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Impact of an Intellectual Friendship—An Appreciation

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There is no better tonic for the will than the joy of discovery. Anyone who has attended the annual meeting of the Society for Neuroscience knows first-hand the feeling of the delirious ecstasy and irresistible fascination of brain research. In the words of Santiago Ramón y Cajal (1852–1934),[1] *"the garden of neurology holds out to the investigator captivating spectacles and incomparable artistic emotions."*

Fortuitousness and serendipity will occasionally beget a learned adviser, and anticipation will be stirred into an apprentice's brain by the enthused mentor. Isolated incidents may do more than merely impact a scientist's intellectual growth or career: they can define the future of bountiful young minds down the generations.

Having barely graduated from the Aristotelian University School of Medicine in my native Greece, I arrived at Rochester, New York in August 1981 for postgraduate training in Neuroscience. As soon as I was introduced to Professor Manuel del Cerro, he greeted me with a cordial handshake and exclaimed: *"Oh, Greece! Economo and Koskinas!"*. Who would have thought that, three decades later, I would edit and publish the first English edition of the monumental *Atlas of cytoarchitectonics of the adult human cerebral cortex*,[2] and also reunite, after 85 years, the Spartan descendants of Georg N. Koskinas (1885–1975) and the Triestine family of Constantin von Economo (1876–1931).

A native of Buenos Aires, Manuel had worked with cell biologist Eduardo De Robertis (1913–1988), who, with Cajal's pupil Clemente Estable (1894–1976), had set up in Montevideo the first electron microscope laboratory in South America and provided definitive proof of the neuron theory by studying the ultrastructure of synapses. The discontents of Peronism drove Manuel and his family to the United States, and a professorship at the historic Center for Brain Research at the University of Rochester Medical Center.

One of his many sanguine precepts was that a "failed" experiment is a welcomed opportunity, a concealed discovery waiting to be hatched.

I recall three episodes of contingency that spurred unforeseen outcomes in my later academic development. They all occurred in the Advanced Neuroanatomy course, offered by Professor del Cerro during the spring semester of 1982.

One of the reading assignments was the article *"Differentiation of the optic cups from an anophthalmic murine strain, in culture and in intrafoetal grafts"* by Josselyne Salaün of the Collège de France.[3] I found neural grafting as an experimental tool spellbinding. That paper ultimately germinated my thesis at Indiana University and prompted 15 years of uninterrupted basic research on the restoration of function in movement disorders affecting the cerebellum and the basal ganglia by means of neural transplantation. The work brought about a First Award from the National Institutes of Health and culminated, in 1995, with the Science Prize in Medicine from the Bodossakis Foundation, the highest academic distinction bestowed upon Greek scientists under the age of 40 years.

The other assignment that stayed ingrained in my memory was the article *"Exploring cells with a centrifuge"* by Christian de Duve, which was also his Nobel Prize acceptance speech.[4]

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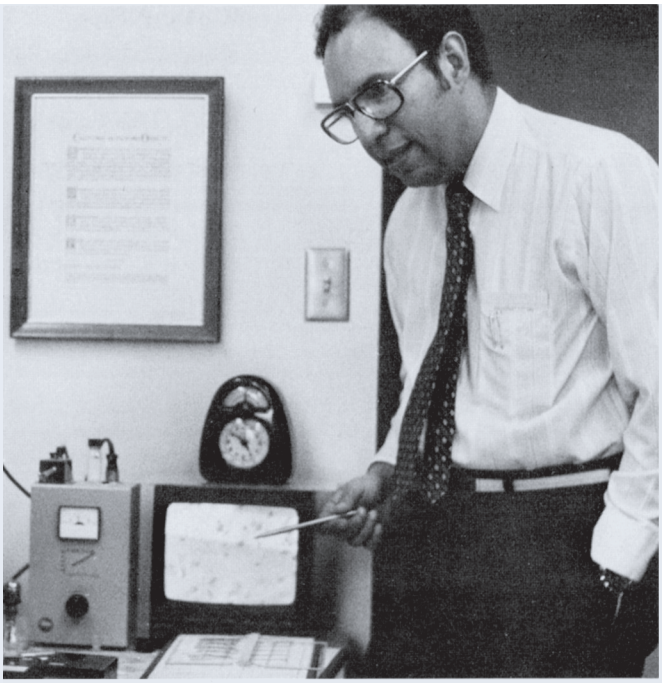
Two decades later, during a stroll in an Athenian bookstore, a newly published book, *Life evolving*,[5] caught my eye. I became enchanted and embarked on a Greek translation. That brought me in contact with the noble biochemist and led to a warm exchange of correspondence, discussing details of the translation. I adopted the book for my undergraduate course Ontogeny and Phylogeny that, over the years, has been attended by over 2,000 students majoring in special education. Although an elective, the course has had the highest enrolment among the entire four-year curriculum. Several students commented that the book inspired them like no other in their studies and gave it as a gift to their parents.

And then came Cajal. Manuel passed the baton of neurohistological tradition. He spotlighted the supreme beauty, elegant variety, and ingenious architecture of the cerebel-

Figure 1 *From the Graduate Program Bulletin of the Center for Brain Research, University of Rochester, 1981.*



Prof. del Cerro uses a television monitor for the optical microscope for instruction and discussion of ongoing eye research.

Advanced Neuroanatomy

The purpose of this course is to introduce the student to modern approaches to neuroanatomy, including tracing techniques, light and electron microscopy and immunocytochemistry, and to illustrate the results achieved with these approaches in selected areas of the central nervous system, and finally, to relate these findings to neurochemical, neurophysiological and neurobehavioral aspects of neuroscience.

Manuel del Cerro

Professor in the Center for Brain Research, Neurology and Center for Visual Science; Associate Professor of Anatomy and Ophthalmology

M.D., University of Buenos Aires, Argentina, 1958

Research Interests

Studies on normal and abnormal growth of the nervous system using a multi-methods approach, which includes a variety of optical and electron microscopical techniques. Ongoing projects deal with experimental eye pathology and the histogenesis of the cerebellum and retina. Special interest is placed on the role of viruses and immune response in the production of developmental defects.

Publications

del Cerro, M. and Monjan, A. A.: Unequivocal demonstration of the hematogenous origin of brain macrophages in a stab wound by a double-label technique. *Neuroscience 4*:1399-1404, 1979.

del Cerro, M., Cogen, J. and del Cerro, C.: Stevenel's Blue, an excellent stain for optical microscopical study of plastic embedded tissues. *Microscopica Acta* (in press, 1980).

del Cerro, M., Standler, N. A. and del Cerro, C.: High resolution optical microscopy of animal tissues by the use of sub-micrometer thick sections and a new stain. *Microscopica Acta* (in press, 1980).

Neuroanatomical Laboratory

The purpose of this lab is to provide the student with hands-on experience in the practical usage of standard neuroanatomical techniques including light and electron microscopy.

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lum and the retina. I remember his opening counsel: *"If you think you have a new idea, go read Cajal, he probably says it."* Since 2014, I compiled and translated five books into Greek by Cajal on education, psychology, art, neurohistology, and epistemology, including the *Tonics of the will*,[6] which I adopted for the mandatory course Fundamental Principles of Science that has been since attended by over 1,500 freshmen majoring in educational policy. I also edited a compilation of essays in English (*Cajal beyond the brain*,[7] reviewed in *European Neurology*[8]).

I owe much gratitude to Manuel for his sage precepts and lifelong comradeship. Anytime I dare thank or credit him as the originator of those achievements, my dear maestro will graciously reply with yet another Cajalian maxim: *"It's not the seed that determines what blossoms, my friend, it's the fertile soil."* Felicitatus.

***Figure 2** Professor Manuel del Cerro at the One Hundredth Meeting of the American Association of Anatomists in Washington, DC, May 1987.*

***Figure 3** Professor and Mrs. Coca del Cerro at the Monument Circle during a visit to Indianapolis, spring 1993.*

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