Review

The Cajal Club: Its origin, originator and benefactor, Wendell J. S. Krieg

David G. Whitlock*

Center for Human Simulation, University of Colorado Health Sciences Center, Fitzsimons Building 500, P.O. Box 6508, Mail Stop F435, Aurora, CO 800450508, USA

ARTICLE INFO

Article history:
Accepted 23 January 2007
Available online 26 January 2007

Keywords:
Cajal club
Ramon y Cajal
Cajal
Wendell J.S. Krieg
Krieg Cortical Kudos
Neuroscience history

ABSTRACT

The Cajal Club is a small organization of neuroscientists that has met annually since it was founded in 1947. The fourteen founding members voted at its organizational meeting that the Club be named to honor the great Spanish Neuroscientist, Santiago Ramon y Cajal. The beginnings and the early development of the Cajal Club that was led by Professor Wendell J. S. Krieg, a distinguished neuroanatomist and artist, are described. Since its beginnings, the Cajal Club meetings have provided a forum where scientists and their students can gather congenially to present and discuss research on the nervous system. In the 1980s, Wendell J. S. Krieg sold his summer home near Woods Hole, Massachusetts and donated part of the proceeds from that sale to the Cajal Club to fund awards for recognizing scientists and students for outstanding research on the cerebral cortex. The Cajal Club voted that the awards thus funded would be called Krieg Cortical Kudos. Now these awards have honored more than 60 investigators in this country and abroad for their outstanding research contributions. The development and final form of the contributions by the Krieg family for the Krieg Cortical Kudos awards are described.

© 2007 Elsevier B.V. All rights reserved.

Keywords:
Cajal club
Ramon y Cajal
Cajal
Wendell J.S. Krieg
Krieg Cortical Kudos
Neuroscience history

Contents

1. Introduction .......................................................... 450
2. The founding of the Cajal Club................................................ 451
   2.1. Other dynamics .................................................... 452
   2.2. The Cajal Club, 1947–the early 1970s ................................ 453
3. Wendell Krieg, the “Nautilus”, and The Krieg Cortical Kudos ........... 454
Acknowledgments ......................................................... 461
References .............................................................. 461

* Fax: +1 303 333 4192.
E-mail address: David.Whitlock@UCHSC.edu.
1. Introduction

During the 1930s and 1940s a considerable body of research on the nervous system was conducted using two general approaches. The first was to examine the structure of the central nervous system (CNS) in great detail and to interpret how its various morphological elements may correlate with the potential/probable functions of these same elements. Two major and important contributors to CNS research using this approach were Gerhardt von Bonin on the cerebrum (von Bonin, 1950) and Olof Larsell on the cerebellum (Larsell, 1937). The second approach was to trace neuronal connections within the nervous system (both central and peripheral) using several different experimental and stain techniques. Many investigators, including future Cajal Club founders Clement A. Fox and Anthony A. Pearson, Jr., used these methods to make important and enduring observations on CNS pathways (Fox and Barnard, 1957; Pearson, 1947).

The tracing of neuronal connections was generally accomplished by placing a lesion in a specific location within the CNS and allowing a specified time interval for the morphological changes in the neural tissue to take place. The nervous system of the experimental animal was then stained to visualize degenerated axons or terminal boutons, degenerated myelin, or the retrograde chromatolytic reaction of the neuronal cell body using techniques such as the Glees, Marchi or Nissl. The use of stereotaxic instruments during this general time period gave access to many internal regions within the CNS. Prominent scientists of the day who employed this approach on studies of CNS pathways included Fred A. Mettler, James W. Papez and Wendell J. S. Krieg (Krieg, 1932; Mettler, 1945; Papez, 1942). Yet another approach for tracing pathways within the CNS, used notably by Clinton N. Woolsey (Woolsey, 1947) and Edgar D. Adrian (Adrian, 1940), employed the “evoked potential technique”. This method, adopted by many investigators over the years, used electrical or natural stimuli to initiate activity in CNS pathways and then to record the resultant evoked activity at some point along the pathway or at its termination. It is against this rich, and exciting, scientific and intellectual background that the Cajal Club would be conceived.

Two major venues for reporting basic research on the nervous system were the American Physiological Society (APS) and the American Association of Anatomists (AAA), both of which attracted many neuroscientists to their annual meetings. Both societies were affiliated with excellent scientific journals, including the Journal of Neurophysiology (APS) and the Anatomical Record and American Journal of Anatomy (now Developmental Dynamics) (AAA). These journals were recognized outlets for reporting research on the nervous system. Another major publication, The Journal of Comparative Neurology (successively owned by the Herrick brothers, Wistar Institute Press, Alan R. Liss, and now John Wiley and Sons) was also used by the members of these societies to disseminate their results.

2. The founding of the Cajal Club

On the evening of April 3, 1947 during the annual meeting of the American Association of Anatomists at the Mount Royal Hotel in Montreal, Canada, Wendell J. S. Krieg (Figs. 1A, B), invited several attendees to a cocktail party in the Bridal Chamber, Room 8102. At the time Krieg was a well-known neuroanatomist and a Professor in the Department of Anatomy at Northwestern University Medical School in Chicago, IL.

Many of those who received invitations to the party were the young Turks of the day and were engaged in research on the nervous system. The gathering was not an organized or sponsored event but one of those “let’s get together in my hotel room and shoot the breeze on research” parleys. Such spontaneous gatherings were common at scientific meetings in those days, particularly when a colleague had enjoyed some success and decided to throw a party for their friends and associates. As events developed, it became apparent that the host had planned more for this gathering than just camaraderie and talk about ongoing research.

Fig. 1 – Wendell J.S. Krieg circa 1954 (A) and Wendell J.S. Krieg, the artist (B).
According to the accounts of those who attended, when the guests arrived they were greeted by a wonderfully supply of fine Canadian booze and a sumptuous spread of choice foods. This would not have surprised those who knew Wendell, for he was not only an authority on the anatomy of the brain but also was an accomplished artist and a true gourmet given to creating spectacles.

The food was laid out immaculately on a long table. The delicacies were labeled as some part of the nervous system. The punch, which was probably spiked, was called cerebrospinal fluid. According to Tony Pearson and Fred Becker, who took part in the soirée, there were smelly cheeses labeled as substantia gelatinosa or grey matter and caviar identified as substantia nigra. There were cherries symbolic of the red nucleus and delicately molded cupcakes decorated with maraschino cherries that were called mammillary bodies. Dishes of large and small olives were labeled as inferior and superior olives, respectively. There was a large chocolate cake with white frosting striations cut on the bias and labeled as the corpus striatum. Every item in the buffet was identified as some structure within the CNS.

According to Becker and Pearson, a large group allied mostly with neuroanatomical or neural science interests attended the party. The room was jam-packed and the din was terrific. Everyone was talking in groups about anything and everything all at once. The booze was being guzzled at a rapid rate. In the beginning there was no announced purpose for the festivity, but by 11 p.m. when the traffic in and out had began to dwindle, the hangers-on and those still standing got down to more serious discussions.

At Wendell’s invitation, the 14 remaining revelers sat down around the room in a circle with E. Horne Craige occupying a club chair in a corner. Then Wendell Krieg outlined his ideas of forming a small group of people with related interests in neurosciences, who would meet socially at the time of the AAA meeting each year. According to Fred Becker, Wendell Krieg stated the purpose of such a meeting would be to: (1) present and discuss research in progress in more detail than was possible in the usual 12-min presentation at the AAA meeting, (2) test new research hypotheses and open them to friendly constructive criticism, (3) discuss problems in teaching neuroanatomy and laboratory techniques, and (4) pay homage to the historical contributions of the past that had brought neuroscientists to the present stage of their profession. After discussion of Krieg’s proposals, the group enthusiastically agreed that a new organization should be formed and that it should be named the Cajal Club in his honored memory (Fig. 2). It was unanimously agreed that the new organization should be named the Cajal Club in his honored memory.

Thereafter and, with a great deal of camaraderie, a piece of Mount Royal stationery (Fig. 3) was passed around the room, and all signed as prospective, and founding, members of the new club. Pearson later stated that considering the condition of the participants, he was amazed at the clarity and legibility of all the signatures.

Thus, on April 3rd, or more likely in the early morning of April 4th, 1947, fourteen neuroanatomists founded the Cajal Club. Today, almost 60 years later, the Cajal Club still flourishes, and it has become one of the oldest scientific organizations devoted to reporting and honoring research on the nervous system. The Cajal Club is also one of the smallest groups to give sizable Awards in recognition of scientific accomplishments and contributions in the field of neuroscience. Short biographical sketches and photographs of the founding members of the Cajal Club were published in the Proceeding of the Cajal Club, Volume 4, 1996 (Proceeding of the Cajal Club, 1996).

It was decided that those signing on would be known as the Nucleus of Cajal Club. Wendell J. S. Krieg, who was elected President, would be called the Nucleolus. Clement A. Fox, was voted to be Vice-President and was titled the Nissl Body, later by tradition a title used to identify the President-elect, and Pinckney J. Harman, the elected Secretary-Treasurer, was to be known as the Apical Dendrite. E. Horne Craige, the only attendee at this formative meeting who had actually been a student of Ramon y Cajal, was given the lifetime title of the Axone.

2.1. Other dynamics

There may have been other dynamics at play that influenced the founding of the Cajal Club at that particular time. Wendell Krieg was also the Director of the prestigious Institute of Neurology at Northwestern University Medical School. The formation of an organization where he could discuss new ideas and hypotheses with peers may have been important to plans for the Institute. Leadership in creating a new organization of neural scientists also may have been a consideration for him as Institute Director.

To gain funding for the operation of the Institute of Neurology, Krieg proposed that it undertake the development of what he called electroneuroprosthesis (Krieg, 1971). Basically this was a plan to employ the new electronic and computer technology of the day to deliver patterned stimuli to the cerebral cortex to treat deafness, blindness and paralysis. Some of his original hand-drawn illustrations for his electroneuroprothesis proposal that have never been previously published are partially reproduced here.

The treatment for deafness as shown in his drawing (Fig. 4A) would be to implant an electrode through the skull and
onto the surface of the auditory cortex that would transmit
electrical impulses duplicating sound frequencies to the brain
surface. Thus, 50 years before the existence of the now widely
employed cochlear implants that amplify electronic impulses
and transmit them through neural pathways to the auditory
cerebral cortex, Krieg had envisioned a similar treatment for
deafness and sought to apply methods available at that time
to ameliorate the condition. For the treatment of blindness,
Krieg envisioned the use of television scanners and computers
of that time to transmit impulses of patterned letter images to
the visual cortex through implanted electrodes (Fig. 4B). Note
that the computer input is on punch tape, the best interface
available at that time. Krieg envisioned the replacement of lost
sight by electrical impulses induced by light applied to the
visually receptive areas of the brain. Recently, this approach,
employing high-end TV cameras and modern computer
technology, has been used with some success in blind
patients. Finally, Krieg proposed to use electrical impulses to
stimulate muscles in paralyzed patients to allow them to
simulate walking movements (Fig. 4C). Electronic stimulation
of muscles of paralyzed patients to duplicate movement now
is employed widely in many therapy centers.

Unfortunately his ideas for electroneuroprosthesis were not
funded. However, in 1947, Wendell Krieg not only was
instrumental in the founding of the Cajal Club but also was
in a position to bring to it for discussion not only advances in
neuroanatomical research but also farsighted original ideas on
how advanced technology might be applied to aid patients
with deficits of the nervous system. Now almost 60 years later,
many of his innovative ideas are coming to fruition.

2.2. The Cajal Club, 1947–the early 1970s

From 1947 to 1952 Wendell Krieg served as Nucleolus of the
Cajal Club and led its early development. In 1952 the
membership approved a Covenant for the Cajal Club, which,
in its much-amended form, still defines the goals, organization and rules that govern the Club (Proceeding of the Cajal Club, 1973, 1977, 1984, 1996). Also that year the first Cajal Club banquet was held at the University Club, Brown University, in Providence, RI. Raphael Lorente de No was the speaker. These banquets, with an after dinner speaker, were usually held at some fine restaurant in the city hosting the meeting and became a big part of the annual confraternization of Cajal Club members. The 1955 Cajal Club Banquet, held at Bookbinders in Philadelphia, is shown in Fig. 5 which was kindly supplied by Edward H. Polly. The after dinner speaker was A. T. Rasmussen, who enlightened all present with his excellent talk on the “Cerebral Cortex”. Wendell Krieg can be seen at the far end of the table on the right. He is second from the end on its left side facing right. Unfortunately, in 1968 a costly wayward bar bill that the Club was required to pay caused the demise of the banquets.

In 1966, when the much beloved Apical Dendrite, Pinckney J. Harman, the preserver of the Club since its inception, died suddenly, Wendell stepped in and served as his replacement until Harman’s successor, Howard A. Matzky was elected. Later the Club honored Harman by establishing the Pinckney J. Harman Memorial Lecture, and Elizabeth C. Crosby gave the first Harman lecture in 1969.

During the period of about 1964–1966, according to Fred Becker, Wendell Krieg, who had a large personal collection of type fonts and printing resources, meticulously prepared and printed documents, including the Membership Certificate (Fig. 6) that he gave to the members. These decorative “shingles” were a classic example of Wendell’s decorative printers’ art.

At the Cajal Club meeting in 1969, Wendell Krieg presented the first Cajal Memorial Prize to Larry Stensaas for his research on the cerebral cortex. Krieg apparently identified this award, at the time, as a “Cortical Kudos”, and undoubtedly it was the first manifestation of his desire to honor outstanding research on the cerebral cortex with awards. The prize that was given is unknown but may have been one of Krieg’s books. At successive Cajal Club meetings in 1970 and 1971, Krieg awarded additional Cortical Kudos to David Hubel and to D. N. Pandya, respectively.

In 1974 Wendell Krieg announced his retirement. He was much eulogized at the Cajal Club meeting and presented with a certificate of appreciation (Fig. 7). At that time the membership in the Cajal Club had grown to over 450, but the flight to the Society for Neuroscience had already begun. As a personal aside to this tale, I remember in the late 1950s while researching sensory pathways with Ed Perl in Salt Lake City, UT, Ed would often be on the telephone with Ralph Garrard and Vernon Mountcastle talking about establishing a new neuroscience society. I thought then that this was not good news for the Cajal Club.

3. Wendell Krieg, the “Nautilus”, and The Krieg Cortical Kudos

During the period between 1941 and 1977 and extending into his retirement, Wendell Krieg published seventeen books (Krieg, 1942, 1954), most of them in his own publishing house called Brain Books that he established in 1955 (Krieg, 1955, 1960, 1966, 1975). As noted by D. E. Haines (Alpha Helix, of the Cajal Club) in Volume 4 of the Proceedings of the Cajal Club “this situation released Krieg from the editorial constraints an author usually faces when dealing with a publisher” (Proceeding of the Cajal Club, 1996). As a result, his interesting and freewheeling writing occasionally put forth commentary unanticipated in published materials. For example in the
introduction to his book on Stereotaxy (Krieg, 1975) he describes the fate of his proposal for electroneuroprothesis by a supportive Dean and colleagues. He notes that when that Dean moved away before internal troubles surrounding his proposal were resolved, it never got off the ground because “the new Dean didn’t approve of me and he lasted a long time”.

Wendell Krieg’s publications were beautifully illustrated with his unique drawings (Fig. 8). He was enormously talented and filled his papers and books with stunning original images. His precise and detailed artwork of the human brain in slices was the first attempt to display the brain’s structure and pathways in the third dimension and was a forerunner for the National Library of Medicine’s Visible Human Project.

Paul Yaklovlev’s review of the 3rd edition of Krieg’s textbook, Functional Neuroanatomy, identifies Wendell as “a consummate craftsman in graphic arts, he carries the Vesalian tradition into this linotyped automated century…” Krieg carried his artistic tastes even to the color he used for his Brain Books. They were all bound with royal purple covers. He also was one of the first to make teaching films for instructional purposes. Between 1971 and 1975 Krieg produced a total of 20 movies, which he entitled “Anatomical Basis of Brain Function”. They were widely used for neuroanatomical instruction.

After a 10-year absence in retirement, Wendell Krieg reappeared at the 1985 Cajal Club meeting in Toronto, Canada. This author was one of the first to greet him in the lobby of the Sheraton Center Hotel. Wendell cut a striking figure attired in a silver and black-striped sport coat, royal purple slacks and a matching tie (Fig. 9). A mane of flowing white hair crowned his head.

Fig. 5 – A photograph of the 1955 Cajal Club Banquet held in Philadelphia, PA. The white arrow identifies W.J.S. Krieg.

Fig. 6 – A certificate testifying to Cajal Club membership created and printed by W.J.S. Krieg.
We sat in the lobby where he told me that he didn’t know any of the members he had seen so far except myself but wanted to speak at the business meeting later that day. He said that he was going to sell his summer home near Woods Hole, MA, and was thinking of donating the proceeds from its sale to the Cajal Club to establish Cortical Kudos awards to honor outstanding research on the cerebral cortex. He wanted to present the idea to the membership for their consideration. I told him I thought that his plan was a wonderful idea and would arrange for him to speak at the Business Meeting. I escorted him to Sanford Palay, who was an old friend of Wendell, and went off to make the arrangements. Before the Business Meeting I told Sandy, Jacques Courville, the Cajal Club Nucleolus who was presiding at the Business Meeting, and others about Krieg’s plans and we all eagerly awaited developments.

At the Business Meeting only 15 or so members were present. When Jacques called on Wendell to make his presentation, Krieg got up, looked around and said “there is nobody here to discuss my plans, and they will have to wait for another time” and sat down. We were shocked! After the disastrous Business Meeting, Sandy escorted Wendell to the 17th annual Pinckney J. Harman Memorial Lecture given by Constantino Sortelo. Wendell enjoyed his lecture very much, so at least the stage was set for further negotiations.

On returning home after the meeting I immediately began corresponding with Krieg, urging him to consider further his plans for funding awards through the Cajal Club. I recounted his role in founding the Cajal Club and his long association with it. I pointed out how he had instituted the Cortical Kudos recognitions starting in 1969 and that a further development of his ideas along those lines would fit very well into the format of the Cajal Club. He indicated that he would think about it and, in the meantime, arranged for the sale of his summer home.

On July 12–13, 1985 a pictorial ad appeared in the local Sippewissett, MA newspaper (Fig. 10). The property that Wendell had put on the market had been purchased during the depression in 1935. It was the last ocean front lot in the

Fig. 7 – A certificate of appreciation presented by the Cajal Club to Wendell J.S. Krieg on the occasion of his retirement in 1974.
area, and he paid $650 for it. He believed that part of a man’s fulfillment came from constructing his own domicile, so over the years he built, by hand, a cottage he called the “Nautilus” on the property. This cottage ultimately became a charming ocean front residence that was decorated by murals and ocean scenes some painted by Krieg (Fig. 11). He placed a lovely celestial sphere in the yard overlooking the ocean. At one time when he and his wife, Roberta, were interested in marine ecology, they constructed pens in the ocean in front of the property where they attempted to raise selected forms of marine life.

The “Nautilus” (Fig. 12) was in a prime location, as it faced the ocean, and was the scene of many pleasurable times, both personal and professional, for Krieg, Roberta, and their many friends and associates. Since the property was very close to the Marine Biology Laboratories (MBL) at Woods Hole, the activities

---

**Fig. 8** – A pen and ink rendition of a slab of human cerebral cortex drawn by W.J.S. Krieg as an illustration for his textbook, *Functional Neuroanatomy*. 
and events of the MBL were very much a part of their lives. For example, Fig. 13, kindly supplied by Pasko Rakic, shows a consultation among W. Krieg, F. Sanides and P. Yakovlev (back to camera) on the dolphin brain, with S. Piliero and P. Rakic looking on. This is but one example of the rich and energetic intellectual atmosphere that was part of this idyllic setting.

In response to his desire to sell the “Nautilus”, Wendell was able to quickly negotiate a sale to a scientist who was also associated with the MBL. The buyer agreed to pay Wendell $200,000 in cash and signed a promissory note to pay the remaining $200,000 in annual payments of $20,000 over 10 years to a designated charitable organization chosen by Wendell. Apparently, Wendell told the buyer that the designated organization to receive the annual payments would be the Cajal Club, but it was several years before Wendell actually signed off on that designation with the Club.

Later in 1985, Krieg agreed to consider sponsoring an awards program with the Cajal Club. However, when he learned that the Club had only a 501-c-6 IRS status that did not allow it to grant tax deductions on gifts it received, he withheld his support. To solve this problem, I contacted Glen V. Russell, the Cajal Club Alpha Helix (Historian) at the time, who had experience in setting up applications with the IRS, to obtain the needed 501-c-3 classification. Initially, he was able to get a Cajal Club Foundation incorporated in Texas where he lived, but then he died suddenly on October 18, 1985. With the help of Glen’s friends in Texas and with a team assembled here in Denver, we were able to file the proper documents in a timely fashion and subsequently received the crucial 501-c-3 IRS classification on April 30, 1986.

Wendell Krieg’s plan was to place the $200,000 he received from the beach property sale in a trust that he would hold for his lifetime and to pay the interest it earned annually to the Cajal Club Foundation to support the Krieg awards. The other $200,000 from the selling price, which was to be forthcoming over 10 years as $20,000 annual payments from the buyer, was to be paid to the Cajal Club Foundation and was to form the financial corpus for the long-term support of the Krieg Cortical Kudos. Only the interest earned by the trust or the corpus was to be used to fund the awards, and the corpus was never to be spent.

In December 1985, Krieg sent to the Cajal Club Foundation a first payment of $4100, which he described as the interest
earnings of the $200,000 he held in trust. On September 17, 1986, he forwarded a second payment of $6916, and on April 27, 1987, another payment for $2804. In October 1987, an additional payment of $6350 was received from Krieg.

Wendell also sent a testament in which he elaborated his thoughts on the establishment of an awards program and the potential uses of the money he planned to donate. Excerpts from his testament are quoted below in an unedited format exactly in the style supplied to the Cajal Club by Krieg:

“In August, 1985 the donor sold the summer home he had personally constructed on the seashore near Woods Hole in 1935 and 1940. A fortunate choice of site obtained the price of $400,000, – the highest ever paid for a 100-foot beach and cottage. These entire proceeds are to form the principal of a unique foundation to encourage research on, and disseminate knowledge of the cerebral cortex: the last major research field in science, and certainly one of the most important, for all thought, planning, problem solving, reasoning and predicting is produced there, but how it does these things has not been determined.

So, now comes the unexpected $400,000. What better to do with it than devote it to the improvement of the plight of the cortex? My family is well enough provided for already. All that remains is to set up a trust fund for the purpose. The earnings would be used up every year, but the principal should never be touched.”

Krieg suggested in the testament that four levels of awards be given and be funded each year from the interest earned by the trust and the corpus of his gifts. The first was the Cortical Scholar award to be given to promising undergraduate students. The second level of award he called the Cortical Explorer prize, and it was to be given to outstanding scientists midway in their careers. The third level of recognition he identified as Cortical Discoverer award, which was to be given to scientists who were recognized as authorities in their research. Finally, he identified one higher level, rarely attained and rarely awarded: Santiago’s Brother.
The Board of Directors of the new Cajal Club Foundation, who also were the elected officers of the Cajal Club, reviewed his suggestions and voted to accept his gifts and to call the new awards the “Krieg Cortical Kudos”. It was agreed that the interest from the Krieg gifts would be used only to support the awards and expenses incurred in their management.

But the yellow brick road ahead contained some unanticipated pitfalls. When I received the first annual payment to the Cajal Club Foundation, due on the promissory note executed by the buyer and Krieg, it was for $10,000, not the $20,000 sum that Krieg and the buyer had agreed upon. I immediately called Krieg, who requested that I send the check to him. Later I heard from Krieg that he and the buyer had agreed on a new payment schedule where the buyer would pay less during the first 5 years of the agreement and then increase the later payments to $25,000 to make the total sum $200,000. Wendell also said that a new promissory note had been executed between them describing this new arrangement, and that he would send me a copy. Shortly thereafter, a check made out to the Cajal Club Foundation in the amount of $15,000 was received from the buyer, and funding for the Krieg Cortical Kudos from that source was underway. Mrs. Roberta Krieg (Fig. 14), who was the mainstay for much of Wendell’s work, later told me that he apparently had suffered a stroke during this financial hullabaloo.

Several years later after making several annual payments on schedule, the buyer informed Krieg that he had decided he had paid enough for the Krieg beach property and that he was going to stop his annual payments short of the agreed upon amount of $200,000. Roberta Krieg, who had taken over the family management for the aged Wendell Krieg, threatened to take legal action against the buyer to recover the full amount due on the promissory note. Eventually, before any legal action was initiated, the buyer offered a settlement payment of a lesser amount. After considering the personal difficulties for them to pursue legal remedies in Falmouth, MA, the Kriegs agreed to accept the settlement and the matter was closed.

Later, a check in the amount of the settlement was received by the Cajal Club Foundation and deposited in the Krieg Cortical Kudos account.

Payments of the interest on the funds that Wendell held in trust for the Cajal Club Foundation also diminished. Krieg’s fertile mind and failing health had led him to need the annual interest from the trust to pay for other expenses. The Cajal Club Foundation concurred in his use of the interest funds to meet these unanticipated obligations.

In 1987, the first Krieg Cortical Kudos were given out to five Cortical Scholars selected from nominations received by the Cajal Club Awards Committee. Each winner received a $500 cash prize and $250 in travel support to attend the Cajal Club Meeting. A certificate, crafted by Krieg, testifying to their award also was a part of the award. Certificates for winners in future years were constructed using borders taken from Krieg’s book, *Heritage of Borders*, and composed, in part, by wording that he had employed in earlier citations. Each was embossed with the Cajal Club Seal and endorsed by the club officers.

In addition to cash prizes and certificates, the Krieg Cortical Kudos awards have included the Cajal Medal (Fig. 15), the highest honor the Cajal Club can bestow. This medal has been given to Krieg Cortical Discoverers and to a few selected individuals. One was presented to King Don Juan Carlos of Spain for his support of the Cajal Institute in Madrid, Spain. The medal was struck from one of the same size that apparently was one of many that were given out in Madrid, Spain, in 1906 to celebrate Cajal’s return after winning the Nobel Prize. Glen V. Russell acquired one of these original medals for the club during a visit to the Cajal Institute in 1961. The current Cajal Medal is cast in a mold by Art Castings of Colorado in Loveland, CO, created from the original medal.

As Cajal Club Alpha Helix (Historian), Glen Russell apparently had in his possession at the time of his death an Archive of the Cajal Club that contained a large number of Club and Cajal artifacts that he had collected personally or accumulated...
Fig. 16 – Wendell J.S. Krieg, 1906 to 1997.

over the years from other members. The items are listed on pages 30 through 38 in the Proceedings of the Cajal Club Volume 2, 1977 (Proceeding of the Cajal Club, 1977). Unfortunately, following his sudden death in 1985, the Archives were lost, and the original Cajal Medal was one of the very few treasures in it that were found later.

The first “Santiago’s Brother” Award to a senior scientist whose research on the cerebral cortex had preeminence was presented to Wendell J. S. Krieg at the Cajal Club meeting in Chicago, IL, in 1991. Because of health considerations, Wendell was unable to attend the Awards ceremony so the prizes were presented to him at his home in Evanston, IL, by Robert Y. Moore, Nucleolus of the Cajal Club at that time. This presentation included an elegant certificate testifying to the excellence of Wendell’s contributions, and the Cajal Medal that was placed around his neck. Moore’s presentation speech to Krieg was later included as part of an article on the Krieg Cortical Kudos that was published in Cerebral Cortex 1:364–366, 1991 (Moore, 1991).

Wendell J. S. Krieg died in 1997 at the age of 91 in his home at Evanston, IL. He left in his wake a host of contributions many of which have had profound impact on the Cajal Club. Not only was he the originator of the Cajal Club and the maestro who guided the shape and form of its development, but also he created and funded its awards program that now has given the Cajal Club international recognition. Since the inception of his awards program, Krieg Cortical Kudos have honored more than 60 neuroscientists. Over $180,000 in prize money from the interest of Krieg’s gifts has been distributed among the recipients.

His original concept of forming an organization where scientists could get together annually to discuss research and share good fellowship still marks Cajal Club gatherings, such as the Cajal Club Socializer established by Ford Ebner at the Society for Neuroscience meetings. Discussion and friendly criticism of the new ideas takes place there much as Krieg had originally envisioned for Club gatherings. Certainly most attendees, who are knowledgeable in the history of neuroscience, honor the master, Santiago Ramon y Cajal, for his brilliant early leadership.

Wendell Krieg (Fig. 16) was a colorful individual who cut a wide swath in his chosen fields of interest. In some respects he was a unique neuroscientist who, like Santiago Ramon y Cajal, personally illustrated, with meticulous drawings, his research findings and their interpretations. His writing was colorful, insightful and diverse. Not only did he write and publish Atlases of the human, chimpanzee, monkey and rat brains but his literary contributions also included such tomes as Brain Mechanisms in Diachrome, 1955 (Krieg, 1955), the Heritage of Borders, 1977, Letters to My Son, 1960 (Krieg, 1960) and the Lord’s Prayer in 250 Languages, 1973 (Petro Maretto, 1870). He was a master painter and modeler as well as an inventor of instruments to explore the brain. He was an expert on printing and had a vast collection of type that included many original punches from which the type was cast. Wendell J. S. Krieg’s remarkable contributions are to be greatly admired and his genius sorely missed.

Acknowledgments

Attending to the exciting and sometimes turbulent affairs of the Cajal Club for 20 years, mainly without the aid of a personal computer or secretarial support, would not have been possible without the help of my remarkable wife, Peggy Whitlock. Her steadfast support was essential to the effective management of the Cajal Club throughout my tenure and is affectionately acknowledged. In addition, I would like to express my sincere thanks to Duane E. Haines, a friend and colleague for many years, for his detailed review of this manuscript. He made many useful suggestions on content and organization, provided some essential details, and saw to the preparation of the figures. At the time this paper was published, Duane was the Alpha Helix of the Cajal Club.

REFERENCES


Larsell, O., 1937. The cerebellum: a review and interpretation.
Mettler, F.A., 1945. Fiber connections of the corpus striatum of the
monkey and baboon. J. Comp. Neurol. 82, 169–204.
Papez, J.W., 1942. A summary of fiber connections of the basal
ganglia with each other and with other portions of the brain.
and fetuses. J. Comp. Neurol. 87, 139–159.
Petro Maretti, 1870. The Lord’s Prayer in 250 Languages,
Reproduced in Facsimile Together with Explanatory Notes by
Thomas, Springfield, IL.
Woolsey, C.N., 1947. Patterns of sensory representation in the