

REVIEW ARTICLE



Influence of Sociocultural Factors on Formation of V. I. Vernadsky's Personal Qualities

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A – Study design;
B – Data collection;
C – Statistical analysis;
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E – Manuscript preparation;
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¹ V. I. Vernadsky Taurida National University, Ukraine**Received:** 28.05.2020; **Accepted:** 25.06.2020; **Published:** 30.06.2020**Background and Aim of Study:****Abstract**

The article deals with the process of formation of the outstanding scientist V. I. Vernadsky's personality.

The aim of the study: to research the main factors of the environment that influenced the development of V. I. Vernadsky's personality in his childhood and adolescence.

Material and Methods:

Theoretical and biographical methods have been used in the article. The preconditions for the formation of the outstanding scientist's personality have been analysed. The research focus is on the writer's environment. Attention has been paid to the macro environment of Volodymyr Ivanovych as the intellectual network of the Vernadsky family.

Results:

The analysis of social, political and economic problems of society which influenced the formation of the outstanding scientist's personality and his views has been presented. The influence of the main institutions on V.I. Vernadsky's development has been analysed. The research focus is on the scientist's family environment. Attention is paid to Vernadsky's microenvironment. The educational conditions that can be effective in the formation of a personality's scientific thinking have been analysed. As a result, the main factors affecting the personality's development during university studies have been found out. The factors that influenced the formation of scientific talent in Vernadsky's ordinary life have been studied. It has been revealed that the formation of a worldview mainly depends on general behavioural factors and rules that exist in a society or a group of people where a personality grows.

Conclusions:

The main macro-factors that influenced the development of the outstanding scientist's personality were the following: a noble origin; the intellectual network of the Vernadsky family; the influence of prominent scientists who taught at university; social activity of the advanced part of society. So, micro and macro environments are an important factor in the conditions of which an individual develops.

Keywords:

V. Vernadsky, personality developing environment, socio-political situation, worldview, society

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Introduction

The relevance of a personality's development exists outside of time. Both today and in the past centuries scientists were preoccupied with this issue. The role of a talented person in the development of society is essential. A high-level specialist cannot only make a certain contribution to the development of the sphere but also open up new paths in both scientific and philosophical knowledge of the world. Of course, these searches are not easy and must be carefully prepared. There arises a question of studying talented scientists' environment in order to extrapolate the main factors into a personality's development.

Studying various societies, scientists came to the conclusion that the social environment affects the development of an individual's creative abilities and potential. Features of interaction form certain requirements for a person and create conditions for the development of an individual's qualities which are in demand by this particular stage of development of the society. That is, during the study, self-development in the process of life an individual's natural abilities develop in accordance with the requirements of society. An important factor is personal activity during the learning process and creative activities. This expands the boundaries of the tasks and goals that an individual set for himself or herself.

According to Sysoieva (2006), the formation of a creative personality as a conscious social being takes place sequentially, becoming more complicated in accordance with the stage of development in an accessible system of social relations. So, a personality's development goes through certain phases which have life features, corresponding structure of mental activity, level of development of the substantive, motivational and operational aspects. A gradual transition from one phase to another occurs in accordance with the laws of a personality's development. However, each person goes through these phases in his or her own way, depending on the social conditions of life, the presence of a developing environment and problematic training. However, it should be noted that each previous phase prepares the next one, the previous state of the personality turns into a new one, and these transformations are irreversible.

Kryvokon (2007, p. 11) admits that "formation of a personality is a complex process of acquiring and transforming individual socio-cultural and socio-typological qualities of society, socio-professional groups and the corresponding mentality for implementing individual and social life strategies based on the accentuation of the deployment of individual components of nature and a person's psyche by targeted and indirect influence of the social and information space on an individual's consciousness, lifestyle and activity, value orientations and the civic position". He notes that a personality's social formation can be determined by three groups of factors: natural, sociocultural and individual-personal. Natural factors are the environment in which the individual is located and where the development of his biological, social and spiritual nature (cosmic, biospheric and geographical) takes place. Sociocultural factors are economic, social,

political and spiritual ones. They are distributed depending on the level of organization of society at the mega, macro and micro levels. The mega-level includes sociocultural factors: economic, social, political and spiritual processes of the existence of mankind as a whole. The macro level of sociocultural factors includes economic, social, political and spiritual processes of the life of a particular society. The micro-level of sociocultural factors concerns the personality's living conditions of the individual, the state and characteristics of the professional, social and spiritual processes of life of specific groups (Kryvokon, 2007). In our opinion, it is very useful to study the conditions and experience of prominent scientists' development. Vernadsky's life and scientific path were studied by biographers and historians. In recent years there have been scientific works examining mainly his contribution to science. As for Vernadsky's life, the works of Sytnyk and Bevz (2017) are dedicated to the historical perspective of the outstanding scientist's life and activities. Volkov and Kulikova (2007) consider his legacy in terms of "awakening of the Ukrainian nation". Posokhov (2002) analyzes his views on the "university issue". However, psychological studies of a personality's development, the formation of V. I. Vernadsky's views were not in the focus of scientists' attention. In previous articles we analyzed the phenomenon of V. I. Vernadsky's scientific talent (Vynogradova, 2019). However, it is necessary to study the conditions of V. I. Vernadsky's sociocultural environment which influenced the formation of the scientist's personality and his scientific thought.

The aim of the study. To investigate the main environmental factors that influenced the development of V. I. Vernadsky's personality in his childhood and adolescence.

Materials and Methods

In order to study the conditions for the formation of V. I. Vernadsky's worldview we applied the biographical method. It should be noted that in this study this method is used to determine socio-political factors, family influences, the university environment which were systemic and forming ones for the scientist's views. We focused on the study of the formation of the future scientist's personality in the context of historical events, the features of their individual being and relationships with immediate circle which had a special influence on the formation of life programs and scenarios of the development of V. I. Vernadsky's personality and worldview.

Results

We have made a theoretical and historical analysis of V. Vernadsky's life. The conditions in which young people formed in the 19th century did not differ much from those in which their parents grew up. Sociocultural influences on the personality were quite stable. Parents' experience helped their children. So, the elders' adaptiveness to living conditions helped young people socialize, obtain education, profession and adopt the values of the older generation (Tytarenko, Zlobina, & Liepikhova, 2012).

V. Vernadsky had glorious ancestors who were devoted to Motherland and fought in B. Khmelnytsky's host for Ukraine's independence and were in Zaporizhzhya Sich. The Vernadsky family lead their genealogy from Ivan Nykyforovych Vernadsky (1729–1732 birth year – 1813 death year). After the liquidation of the Zaporizhzhya Sich, he moved to Chernihiv province governorate. There he was elected a priest in a large village of Tserkovshchyna, Berezhansky district in Chernihiv governorate. V. Vernadsky wrote such lines about his great-grandfather: "He was a proud man, rather well-educated ... however, he was a notorious despot both in the family and in relations with others" (Vernadsky, 1988a, p. 18). This was clearly manifested in relation to his son (V. I. Vernadsky's grandfather) whom he wanted to force to become a priest or a military man. Grandfather, Vasyl Ivanovych Vernadsky, was a modest man and sought to become a doctor. For his dream he fled from home and came on foot to university in Moscow. There he wandered heavily for some time without money but subsequently made his way. Vasyl Ivanovych graduated from Moscow Military Medical Academy, received the title of military doctor. He also went through a large number of military campaigns in the armies of Suvorov and Kutuzov. During the war with Napoleon he was captured, and this had significant influence on him. However, he treated both Russians and French in the hospital. For his humane attitude to patients of various nationalities Napoleon Bonaparte awarded Vasyl Ivanovych the Order of the Legion of Honor of an officer degree (Sytnik & Bevez, 2017, p. 11). Kateryna Yakivna (wife of Vasyl Ivanovych) was with her husband in military campaigns. V. Vernadsky wrote about her: "Grandmother is Korolenko, she is from a great family full of intellectual interests – like ours – not from the Cossack leaders but from the serving nobility" (Vernadsky, 2010). So, on his grandmother's side Volodymyr Vernadsky was a relative of the writer Korolenko.

After the war Vasyl Vernadsky lived in Kyiv where he led an active life. He was a member of the circle of Masons whose head was Pilecki. The main idea professed by the members of the Order of Masons was the dream of creating a single human community: "The whole world is one big Republic." The main Masonic slogan was: "Freedom, Equality, Brotherhood." At the beginning of the XIX century Masonic lodges operated in Kyiv, Zhytomyr, Odesa, Kharkiv, Poltava and Lviv. Their members were representatives of the intelligentsia: doctors, architects, writers, merchants and representatives of senior-gentry families (Arkas, 2008). The ideas of the Slavic Federation, in which Ukrainians would be equal among equals, were spread among Ukrainian Masons. Also known was Kyiv "Lodge of the United Slavs" which existed in 1818–1822. However, in 1822 the government prohibited the activities of Masonic lodges, and their members were persecuted. Also a member of this society was a close friend of Volodymyr Vernadsky's grandfather and grandmother – Dr. Christian Bunge. He was the father of the Minister of Finance and later a member of the State Council. It should be noted that Freemasonry also influenced Volodymyr Vernadsky's father (Sytnik & Bevez, 2017).

Father Ivan Vasylyovych (1821–1884) was born in Kyiv. He graduated from the University of St. Volodymyr where he later became a professor of political economy and statistics, had a doctoral degree in historical sciences (see Figure 1).



Figure 1. Ivan Vasylyovych Vernadsky (1821–1884), father.

Ivan Vernadsky believed that political economy had, first of all, to study human needs and means of satisfying them. He divided all needs into two parts: the desire for self-preservation and for improvement. The struggle of these two needs creates, from Ivan Vernadsky's point of view, a human person. Undoubtedly these views had a great influence on the development of the personality of his son Volodymyr.

Ivan Vernadsky was actively engaged in scientific and social activities. It should be noted that he belonged to a cohort of progressively thinking intelligentsia. He was fluent in several European languages, highly valued culture and science. He was a supporter of the introduction of democratic constitutional rule in the country. Five years before the abolition of serfdom, he gave free to his peasants (Vynohradova, 2020). In 1861, Vernadsky opposed landlord tenure and agrarianization of the Russian Empire and the concept of "communal socialism" by Mykola Chernyshevsky. A controversy developed between them on the pages of the *Sovremennik* and *Economichny Pokazhchyk* magazines (Sytnik & Bevez, 2017).

The first wife of Ivan Vasylyovych was Mariya Mykolayivna Shygayeva, the daughter of the famous Russian economist Mykola Shygayev. She was the first female economist in Russia and quite actively defended women's rights. According to the memoirs of contemporaries, she was an intelligent woman and had a great influence on her husband. However, she died at a young age from an illness. They had son Mykola.

The mother of Volodymyr Ivanovych, Anna Petrivna Konstantynovych (1837–1898), was a cousin of Mariya Mykolayivna and also came from a senior noble family (see Figure 2).



Figure 2. Anna Petrivna Vernadska (1837–1898), mother.

Vernadsky (1988b, p. 22) wrote: “My mother was born in Kyiv in a landowner’s family which already consisted almost exclusively of the military. Her father, an artillery general, was a serviceman but he was a good man, judging by the stories, an original type of the old Ukrainian Cossacks (he spoke mainly Ukrainian)”. Anna Petrivna studied at Kyiv General Levashov private boarding school and dreamed of becoming a singer. However, her mother was against it. After a while her father died and she had to work as a class mistress at the Institute of Noble Maidens. Vernadsky (1988b, p. 22) recalled his mother: “In early years my mother was a daring girl. After her father’s death she decided to sustain herself and entered an institute in Moscow as a class mistress. There she did not work long. Having great musical abilities and an extremely strong voice, she sought to perform on stage, but her mother opposed this. Subsequently she came to Petersburg, where she also gave lessons and participated in the famous choir of composer Balakirev ...”. The family of Anna Petrivna also had Polish roots. V. Vernadsky believed that parents in their families felt the enormous influence of Polish culture. This was seen in observance of the customs of the holidays of Right-Bank Ukraine which were followed by the mother of Volodymyr Ivanovych, in Polish dishes prepared by grandmother (Onyshchenko, 2011).

Vernadsky (1988b, p. 22) described in detail the events with prominent figures of that time. In particular, he noticed that his mother’s uncle, Gulak, was a member and “one of the leaders of the secret Ukrainian society – Cyril and Methodius, headed by Shevchenko, Kostomarov and others”.

Volodymyr Vernadsky was born in 1863 in St. Petersburg. At this period the leading figures of the Cyril and Methodius Society returned from exile and continued their national activities in the cultural and educational movement. In the 60s in Kyiv, Kharkiv, Poltava and other cities the liberal and democratic

intelligentsia began to unite in amateur semi-legal organizations called communities. The community did not have specific programs and charters. All of them were united by the national Ukrainian idea on a democratic basis.

Five years later the Vernadsky family moved to Kharkiv. This environment influenced the young Volodymyr and the formation of his worldview. Ivan Vernadsky (Volodymyr’s father) maintained relations with prominent figures of Ukrainian and Russian culture, representatives of democratic thought, namely with Shevchenko, Granovsky, Lavrov, Kavelin, Solovyov, Bunge, Maksymovych and others. During this period, the Vernadskys were often visited by Professor of Kharkiv University Kachenovsky (1827–1872) who was a lawyer, historian, friend of the Vernadsky family, and by writer Alchevska. In his diary, Volodymyr Ivanovych recalled an interesting incident that occurred at their home: “Father and Kachenovsky ... talked about the Garibaldians and the Franco-German war which I was interested in. Suddenly my father called me and told Kachenovsky: “My father thought that I would live to see the constitution, but I don’t think so, but I’m sure that Volodya will live in a free country” (Vernadsky, 2010, p. 247).

Volodymyr Ivanovych spent almost eight years in Kharkiv (1868–1876). During these very years that V. Vernadsky’s attraction to Ukrainian culture developed. Ukrainian song sunk into his child soul. “My father loved Ukrainian songs very much, and my mother sang them beautifully.” Anna Petrivna Vernadska had a wonderful mezzo-soprano. In Kharkiv, according to the memoirs of Volodymyr Ivanovych, “she organized choirs, windows opened and beautiful Ukrainian songs were heard” (Vernadsky, 1922). In 1873, when Volodymyr was ten years old, he entered the first grade of the First Male Kharkiv Gymnasium (see Figure 3, 4). He studied there for two years, although he did not like studying.



Figure 3. Volodymyr Vernadsky – gymnasium pupil.



Figure 4. The former building of the First Gymnasium in Kharkiv.

In 1876, after the family moved to St. Petersburg, Volodymyr entered the third grade of the gymnasium. And in 1881 he finishes it the ninth in the outstanding graduation. Among the graduates of the gymnasium were Professor Krasnov, physicist Tyurin and others. But there were sad circumstances: six months before the graduation his father suffered a second stroke and he gradually faded away. During the last six months Volodymyr Ivanovych did not attend gymnasium because he took care of his father together with his mother. Despite this, the same year he entered St. Petersburg University.

Teaching scientists inspired him deeply, and at the beginning of his career he decided to devote his research to subjects of soil science, mineralogy, crystallography and general philosophy – dealing with the problems of natural sciences and the humanities. From the third year V. Vernadsky specialized in crystallography and mineralogy and was influenced by Mendeleev who taught inorganic chemistry (Gumilevskij, 1967, p. 29). However, no matter how significant was the influence of individual courses, lecturers, interesting conversations, casual encounters, a real teacher of V. Vernadsky and a leader for the whole life became the founder of a completely new science in soil science, the original thinker Vasylyovych Dokuchaev (Gumilevskij, 1967, p. 30).

Dokuchaev taught mineralogy at the university. He was distinguished by the breadth of scientific interests, the ability to generalize various materials. He had a well-developed ability to observe thanks to which he understood the nature. “During his explanations the dead and silent relief suddenly came to life and gave numerous and clear indications of the genesis and nature of the geological processes taking place in its hidden depths,” Vernadsky wrote (Balandin, 1979, p. 14).

Dealing with the problems of the natural and human sciences, starting from the third year V. Vernadsky specialized in crystallography and mineralogy and was influenced by Mendeleev who taught inorganic chemistry (Gumilevskij, 1967, p. 29).

V. Vernadsky took an active citizenship, participated in student unrest in 1882, he was elected to student

scientific and public organizations. Together with F. and S. Oldenburgs, Grevs, Krasnov, Shakhovskiy and others he created a liberal orientation circle of the Priyutino Brotherhood. Like some other members of the circle, V. Vernadsky strove for public education, collaborated in the Posrednik publishing house, in the St. Petersburg Literacy Committee.

Having entered the society, V. Vernadsky got the opportunity to communicate with future scientists, representatives of various sciences. There Vernadsky met Shevyrev, Lukashevych, Vodovozov, Ulyanov. In the circle for the study of literature for the people he developed a strong friendship with Krasnov, S. and F. Oldenburg, Shakhovskiy, Kornilov, Grevs and others (see Figure 5).



Figure 5. From left to right are: Dmitry Shakhovskoy, Andrey Krasnov, Sergey Kryzhanovskiy, Fedor Oldenburg. In the middle row: Mikhail Kharlamov, Nikolai Ushinsky, Vladimir Vernadsky. Lying: Alexander Kornilov, Sergey Oldenburg, Alexander Obolyaninov.

The characteristics that S. Oldenburg provided to each member of the circle are interesting: “Shakhovskiy is the smartest; Vernadsky is the most talented. Fedir Oldenburg is the kindest and the most affectionous. Complementing each other, the three of them would constitute a triune creature – Shakhverborg. They were linked by friendly, fraternal relations for a long time and considered these relations to be vital. Throughout their lives, the fraternity members maintained relationships which were continued by their children” (Sytnik & Bevz, 2017, p. 34). In this circle V. Vernadsky met his future wife Starytska. The society united talented youth on the basis of decency, honesty and mutual assistance. That is, the brotherhood also had a social orientation: “... first of all, they were worried about the search for a living, specific, common cause that they could do together – immediately, now” (Shakhovskoy, 1992, p. 178).

The fraternity had the following rules:

1. Work as hard as you can.
2. Consume (for yourself) as little as possible.
3. Look at other people’s troubles as at your own (Vernadsky, 1988a, pp. 6–7).

The moral principles of the fraternity were formed largely under the influence of the works by Leo Tolstoy, his ideas of goodness and truth. V. Vernadsky sincerely admired Leo Tolstoy's teachings and shared many of his doubts. However, Leo Tolstoy did not believe that science could help man find the "meaning of life", to come to terms with the inevitability of death, to justify high moral principles. It is unlikely that such ideas were close to V. Vernadsky. Unlike Tolstoy, he was convinced of scientific knowledge all his life and strove to find an answer to many questions of being based on a logical analysis of facts and true knowledge about the world and man (Balandin, 1979). V. Vernadsky wrote in his diary: "We had L. N. Tolstoy – we had a long conversation with him about ideas, the science, etc. He said that he was considered a mystic, but he was rather a mystic. And I would be glad to be one but skepticism prevents me from this. I think that Tolstoy's doctrine is much deeper than it seemed to me at the beginning. And this depth was in the following: 1) the basis of life is the search for truth, and 2) the real task is to express this truth without any concessions" (Vernadsky, 1988a, p. 7).

Studying in his second year, V. Vernadsky met officer Pokhitonov and had friendly relations with him. He was a member of the underground military organization Narodna Volya. However, it is not known for sure if Volodymyr Ivanovych knew about this. However, Pokhitonov familiarized Vernadsky with illegal literature. Later, Volodymyr Ivanovych made an entry in his diary about Pokhitonov: "He left an indelible mark on my life and had a great influence on my worldview ... I did not know a better person, deeper mind, kinder heart, and there was no person who had bigger influence on me, excluding my father and uncle E. M. Korolenko who taught his nephew to love to nature" (Mochalov, 1982, p. 33).



Figure 6. Volodymyr Ivanovych Vernadsky.

From the beginning of the 20th century, V. Vernadsky (see Figure 6) occupied a prominent place in the scientific community and political life of Russia. He maintained active scientific and personal ties with scientists around the world. The ideas of Volodymyr

Vernadsky played an outstanding role in the formation of a modern scientific picture of the world. At the center of his natural science and philosophical interests is the development of a holistic doctrine of the biosphere, living matter (which creates the Earth's shell) and the evolution of the biosphere into the noosphere in which the human mind and activity, scientific thought become a determining factor in development, a powerful force comparable in its influence on nature with geological processes. Vernadsky's doctrine on the relationship between nature and society influenced the formation of modern environmental consciousness.

Discussion

The growth period of Vernadsky during the second half of the 19th century falls on the time of the intensification of the political consciousness of progressive public figures, the active development of industry, the abolition of serfdom, economic growth, the development of culture, the awakening of Ukrainian national thought, populism, as well as the prohibition of teaching in Ukrainian, printing books in Ukrainian and the authorities' attempts to level Ukrainian national traditions. These factors influenced the progressive strata of the society to which the Vernadsky family belonged.

If we compare the economic and social situation of the family in the 19th century, it depended on which layer of society the family belonged to. The Vernadsky family came from a noble kin. It should be noted that the family is a rather closed circle of people. However, at the same time, it is an integral institution of the life of society. The family influences relations in society, the nature of all processes of social life. V. I. Vernadsky's parents had quite progressive views on the development of society, the economy and the socio-political situation as a whole. So, Volodymyr Vernadsky had the opportunity to get the best education both at home and abroad. Also, the views of the parents influenced the formation of Vernadsky's personality. In the Vernadsky family dominated the cult of the Decembrists and a negative attitude towards autocracy and serfdom. The numerical circle of progressive figures in science, economics, politics, art, etc., influenced the development of the personality of Volodymyr Ivanovych. He was fond of scientific activity but believed that a scientist cannot stand aloof from public life, be outside of it. So, V. Vernadsky, like his father, was actively engaged in scientific and social activities.

In his student years, the outstanding scientists Mendeleev, Dokuchaev and the famous writer Tolstoy had the greatest influence on shaping Vernadsky's views. Also, his teachers, among whom also were outstanding scientists Beketov, Butlerov, Sechenov and others, inspired him to research. Volodymyr Vernadsky inherited a broad scientific approach and high ethical standards.

Thus, we can say that the development of V. I. Vernadsky's personality and views was influenced by his social environment, communication with highly intelligent people in the family, a wide range of communication with prominent personalities while

studying at the university – not only with teachers but also with leading public figures.

So, Vernadsky's life values were formed under the influence of the views of the intelligentsia calling for the transformation of society. During this period, the authority of science was growing in the world, discoveries and their technical embodiments were taking place. Volodymyr Ivanovych believed in the destination of science as the main factor in society improvement. He understood that in Russia the development of science was possible only with the support of the state.

Universities as centers of science and development of society today inspire young scientists with a vivid example of the formation of the personality of the outstanding scientist V. Vernadsky and his scientific heritage (Melnik & Pypenko, 2018).

Further research will consist in the analysis of the interaction of life events, study abroad, scientific practice on the formation of their scientific position and the creation of scientific works.

Conclusions

The article first analyzes the sociocultural conditions of V. I. Vernadsky's personality formation. The development of his personality took place in an aristocratic family with progressive views. From childhood, Volodymyr Ivanovych had the opportunity to immerse himself in the atmosphere of advanced politicians and scientists. That is, the spirit of reform and innovation which was present in the family, also has a considerable influence on the children's upbringing. Of course, these factors developed the future scientist's flexibility of thinking, the courage to take risks in developing new ideas, freedom-loving views and other qualities that contributed to the formation of the future outstanding scientist's personality.

So, we can conclude that from childhood V. Vernadsky was interested in social life of both the whole country and the institutions where he had to study or work. In his children's diaries he chronicled the current gymnasium life as well as national events (for example, trials of revolutionary citizens or the facts of the Russian-Turkish war in the Balkans).

V. I. Vernadsky had the opportunity to shape freedom of thought, critical, creative thinking, both in the family circle and actively participating in social movements, and this influenced the development of his personality and talent. An inspiring example of an authoritative academic staff, their support, a high level of university education and the constant self-education of students – all this provided V. I. Vernadsky's creative talent with a professional orientation.

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