Surgical schools trace their origin to the ancient times. The Code of Hammurabi, dated around 2200 BC, contains descriptions of surgical procedures, methods of paying a doctor for performed surgeries and penalties in case of treatment failure (1). In ancient Egypt, principles of surgical conduct were described in holy books, and innovation or deviation from established principles of treatment leading to the patient’s death were subject to capital penalty. The oldest document of those times, the Edwin Smith Papyrus, is dated to 15–16th century BC. In ancient Greece, surgery was at first inevitably associated with the cult of Asclepius, the god of medicine. Around 700 BC, in Knidos, Asia Minor, the Asclepiadae founded the first secular surgical school. This was the school that produced Hippocrates (460–377 BC), known as "the father of medicine", who laid down indisputable foundation for surgery. In the collection “Corpus Hippocraticum”, created 100 years after his death, Hippocrates’s students included a number of his thoughts on the principles of surgical conduct and teaching surgery. According to Hippocrates: surgery is made by the patient, operator, assistant, tools and light... The surgeon should be taught both individually and in a group... One needs to act efficiently, gracefully, quickly, easily, cleanly and immediately... “The father of medicine” paid a lot of attention to the surgeon’s hands: the nails need to be cut to the tips of the fingers; the surgeon’s fingers need intensive exercise; the index finger and the thumb are of special importance; one needs to use both hands (2).

The turn of medieval and modern ages in Europe marks the beginning of barber surgeons’ guilds established under the patronage of Saints Cosmas and Damian, which were surgical schools of sort. In 1454, the Council of the Old City in Gdańsk, through their directive, established a surgeons’ guild. Recently, our school celebrated the 550th anniversary of this event. Starting from the 18th century, in France, Italy and Germany surgical schools emerged, associated with university teaching of medicine. The first such school, Academie Royale de Chirurgie, was established during the reign of Louis XV in Paris by a royal surgeon Georges Mareschal, in 1731 (2, 3).

In the 19th century, which was a period of remarkable developments in surgery, the most famous school was one run by a professor of the University of Vienna, Teodor Billroth – the Second Surgical Clinic at the Allgemeine Krankenhaus (Vienna General Hospital). This school played a significant role in the development of modern surgery in Europe and the United States. Teodor Billroth educated many eminent surgeons, including Jan Mikulicz Radecki (4, 5). In Poland, which at that time was under foreign occupation, the most famous surgical schools were established in Krakow and Wrocław, owing to the efforts of the aforementioned professor Jan Mikulicz Radecki and the father of Polish surgery, professor Ludwik Rydygier, who later was e.g. the head of the clinic of surgery at the University of Lviv.

What does the term “surgical school” mean? It is difficult to give an unambiguous definition. By all means, it can be said that a surgi-
cal school is a type of a non-formalized institution, a place of education and spreading knowledge, ways of thinking, norms of conduct as well as teaching excellent manual abilities, in the inevitable context of treating people (5). A surgical school is unambiguously associated with a building – a hospital, most often a university clinic, within the walls of which new generations of surgeons mature. Having achieved professional independence and “gone out into the world”, surgeons fondly recall the place where their adventure with surgery began. With time, it sometimes happens that the “old” building-hospital is destroyed, and a modern facility is built. The spirit of a good surgical school, however, stays and settles in the new conditions.

A young surgeon, who only starts learning their trade, needs a role model. The lucky ones happen upon a Tutor-Master. The Tutor-Master is not only someone who teaches them the surgical trade. He or she is an older colleague, friend, motivator, guardian, in the presence on whom the young trainee doctor feels safe. Such a person sets a good example of attitude towards the patient, and shapes the still developing personality of the surgeon, which comprises intelligence, caution, courage, diligence, conscientiousness, reliability, creativity, humility and… the ability to ask for help when it is needed (6). The special role of the tutor, not only in surgery, was mentioned by Teodor Billroth: “…one needs to distinguish medical knowledge from medical practice. Everyone can draw medical knowledge in an unrestricted way from textbooks, but this does not make them a doctor. Direct passing of the art of treating patients from the tutor to the student is of special importance here…” (4). The Tutor-Master should be a deft operating surgeon, but not necessarily the best one in all fields. This especially pertains to dynamically developing procedures of minimally invasive surgery, the mysteries of which are more easily absorbed by the younger generation of surgeons.

Like every other school, a surgical school is attended by students. Can any graduate of a medical school become a student of a surgical school? To answer this question, we need to mention the methods of choosing doctors from those applying for the difficult surgery residency. In Poland, the selection process is based upon the results of the National Medical Examination (Lekarski Egzamin Państwowy, LEP). Allowing a resident to take a surgery residency based only on their score of the LEP exam is a serious misunderstanding. Firstly, the score tells nothing about the candidate, about their abilities, interests and predisposition towards the profession. Secondly, in many cases the candidate themselves is not sure whether surgery residency is right for them. At times, their adventure with surgery is very short and ends with disappointment and parting, with the unpleasant feeling of professional failure. Therefore, it is extremely important to get to know the future student of a surgical school already during the medical studies. That is the purpose of students’ scientific clubs. They are aimed at getting to know the students’ personality as well as instilling in them passion for surgery and interest in scientific research. Reliable opinion of the supervisor of a scientific club should play a key role in making the decision of admitting a candidate to a surgical school. And one more thing. Sport! Sport teaches perseverance, consequence, ability to work in a team; it is good for both the spirit and the body. It is advisable for a candidate surgeon to do sports.

A surgeon is not a technician merely performing manual activities – he or she is an internist, who is also able to perform surgeries. This sentence has not lost its importance. Therefore, modern surgery, like few other fields, requires knowledge of fundamental science, pharmacology, pathophysiology, genetics, immunology and, above all, internal medicine. Manual abilities, extremely important in surgical practice, are largely an inborn trait. It is necessary, however, to undergo manual training, repeat certain activities in order to “train one’s hand”. A student should try to imitate their tutors. Sir William Heneage Ogilvie, an excellent English surgeon, once said: “In surgery, the majority of our knowledge is based on what we have learned from others…” (7). In addition to knowledge and surgical technique, a surgical school should offer teaching of so-called soft surgical skills, which include assessment and awareness of the situation, decision making, communication and teamwork as well as leadership.

Where can a young doctor learn the trade of a surgeon? Obviously, the most valuable place is the operating room. Mere observation of surgical procedures is not enough. It is im-
Important to assist in the procedures and perform them. While operating on his or her own, under supervision of more experienced colleagues, the young surgeon needs to feel safe. Long hours spent at the operating table, tiredness, high temperature and sometimes bluntness and brusqueness of the operating surgeon may discourage the young person, who is still learning the trade. A good surgical school, however, cannot function without strenuous work at the surgical suite.

Another element of surgical education is everyday rounding, during which one can trace the treatment process, observe the patients – improvements or declines in their condition. Preparation for the rounding, the knowledge of the patient’s medical history, test results and prescribed medicines, is essential. During the rounding the decisions are made at a higher level, but a young surgeon on duty in a surgical outpatient department, clinic or emergency room has a unique chance to meet the patient in a one-on-one situation, examine them thoroughly, take their medical history, order tests and make a preliminary diagnosis. The meaning of this direct contact with the patient in gaining clinical experience is inestimable. Another form of learning surgery is participation in interdisciplinary case conferences, during which the young trainee observes a discussion about the choice of diagnostic and therapeutic strategies, and learns the ways of constructive exchange of opinions from the older colleagues. And one final thing, in my opinion important, but neglected in the recent years – the need to participate in autopsies in an anatomy laboratory. This place, often avoided by clinicists, is intended to allow analysis of treatment failures. Participation in autopsies allows also for reinforcement of one’s anatomical knowledge. Although surgery cannot be learned only from textbooks, broadening of one’s experience every day must be supplemented with reading of literature and, if possible, participation in scientific conferences.

When writing about surgical schools, one cannot but to mention experimental surgery. The time spent in a laboratory, dedicated for instance to performing surgeries on animals, is an important element of learning surgery and the doctor’s development. Before the young trainee surgeon starts to perform surgeries on a regular basis, a laboratory will offer him excellent manual training (especially in procedures performed on small animals). An experimental laboratory is the right place for creative work, development of conceptual thinking and advancement of one’s inner discipline. Work in a laboratory offers a chance to experience a scientific adventure, especially if it leads to results appreciated in scientific journals. Unfortunately, in the recent years, there has been the tendency to neglect experimental surgery – scientific journals publish less and less original articles based on experimental studies. Undoubtedly, this is partially caused by the limited possibilities of research funding as well as by activities of animal defense organizations.

Education in every school usually ends with a final exam. Should this rule apply also to surgical schools? This matter has been discussed for decades. John Chalmers Da Costa, an outstanding tutor of surgery at Jefferson Medical College, in the first half of the 20th century said: “…Medical examinations are just tests of memorizing facts. They tell nothing about intelligence, enthusiasm, temperament, honesty, flexibility, loyalty, courage, truthfulness, ideas, views…” (7). Nowadays, some European countries, such as Spain, have decided to discontinue final exams in surgery. After a resident has met specific statutory requirements, the residency supervisor, tutor, confirms with their signature that the resident be awarded the title of a specialist. By putting their own signature, the tutor takes responsibility for their student, which translates into the tutor’s greater engagement in the process of teaching surgery. In addition, discontinuation of central exams produces substantial financial savings. I believe that the Polish surgical circles are going to face a debate on this topic in the future.

Teamwork plays an important role in the process of teaching surgery. Demonstration of the ability to work in a team is one of priorities of surgical schools. A surgeon’s success, individual interests and achievements should translate into the benefit of the whole team. The saying: “success has many fathers, while failure is an orphan” cannot be applied to surgery. A surgeon who has faced a failure (which unfortunately happens to most of us) cannot be alone with its burden – they should be surrounded and supported by a team. It is good when there is enthusiasm in a surgical
team. It is the responsibility of the Tutor-Master to constantly sustain this enthusiasm.

Should there be hierarchy in a surgical school? Improperly understood, it is associated with the so-called Prussian school. Meanwhile, hierarchy does not exclude partnership and need not mean subservient attitude, which is sometimes seen in university clinics. The traditional division into a master, journeyman and apprentice, while preserving mutual respect and trust, seems to have a profound sense. Jan Mikulicz Radecki, while assessing the Billroth’s Vienna-based surgical school, once said: “...I believe that the strength of the Billroth’s School lay in this gradation, similar to one seen in crafts, in the relation between an apprentice, a journeyman and a master” (7). Historically, Polish surgery followed the example of the hierarchical German surgery. Recently, there has been a debate in Poland regarding possible implementation of the consultation system, which is used for instance in the United Kingdom. I am afraid that this system, completely alien to the Polish mentality and the Polish medical school, might cause much confusion and would not necessarily lead to improved patient care.

In the recent years, we have witnessed a certain crisis of the surgical school and deviation from the traditional methods of teaching surgery. Training centers emerge worldwide, such as Covidien Laboratory in Elancourt or European Surgical Institute near Hamburg, where doctors are taught specific surgical procedures on training devices and animals, without any contact with actual patients. I also sadly observe that it is more and more rare for a young doctor to happen upon an enthusiastic “surgery trainer”. The Tutors-Masters, entangled in administrative procedures, have less and less time for their students, and the young doctors are forced to organize the matters associated with their residency on their own, individually planning their training process, which is encouraged by the modular system of residency.

It is worrying to witness the ongoing process of “secularization” of the surgical art. The art of treating patients, cherished for decades, is slowly being reduced to merely offering medical procedures and services. Hospitals, where financial issues play the leading role, start to be seen as “health factories”, and surgical wards resemble production lines. There is lack of time and space and even, which I regret to admit, of the inner need to give one’s attention to the patient. The time a doctor dedicates to a patient is specified by the European Working Time Directives, and managing “experts” come up with more and more interesting ideas as regards adopting treatment processes to industrial norms.

In these difficult times, it is our duty to cherish the image of surgical school as the core of surgical tradition. School, which develops in a young person not only knowledge and surgical art, but also, or rather above all, humanitarianism of the Good Samaritan. We owe this to our Tutors and Patients.

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