FORENSIC SCIENCES IN CRACOW

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ABSTRACT: The beginnings of forensic science in Poland are inextricably linked to Cracow and the Jagiellonian University. Next year marks the two hundred and twentieth anniversary of the commencement of regular lectures in toxicology and "police-law chemistry" in Cracow, given by Jan Szaster. Twenty-one years after the start of these lectures, in 1804, the first Department of Forensic Medicine in Poland was established in Cracow. During the nineteenth century, research was carried out at this department, and also at the Departments of Chemistry and Pharmacy, into how to apply the latest scientific findings and technology in the forensic field. Professorships in pathological and forensic chemistry were held by eminent scientists. The 1870's and 1880's were undoubtedly a great period for forensic sciences in Cracow. At this time there were two Departments of Forensic Medicine (in 1881 they we combined), and Departments of Chemistry and Pharmacy, oriented towards chemical and toxicological studies. In total there were 3 to 5 departments working for the administration of justice. Many eminent scientists were forensic expert witnesses during this period. Names such as Ludwik Teichmann-Stawiarski, Karol Olszewski, Leon Wachholz, Włodzimierz Sieradzki, and Stanisław Horoszkiewicz are engraved in the annals fo forensic science.

In 2004 the two hundredth anniversary of the establishment of the Department of Forensic Medicine will coincide with the seventy-fifth anniversary of the Institute of Forensic Research, a research establishment that plays a significant role in the development and promotion of forensic sciences in Poland. The Institute, which after 1941 inherited the excellent traditions of the Cracow Department of Forensic Chemistry and Toxicology, has also contributed to the revival or establishment of laboratories serving the forensic sciences at the Jagiellonian University.

KEY WORDS: Cracow; History; Forensic science.

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The beginnings of forensic science in Poland are inextricably linked to Cracow and the Jagiellonian University. Next year marks the two hundred and twentieth anniversary of the commencement of regular lectures in toxicology and police-law chemistry in Cracow, given by Jan Szaster. Twenty-one years after the start of these lectures, in 1804, the first Department of Forensic Medicine in Poland was established in Cracow. During the nineteenth century, research was carried out at this department, and also at

Fig. 1. Professor Jan Szaster.

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On the basis of historical materials, it is known that in October 1783, as a result of a thorough reform of the Jagiellonian University, the first Professor of Pharmacy at the university – Jan Szaster, a pharmacist and Doctor of Pharmacy and Medicine – began lecturing in toxicology and police-law chemistry. This date is generally acknowledged to be the starting-point of forensic sciences at the Jagiellonian University in Cracow. The lectures in toxicology and police-law chemistry were continued in the early nineteenth century by Professor Florian Sawiczewski, a toxicology expert who sat on forensic-medical and judicial-administrative commissions. The classes and scientific research conducted by Professor Sawiczewski were taken over by his two sons, one of whom was a member of staff at the Department of Forensic Medicine and the second at the Department of Pharmacy. In 1826, one of the sons published a paper on the effects of morphine acetate, based on his scientific research. This publication also described the methodology of toxicological studies on laboratory animals and focused on certain forensic aspects of poison determination.

Fig. 2. Fryderyk Hechell.

In 1834, Fryderyk Hechell was appointed to the Chair of Forensic Medicine and Police Medicine in Cracow. At the time of his appointment, Hechell was 40 years old. He had been born in Vilnius, the son of a German father and Polish mother. In 1820, he came to Cracow for the first time, and from here he set off on a journey through Western Europe.

In 1824 he paid many visits to the laboratory of Bonaventura Orfilia in Paris, and in 1826 attended forensic medicine lectures in Berlin given by J. Ludwig Casper. After taking over the Department of Forensic Medicine, F. Hechell set about introducing all the most important forensic science methods and techniques he had learned about during his travels and numerous visits to French and German laboratories. Thanks to him, forensic medicine in Cracow attained the level of leading forensic science centres in Europe.

On his initiative, professors of forensic medicine and their students were allowed to take part in autopsies – today, of course, this is normal practice, but in the middle of the nineteenth century it was not. In Vienna, for example, forensic medical doctors were, up to 1875, only observers of autopsies, which were performed by anatomist-pathologists, and before 1830 they were even ejected from autopsy halls, the argument being that there might possibly be murder suspects among them.

Professor Hechell wrote two voluminous textbooks of forensic medicine in Polish, and in 1848 he presented the first forensic medicine lecture in Polish. Up to that time, forensic medicine had been taught in Latin at the Jagiellonian University. The development of forensic medicine in Cracow was further helped by the attitude of the anatomist-pathologists, who did not treat forensic medical doctors as competitors. The skills of great anatomist-pathologists were complementary to those of professors of forensic medicine and were essential for progress to be made in this field. Ludwik Teichmann-Strawiarski turned out to be just such a pathologist. He earned his place in the history of forensic science, when, in 1853, as a third year student of medicine at Heidelberg, he noticed that blood treated with acetic acid forms characteristic crystals. We now know that these are crystals of haemin – a constituent of haemoglobin. As Jurgen Thorwald wrote in his book "Das Jahrhundert der Detektive", the discovery by the anatomist from Cracow was named "the Teichmann Haemin Test" – a tool used by all forensic medical doctors.

In 1869, for the first time in the history of the university, professors from the Law Department awarded a Doctor of Science degree in forensic medicine. A candidate had to be very brave to submit a dissertation to this department, which was renowned for its severity. However, 31-year-old Dr Leon Blumenstock, a city physicist and expert witness at the Cracow Court, possessed the necessary courage. His thesis was entitled "The influence of forensic medicine on the development of the concept of infanticide". After successfully defending his thesis, he was awarded a *veniam legendi* in forensic medicine and began lecturing in this subject to students of law. These were the first lectures in forensic medicine for law students in Poland. In 1870, a Chair of Forensic Medicine was established at the Law Department, independent of the one functioning from 1804 at the Medical Faculty. In 1881,

Fig. 3. Dr. Leon Blumenstock.

both chairs were combined and Leon Blumenstock was appointed to the new Chair of Forensic Medicine.

Since the Hechell years, forensic medicine in Cracow has been a part of European science, developing along similar lines and being conditioned by similar factors to forensic medicine in other European countries. The 1870's and 1880's were undoubtedly good years for the forensic sciences in Cracow. There were two Departments of Forensic Medicine, and Departments of Chemistry and Pharmacy, both of which were oriented towards toxicological and chemical research. In all, 3–5 university departments were working for the administration of justice.

Besides forensic medicine, toxicology and forensic chemistry have also played a very significant part in the development of forensic research in Cracow. In the years 1833–1851, the Departments of Chemistry and Pharmacy were merged, which, in this period, had a beneficial effect on these disciplines. After their separation in 1851, research and expert reports for courts were carried out at two independent departments, where lectures were also given in forensic toxicology and forensic chemistry. In addition to the existing Department of General Chemistry at the Faculty of Philosophy, a new Department of Medical Chemistry was set up in 1864 at the Faculty of Medicine. The director of the new department was Dr Aleksander Stopczański, a forensic chemist and expert witness, who gave lectures in forensic chemistry to medical students. At the same time, the Department of Pharmacy ran classes for medical students in police-law chemistry. Professor Emil Czyrniański, director of the Department of General Chemistry, also expressed interest in forensic chemistry. In 1851–1888 many eminent scientists who were also interested in forensic chemistry passed through his department. One of these was Aleksander Kryd. In 1862, he presented his Doctor of Science dissertation, entitled "Medico-Forensic Chemistry" at the Faculty of Medicine. It consisted of three parts: the first concerned poisons and recognising poisonings, the second concerned recognising dried human blood on various items and semen stains on dresses, and the third dealt with misrepresenting and adulterating food and drinks, and chemical methods of investigating adulteration.

Fig. 4. Karol Olszewski.

At this time, the frequency of cases of arsenic poisoning stimulated Cracow chemists to work on improving the routinely applied Bloxman's method. In 1876 Karol Olszewski published a paper entitled "Detection of arsenic in court investigations using an electric current" in Dissertations of the Department of Mathematical Biology at the Academy of Learning (1.III., No. 9, p. 198– 209). The author gave a detailed description of how Bloxman's Method could be improved. He constructed equipment that was smaller and more convenient to use than "Bloxman's Bell" and put forward a new analytical procedure. He changed the shape of the electrode and introduced a method for electrode cleaning (heating to a high temperature). These changes allowed determination of both arsenite and arsenate compounds. If this paper had been published in German, the method described would probably have become the leader in its field at the time. However, for reasons known only to himself, Olszewski published in Polish, which resulted in very limited access to these publications by scientists from other countries (due to the language problem). However, this meant that determination of arsenic in Cracow was for many years the best in the world.

In 1895, Professor Blumenstock was succeeded by Leon Wacholz, who had been his student and assistant for many years. As well as being appointed to the Chair of Forensic Medicine, Wachholz also took over Blumenstock's lectures at the Faculty of Medicine and the Department of Law. Only a year earlier, Leon Wachholz had presented his Doctor of Science thesis on the subject of "Determining the age of a corpse on the basis of ossification of the humerus", which had been inspired by Professor von Hoffman, when Wachholz worked under him in Vienna. After receiving his Doctor of Science degree at the age of 27, he delivered a lecture entitled "The relation between forensic anthropology and moral insanity", which attracted so many listeners – among them professors of medicine and law, students from many departments, prosecutors, judges, and lawyers – that the biggest university lecture room in Collegium Novum was unable to seat all of them.

Immediately after appointment to the chair of the department, Wachholz began work on carbon monoxide poisoning. The result of his study was

a new, sensitive method for determination of carbon monoxide in autopsy material. A paper describing the method was published in 1896 (written by Wachholz and his assistant Sieradzki) in Polish, German and French. The method gained recognition in scientific literature and was accepted into laboratory practice in many countries; it became known as the "Wachholz-Sieradzki Test". Amongst eminent professors who used this test were: Professor Rasschkes in Vienna, Professor Strassman in Berlin and Professor Mita in Tokyo.

After Poland gained independence in 1918, Wachholz's students were appointed to chairs of forensic medicine in many polish cities: Włodzimierz Sieradzki in Lvov, Stanisław Horoszkiewicz in Poznań, and Jan Olbracht in Cracow. Their students, in turn, became the next heads of departments of forensic medicine in Poland. In this way, almost all professors and scientists today in the field of forensic medicine are the pupils of pupils of … Wachholz and Blumenstock – thus Cracow can be thought of as the "cradle" of Polish forensic medicine.

Fig. 5. Dr. Jan Zygmunt Robel.

In the inter-war years, forensic science developed above all at the Faculty of Medicine, the Department of Forensic Medicine and the Department of Medical Chemistry. Dr Jan Zygmunt Robel worked in the last of these, and was also an expert witness at the Appeal Court in Cracow in the years 1912 – 1936. He lectured and set exercises in the field of toxicological and forensic chemistry. As a chemist and toxicologist, he was already considered an eminent expert in forensic research, enjoying universal recognition both amongst the legal profession (judges, prosecutors and barristers) and in academic circles, especially amongst medical doctors and chemists. It is not surprising, therefore, that in 1940 the underground authorities of the Jagiellonian University directed Dr Robel to work in the National Institute of Forensic Medicine and Criminalistics, created by the occupying Germans in place of the disbanded university departments.

On the orders of the Polish Underground, Robel became Director of the Chemistry Department of the Institute. After commencing work there, he became interested in the fate of the then defunct Institute of Forensic Research in Warsaw. This research establishment had been set up in 1929 under the auspices of the Ministry of Justice. Its function was to prepare expert reports on complex matters, both for criminal and civil courts, which it continued to do up until the first days of September 1939 (when the Germans in-

vaded Poland). When Dr Robel arrived in Warsaw in October 1940, not much was left of the property and archives of the Institute: in April 1941, these remnants were transported to Cracow. Robel organised the Chemistry Department on the basis of information in the archives concerning the Department of Toxicological Chemistry in the Warsaw Institute. Thus Robel's department became, during the Nazi occupation, a continuation of the pre-war Institute of Forensic Research, drawing on its achievements and experience and enriching them with Robel's own experiences gained from many years' work as a forensic expert and educator. This meant that a nucleus was present, around which the Institute of Forensic Research was re-established in Cracow very shortly after the German army left the town. Robel set about reviving the Institute with great passion and commitment. Thanks to his enterprise, the Institute undertook preparation of expert reports despite the exceptionally difficult post-war conditions, not only in the physico-chemical arena, but also in a significantly broader field of forensic sciences, including criminalistic techniques. Staff of the Chemistry Department formed the core of the Institute at that time; however, Robel also managed to acquire many new colleagues fairly quickly. He recruited, amongst other people: his student, the young chemist Jan Markiewicz, and judge Jan Sehn, later a director of the Institute. Dr Robel worked continuously at the Institute until his death in 1961. He was a Director of the Institute, its first Scientific Director and, in his later years, the co-ordinator of the Biology Department.

In 1949, the then Director of the Institute of Forensic Research, Dr Jan Sehn, commenced lectures in investigative techniques for students of the Law Department at the Jagiellonian University, and, in following years, conducted lectures in criminalistics. He set up and directed the Department of Criminalistics at the Law Department. His successor was his student, Professor Tadeusz Hanausek, who, in turn, was succeeded by Professor Józef Wójcikiewicz in 2001. Professor Wójcikiewicz continued to work at the Institute of Forensic Research at the same time, as Professor Sehn had in his day.

Fig. 6. Prof. dr. Jan Sehn.

The fact that the Institute continued underground activities in Cracow during World War II, and that after the war it was resurrected there, was a result not only of the political and economic conditions of

Fig. 7. Prof. dr. Tadeusz Hanausek.

the time, but also of the existence of the great intellectual and scientific potential of the professors and staff of the Jagiellonian University. Their perseverance, commitment and dedication over decades helped to build solid foundations for the development of all disciplines of forensic science. Cracow was their cradle in Poland and has remained an important centre to this day.

Currently in Cracow, apart from the Institute, there are two departments in the Jagiellonian University devoted to forensic matters: the Department of Forensic Medicine and that of Criminalistics, and also a recently established forensic chemistry workshop. Courses in forensic science are run by staff of the University and the Institute for students of law, medicine, biology, chemistry and psychology. A regional police forensic science laboratory has also existed in Cracow since 1957.

References:

1. Cholewiński J., Klewska A., Paszkowska M., Wspomnienia z lat okupacji, *Z Zagadnień Kryminalistyki*, 1969, z. IV, s. 22–29.
2. Markiewicz J., Szkice do dziejów Instytutu Ekspertyz Sądowych im. Prof. dra Jana Sehna w Krakowie, maszynopis 1995, Archiwum IES.
3. Szarek B., Dzieje chemii sądowej w Uniwersytecie Jagiellońskim (do roku 1939) [niepublikowana praca magisterska, Uniwersytet Jagielloński, Kraków 2001].
4. Różycka D., Borkowski T., Dzieje Instytutu Ekspertyz Sądowych 1929–1979, Wydawnictwo Prawnicze, Warszawa 1979.
5. Thorwald J., Das Jahrhundert der Detektive, Droemersche Verlagsanstalt A.G., Zürich 1965, p. 175.
6. Uniwersytet Jagielloński, Złota Księga Wydziału Farmaceutycznego, M. Pawłowski [red.], Księgarnia Akademicka Wydawnictwo Naukowe, Kraków 2000.
7. Uniwersytet Jagielloński Złota Księga Wydziału Lekarskiego, J. Grochowski [red.], Księgarnia Akademicka Wydawnictwo Naukowe, Kraków 2000.
8. Widacki J., Stulecie krakowskich dedetyktów, Wydawnictwo Prawnicze, Warszawa 1987.