HISTORICAL FEATURES

I.P. Pavlov as a Youth

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Abstract—Ivan P. Pavlov's youthful relations with parents and siblings, formal education, and social activities in Riazan' are described. The Pavlovs, a highly achievement-oriented family descending from a lowly serf, improved their social status by serving the Russian Orthodox Church. Pavlov, the son of a priest, studied in the 1860s at the Riazan' Ecclesiastic Seminary for priesthood. The turbulent 1860s' decade was a period of social and political reforms. Western ideas and science were introduced to Russia. The ambitious and idealistic I.P. Pavlov was influenced by popular essays written by the journalist D.I. Pisarev, the works of the German physiologist J. Moleschott, the English writer G.H. Lewes, the German zoologist C. Vogt and the physiologist M.I. Sechenov. Losing his religious faith, Pavlov abandoned the traditional goal of becoming a priest, and, convinced that science was a road to truth and progress, left Riazan' to study natural science at the University of St. Petersburg.

OUR KNOWLEDGE of the childhood and adolescence of Ivan P. Pavlov is meager. Pavlov left only two autobiographical sketches which touch briefly upon his years in Riazan' where he grew up. In writings of some of Pavlov's disciples and biographers, including E.A. Asratyan (1953), B.P. Babkin (1949), Yu. P. Frolov (1937), P.S. Kupalov (1949), and V.V. Savich (1924), little mention is made of this period of his life. Some biographers, such as A.S. Mozzhukhin and V.D. Samoilov (1977) disregard the Riazan' years while others, such as H. Cuny (1965), W.H. Gantt, [1] J.A. Gray (1979) and E. Sherwood and M. Sherwood (1970) base their fragmentary descriptions on secondary sources. Only P.K. Anokhin (1949) goes into greater depth.[2] Nevertheless, knowledge of this period in Pavlov's life contributes to the understanding of his subsequent career because it was during his youth that Pavlov broke with the family tradition of becoming Russian Orthodox priests, and decided to venture into the *terra incognita* of science.

Until the 1860s, the path of upward mobility for Pavlov family members was service in the Church. But I.P. Pavlov, influenced by Western ideas which penetrated Russian society in tandem with political and social reforms of the relatively liberal Tsar Alexander II, chose a secular path and entered the university. This article describes Pavlov's youth in Riazan' from the year of his birth in 1849 to 1870, the year when he left for the University of St. Petersburg.

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The Background

For a thorough understanding of Pavlov's early years and his decision to leave Riazan' for the University of St. Petersburg, it is necessary to consider the status of his family and the social conditions under which they lived. I shall begin with the description of I.P. Pavlov's ancestry and their movement from serfdom.

I.P. Pavlov's Ancestry

According to Anokhin (1949), the Pavlov family traced its ancestry to a serf known only by his first name, Pavel. His son, Mokei, bore the last name Pavlov (derived from Pavel). In the eighteenth century it was possible for a serf to gain emancipation by becoming a member of the Russian Orthodox clerical estate (Freeze, 1977). When Mokei's son, Arkhip, became a lowly church sexton, and his son Dmitrii, already a deacon (neither of them ordained members of the clergy) in the village of Krivopolian'e, in the Rannenburg district of the Riazan' province, this line of Pavlovs became emancipated. Dmitrii was an educated and able man; he provided a seminary education for his three sons. They became priests, fully ordained. The two oldest sons, both called Ivan, assumed posts as village priests. The youngest son, Petr, born in 1823, became a town priest in Riazan'. He was I.P. Pavlov's father.

According to Pavlov, both Ivans had unruly spirits. Both were often disciplined by the Church authorities for their disorderly behavior and their penchant for the bottle. The elder, Ivan, having great physical strength in his youth, was the town's champion in battles with village fist-fighters.[3] He died relatively young of a lung disorder. The younger Ivan at first had better luck. He was popular with the clergy, and had a family and children. Nevertheless, he was reduced in rank and finally defrocked. As a priest, he had mocked family, death, God, and was a practical joker. For his pranks, he received his share of beatings by angry villagers (Anokhin, 1949; Pavlov, 1952b).

Pavlov's maternal grandfather, Ivan Uspenskoi, was a priest in a Riazan' church, which was named Nikola Dolgosheia, that is, "Nicholas the Longnecked," a sobriquet derived from its architectural style. Rumors had it that this Ivan possessed a strange personality; he did not get along with his superiors, nor were his relations with his family harmonious. Ivan's daughter Varvara, Pavlov's mother, was born in 1826 and received no formal education. The bedrock of the family was I.P. Pavlov's aunt, Mariîa, whom he remembered with kindness. She had some education, married a nobleman, and had two daughters. But after her husband left her, she lived in poverty in her father's disintegrating house. She never complained about her fate, maintained a quiet dignity, and was always willing to help the family members in sickness, distress, and quarrels (Pavlov, 1952b).

In 1848, the 25-year-old Petr D. Pavlov, married the 22-year-old Varvara I. Uspenskaia, and became a priest at the Nikolo-Vysokoi Church in Riazan' (Gureeva & Chebysheva, 1969).

Riazan' and the Riazan' Province

Riazan' was an ancient town, located about 120 miles south of Moscow, near the confluence of the rivers Oka and Trubezh. Its Kremlin was founded in 1095, and in the middle of

the nineteenth century, it had a number of architecturally distinctive churches (Bol'shaia Sovetskaia Entsiklopediia, 1955). In 1866, Riazan' had about 19, 000 inhabitants and was the capital of the Riazan' Province (Entsiklopedicheskii Slovar' Russkogo Bibliograficheskogo Instituta Granat, 1933).

An official report on the Riazan' province from 1848 to 1873 describes dismal conditions. Until their emancipation in 1861, the serfs constituted about one-third of the population of the province living on about 5, 000 estates, many of which were debt-ridden. The standard of living of the serfs, as well as that of many serf-owners, was low. The report attributes the poor agricultural productivity to an indifferent peasantry having to work on estates owned by absentee landowners. After the emancipation, few landowners had the capital necessary to modernize their estates. Nor did the living standard of the peasantry improve as they would not abandon the old agricultural methods (Povalishin, 1895). The widespread poverty was devastating to the morale of the clergy.

The Position of the Russian Orthodox Clergy in the Nineteenth Century

The Russian Orthodox clergy in the nineteenth century constituted an estate (soslovie). By custom, sons of priests were to become priests and marry daughters of priests. The social position of the clergy was low and their economic condition desperate. The degradation and poverty of the clergy can be deduced from Russian proverbs: "When the priest visits, don't be so pleased: He has come for something" or "The mouth of a wolf and the eye of the priest: never satisfied" (Russian Proverbs, 1960, pp. 23, 26). To supplement their meager emoluments unwillingly handed out to them by the impoverished parishioners, village priests worked in the fields alongside the peasants (Freeze, 1983). An official report of 1862 from the governor of the Riazan' province to the Emperor states:

> In the social sphere, the clergy of the Riazan' province does not have the standing among the other estates, that, to attain its high goal, it ought to have. Its moral influence on the masses is minimal, and if it has some [influence], then it is not because of its effort, but owing to the Russian people's religious respect for the sacred.... The town clergy's salary, or emoluments from parishioners, hardly allows them to live well (Povalishin, 1895, p. 13).

As the condition of the clergy in the eighteenth century was meager, one wonders how Pavlov's paternal grandfather Dmitrii, who was a lowly deacon, could afford to provide an education for his three sons. According to Anokhin (1949), Dmitrii lived in a relatively wealthy village; hence, he could manage. Moreover, Petr attended a church school in the town of Rannenburg on a scholarship.

When Petr graduated at age seventeen, he was admitted to the Riazan' Ecclesiastical Seminary, which he finished with honors in 1846. Vacancies were so rare that seminary graduates were lucky even to receive a priestly position in rural churches where they would live in poverty among uneducated and superstitious parishioners. However, Petr's career, possibly because of his scholarly performance, followed a different course. After teaching Greek and Latin at the Skopinskoe Ecclesiastic School in Riazan', Petr was offered an opportunity to become a priest in Riazan', provided he was married. After marrying Varvara, Petr was appointed a priest in Nikolo-Vysokoi Church in Riazan'. This was Petr's first step up the ladder of success. He was then appointed inspector of local church establishments, and

in 1866, became a member of the Riazan' Diocese Consistory. As Orthodox bishops were often moved from diocese to diocese, the members of the consistory, usually well-educated priests, wielded considerable power. In 1868 Petr Pavlov became a priest at the Lazarevokladbishchenskaia Church, that is, Lazarus Cemetery Church, where he remained for many years (Gureeva & Chebysheva, 1969). According to Babkin (1949, p.6), at the end of his life Petr was "a much-respected dean and preacher in one of the best parishes in Ryazan'" and a recipient of the Order of Saint Vladimir, fourth class. The medal was given for Petr's 35 years of service and bestowed upon the bearer the right of hereditary nobility (Hazelton, 1932). Petr passed away in 1899, nine years after Varvara's death.

The Pavlov Household

The newly married Petr and Varvara lived first in her father's house, but then bought a small, wooden house not far from the Nikolo-Vysokoi Church. On September 14, 1849, their first son was born and given the name Ivan, after his maternal grandfather. The official birth-certificate register states:

> The following testimony was received. The vital statistics register of the Nikolo-Vysokoi Church in Riazan' for one thousand eight hundred forty ninth year under No. 60 indicates: To the Town of Riazan' Nikolo-Vysokoi Church priest Petr Dmitrievich Pavlov and his lawful wife Varvara Ivanovna, both Orthodox, the son Ioann [sic] was born on the fourteenth, baptized on the 18th of September. The godparents were: Titular Counselor Pavel Andreevich Timkovskii and the lieutenant colonel's widow Elena Fomina Zakharova (Gureeva & Chebysheva, 1969, p.7).

According to Anokhin (1949), Ivan was born in the maternal grandfather's house and lived for his first fifteen years in his parents' house. The house of birth is confirmed in Pavlov's (1952b) brief autobiography.

From 1849 to 1874, Varvara gave birth to ten children. Only five survived childhood years: Ivan P. Pavlov, the next two older brothers, Dmitrii (born 1851) and Petr (born 1853), then the younger, Sergei (born 1864) and a sister, Lidiia (born 1874). The other five siblings died of childhood diseases. Another occasional occupant of the house was Petr's second oldest brother Ivan, who had a drinking problem and was in Petr's custody. Other inhabitants were family servants and seminary students who lived in rented rooms (Andreeva, 1967; Anokhin, 1949; Pavlov, 1952b).

Petr Pavlov was healthy, powerfully built and physically strong, deliberate and stable, well-educated and successful. Years later, Lidiia wrote of her father: "He had a stern, hard look, was truth-loving and independent, and often disagreed with his superiors" (Andreeva, 1967, p.318). In addition to his clerical obligations, Petr was keenly interested in his apple orchard located near the house, improved the quality of apples, and sold them to town people (Anokhin, 1949).

In contrast to Petr, Varvara Pavlov was illiterate (Pavlov, 1952b), very devout and superstitious; she "cured" jaundice by placing a live pike in a basin of water and urging the patient to look at it. During her youth, she was of a lively disposition, but after the birth of her third child her mood and behavior changed dramatically. She developed a "nervous disorder." She often had attacks of terrible headaches that covered only parts of the skull and would lock

herself in a room for days. Occasionally she suffered from a skin disorder that led to a partial loss of hair. Anokhin (1949), who describes Varvara's condition, thought that it was organic in nature. Yet she was socially ambitious; Pavlov's wife recalled that she wanted her sons to marry rich brides (Pavlova, 1946).

The economic condition of priests in towns was usually more favorable than of those in villages because the parishioners were more often wealthier. In 1863, the Riazan' province had a number of mercantile establishments, but few of them prosperous (Povalishin, 1895). Considering the economic status of the parishioners, we may assume that the standard of living of the growing Pavlov family was modest. Petr was remunerated for his clerical duties, but the sale of apples from his orchard and renting of rooms to seminary students suggests that there was a need to supplement the family income. The Pavlovs played a prominent social role in the town. According to Anokhin (1949), the household received many visitors, often merchants, which was to be expected in view of Petr's membership in the Consistory. The relatively high social standing of the Pavlovs also is indicated by the facts that I.P. Pavlov's godfather was a Titular Counselor and his godmother a widow of a lieutenant-colonel.[4]

Pavlov's Relationship with Parents and Siblings

Little is known of the interaction of I.P. Pavlov and his parents. Nevertheless, it seems that despite some tensions it must have been good. Late in life, Pavlov (1952b) wrote that his mother, not withstanding her illiteracy, was a woman of wisdom. Pavlov's sister Lidiia recalled that her mother was devoted to her family and that her children loved her. Lidiia wrote that Ivan's relationship with his mother was very warm, that he helped her with domestic chores, and that, while living in St. Petersburg and hearing that she was ill, he quickly returned to Riazan' and despaired when doctors were unable to diagnose her illness (Andreeva, 1967). Pavlov (1949, p.544) remembered his mother as very loving but thought that she mistook overprotectiveness for love. It is possible that her mental condition had a lasting effect on Pavlov; he took psychiatry courses at the University of St. Petersburg and in 1879, the examiner I.P. Merzheevskii attested to Pavlov's competence with nervous and mental disorders and in clinical psychiatry (Gureeva & Chebysheva, 1969). During the last years of his life, he studied clinical psychiatric cases.

Pavlov's relationship with his father was complex. There is no doubt that Petr contributed to his son's physical and intellectual development. Nothing better reveals Petr's achievement-oriented attitude than his favorite saying: "To work [give a lot of] time, to pleasure[give merely] an hour."[5] Petr had his own library and he encouraged his children to read. He used to say that a book should be read at least twice—in order not to miss anything important and to recall it more accurately—a habit that Pavlov retained through his entire life. Ivan helped his father in the orchard and learned to enjoy physical labor (Anokhin, 1949). Yet, there was also tension between father and son. Years later, Pavlov wrote: "...I had heated arguments with my father, which, because of my position, led to strong words and ended in serious disagreements" (Pavlov, 1952b, p.447). The nature of the disagreements is now a matter of conjecture. It could not have dealt with Pavlov's scholastic performance because, as we shall see, he was a good student and, as Lidiia writes, her father did not attach much importance to school grades (Andreeva, 1967, p.318). It is, however, likely that the issue of contention was Pavlov's religion and his plan to abandon a clerical career. Pavlov told his disciple E.M. Kreps (1967) that he lost faith at the time he was a seminary student. His father must have

defended his own belief, or at least, have found it difficult to tolerate his son's irreligious sentiments. According to Anokhin (1949), Petr opposed Pavlov's decision to study science in St. Petersburg rather than to become a priest although he had no choice but to accept the inevitable.

Pavlov's relationship with his brothers were close, yet competitive. The two younger brothers were avid hunters, while Ivan preferred competitive games. Ivan strove for domination over his brothers. Nevertheless, according to Andreeva (1967), Pavlov felt a close bond to his brothers. Years later, in 1877 or so, when his younger brother Petr was killed in a hunting accident, Pavlov took it very hard. Although he did not cry, it was apparent that he suffered greatly.[6]

Pavlov also mentions his maternal aunt, Mariia Ivanovna, who had appreciable influence on him during his youth by offering him sympathy and help. It was to her that Pavlov turned when he had disagreements with his father. She then mediated between father and son until harmony was restored. In his brief autobiography, Pavlov (1952b, p.447) honored her memory. His uncle, Ivan, the defrocked priest, who lived in the house in Petr's care, left Pavlov with vivid memories. Pavlov recalled that Ivan was "a born comedian" as well as a tragic figure. He recalled how Ivan derided social conventions and described some of his practical jokes. Once Ivan bound a calf with a long rope to a bell in the cupola. The tocsin woke the peasants in the middle of the night. Ivan gloated while they ran in panic, not knowing what had happened. Pavlov pitied Ivan, who was beaten and forced to stand outside in the cold and the rain when he was drunk (Pavlov, 1952b).

Early Memories

Pavlov claimed that his earliest memory was from the first year of his life. He was told that he was born in his maternal grandfather's house, and he supposedly recalled his first visit to the house in the arms of his nursemaid. His father at that time had bought an old house, and had the floors fixed. Pavlov said that he remembered the repairs while still in his nursemaid's arms. He also recalled a funeral procession for an uncle that passed by the house on the way to the cemetery, at which time he was carried out in his nursemaid's arms to pay last respects (Pavlov, 1952b).

Pavlov's Social Life

The youthful Pavlov had an active social life. The generation of the 1860s, living in a time of social and political reforms, was notoriously argumentative, and Pavlov was an avid debater, as he was throughout his life (Babkin, 1949). One of the favorite pastimes of the seminary students was fist-fighting with village boys. Pavlov, unlike his brother Dmitrii, did not participate, but once he did allow himself to watch (Anokhin, 1949). His favorite diversion was *gorodki*, a highly competitive game with many variants, which required considerable sensory-motor coordination. Wooden blocks were arranged within the confines of a circle or a square. The players were divided into two competing groups. From a certain distance, each player tossed a stick, trying to knock opponents' wooden blocks out of the confines. The winner was the group that knocked out the larger number of opponents' blocks (Vsevolodskii-Gerngross, Kovaleva, & Stepanova, 1933).

The desire to be foremost and best could surface even in such innocuous pursuits as gathering of berries. To show that he collected more than anyone else, Pavlov would refrain from eating any, while gathering. This spoiled half the fun. Anokhin (1949) writes that his strong desire to excel and his enthusiasm in the pursuit of a goal (traits that characterized Pavlov as an adult) were already present in the youthful Pavlov.

Pavlov's Formal Education in Riazan'

An early accident effected Pavlov's school attendance. When he was ten years old, he fell off a wall onto a brick floor and sustained severe injuries. It seemed that he would never recover. A prior, supposedly his godfather, took him into his care and imposed a strict regimen of diet and exercise (Pavlova, 1946). The recovery was slow, and he entered the second grade of the Riazan' Ecclesiastical School a year later than customary, in 1860 (Anokhin, 1949). In his memoirs, Pavlov (1952b) writes that he was taught to read by a hunchbacked woman, a neighbor who made a living teaching this skill. Then, according to Andreeva (1967), Pavlov's father prepared him to enter the second grade.

Pavlov in the Riazan' Ecclesiastical School

The Riazan' Ecclesiastical School, which Pavlov attended from 1860 to 1864, was deplorable. A report of a school inspector, written at the time that Pavlov was about to graduate, discloses its condition:

> I have suggested that he [the school principal] pays strict attention to the dull teaching...to the students' habit of learning subjects by rote without comprehending the material...to lack of attention in class, to the pranks performed on the sly, especially releasing flies to which attached are bits of fluff...to removal of dirt, and unsanitary materials from school premises (Anokhin, 1949, p.32).

Pavlov's report card, issued on July 19, 1864, upon graduation, lists the subject matter he studied as well as an evaluation of his performance. It was noted that Pavlov was very able, reasonably earnest, and well-behaved. He was fairly good in religious subjects, arithmetic, Greek and Latin languages, orthography, and very good in Slavic and Russian grammars, Russian history, and elocution. Finally, the faculty attested that Pavlov was qualified to study at the local seminary (Gureeva & Chebysheva, 1969).

Pavlov at the Riazan' Ecclesiastical Seminary

By the 1860s, the Riazan' Ecclesiastical Seminary was an old, undistinguished institution. It owed its origin to the concern of Tsar Peter the Great for an educated elite. In a decree of 1708, the Tsar ordered the children of the clergy to study Greek and Latin in schools. During the next decade, episcopal authorities were required to establish diocesan schools for the instruction of elementary arithmetic and geometry. The secular authorities of Riazan established in 1721 a school attached to the local diocese. The teaching of arithmetic and geometry was not very popular among the clergy. The Holy Synod, the supreme governing body of the

Russian Orthodox Church, appealed to the Tsar to excuse the sons of the clergy from studying arithmetic and geometry. An exemption was granted, and after 1722 children of clergy attending the Riazan' school were required to study only the Slavic language, singing, writing and the principles of the Orthodox faith. Bishop Silvester of Riazan' opened a seminary in 1724 for the sons of clergy at the St. Simeon Monastery (Agntsev, 1889).

In following decades, the seminary was in sad shape. Finances of the seminary were precarious and this had a negative effect upon both teachers and students. The curriculum stressed languages and rhetoric. Instruction required memorization and, occasionally, disputation. Students often misbehaved; rather than study, they frequently drank and fought, leading to disciplinary measures imposed by the authorities (Agntsev, 1889). In the 1860s, the authorities, concerned with the low educational level of the seminaries, introduced reforms and in 1867 the seminary curriculum was made congruent with the secular secondary schools in terms of general education. Thus, in addition to religious subjects, the seminaries provided instruction in philosophy, psychology, logic and Latin (Leikina-Svirskaia, 1971).

When Pavlov entered the Seminary in 1864, it was a small institution of about 500 students (Titlinov, 1909). Years later, Pavlov (1952a, p.441) claimed that he had received a good education there:

> I received my secondary education in the local seminary. I recall it with gratitude. We had a number of excellent teachers, and one of them—a lofty, idealistic person, was the priest Feofilakt Antonovich Orlov. In general, at that time (I do not know how it was later), it was possible... to follow one's intellectual incliniations. One could perform poorly in one subject while forging ahead in another—and no one was threatened with any unpleasant consequences...Instead, one attracted attention: perhaps the student was, after all, talented?

There is no doubt that Pavlov was a very good student. Seminary students were ranked within three categories according to their academic performance. At the end of the first year, Pavlov was officially ranked as the best student in the top scholarly category (Anokhin, 1949). In July, 1867, when Pavlov finished the fourth grade, he was considered the third best student in the highest category. In the Greek language and Holy Writ classes, Pavlov was evaluated as studious and fairly good; in logic, psychology and Latin as studious and excellent; in Russian history and French and German languages as fairly good (Gureeva & Chebysheva, 1969). This is not to suggest that Pavlov was outstanding in all respects; years later, during the June 6, 1934, *Clinical Seminar*, Pavlov said of himself:

> ...it was required for all of us in the seminary to learn to sing from notes, because clergy had to know how to sing; they [are expected to] sing and join in song. But I was considered to be a hopeless case (1955, p.188).

During this period, Pavlov made a decision of momentous import to his future: He decided to abandon the clerical career in favor of science.

The fact is that the seminarian Pavlov read a lot. Unlike many seminary students, Pavlov lived in his parents' home which gave him considerable freedom to pursue his own intellectual interests. Living at home, Pavlov was able to avoid the discipline imposed upon seminarians living in the dormitory and enjoyed uninhibited reading in a small room over the family living quarters.

Pavlov's Readings

The books that Pavlov read were primarily by foreign writers who described the latest achievements of Western science and scholarship. The books had been translated into Russian as a consequence of a policy of the Tsarist government of introducing Western culture to Russia. The content of the books was unsettling to young people by offering a *Weltanschaung* inimical to traditional values. The writings contradicted the Biblical conception of nature by suggesting naturalistic orientation. In contrast to classical curriculum of a theological school, the books presented recent achievements of science. Reading of these books was not illegal; Pavlov borrowed them from the Riazan' Public Library where they were on a list of books that the seminary faculty recommended to its students. The list is extant and there is little doubt that Pavlov voraciously read the works of Pisarev, Vogt, Moleschott, Lewes and Sechenov.

Pavlov's Reaction to Pisarev's Writing

Dmitrii I. Pisarev was a Russian writer who lived from 1840 to 1867. Pavlov's wife Serafima Pavlova (1946, p.101) wrote about Pisarev's impact on Pavlov: "With his fiery articles, Pisarev had great influence on Ivan Petrovich's intellectual development" and on February 6, 1935, the 76-year-old Pavlov recalled:

> During my attendance at the intermediate school, in the ecclesiastical academy, I and two friends of mine, fell under the influence of Pisarev. He was a critic, highly talented, possessing an immensely captivating style, etc. He did a lot to propagandize science, he had many essays dealing with this issue, and we had decided under his influence to enter the scientific section of the physical-mathematical faculty (Pavlov, 1957, p.42).

Pavlov's evaluation was accurate; Pisarev was recognized as a gifted journalist and popularizer. During the brief time period, lasting from 1861 to 1867, Pisarev wrote numerous essays on history and science which captivated the imagination of his generation. The success of his writings may have been enhanced by his sinister reputation. Born to a noble family and educated at the University of St. Petersburg, Pisarev became a political prisoner at the Peter and Paul fortress. Held in solitary confinement from 1862 to 1866, Pisarev, with the permission of authorities, wrote essays that were published in popular journals. Pisarev composed his essays in the manner of popularizers, namely, reading scholarly works and then rendering their content in a language understandable to the average reader. Pisarev's ideas were not profound, but for Russia's literate public, deprived for decades from Western thought, they were novel and refreshing. Pisarev thought it necessary to restore the dignity of the Russian people, especially that of the newly emancipated peasantry. This could best be done by abolishing poverty. He had been convinced by the English economists that wealth was the fruit of efficient labor. Pisarev thought that high levels of productivity could be achieved only by an educated populace. Although Russia's need for enlightenment was widely recognized at that time, exactly what comprised enlightenment was a matter of debate. Pisarev thought that Russia should benefit from Western knowledge by reading about its history, ideology, and scientific achievements (Solov'ev, 1894). With a journalist's grasp of the exciting and new, Pisarev (1894/1864), in an article entitled "Progress in the World of

Animals and Plants," described Charles Darwin's theory of evolution. Even though Russians were able to read Darwin's *Origin of Species* in translation, which was published there in 1861 (Koshtoiants, 1945), Pisarev's fascinating 1864 article was, according to his biographer L.A. Plotkin (1962, p.84) "one of the first attempts in Russian literature to propagandize Darwinism." The article must have fired the imagination of the 15-year-old Pavlov, who, for the rest of his life, accepted Darwin as an authority. In 1863, Pisarev (1894/1863) wrote an essay describing his experiences at the university which was by no means complimentary to existing educational practices. Yet, to Pavlov, a provincial student facing the dreary life of a priest, university life in glittering St. Petersburg must have appeared highly attractive.

Pavlov's Reaction to Vogt's Writings

Pavlov (1967) suggested that his loss of religious faith could be attributed to his youthful reading of the work of Vogt. German by birth, Swiss citizen and a Francophile by choice, Carl Vogt (1817-1895) was a luminary and maverick who attracted both adulation and denunciation. Perhaps he became rebellious when, as an apolitical student at the University of Giessen, he was suspected of radical tendencies because his two uncles were considered politically unreliable. To escape arrest, Vogt fled to France. Subsequently, Vogt studied zoology at the University of Geneva, and then became an assistant of Louis Agassiz. Vogt's research in ichthyology, conchology, littoral animals, and Ice-Age geology brought recognition sufficient for the attainment a professorship in zoology at the University of Giessen in 1847. However, a year later, Vogt became a prominent supporter of the 1848 Revolution, and, not surprisingly, lost his position when leaders of reaction triumphed. While writing books on zoology, Vogt became friendly with leading European scientists as well as with radical figures such as the anarchist M.A. Bakunin. In 1852, Vogt occupied a chair of geology and later zoology at the University in Geneva, where he taught for the remainder of his life. He was also a popular and witty propagandizer of science on German- and French-language lecture circuits. An emphatic materialist, Vogt scandalized the pious with the statement that thought is the product of the brain, as urine is the product of the kidneys! His insistence on the evolution of humans from animals made him unpopular with many clergymen; they called him "Apevogt." In Munich a large stone thrown through the window barely missed him; Vogt picked it up with the remark that this proves that we live among Stone-Age savages (Krause, 1971).

Which of Vogt's numerous books Pavlov read in Riazan' cannot be determined with certainty. Pavlov might have read Vogt's (1863) *Lectures on Man*. Vogt, who fell under the sway of Charles Lyell, Thomas Huxley and Charles Darwin, delivered the lectures upon which the book is based in Switzerland, and these were published in Russian in 1865 (Vucinich, 1988). It is an uneven but fascinating book. Occasionally snipping at the Biblical version of creation and pointing to the conflict between science and religion, Vogt gave a sound description of the method and content of physical anthropology. His idiosyncratic views must have amazed his readers. Vogt's major interest was in comparing skulls of different species as well as human races. Asserting that there was a close relationship between the physical parameters of the brain and intelligence, Vogt concluded—on the basis of sparse statistical data—that Australian and African aborigines were less intelligent than European stocks, women less intelligent than men, and children less intelligent than women. Aware of the American Civil War, Vogt proposed that the brain weights of dead Southern and Northern soldiers be compared; he hypothesized that the brains of the South-

ern whites were lighter than those of the Northern whites because slavery degrades masters as well as slaves.

Despite Vogt's flights of fancy, his irreligious attitude had, as Pavlov told the writer Maxim Gorkii in 1931, a powerful impact on him (Pavlov, 1967). Leikina-Svirskaia (1971) thinks that irreligious attitudes were common among the seminary students of the 1860s. Vogt's writings gave credence to such attitudes not only by their anti-clerical diatribes and evolutionary orientation, but through their certitude of the superiority of science over the traditional forms of knowledge.

Pavlov's Reaction to Moleschott's Writings

Pavlov also fell under the spell of the Dutch-born physiologist and popularizer Moleschott. Jacob M. Moleschott (1822-1893) studied medicine at the University of Heidelberg, specializing in chemistry and physiology. In 1847, he received a professorship at the same university where, in 1853, he established a small physiology laboratory. In 1850, Moleschott published a book on nutrition for the general public. This was followed by a number of similar books on physiology. Taking a materialistic position, Moleschott was critical of religion and shocked the public by opposing church-cemetery burials in favor of cremation and use of ashes as fertilizer! In 1854, when the University of Heidelberg Senate censured Moleschott's teachings as "immoral and frivolous, " he resigned his position. After lecturing in various Swiss and Italian universities, he was given a chair in physiology at the University of Sapienza in Rome. His contemporaries considered Moleschott a physiological-chemist of distinction. He made valuable contributions to the understanding of the function of white corpuscles in blood, to the role of the vagus nerve in heart rhythm and to the process of digestion (Grusner, 1971).

In 1861, Moleschott published his *Physiological Sketches*, which were soon translated into Russian. In 1864, this book was in the stacks of Riazan's Public Library (Gureeva & Chebysheva, 1969) where Pavlov might have borrowed it. The treatise stresses Moleschott's physiological-chemical orientation when discussing blood, nutrition and digestion, work of the circular and respiratory systems and composition of the skin. Scattered throughout the book are remarks laudatory to science. He insisted that science is the road that led to truth and to a better life for humankind. This theme pervaded Pavlov's life. In the 1920s, Pavlov described his beliefs to his disciple E.M. Kreps as follows:

> My belief is that the progress in science will bring happiness to humans. I believe that human intellect and the higher manifestation thereof—science—will free the human species of disease, hunger, hostility, and will reduce human suffering. This belief has given and continues to give me strength and helps me to continue my work (Kreps, 1967, p.131).

Pavlov's Reaction to Lewes's Writings

Pavlov also held in high regard the versatile British writer and philosopher George H. Lewes (1817-1878). The son of a well-known English actor, Lewes, after abandoning

business, medical, and acting careers, devoted himself to the study of philosophy and writing. Married to the writer George Eliot, Lewes gained fame by writing a biography of Goethe. Starting in the 1850s, Lewes wrote essays on philosophy, biology, and physiology. In 1859, Lewes published *The Physiology of Common Life* that came out in Russian in 1863 (Gureeva & Chebysheva, 1969; Lewes, 1911). Lewes (1860), gave a well-rounded presentation of contemporary physiology when writing about digestion, the circulatory, respiratory, and nervous systems. Here is an excerpt from Lewes's writing style:

> Hunger is one of the beneficent and terrible instincts. It is, indeed, the very fire of life, underlying all impulses to labour, and moving man to noble activities by its imperious demands.... Hunger is the invisible overseer of the men who are creating palaces, prison-houses, barracks, and villas.... Hunger labours at the furnace and the plough, coercing the native indolence of man into strenuous and incessant activity. (Lewes, 1860, Vol. 1, pp. 1-2).

W.H. Gantt (1973) writes that Pavlov decided to enter the University of St. Petersburg after reading Lewes's *Physiology of Common Life*. Lewes's work must have had a strong hold on Pavlov, because in the 1920s, he showed Gantt his well-worn copy of the book. So wide-ranging was Lewes's writing, that it is now difficult to determine whether Pavlov was influenced by Lewes's in some specific way. Considering Pavlov's subsequent experimental work in circulation, digestion, and the function of the brain, it may be assumed that he explored the areas under the impact of Lewes's book.

Pavlov's Reaction to Sechenov's Writings

We may surmise that Pavlov also read I.M. Sechenov's famous work *Reflexes of the Brain*. In a 1924 lecture, Pavlov (1951) mentioned Sechenov's contribution to physiology, but did not state when he first read Sechenov's treatise. He might have read it during the Riazan' years because Sechenov's treatise was, at that time, quite controversial. Sechenov (1829-1905), son of a minor Russian nobleman, studied physiology from 1850 to 1856 at the University of Moscow and then worked in the laboratories of H. Helmholtz and C. Ludwig. In 1860, Sechenov, whose work on the inhibition of reflexes in the brain had received considerable attention, was appointed to the faculty at the Medical-Surgical Academy in St. Petersburg. Three years later, a popular journal agreed to publish his paper entitled "An attempt to place psychical processes on a physiological basis, " but the government censor objected, advising that it be published in a medical journal under the title "Reflexes of the Brain." The article was published as a book under this title (Koshtoiants, 1945). In this magnificent book, Sechenov (1866) creates in a systematic way a wide-ranging psychological theory based on the mechanistic conceptualization of the reflex that was later accepted by Pavlov in terms of a Darwinian paradigm. Sechenov also influenced Pavlov's methodological position by proposing that conscious and unconscious processes manifest themselves in behavior which, in turn, is evoked by environment. By studying behavior, it is possible to determine the subjective processes. Pavlov's objective method, used years later, was based upon this proposition by Sechenov.

Requests for Admission to the University of St. Petersburg

It is possible that after reading Pisarev's description of his university experiences, Pavlov decided to leave Riazan' to study science at the university. That decision may have been encouraged by the Church's willingness—given the surfeit of seminary graduates—to transfer to the university as well as the expanding opportunities for matriculation in the latter. In 1869, I.P. Pavlov took the first steps necessary to be admitted to the University of St. Petersburg. His application must have also been spurred by a recent administrative decision allowing seminary students to enter the university after four years of seminary study and the requirement of passing an entrance examination (Anokhin, 1949; Leikina-Svirskaia, 1971). Pavlov asked the Seminary authorities to grant him the exemption and issue him a certificate of attendance. On September 16, 1869, the Seminary authorities decided to release the applicants from the Seminary so that they might pursue a university education:

> It is resolved: according to the request of the named students, to release them from the seminary, giving them certificates of achievement pertaining to the period of their study in the seminary (Gureeva & Chebysheva, 1969, p.12).

On June 13, 1870, the Seminary issued Pavlov a certificate of attendance stating that his scholastic performance in a variety of subjects ranged from fairly good to excellent (Gureeva & Chebysheva, 1969).

Having received the necessary documents from the Riazan's school authorities, Pavlov faced the formidable task of being admitted to the University of St. Petersburg. Pavlov requested a letter from the church welfare authorities stating that his father had not the means to support him at the university—that he be declared indigent. A letter written by the welfare official Kharlampii Romanskii, dated August 6, 1870, stated:

> ...the priest Pavlov, having few resources to support his family, is unable to deposit at the University of St. Petersburg the required fee so that his son may hear lectures, if that University admits him (Gureeva & Chebysheva, 1969, p.13).

According to Mozzhukhin and Samoilov (1977), the letter contained the information that Petr's yearly income was about 300 rubles, a meager sum, on which he had to support a large family. They claim that the welfare official's letter was inaccurate because Petr's income was much higher. They also claim that Petr refused to support his son's university education because he disapproved of the decision not to pursue a clerical career.

Pavlov also asked the seminary authorities for a certificate of good conduct. According to Anokhin (1949), it was the task of an inspector, who relied heavily upon denunciations, to observe and to report on students' behavior. In response to Pavlov's request, Petr Losev, the seminary inspector, wrote a certificate attesting to Pavlov's political reliability. On August 7, 1870, Losev attested that Pavlov:

> ...always expressed in his behavior good moral attitude and diligence in studies. Thoughts contrary to the Christian religion and harmful toward the government, I have never noticed in him (Gureeva & Chebysheva, 1969, p.13).

Losev's testimony is remarkable considering that Pavlov had lost his faith a few years before. Pavlov must have been discreet when expressing his position on religious matters, but

in view of subsequent episodes, where his fearlessness in expressing his views caused difficulties with authorities (Pavlova, 1946), this youthful reticence seems uncharacteristic. It is possible that, despite the system of informers, Losev may have never heard anything derogatory about Pavlov; or if he had (out of consideration to Petr Pavlov), he decided not to report the son's attitude toward the Christian doctrine.

In August of 1870, Pavlov requested that the rector of the University of St. Petersburg, K.F. Kessler, admit him to the Faculty of Law:

To His Excellency
Full State Councilor,
Rector of the Imperial University of St. Petersburg,
Karl Feodorovich Kessler

request of
Ivan Petrovich Pavlov

Having completed the full course of general educational studies at the Riazan' Ecclesiastical Seminary, I humbly request Your Excellency to accept me as student at the University of St. Petersburg in the class of the Faculty of Law. Enclosed is: a certificate of scholastic achievement and conduct, a copy of the birth-certificate, list of service of my parent, the town's of Riazan' Lazarus Cemetery Church, priest Petr Dmitrievich Pavlov from 1869 on, a certificate of indigence issued by the welfare official, a certificate of the inspector in regard to my conduct. August day 1870 year. Signed by Ivan Pavlov (Anokhin, 1949, p.61).

It is surprising that Pavlov, so much interested in physiology, applied for admission to the faculty of law at the University of St. Petersburg. Anokhin (1949) implies the reason; the government was by no means happy with the flight of seminarians to universities. He suggests that Pavlov employed subterfuge in applying to the law faculty so as to side-step the regulations made to deter students from seeking education in science. More plausible is Mozzhukhin and Samoilov's (1977) claim that by applying to the Faculty of Law, Pavlov was attempting to circumvent the required examination in mathematics as the instruction in seminaries of this subject was inadequate.

Pavlov must have received admission to the University because on September 1, 1870, the inspector of students at the University of St. Petersburg issued Pavlov a permit to live in the capital (Gureeva & Chebysheva, 1969). On September 10, 1870, in a letter to the rector of the University, Pavlov requested a transfer from the law to the science faculty:

To His Excellency,
Mr. Rector of the Imperial University of St. Petersburg

From the Student of that
University's Faculty of Law
freshman Ivan Pavlov

request

Having resolved to study natural sciences, humbly request Your Excellency to transfer me from the Faculty of Law to the department of science of the Physical-Mathematical [Faculty]. 1870 year, September 10.

Student Ivan Pavlov

[The request was granted in the following note]: [On] 17 September 1870 year has been decided: transfer Pavlov to the freshman year of the science class (Anokhin, 1949, p.63).

On September 15, 1870, Pavlov requested the University rector to excuse him from payment of student fees. By the end of September, Pavlov was already attending courses at the University of St. Petersburg (Gureeva & Chebysheva, 1969).

Notes

1. W. Horsley Gantt's biography of Pavlov, given in his 1928 translation of I.P. Pavlov's *Lectures on Conditioned Reflexes*, Vol. 1, was based upon the article by V.V. Savich (1924).
2. When, shortly before his death, I.P. Pavlov visited Riazan', P.K. Anokhin was at his side. After Pavlov's death in 1936, Anokhin returned to Riazan' intending to obtain as much as possible knowledge about Pavlov's Riazan' years. Anokhin interviewed Pavlov's relatives and friends and consulted archival materials on the Pavlov family. In view of the current policy of the Soviet Union to restrict Western scholars' access to archives containing Pavloviana, Anokhin's writings are the best single source on I.P. Pavlov's childhood and youth.
3. It is likely that Ivan was a fist-fighter while attending the Riazan' Ecclesiastical Seminary. In the first half of the nineteenth century, such fist-fights were popular in Riazan'. Although seminarians were strictly enjoined from participating in fights, they nevertheless did so. See D. Agntsev (1889).
4. There is some controversy about Pavlov's godfather. According to N. M. Gureeva and N.A. Chebysheva (1969), the godfather was P.A. Timkovskii. The position of a Titular Counselor was the lowest within the hierarchy of the powerful and prestigious Tsarist civil service. On the other hand, Babkin (1949) writes that Pavlov's godfather was the Abbot of St. Trinity's Monastery, near Riazan', and that he had "great spiritual influence" over the young Pavlov. Babkin also states that I.P. Pavlov failed to mention the abbot in his biographical sketches, but that he, Babkin, received this information from Pavlov's wife. As Gureeva and Chebysheva worked from primary sources, their claim that Timkovskii was Pavlov's godfather is more trustworthy than Mrs. Pavlova's story. This, of course, does not preclude that the abbot had some influence on Pavlov. Gureeva and Chebysheva write that Pavlov's godmother was E.F. Zakharova, and it may be assumed that her social prestige as a widow of a lieutenant-colonel of Nicholas I.'s armed forces in a small provincial town was high.
5. It was a Russian saying: "Delu—vremia, potekhe—chas" (Andreeva, 1967, p. 318).
6. Pavlov's reaction to his brother's death is described by Andreeva (1967). However, in 1877, she was only three years old, and her description of Pavlov's behavior must have been based upon other people's observations.

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