

G.I. Rossolimo (1860–1928) Neurologist and Public Benefactor

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G.I. Rossolimo was attracted to neurology as a medical student in the late nineteenth century and remained affiliated with Moscow University most of his life. His training included psychiatry, neuropathology, and laboratory research in his postgraduate years. The domain of his neurological clinical interests was vast. His most enduring efforts were directed toward neurological illnesses and developmental delay. He established a children's institute for neurology and psychology that was the first of its kind in Russia. In addition he developed a neuropsychologic examination for assessing cognitive function. His sustained interests were pursued during and after revolutionary changes in his government.

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In 1917 G.I. Rossolimo was appointed Chair of Neurology and Director of the Kozhevnikov Research Institute at the University of Moscow Medical School (Fig. 1) (Khoroshko, 1928). His role as a neurologist has been the focus of a recent paper dealing with the history of neurology in Russia (Satran, 2005). We would now like to consider his academic career in detail as well as his professional and societal contributions during a time of war, revolution, and the complete revision of the Russian government and society.

Of Greek origin, Grigory Iwanowitsch Rossolimo was born in Odessa on December 5, 1860. His parents and their family shared scientific and musical interests. His childhood educational experiences at home and school were privileged. After completing his gymnasium studies Rossolimo initially contemplated a career in engineering but changed his mind and successfully competed in the necessary examinations for admission to the Moscow Medical School. He matriculated in 1879 and graduated in 1885. Anton Pavlowitsch Chekhov (1860–1904), the well-known writer, was one of his classmates (Khoroshko, 1925, 1929). From the first year of medical school it was clear that Rossolimo was focused on diseases of the nervous system and related neurosciences. He affiliated himself with students and faculty who shared his neurological interests (Freemon, 1992). With the guidance of Kozhevnikov (1836–1902) (Goodenow & Mettler, 1970), head of the neurology department, he continued his research and received a doctoral degree in medicine in 1888. His classmate Chekhov needed to support his poverty-stricken family, and throughout his medical training he used his literary skills to supplement the stipend he received as a medical school scholarship from his hometown of Tagnrog (Simmons, 1962).

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Figure 1. G.I. Rossolimo (1860 – 1940) From: *Klinicheskaia Meditsina*, 1928.

Education at the University of Moscow Medical School

Important teachers of Rossolimo and Chekhov included S. Korsakov (1853–1900), A. Ostroumov (1844–1908) Professor of Internal Medicine, and F. Erismann (1842–1915). Erismann was a noted epidemiologist and hygienist, and he is regarded for the development of public health in Russia (Semashko, 1946). G.A. Zakharin (1829–1887) was the most prominent medical professor, teacher, internist, and consultant to the tsar at the Moscow Medical School (Zacharin, 1898).

Then as now medical school faculties had concerns regarding their curricula. More than a hundred years ago the healing arts were considered to have reached a state of progressive decline. Medical history-taking and examination skills were undervalued by students. The presenting illness dominated doctor-patient relationships and the individuality of patients was ignored. To counter these trends it was stressed that the students become thoroughly acquainted with their patients and individualize each encounter. Zakharin stressed the need for prolonged, meticulous histories and relevant psychosocial data (Zacharin, 1899).

The medical school curriculum was of five years duration and each year ended with a difficult comprehensive examination that included questions and topics related to their five-year education experience (Dujardin, 1889). The Doctor of Medicine degree was essential for graduates seeking medical faculty and/or research positions. They competed for years of additional training in Russia or Western Europe to attain the degree regarded as equivalent to the PhD.

The state of academic medicine particularly related to neurology and the neurosciences was well reviewed by F. Raymond in his report of 1889. Raymond, student and later successor of J.M. Charcot, visited Russia under the auspices of the French government and reviewed the work of Russian clinicians and laboratory investigators. He commented on the activities at several medical schools and in Moscow noted the research of Rossolimo and his studies dealing with the sensory and motor tracts of the spinal cord. Raymond also surveyed neurologic education, research, and the neurological therapeutics of that era.

Medical Opportunities

Although Rossolimo followed a direct route to his chosen academic career, the professional status as well as their financial situation remained uncertain for Russian practitioners.

Their number was insufficient to provide satisfactory medical care. Frieden states that the ratio of potential patients to physicians was probably as great as 50,000 to 1. In addition physicians were regulated by the Medical Statute of 1859, which defined their practice. Physicians were required to respond promptly to any and all requests for medical care. Doctors employed by the state were not permitted to charge fees. A fee-free arrangement also existed for the care of former army officers and a system of fee schedules was established for patients who were not impoverished. Physicians could be summoned to testify in court, to perform postmortem examinations, and to respond to national catastrophes, particularly epidemics (Frieden, 1981).

It is doubtful that Rossolimo had professional ties to the *Zemstvo* system, an arrangement created by the government to provide free health care and improve sanitation. Merchants and landowners provided salaries for doctors. The physicians were supervised by the government (McKenzie, 1982).

In 1885, in memory of the contributions of the remarkable surgeon and educator N.I. Pirogov, the Society of Russian Physicians was founded. Members of the society sought to improve their social and economic circumstances. In addition they desired greater local authority and autonomy that set them in an adversarial position relative to the centralized system of the Tsar (Garrison, 1929).

The Career of Rossolimo and Events in Russia

Beyond the positions taken by doctors, there were continuous activities and tensions produced by nihilistic and other revolutionary groups. During the years 1884 to 1888, Rossolimo received training in neuropathology and gained clinical and research experience. His studies concerning spinal cord physiology led to his doctoral degree and appeared in the French literature (Rossolimo, 1891). He became a junior member of the Moscow University medical faculty. At the Ekaterinberg Hospital he established, furnished and directed a neurological clinic in the Department of Internal Medicine led by Ostroumov, one of his former professors (Khoroshko, 1929).

Although Rossolimo continued to explore his laboratory studies related to changes in brain physiology and behavior (1894), the majority of his writings focused on neurological diseases and their related neuropathology (1897, 1899). His works appeared in the Russian, German, and French literature (Satran, 2005). He developed an apparatus, the clonograph, to assist in better definition and quantification of movement disorders. (Rossolimo, 1896). At the time of the early development of the specialty of neurosurgery and its associated trephination, it became necessary to identify the major lobes of the cerebrum and gyri to reduce possible trauma to these structures. The topograph of Rossolimo (1907) allowed projection of the cerebral structures to the overlying scalp. Lichterman (1998) considered the device of Rossolimo the forerunner of current stereotactic equipment.

The unique brief, enduring, salient paper by Babinski, (1896) correlated the extension of the great toe with corticospinal tract disease. His observation led to dozens of papers dealing with muscle stretch reflex changes associated with nervous system illness and innumerable medical eponyms followed (Wartenberg, 1944). During the same period, Rossolimo (1902) described flexion of the great toe upon delivery of a stimulus to the sole of the foot in proximity to the toes. The significance of the reflexes described by Rossolimo and Babinski in different neurological diseases was reviewed by Goldflam in his detailed monograph (1930). Other muscle stretch reflexes bearing his name appeared in the medical literature and persist in textbooks of neurology and in those dedicated to the neurologic examination (Haymaker, 1969; Cambier, Masson, & Dehen, 1985; Campbell, 2005).

His attention extended to nervous system diseases of childhood and the developmental delay imposed by neurologic disease.

By the end of the nineteenth century Rossolimo's interests in child neurology included the education of children and teacher training. He focused upon pedology or the role played by society and social forces on child growth and development. Assisted by the psychiatrist Bernstein and Nechaev, a psychologist, he constructed a series of tests to measure cognitive function (Khoroshko, Kononova, & Broussilovski, 1925).

The measurement of cognition had been stimulated in Western Europe by the work and influence of the psychologist Wundt, in Leipzig (Reisman, 1991). Bekhterev, a contemporary of Rossolimo, trained with Wundt. He added psychology to his skills and interests that included neurology and neuroanatomy as well as the development of neurosurgery. Bekhterev in 1886 established the first psychological laboratory at Kazan University and, later in 1893, a psychophysiological unit at the Military Medical Academy in St. Petersburg (Misiak & Sexton, 1966).

Before the onset of World War I Rossolimo developed and applied his cognitive tests to children and adults. His "psychological profile" was used to establish progression or resolution of changes in mental ability related to disease (Rossolimo, 1912). In adults the ability to carry out skilled tasks based on measured psychologic and motor skills was part of the selection of personnel for certain occupations in civilian and military life (Lahy, 1925). Parker (1916) observed that the norms for achievements at different age levels were derived from a relatively small cohort. In addition the length of time necessary to carry out the examinations was considered excessive. Luria observed that the series of tests developed by Rossolimo to assist clinical diagnoses failed to yield data specific for neurological diseases. He viewed the "psychological profile" used for diagnosis as flawed because its approaches were oversimplified by qualitative and experimental designs. Nevertheless, Luria considered the concept one of progress (1969). Nevertheless, the potential of the psychological profile to identify specific areas of cognition and quantitative function was regarded as progress (Luria, 1928).

At the end of the 19th century, the term "decadence" began to be used in Russia to reflect the *avant garde* activities of writers and artists as well as composers. The degree of decadence was thought to be associated with public immortality. The origin and evolution of the so-called decadence has been discussed in detail by Serotkina in her recent work (2002).

Rossolimo had become dedicated to the study of growth, development, and personality of children. He was a member of the family section of the Russian Pedagogical Society and Moscow Psychological Society (Haim and Karlinsky, 1973) (Serotkina, 2002). He and several of his contemporaries had concerns about decadence in the arts, causing alterations in child psychology and morality.

In January 1900 Rossolimo wrote to Chekhov. He had been appointed to prepare a suitable reading list for grade school children and asked the author for the latter's suggestions. Chekhov responded, stating that he wrote very infrequently for children and that they should be allowed to read what was appropriate for adults. Chekhov also mentioned that he did not understand children's literature or its validity. He provided Rossolimo with two of his own stories about dogs (Haim and Karlinsky, 1973).

Rossolimo maintained his position however and later in the year presented a paper at the Section of Neurology and Psychiatry in Moscow expressing his continued concerns about decadent arts and childhood behavior (1901).

Their correspondence is remarkable for pro bono interests they shared that provided financial assistance to needy writers as well as to medical colleagues. Chekhov, who died

of tuberculosis in 1904, was constantly engaged in educational activities and helped plan, design and personally support the construction of rural schools. He believed that only through education could the poor advance in society (Dewhurst, 1955).

Years of War and Revolution

Rossolimo was critical of government policies. During the revolution of 1905, he treated revolutionaries and military personnel at the Ekaterinberg Hospital. Domestic unrest continued after the revolution ended. The government intended to maintain its autocratic prerogatives and to increase national productivity to make Russia more independent and competitive with other European nations.

Students throughout Russia increasingly enrolled in universities to improve their status in society and they also participated in demonstrations. For decades the government had practiced surveillance of education at all levels and increased its oversight. University students wanted more autonomy, a concern of both the faculty and the government. At this time faculty selection and/or promotion was usually within the province of the university administration. In 1911, Kasso, Minister of Education, viewed the universities as institutions that harbored and nurtured antigovernment activity. He relocated those of the faculty professing policies contrary to those of the government. Recurrent demonstrations and strikes led to student repression, separation from the university, and/or imprisonment. Faculty, however, were less attentive to the needs of the students and for the most part were concerned about their own situation. Several faculty members at the University of Moscow resigned to protest Kasso's faculty displacements (Kassow, 1989). Additional widespread resignations followed and Rossolimo gave up his university position. In 1914 he established a six-room facility with his own funds, which he named the Childrens' Institute for Neurology and Psychology, the first of its kind in Russia and Europe (Sirotkina, 2002; Petroukhin, 1988). In that setting he was able to continue his work on developmental disorders of children and to extend his studies dealing with cognitive function.

Six years passed before Rossolimo rejoined the faculty of Moscow University. It is unlikely that anyone could have foreseen the tumultuous events of the First World War, the defeat of Russia by Germany, the overthrow of the Russian monarchy, and the successful revolution of the Bolshevik party. Rossolimo remained in Russia throughout this time and witnessed the changes that occurred in government and society. He could not have anticipated how his professional interests and skills would be regarded and utilized by the new Soviet government. The years were marked by severe epidemics of infectious disease, famine, and starvation. For many, daily survival dominated the lives of the Russian people (Garrison, 1929). The overall state of medicine in Soviet Russia was reviewed by Sokolov (Sokolov, 1921). He observed that about 25% of the doctors had left Russia. Others had been imprisoned. Doctors tried to increase their incomes by private practice; however the government sought to control them by limiting their private patients as well as their prescriptions. Significant health problems included tuberculosis and improper nutrition.

Gantt (1924) surveyed medical education. He found that the government was successful in changing the system of general education to increase literacy. Special concessions were made for communist party members and workers for their admission to medical school that resulted in some difficulty because of their insufficient premedical training. Former administrators in the medical system who had been ousted by the government were reappointed by the Soviets. The government made efforts to improve medical institutions and to encourage the study of medicine and public health.

Rossolimo donated his institute to the University of Moscow. He was reappointed to the medical school as Professor of Neurology and Director of the Kozhevnikov Research Unit.

Neurology and Psychology

The Bolshevik government realized that it would require the cooperation of psychiatrists and neurologists with expertise in behavior to facilitate public acceptance of the far-reaching changes in society. Russians were expected to adapt and to favorably react to personal reeducation focusing upon reduction of self-centered thinking and to replace such orientation with behavior dedicated to the state and common good. The different schools of psychology altered their fundamental tenets so that they were more in keeping with the philosophy of the government (Joravsky, 1989; Kozulin, 1984). In schools at all levels much emphasis was placed on mental hygiene, of which Rossolimo had been an early advocate (Sirotkina, 2002). The characteristics and successes of the change in educational philosophy were reviewed in detail by Rozenshtein (1930) and Salkind (1930). Luria in his review of psychology in Russia acknowledged the contributions of Pavlov and Bekhterev and other prominent psychologists. He observed that the experimental studies of the majority of psychologists viewed the psychology of behavior as structural and influenced by conditions in society (Luria, 1928). Luria along with many of his contemporaries sought to adapt to changes in government psychological orientation and attempted to keep their research work free of political controversy (Joravsky, 1989).

Rossolimo's Activity After 1917

In the years that followed 1917 Rossolimo was active and engaged in many projects to improve the health care system of Russia. Narkomzstrov, the Commissariat of Public Health, was created in 1918 to organize a system of competent, free universal health care (Weinstein, 1990). The role of this agency in the celebration marking the 40th year of Rossolimo's graduation from medical school and his *Festschrift* in 1924 reflects the support he had from the Soviet government.

In addition to his numerous medical publications, Rossolimo was cofounder and editor of the *Journal of Neuropathology and Psychiatry of Korsakov* and member of the Moscow Society of Neuropathologists and Psychiatrists. He was also associated with the Moscow Society of Pedology. Beyond his activities for the Commissariat of Public Health, he was associated with the Revolutionary Military Council and he held a significant position as Chair of the Commission of the Study of Encephalitis Lethargica. In Moscow a street was named in his honor (Schulz, Urban, & Lebed, 1972).

The government's earlier enthusiastic support of the use of psychological profiles in the assessment of children did not last. Psychological or psychometric testing and pedology were criticized and finally prohibited in 1936 (Central Committee Communist Party, 1936). Their main critique of the cognitive testing was its use of a Western methodology in a diverse society differing in its organization and background. Nevertheless, neuropsychological testing persisted in Russia, notably in the evaluation and progress of candidates in the Russian space program (Brožek, 1972).

Rossolimo's last publications revisited the use of the psychological profile as essential to the neurological examination (1927a). He also made observations regarding the toe extensor reflex he had previously described (Rossolimo, 1927b).

Rossolimo's Last Days

On August 18, 1928, after a day of considerable physical activity, Rossolimo had a disabling stroke. His examination revealed a left hemiplegia and associated loss of sensation. His tongue deviated to the left and he displayed a fluctuating left-sided hemianopsia. He had difficulty expressing himself and periodic horizontal eye movements were noted. His deficits were attributed to a deeply situated right-sided brainstem hemorrhage. It is possible multiple brain infarctions secondary to cardiac emboli caused his neurological deficits.

Rossolimo slowly recovered. He was aware of his deficits and at times was dispirited. In September Rossolimo sought further evaluation at his unit in Moscow. On the 24th of that month in the setting of his departure for Moscow, he suddenly lost consciousness and died. The cause of his death was thought at the time to have been of cardiac origin (Khoroshko, 1929).

Rossolimo was an imaginative, able, and focused clinician. He developed devices to facilitate the diagnosis and treatment of neurologic diseases in children and adults. In addition he sought to quantify changes in cognition. Independently he developed a unique neurological unit dedicated to the evaluation of children with nervous system disease. He recognized the significant interrelationships of neurologic disease, education, social milieu, and their cumulative effects on child growth and development. His recognition as a founder of child neurology in his homeland is well deserved.

His career illustrates the different pathways that continue to be essential for neurological progress. They include dedicated clinical care and observation, educational opportunities, and specialization as well as subspecialization in clinical and laboratory medicine. All played significant roles in advancing neurology and neuroscience and continued during Rossolimo's era and today.

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