria. They are welcoming a Trojan horse. (Volk en Vaderland, 1938, p. 7)

Despite these national socialist warnings, in November 1938, after a committee with Ariëns Kappers and others had presented a petition protesting the persecution of Jews in Germany, more than 71,000 approval signatures followed. Many people also wanted to make a financial contribution, and it was announced that there would be a central, national collection of funds on December 3, 1938 (De Tijd, 1938). Furthermore, a Jewish Colonization Society

was founded in the beginning of December 1938 to help German and Austrian Jews to immigrate to other countries (especially to Palestine), and Ariëns Kappers was, among others, chosen as a member (Algemeen Handelsblad, 1938b). Also in December that year, an address to the Dutch First Chamber of Parliament was sent by a group of roughly 25 professors (including Ariëns Kappers). They urged the Dutch government to grant asylum to all German-Jewish asylum seekers (Algemeen Handelsblad, 1938c).

1942: The Last Jewish Medical Graduate in the Netherlands

The German army invaded Holland on May 10, 1940, continuing Hitler's conquest of Western Europe, and the overwhelmed Dutch Army capitulated after just five short days of fighting. After that point in time, Jews soon were persecuted just as they were in Nazi Germany. Ten graduate students obtained their medical doctorate with Ariëns Kappers as their promotor throughout his career, and David Moffie (1915–2002) was, as the 9th, in September 1942, the last Jew to reach this goal (Keyser & Bruyn, 2002), and he was the last Jew within the entire University of Amsterdam to obtain a doctorate during the war (Milton & Markon, 1999). His thesis was titled "The Comparative Anatomy of the Nucleus Intercalatus (Staderini) and Adjacent Structures" (David Moffie Prize, n.d.). He had already



Figure 5. Ceremony in the Senate Chamber of the University of Amsterdam on September 18, 1942. Leftmost across the table is supervisor Prof. Dr. C. U. Ariëns Kappers and second from the right is David Moffie, the last Jewish doctoral student at the University of Amsterdam during the occupation. Of note, Moffie along with all other Jews after April 1942 were required by Nazi decree to wear a yellow Star of David with the Dutch word *Jood* (Jew) on it (Milton & Markon, 1999). Courtesy of the NIOD Photoarchive.

passed his doctor's exam at the University of Amsterdam in the beginning of the German occupation of the Netherlands in 1940. Afterwards he tried to get a job but couldn't find one (as a Jew during the first year of the war it was difficult to find employment), thus he started a private practice as a general practitioner. He also continued scientific research at the Central Institute for Brain Research, as a "private researcher" under Ariëns Kappers, who Moffie considered to be a "stringent anti-Nazi." He received his MD on September 18, 1942, the last possible date to defend a dissertation as a Jew (Fig. 5). He had written his dissertation in English to have a larger global appeal in the scientific world, and Ariëns Kappers apparently got into some small trouble as a result, because according to Moffie, his use of English was seen by the Nazis as an anti-German gesture (Moffie, 2000). Of note, a German decree of September 8, 1942, forbade Jewish students from enrolling at Dutch universities as of the new fall semester. However, university authorities had chosen to use the administrative calendar instead of the annual calendar (meaning the new semester started on September 21st), against the intention of the German decree, which allowed Moffie to defend his dissertation on the last day of the previous semester, before the German decree was implemented (Milton & Markon, 1999). Ariëns Kappers and his assistants attended Moffie's wedding and had much sympathy for him and for his wife (Ariëns Kappers, 2001, p. 213). Shortly after receiving the PhD, Moffie was deported to Auschwitz and barely survived, while his young wife, separated from him in another camp, was murdered (Keyser & Bruyn, 2002). Moffie later became a neurologist in Holland and Curacao, and an annual award was named after him in 2003 by the Amsterdam Neurological Association (David Moffie Prize, n.d.).

Ariëns Kappers' own academic publishing activity diminished after 1941 (Keyser & Bruyn, 2002), but he continued his anatomy lectures in his usual stately and dignified manner up to the discontinuation of all courses in May 1944 by the German occupational authorities (Ariëns Kappers, 2001, p. 211; Keyser & Bruyn, 2002). Ariëns Kappers defended his continued lectures to university students who had signed a loyalty decree to the Germans, despite criticism by the Dutch resistance, because he did not want to draw attention as an anti-German and diminish his ability to save Jews. "Our often fantastic anthropological reports would undoubtedly lose their influence if I were in open conflict with the occupying power" (Ariëns Kappers, 2001, p. 211).

Another controversial issue regarding Ariëns Kappers and the university concerned Professor Bernard Brouwer (1881–1949), who was vice-director of the Central Institute for Brain Research (1913–1922) under Ariëns Kappers and later became a neurology professor at the University of Amsterdam. During the war, Brouwer served two terms as *rector magnificus* of the university, from 1940–1941 and 1941–1942. After the war, he was criticized for collaborating with the occupier more than would have been wishful or necessary (Knegtmans, 1998, p. 242). Brouwer received an "unrequested, but honorable dismissal" following the war. In 1946, prior to Ariëns Kappers' sudden death, he protested against Brouwer's dismissal because he thought of Brouwer as a good patriot and as an excellent scientist and teacher. Ariëns Kappers' support must have helped Brouwer's reputation. After his dismissal, Brouwer was Ariëns Kappers' successor as director of the Central Institute for Brain Research (Ariëns Kappers, 2001, pp. 248–249), until his own death in 1949. Of note, Ariëns Kappers did not play an important role in the official Dutch resistance against the Germans. Other Dutch academic physicians such as Charlotte Ruys (1898–1977) and Johannes C. Pompe (1901–1945, discoverer of Pompe's disease, Type II glycogenosis) were much more actively involved and captured for their resistance (Zeidman, 2012). However, Ariëns Kappers' anthropological activities would be of crucial importance to the lives of many Dutch (partial-) Jews in the Netherlands.

Saving Dutch “Partial-Jews” from Deportation to the East

To understand the rationale and ramifications of Ariëns Kappers’ intervention and resistance, it is necessary to understand the overall context of the persecution and fates of the Dutch Jews. Decree 6 of January 1941 from the Nazi occupiers in Holland stated that all full Jews (whose “grandparents included three or more full Jews by race”) or partial Jews (*Mischlinge*) with at least one Jewish grandparent had to register. A Jewish grandparent by race to the Nazis meant anyone who was a “member of a Jewish religious congregation” (Moore, 1997, p. 64). Only a few “full Jews” refused to register; the majority feared possible repercussions including five years in prison, and they also may have had a traditional respect for authority that was ubiquitous among the Dutch population as a whole, not knowing at the time that registering was almost equivalent to signing a death warrant (Moore, 1997, p. 64). After their registration, they were classified into different categories: full Jews, *Mischlinge* first degree (those with two Jewish grandparents, but without a Jewish spouse, and not a member of the Jewish religious community), and *Mischlinge* second degree (those with one Jewish grandparent but without a Jewish spouse and not a member of the Jewish religious community). The overall survival of Dutch Jews in the Holocaust was poor, and only the *Mischlinge* (totaling roughly 15,000) were later automatically exempt from deportation. Of 140,000 registered Jews living in the Netherlands in 1941, 107,000 were later deported to Eastern Europe, and, of these, 102,000 were murdered or worked to death in Nazi camps (Moore, 1997, p. 2). Roughly 25,000 Jews eventually went underground, and, even though about 8,000 of these were arrested and deported, those in hiding were still the single largest group of survivors (Moore, 1997, p. 146). After mass deportations of Jews began in Amsterdam in July 1942, the Germans were flooded by requests from Jews not in an exempt category who claimed they had made a mistake in registering and were actually only part-Jews, in order to avoid deportation. These Jews hoped to capitalize on a possible legal loophole, Article 3 of the above decree, which stated that any doubtful cases could be referred to the *Reichskommissar*, or his nominee, for a final decision (Moore, 1997, p. 119).

Having a lawyer to assist in putting together a petition to change the descent status as full Jews to part Jews or Aryan increased the chances of success, and between 25 and 50 lawyers, especially Jaap van Proosdij (1921–2011), Y. H. M. (Martien) Nijgh (1907–1992), and A. N. (Nino) Kotting (1911–1972) were involved in such petitions. All three were later named on the “Righteous among the Nations” list by Israel’s Yad Vashem Holocaust Museum for their involvement in assisting Jews escape Nazi persecution, along with other individuals discussed next. The Amsterdam municipal archives remained open to Jews during the occupation, and “There was a rush to dig up old baptismal and marriage records . . . not surprising at a time when the right papers could mean the difference between life and death” (Presser, 1968, p. 302). But according to postwar testimonies, 95% of the petitions the lawyers filed on behalf of Jews were based on deceptions. This risky, fraudulent activity was constantly questioned by Nazi authorities including officials at the *Sicherheitspolizei* (Sipo, Nazi security police), which likely explains why some Jews whose petitions were initially approved did not survive the Holocaust (Moore, 1997, p. 121). Historian Jacques Presser wrote of the remarkable ruses involved in the legal evasion of Nazi persecution:

“Old love letters were forged on paper that was fifty to sixty years old” [to “prove” adulterous relationships with Aryans]. . . . False baptismal certificates were available and one could choose between fifteen Christian denominations . . . men who were prepared to swear that they were the Aryan fathers of Jewish

children were in great demand. . . . By all appearances, morals in even the highest Dutch circles must have been not unlike those prevailing in Sodom and Gomorrah or in the late Roman Empire — there would have had to be adultery all round the clock. (Presser, 1968, pp. 304–303)

The lawyers helped the petitioners assemble their descent-changing applications, sometimes even visiting them in Westerbork transit camp if they had already been arrested. The reports contained genealogical evidence proving their partial “Jewishness,” based on “actual” Aryan blood in the family background from real, or more commonly, doctored evidence such as false baptismal certificates and “old” love letters or testimonies to adulterous relationships with Aryans. Based on the strength of the genealogical evidence, the lawyers might have recommended the inclusion of an anthropological evaluation consisting of nose, foot, and other bodily measurements, along with a cephalic and blood index resulting in a certificate stating the applicant was not “racially” Jewish. Ariëns Kappers was involved in this latter aspect of the reports (Fig. 6), as discussed below. The lawyers would file most of



Figure 6. Dr. Maximiliaan Berkley (left) and Dr. Kurt Berkley (right). Ariëns Kappers and De Froe concluded that they were not Jewish, based on a cephalic index of 80.5 for Maximiliaan and 80.2 for Kurt, along with Blood Type A anti-bMN (Maximiliaan) and Type A anti-bN (Kurt). Their blood type (mesocephalic-brachycephalic borderline) was similar to that of their non-Jewish mother (Type A anti-bMN), who had a cephalic index of 74.5 (dolichocephalic). The mesocephalic index was of course not similar to that of Ashkenazi Jews who had a brachycephalic index in Kappers’ 1934 study. Because of the anthropological findings, along with the genealogical evidence that the brothers only had “2/8 Jewish descent,” their “race diagnosis” was “Alpine race.” NIOD File 182c, inv.no. 1.

the petitions before a Dutch court prior to submission to the Germans, and the courts turned a blind eye to the deception:

The Dutch Bench as a whole co-operated as well: “It admitted quite irrelevant evidence and declarations about adulterous relationships, when everyone — advocates, judges and clerks — knew that the whole thing was nothing but perjury.” (Presser, 1968, p. 303)

The risk for the lawyers and scientists themselves in assisting Jews was ever present, as demonstrated by the fact that one lawyer Goldstein (himself declared *Mischling* in 1941) was sent to Mauthausen concentration camp in Austria, after the *Sicherheitsdienst* (SD, Nazi security service) discovered a forgery in one of his applications on behalf of a petitioner (Presser, 1965, p. 51).

All petitions for reconsideration of Jewish descent were forwarded to Seyss-Inquart’s designee, the Nazi *Generalkommissariat* of Administration and Justice, and eventually ended up on the desk of Hans Georg Calmeyer (1903–1972), an Austrian, non-Nazi lawyer who had even defended communists in the 1930s (Moore, 1997, p. 119). Apparently, he was constantly “skating on thin ice,” able to protect some Jews but not all of them, lest he be detected. Nevertheless, Presser noted that “it would have been a disaster if his place had been filled by a good Party man” (Presser, 1968, p. 298). In the end, of 5,667 applications, Calmeyer recognized 3,709 as half- or quarter-Jewish or Aryan and rejected 1,958, leading to a 65% success rate for Jews who applied for descent revision. Unfortunately, 2% of those applicants approved were deported anyway, possibly because the decision came too late, but, on the other hand 1%–8% of those rejected survived (Van den Boomgaard, 2012). This latter figure is likely due to the fact that petitioners were protected from deportation while their applications were being reviewed, allowing them to go into hiding. And, the descendants of those cleared as Jews were also exempted from further persecution as Jews; thus, at least 3,000 so called “Calmeyer-Jews” were saved as a result of Calmeyer’s actions, who only in confidence ever noted his spite of the Nazis and their persecution of Jews. He would later also posthumously be named “Righteous Among the Nations” by Yad Vashem in 1992 (Anonymous, n.d.).

Ariëns Kappers went to the executive committee for the Central Institute for Brain Research in 1942 (when he was at the mandatory retirement age of 65) because he did not think a change of leadership during the occupation would be desirable. In his memoirs, he wrote that there were two reasons he was happy the committee allowed him to remain as the institute’s head past the usual retirement age: (1) He was able to supervise two last students to receive their doctorate (Moffie was one) and to finish his comparative neuroanatomy book in French, and (2)

I was able to help many men and women, who though only partly Jewish, had registered as fully Jewish out of solidarity with family members and now were threatened to experience the sad consequences of the occupation. (Ariëns Kappers, 2001, pp. 210–211)

Ariëns Kappers was able to help Jews by writing individual anthropological reports to coincide with their (often embellished or falsified) genealogical evidence. In this anthropological work, he collaborated with the young Dutch physician and physical anthropologist Arie de Froe (1907–1992) (Fig. 7) and his assistants. They did most of the work, but Ariëns Kappers (an internationally acclaimed scientist) double checked all measurements



Figure 7. Prof. Dr. Arie de Froe, courtesy of Koninklijke Akademie van Wetenschappen.

and cosigned the anthropological reports. De Froe had received his medical degree in 1934 at the University of Amsterdam and completed his doctoral dissertation in 1938 on “Measurable Variables of the Human Skull and Their Correlations in Relation to Age and Sex” (De Froe, 1938). It is unknown exactly how he and Ariëns Kappers first met, but since Ariëns Kappers’ brain institute was in a wing of the Anatomical-Embryological lab where De Froe worked and since Ariëns Kappers was involved in anthropological and anatomical work, it is not surprising that their paths crossed. Regarding the anthropological reports for Jews, Ariëns Kappers stated “Although we didn’t always achieve what we wanted, it was fulfilling that of the more than 2000 persons for whom we filed anthropological reports, 300 were saved from deportation” (Ariëns Kappers, 2001, p. 211). The number mentioned by Ariëns Kappers of 2000 filed is likely exaggerated. In a postwar interview (Presser, n.d.), De Froe mentioned a lesser number of 400; however, this number is too low considering that the Amsterdam municipal archives harbor 450 anthropological reports by De Froe and Ariëns Kappers, while file registers of De Froe contain at least 500 names (De Froe, n.d.).

Furthermore, De Froe noted that only “more than half” of the Jews he and Ariëns Kappers helped (i.e., more than 200) actually succeeded in the legal evasion. Thus, the actual number saved by Ariëns Kappers and De Froe was probably between 200–300 Jews. Regardless of the actual number Ariëns Kappers and De Froe helped to save, because of his efforts, De Froe was also recognized as “Righteous among the Nations” by Yad Vashem posthumously in 2006.

Involvement was risky for Ariëns Kappers, De Froe, and the assistants, and they did not receive much profit or compensation in exchange. Regarding the risk Ariëns Kappers, De Froe, and their team were taking at the time, Ariëns Kappers stated:

That we, as helpers of Jews, haven’t been caught, is a miracle, especially because in my Institute and in the adjacent room of Dr. De Froe, often more than 10, sometimes even 20 Star-wearers were waiting for advice or an anthropological report, while the German Police was housed in the Colonial Institute which was on one side our building, as well as in the Burgerschool which was on the other side. (Ariëns Kappers, 2001, p. 211)

Indeed, Ariëns Kappers’ brain institute and the Anatomical-Embryological Laboratory on Mauritskade where De Froe worked were surrounded by the Germans, thus they were receiving pleas from Jews in need and drafting their reports right under the noses of the Nazi police! Ariëns Kappers and De Froe may have received some money, but De Froe said in the beginning he transferred it to another professor and “wanted to find no advantage,” later transferring any payment to “help people who had no money” (Presser, n.d., p. 7). In contrast, Prof. E. H. Weinert from Kiel, Germany, who also constructed anthropometric reports and racial analyses (and was sometimes enlisted by Calmeyer to verify reports), “was corrupt. If you [gave] him 1000 [Dutch guilders], he gave a report” (Presser, n.d., p. 7).

The Valiant But Futile Effort to Save All of the Portuguese Jews in Holland

Shortly after the Nazi occupation began, Judge Mr. Nochem De Beneditty (1883–1944), chairman of the Sephardic (or Portuguese) Jewish Community in Amsterdam, came to Ariëns Kappers with lawyers Nijgh and Kotting hoping that in his 1934 book lay a “starting point to protect the Portuguese Jews from the drastic measures of the German occupiers” (Ariëns Kappers, 2001, p. 212). They believed that the cephalic index curve from Ariëns Kappers’ *Introduction to the Anthropology of the Near East* (Ariëns Kappers & Parr, 1934), in which the 235 Sephardim had a different peak than the 233 Ashkenazim, would be a good starting point to anthropologically establish to the Germans that the Sephardim were a different race than the Ashkenazim. Additional arguments brought into the discussion would be historical, genealogical, and cultural in origin. They stated that before they had come to the Netherlands, the Sephardic Jews had lived for about two centuries as new Christians in Spain and Portugal. During that time they mixed with the old Christian aristocracy, so when they came to Holland, they were racially not Jews anymore. In the Netherlands, they claimed that they had remained a homogeneous group (Presser, 1968; J. Cohen, 2013). Some of the 4,303 registered Portuguese Jews already made individual claims against their Jewishness, but De Beneditty and company wanted to set up a rescue operation for the whole group, given their unique history (Moore, 1997, p. 122).

The first step taken in the Portuguese Jewish rescue operation was to author the 34-page *Die Herkunft der sogenannten portugiesischen Juden* (The Origins of the So-Called

Portuguese Jews; Presser, 1968, p. 307), a report on the history of the Portuguese Jews from their inception to their immigration to the Netherlands. This first report had an appendix written primarily by lawyer Kotting (Nijgh, n.d.) and signed by Ariëns Kappers, in which they stated that the “Portuguese-Israelites” belonged to the Mediterranean race, in contrast to the “Jews” who were racially west Asiatic. Other documents were prepared for the Germans listing all the accomplishments of the Portuguese Jews in Holland, their prominent contributions to the nation, along with names and works of current Portuguese intellectuals and artists. The second large report, dating from July–August 1943, was *Die Anthropologie der sogenannten portugiesischen Juden in den Niederlanden* (The Anthropological Investigation of the So-Called Portuguese Jews in the Netherlands) and was performed and chiefly authored by De Froe (1943) following his repeat of Ariëns Kappers’ earlier work by studying 375 Sephardic Jews of Amsterdam. Ariëns Kappers and De Froe sent requests to Portuguese Jews to come to the Anatomical and Embryological Institute to be examined and photographed. This highly detailed study and well-documented 96-page report included 92 photographs and listings of 31 special characteristics (De Froe, 1943). De Froe’s conclusion was that these “so-called Portuguese Jews cannot be classified as Jews and belong clearly to a different race. [. . .] They belong to the Mediterranean race, specifically its western group” (De Froe, 1943, p. 91). Some members of the Dutch Anthropological Bureau wrote of their support of the report, and Ariëns Kappers and De Froe went to Calmeyer to tell him the results and to give him a copy (Ariëns Kappers, 2001, p. 212).

Because the lawyers and anthropologists used familiar racial theories, with references to well-known German anthropologists, the occupier — especially Hans Calmeyer — was not unreceptive toward the Sephardic claims. On the other hand, his colleagues were also skeptical, because to them most of the Sephardim in the Netherlands always had “behaved” like Jews, that is, by going to the synagogue and keeping the Jewish rites (Moore, 1997, pp. 122–123). This is why the Germans postponed their decision about the fate of the group of “pure” Sephardim, as discussed below. Additionally, this capricious hybrid between racial and religious anti-Semitism practiced by the Nazis would ultimately be partially a reason for the failure of the Sephardim rescue operation and, in retrospect, a reason the Germans could not be trusted to make a judgment based on purely “scientific” reasons.

Ariëns Kappers was pleased on the 40th Jubilee of his Professorate in October 1943 that he received flowers from the Portuguese Jews as thanks for his efforts, and his hope was that they would be saved especially after the initial delay, and supposed exemption, from the mass deportations that had begun already in 1942 (Ariëns Kappers, 2001, p. 212). But these hopes were short-lived. Calmeyer’s department had investigated 1,015 of the 4,000 or so Sephardim, and found that only about 400 were of “pure” Sephardic origin; they could be approved for “exemption” but only “*bis auf weiteres*” (“until further notice”), and the rest were supposedly mixed with Ashkenazim blood (Moore, 1997, p. 122). Even this smaller list of 400 exempted Sephardim kept shrinking, but most of those remaining did not go into hiding, despite the insistence of their Dutch helpers that “now you should try to hide” (Presser, n.d., p. 16). By 1943, the list was down to 300 and kept shrinking as the Nazis tightened the criteria, by then requiring at least 7/8 great-grandparents to be considered as “pure” Portuguese Jews (i.e., not mixed with Ashkenazim). Since Calmeyer only had authority in individual cases, he could not make a final decision on the collective issue. He requested assistance on the matter from the *Reichssippenamt* (Reich Kinship Office) in Berlin, since this was a matter only the Nazi leadership could decide upon. As the case had been forwarded to *Reichsführer-SS* Heinrich Himmler in Berlin and was being reviewed, there were continual threats from the *SD* that the remaining Portuguese Jews would be deported to Westerbork transit camp and personally inspected, but still most of them did

not or were not able to go into hiding (Moore, 1997, p. 122). Because of the reputation of their helpers and their thoroughly researched reports, they maintained their faith in a good outcome for their group (J. Cohen, 2013).

The final decision to treat all the Sephardim as Jews, thus sealing their fate, came from Berlin in August 1943. But it was not until February 1, 1944 that the SS finally followed through with their threat and ordered that the remaining “exempted” Portuguese Jews throughout Holland be rounded up (Moore, 1997, p. 122); those not in hiding were deported to Westerbork with “lightning success” (Presser, 1968, p. 310). Ariëns Kappers traveled to The Hague to discuss the matter with Calmeyer, but he found out that Calmeyer was not making any of the decisions in this case, rather the SS were. They were planning a physical inspection of the Portuguese Jews in Westerbork to declare them Jewish or “Aryan.” Ariëns Kappers hoped that “these remaining could be traded for Germans or Dutch in South America or Palestine” (Ariëns Kappers, 2001, pp. 212–213), but the SS did not waste much time organizing their long-awaited inspection. On February 20, three SS generals had 273 Sephardim (22 families) paraded in front of them, and one of them had the following to say:

A sub-human race. [. . .] The overall impression does not justify a special treatment by sending them to Spain or Portugal, but they should be treated like all other Jews. [. . .] The view of the learned professors, who were apparently lacking in political understanding, cannot be shared. (Aust, 1944)

Another SS general stated that the professors’ arguments were mere “Jewish evasions,” and that the photographs supposedly showing the Portuguese Jews’ non-Jewish characteristics were only due to lighting effects and did not bear out in person. He stated that “since these people were quite unfit for work (as a result of inbreeding and soft living) they would have to be put on a train for Theresienstadt that very week” (Zöpf, 1944, p. 2). Just five days later, on February 25th, 308 Sephardim were transported to the Theresienstadt concentration camp in Czechoslovakia. Ariëns Kappers still held out hope for those at Theresienstadt, because this was a camp for “privileged” Jews (Ariëns Kappers, 2001, p. 213). But unfortunately most of them were transported from Theresienstadt to Auschwitz in the fall of 1944 and were among the last to be gassed to death (Moore, 1997, p. 123), including the judge De Beneditty and his wife who perished in October 1944 (Manasse, 2007). Elsa D’Oliveira (1913–1998) (Fig. 8), Ariëns Kappers’ earlier assistant on the 1934 study, was among those at the inspection at Westerbork in 1944. Luckily, D’Oliveira, whose original petition contained a falsified Calmeyer signature (because she was friends with lawyers Kotting and Van Proosdij and needed to be saved at all costs) was saved by Van Proosdij, who visited the camp commandant at Westerbork. Elsa was released from Westerbork on April 1, 1944, but many of her family members were deported and killed (Meihuizen, 2010).

Shortly after the war, the rescue operation of the Sephardim was criticized by various historians. Abel Herzberg wrote in his *Kroniek der Jodenvervolging* (1950/1985) that by reading the many anthropological reports, he really got curious about the backbone of the Sephardim, “but one can’t find it” (Herzberg, 1950/1985, p. 184). Jacques Presser, who wrote an influential history about the persecution of the Dutch Jews, asked in his book rhetorically if in the case of the Portuguese Jews during the war everything was lost, “even their honour” (Presser, 1965, p. 73). Interestingly, the latter comment was omitted from the English version of Presser’s book (Presser, 1968). In 1951, the British Dr. M. Wallenstein called their story during the war “a shameful one” in a 1951 article in *The Jewish Chronicle*



Figure 8. Elsa D'Oliveira from the book *Abbildungen von Personen Portugiesischer Abstammung in den Niederlanden* submitted to the Germans with A. de Froe's 1943 *Die Anthropologie der sogenannten portugiesischen Juden in den Niederlanden* (Anthropological Investigation of the Composition of the So-Called Portuguese Jews in the Netherlands). NIOD, archive 20, inv.no. 1529. (Color figure available online.)

titled, "The Marranos of Holland" (D. Cohen, 1951). The former chairman of the Jewish Council, prof. David Cohen, wrote in a reply:

Nobody who knows the real facts can have this opinion. To deceive the enemy, to withdraw himself from his grasp was considered in wartime as the best thing a man could do. The more so when this fraud was committed by making use of the ridiculous racial theories of the enemy, as it has been done by those lawyers and anthropologists and Portuguese Jews. . . . The story is not a "shameful one"; on the contrary, it is a glorious reminiscence of the help non-Jews offered Jews in the most dangerous period of their history. (D. Cohen, 1951, pp. 2–3)

Conclusions

C. U. Ariëns Kappers will certainly be remembered most for his contributions to neuroscience and neuroembryology, especially for his theories on neurobiotaxis and his impressive brain collection at the Central Institute for Brain Research he helped found in Amsterdam. But it was his interest in comparative neuroanatomy that led him to become uniquely interested (among neuroscientists) in physical anthropology and led to his book *An Introduction to the Anthropology of the Near-East in Recent Times*. This book lent him a reputation that was well utilized during World War II and the dark times faced by Dutch Jews under Nazi tyranny. But Ariëns Kappers' knowledge and interest in anthropology only partially explain the extent of his efforts to help Jews before and during the war. Ariëns Kappers was obviously friendly toward Jews personally, as reflected in his relation to former mentor Ludwig Edinger, Jewish graduate student David Moffie, and in his relations to the Jewish community of Amsterdam (the latter relation obviously bearing fruit in regard to Ariëns Kappers' 1934 study). But Ariëns Kappers' vehement conviction against anti-Semitism seems to have gone well beyond the inaccuracies of anti-Semitism and Nazism he noted in his 1934 book, given his extensive involvement in a Dutch campaign against anti-Semitism and Nazism throughout the 1930s. Ariëns Kappers' varied participation in eight publications, statements in his autobiography extolling praise on German-Jewish physicians, involvement in the Jewish Colonization Society and the Doctors' Emergency Fund to aid German Jews and doctors in emigration, and the petition to the Dutch government to ease immigration restrictions on refugee German-Jews, are evidence of his strong devotion toward Jews and their prosperity.

Ariëns Kappers' mother was the daughter of a preacher, and one other possibility in terms of motivation to help Jews also involves his Christian religiosity. After the tragedy of World War I, Ariëns Kappers wrote a book titled *Zielsinzicht en Levensopbouw* (Understanding Body, Soul, and Life) (Dott, 1947), and beginning in 1916 he took part in the Easter and summer schools of the Society "Woodbrookers in Holland" in the Dutch village of Barchem (Gelderland). This Barchem Movement resulted from the rise of a romantically tinged religiosity and an outdoor religious experience of God. Ariëns Kappers also attended meetings of the Dutch Christian Students Association and the Liberal-Christian Student Union and, as a guest lecturer on Sundays in China and Beirut, led discussions of a religious nature. He also spoke to prisoners and was himself a teetotaler and a member of the temperance society "The Order of Good Templars" (Knegtmans, 2012). Religion seems to have played a role in the resistance of other neuroscientist resistors from the Netherlands, including the devout Catholic Johannes Pompe (Zeidman, 2012).

Ariëns Kappers seems to have walked a fine line during the war, although his resistance was not ambiguous. He had no direct ties to the resistance (unlike Pompe, who hid resistance fighters and a radio transmitter in his laboratory), and he continued to teach students who had pledged allegiance to the Nazis. But he believed that he needed to not be seen as an "anti-Nazi" in order to continue the work he and De Froe were conducting to save Jews from deportation. He knew he was not protected at all by his international reputation, as evidenced by attacks from the Nazis even in the 1930s when his Doctors' Emergency Fund was called "Judaized." The risk to Ariëns Kappers and all others involved in the legal evasion process becomes apparent when one realizes the Nazis were double-checking the results from Calmeyer's office, and the risk of being arrested and deported was ever present. Given that up to 95% of the descent applications were based on forgeries for one reason or another and that Ariëns Kappers' and De Froe's institutes were bordered by the Nazi security police who could have seen 10–20 Jews lined up for reports, they were constantly at risk to be arrested for helping Jews illegally.

Ariëns Kappers knew of the pseudo-legal nature of his and the others' work and willingly accepted the risks. Though he did not conduct as much research personally or put as much groundwork into the process as De Froe or the lawyers involved in the legal evasion, it is likely he could have been arrested just the same and was taking a great risk on himself and his family. Roughly 300 Jews or more were helped by his actions, either directly by being placed on the so-called Calmeyer list exempting them and their families from deportation, or being given valuable time to hide as the petition was being considered. Regarding the tragic failed case of the Portuguese Jews, Ariëns Kappers must have known the chances would be slim that they would be exempted permanently, especially since in his 1934 study he acknowledged the extensive mixing of Ashkenazim within the Sephardic population of Holland. Regardless of how the Nazis would act in respect to the Sephardic Jews, Ariëns Kappers still signed the appendix of the historical report on the origins of the Portuguese Jews, and signed off on all the research. He even met with Calmeyer to protest and insist that the Portuguese be released from Westerbork, but to no avail.

Ariëns Kappers was tireless in expressing publicly his concerns about the treatment of German Jews before the outbreak of World War II. Also on a practical level, his efforts to assist Jewish asylum seekers were of great importance. During the occupation, though he was not a central figure in the resistance, he, at great risk to himself and his family, used his fame and international reputation to try to help desperate people in desperate times. His signing of "creative" anthropological reports was crucial in saving of hundreds of Jewish families. Ariëns Kappers understood well that in such extraordinary times breaking the conventional rules of science was the right thing to do.

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