

SCHOOL HYGIENE A HUNDRED YEARS AGO

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Abstract: *The present contribution analyses a collection of period references, mainly Russian and German, of the turn of 19th and 20th centuries, formulating hygienic requirements for schools and teaching of the time.*

Key words: *history, turn of 19th and 20th centuries and school hygiene*

The present contribution analyses a collection of period references for the purpose of drawing an image of requirements for school hygiene at the turn of 19th and 20th centuries. It may be stated that the leading role in this area in Europe of the time was performed by German medical science and teaching theory.

The first German handbooks of school hygiene included a book by Rudolf Virchow entitled *On Effects of Schools on Health*, published as early as in 1870. The conclusion drawn by the book was that school attendance generally had a negative effect on health of the school children. The book listed many school-born illnesses. School attendance was found to be able to negatively affect all body organs and systems. The greatest damage to human body caused by school was found to be caused to sight, with the effect of short-sightedness. The author found out that out of ten thousand pupils and students 17 % had impaired vision, especially at grammar schools (32 %), followed by Realschule (24 %) and family-care schools (22 %). The number of students found to have impaired vision at universities increased to as much as 60 %.

Bending the head forward, in the opinion of the author, caused headaches. In Neuchâtel in Switzerland 40 % of the 731 students of the local college suffered from frequent headaches, especially girls (51 %), boys a little less (just 28 %). Nose bleeding was found in 25 % of the students, including more boys (22 %) than girls (20 %).

School was found to be the main cause of scoliosis, as 90 % of the cases of the spine disorder were found to originate from school years and correspond to the body position when writing. Spine defects were found in 30 % of all pupils.

Also breast pain and sore throat were caused by school attendance, the author thought, mainly by long sitting periods, poor ventilation and non-existence of a school yard for some running around during breaks.

Long school days, in the opinion of Virchow, also negatively affected the child

's digestive tract, mainly blood circulation in the bottom part of the belly, thus causing loss of appetite. Long sitting in one place and irregular meal times caused irritation of genitals, in the opinion of the author of the abovementioned book.

In addition, the author believed school to be a source of contagious diseases such as typhus, caused by contaminated drinking water. A child may be injured at school, in the case of insufficient surveillance over physical exercise or as a result of violence of other pupils.

The second part of Virchow's book focuses on school hygiene itself, especially quality of air, lighting, ergonomics of school desks and chairs, physical exercise, physical punishment, drinking water, rest and teaching aids, for example font size of textbooks etc.

Another German handbook of school hygiene was the book by Dr. F. Dornblit entitled *School Age Hygiene for Parents and Educators*. The book is divided to stages of school age and thus deals with pre-school hygiene, early school age hygiene, medium school age hygiene and hygiene in the final years of school education. In the case of pre-school children the book pays a lot of attention to preparation for school, nutrition, body care, clothing and games. In the case of school children the author focuses on school environment, especially air, temperature, lighting, furniture of the classroom, school hours and physical exercise. The author underlines that clothing of a school child should be light and comfortable and does not even mind light beer as part of school meal.

Basics of School Hygiene, published in 1906 by Dr. L. Kitelmann, deal with eight aspects: hygiene of school buildings, locations of classrooms, natural lighting of classrooms, artificial lighting, ventilation, cleanness, heating and overall condition of the classrooms. As for classroom location within the building the author believed that the sun should shine into the classroom for several hours every day. In his opinion rooms deprived of sunlight were not healthy. He formulated the well-known idea that the doctor visits places not visited by the sun. He recommended window orientation to the south-east, which may provide for the needed sunlight and warmth. He also accepted eastern orientation of classroom windows, providing good classroom lighting at the beginning of the school day. In the opinion of Kitelmann the morning sun provides good lighting and causes positive moods. He objected to southern orientation of the windows for this might cause excessive heat in the classrooms in the summer. He also rejected western orientation of classrooms for most winds were blowing from the west. Northern side was only suitable for drawing for no sun would come to such classrooms. From the hygienic point of view, however, windows in the northern walls were unacceptable. And yet for example in Dresden 36 % of school windows headed north, 33 % looked south and 31 % were east or west oriented.

Dr. Kitelmann also paid a lot of attention to quality of air in the classrooms, which was required by him to be equal to good outside air. In his opinion bad air in the classroom changed healthy look of the pupils to pale anaemic faces. He emphasized the necessity of regular ventilation with fresh not contaminated air from the outside.

The pupils were required to take care of body hygiene as well as cleanness of clothes and shoes. Schools were required to be equipped with showers, in England every school was equipped with a large washing room. In Hamburg pupils were ordered to wash hands before drawing lessons and before snakes. Coats, shoes, caps and umbrellas

were not allowed in the classroom. The school yard was defined as one of the greatest sources of dirt and dust in the school building.

The school was to supervise regular medical examinations of school children. The author mentioned that in the American states of Dakota and Illinois 27 % of school children had decayed teeth, while in St Petersburg in Russia the statistics reported four caries per child. The situation was none the better in Germany: in Würzburg 81 % of all pupils had caries, and the same number in Hamburg was 96 % and in Kaiserslautern even 99 %.

School heating was required to consider economic, technical, pedagogic as well as hygienic criteria. The cheapest form of heating was considered to be central heating, especially with hot air. On the basis of experience gathered by Viennese schools the author found out that central heating was cheaper than stove heating in classrooms.

He also paid attention to classroom equipment, including but not limited to school desks. He emphasized that every child spent 4 – 6 hours a day for 12 years at the school desk, which must certainly affect its physical evolution.

The fundamental handbook of school hygiene was the book by Prof. A. Burgenstein and Dr. A. Netolitzky. Their work is divided into seven parts dealing with the school building, student dormitories, hygiene of teaching, teachers' hygiene, hygiene teaching, physical exercise, illnesses and medical care at schools. The greatest attention is paid to school building, the classroom, the surroundings of the school and cleaning. The authors point out school showers in Austrian schools with particular examples of schools in Prague, Karlsbad, Ústí nad Labem, Teplice, Trutnov and Moravian Ostrava.

In early 20th century school hygiene also became an issue in Russia. One of the first writers to think about this subject was V. I. Farmakovskiy, author of the book entitled *Protection of Pupils' Health*. Like his contemporary in Germany, scientist L. Kitelmann, Farmakovskiy also paid a lot of attention to location of school building. He also considered northern walls poor sources of lighting. West-oriented buildings were considered healthier than east-oriented ones. He pointed out the negative effect of shading with neighbouring buildings in narrow streets and dark yards without sunrays. The distance of school building from the nearest adjacent house should be twice the height of the adjacent house. Schools should be built on elevated ground over dry and solid bed. An orchard and a playground were considered a very desirable part of the school. In 1897 279 Austrian grammar schools had their own playground.

The issue of location of school building was also the theme of 1st International Congress on School Hygiene held in Nuremberg in 1904. Experts held a unified view of this matter. Many experts supported classroom windows with northern orientation for even lighting. The western side had no adherents for the strongest winds were blowing from that side. Eastern side rooms were considered less harsh and sufficient sunlit. Drawbacks of the southern windows were thought to include excessive heating of the rooms.

In the opinion of Farmakovskiy the length of the classroom should not exceed 9–10 metres, for the children to see the blackboard clearly. The classroom width should not exceed 7 metres for the desks away from the window wall to be sufficiently lit. The height of the classroom was recommended to be at least 4 metres or more for sufficient light from the windows.

Classroom walls were not to be white or glossy as this damaged the sight. The author even did not recommend hanging geographical maps and paintings on the walls for any colour variety was damaging for the sight. Maps and paintings were required to be confined to the rear wall. The best flooring was thought to be dry oak parquets. The author of the book also paid attention to dust produced by blackboard wiping and stove ash collecting.

Another part of Farmakovsky's book deals with ventilation. The author reminded of the fact that stale air had effects similar to narcotics, slowing down blood circulation towards the head and the heart, thus causing overall weakness, headache and vertigo.

School administration was asked to pay special attention to classroom lighting. In the opinion of the author a classroom suffering from poor or uneven lighting greatly damaged the pupils, making their eyes strain, their heads bend low or their books held too near the eyes. The consequences of this included rush of blood to the head and eyes, weakening of the eye nerve, and short-sightedness.

The issue of optimisation of classroom furniture was subject of examination since the latter half of 19th century. In early 20th century there were already 200 types of school desks constructed in compliance with effective hygienic standards. The desks were required to allow for comfortable, relaxed posture of the whole body, without obstacles to blood circulation, breathing and nerves, with spine support and the things on the table within a correct distance from the eyes for the pupils to be able to easily perform their school tasks in the classroom (writing, drawing).

Emphasis was also laid on external circumstances of learning. Different subjects placed different demand on the pupil, the most demanding subjects being algebra, Latin and Greek.

The Nuremberg Congress on School Hygiene was also presented to Russian readers by Prof. I. P. Skvorcov in his book entitled *Hygiene of Education and Teaching*. The congress consisted of seven sessions dealing with hygiene of school building, interior hygiene, hygienic education of teachers and pupils, physical exercise, school medical care, special schools for the handicapped and youth hygiene outside school. The participants to the discussion requested removal of whore houses away from schools, prohibition of student living in one house with prostitutes, introduction of specialised supervisors over student behaviour and organisation of lectures on sexual pedagogy and ethics at secondary schools. Special attention was paid by the Nuremberg congress to physical exercise, for school was to be not only a place for acquisition of knowledge but also a place for acquisition of a sum of physical habits. The issue of family contribution to education and upbringing of children was also posed.

Another contemporary Russian author dealing with hygiene at school was A. F. Nikitin who focused on hygiene of textbooks, including standards for paper, font and print. His handbook for school doctors focused on the order of the Minister of National Enlightenment of 1905–1908 and instructions for secondary school doctors of 1905.

Examples of German and Russia publications from the period 1870–1913 allow for following development of opinions on principles of school hygiene in Central and Eastern Europe at the turn of 19th and 20th centuries and compare the opinions to our present knowledge.

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ŠKOLNÍ HYGIENA PŘED STO LETY

Souhrn: V našem příspěvku jsme podrobili analýze soubor dobové literatury, především německé a ruské proveniencie, která na přelomu 19. a 20. století formulovala hygienické požadavky na školu a školní výuku.

Klíčová slova: historie, přelom 19. a 20. století, školní hygiena