This paper presents a complete overview of the scientific, professional and social activity of a great Polish pathologist, Witold Nowicki (1878-1941), from mainly Polish-written, original sources with a major impact on mostly his own publications. The biographical commemoration of this eminent professor is not only due to the fact that he provided a profound microscopic characterization of pneumatosis cystoides in 1909 and 1924. Nowicki greatly influenced the development of anatomical pathology in Poland, having authored over 82 publications, with special reference to tuberculosis, lung cancer, sarcomatous carcinomas, scleroma and others. However, the first of all his merits for the readership of Polish pathologists was his textbook titled *Anatomical Pathology*, which was a basic pathology manual in pre-war Poland. Witold Nowicki – as the head of the academic pathological anatomy department and former dean of the medical faculty – was shot with other professors by Nazi Germans in the Wuleckie hills in Lvov during World War Two. Professor Nowicki was described as being “small in size but great in spirit” by one of his associates, and remains an outstanding example of a meticulous pathologist, a patient tutor and a great social activist to follow.

**Key words:** pre-war Polish pathological anatomy, pneumatosis cystoides, John Casimir University [Uniwersytet Jana Kazimierza], Lwów, Morszyn.

**Introduction**

This paper focuses on documentation of the life and scientific activity of a great pathologist, teacher and social activist – Witold Nowicki – on the basis of mainly Polish original sources. To reconstruct most reliably his biography and present his bibliography, we relied mostly on his own publications, which are cited here numerous times. Thus, this manuscript consists of a history of Witold Nowicki’s life, his major achievements and a description of him as a great teacher and social activist.

**Early years, education and academic career**

Witold Walerian Nowicki was born in Bochnia, Galicia, now in Poland, formerly Austro-Hungary, on 18 July 1878, and finished his life in tragic circumstances, being shot by Nazi Germans on the Wuleckie hills in Lvov at dawn on 4 July 1941 [1, 2, 3]. After he completed his secondary education at Saint Ann’s Comprehensive School in Cracow, he studied medicine to obtain an MD in 1902 at Jagiellonian University. In the same year he moved to Lvov, where he became an assistant at the Department of Anatomical Pathol-
ogy led by Professor Andrzej Obrzut. Nowicki worked there for 39 years until his death. On the basis of his scientific achievements he received a professorship in the field of pathological anatomy in 1908 [1, 2]. From 1919 he supervised the academic department of anatomical pathology at King John Casimir University in Lvov (Polish: Uniwersytet Jana Kazimierza we Lwowie: UJK). In recognition of his virtues he was elected Dean of Lvov Medical Faculty, to hold this position twice in the years 1923-1924 and 1939 [3, 4].

Scientific activity

Nowicki provided a profound microscopic characterization of pneumatosis cystoides in his publications in Virchow’s Archive titled: “Ueber chronisch entstehendes Gasblasenemphysem (Pneumatosis cystoides)” and “Zur Entstehung und Aetiology des Harnblasenemphysems” in 1909 and 1924 [5, 6]. Pneumatosis cystoides was first described by DuVernoi in XVIIIth century [7]. The merit of Witold Nowicki was the provision of both extensive microscopic and macroscopic description of these lesions in the walls of the intestines and urinary bladder [5, 6]. The histopathological hallmarks of the lesions are air-filled spaces which are intramural vesicles or cysts [8, 9]. These cavities are accompanied by macrophages and multinucleated giant cells [8, 9]. In the case of intestinal pneumatosis cystoides they are located inside the intestinal wall, particularly in the submucosa and subserosa, with a predilection for the small intestine [8, 9]. Pneumatosis cystoides can develop on the basis of various disorders of the gut, such as enteritis, inflammatory bowel disease, neonatal necrotizing enterocolitis, infectious colitis, disorders of connective tissue, diverticulosis as well endoscopic interventions, autoimmune diseases, pulmonary diseases such as cystic fibrosis, chronic obstructive lung disease, etc. [10, 11, 12, 13].

Impact of Witold Nowicki on development of Polish anatomical pathology

Nowicki greatly influenced the development of anatomical pathology in Poland, with authorship of over 82 publications [1, 2]. His Polish-written main reports included: “Growth of lung cancer in post mortem material from the Institute of Pathological Anatomy of UJK in Lvov” (1931) [14], “Pathogenesis of lung cancer” (1932) [15], “Studies on adrenal chromophilic substance of animals and humans in the course of renal disorder” (1909) [16] and “Histological pictures of scleroma, particularly at its end stages” (1933) [17]. Polish pathologists highly valued his monograph and related publications on scleroma [17, 18, 19]. However, the first of all his merits for the readership of Polish pathologists was his authorship of the manual titled Pathological Anatomy, which remained a basic pathology handbook in Poland before WWII. It was naturally addressed to medical students and doctors. The book included hundreds of drawings and many illustrative tables with diagrams, and it was edited several times before WWII [20, 21, 22]. He was also a co-author of the praised manual Histopathological Diagnosis [23]. He revealed a morphological picture of renal alterations in the course of carbohydrate metabolism disorders experimentally induced by adrenalin in 1912 [24]. He dealt with tuberculosis in terms of both anatomical and histological aspects [25, 26, 27]. In 1913 his work titled “Superior aperture of thorax in the light of anatomical studies and its significance in apical lung tuberculosis” was awarded by the Warsaw Medical Association [27]. Nowicki was interested in many neoplastic tumors, particularly carcinomas [28, 29, 30]. He addressed the issue of so-called sarcoidotic carcinomas in 1905 [31]. He drew attention to a pituitary tumor case with acromegaly [32]. In the field of endocrine regulation, it was of particular value to report his achievements describing the functions of kidneys and adrenal glands in humans and animal species [16, 33]. He also investigated possible relationships between the adrenal glands and atherosclerosis [34]. Due to his great knowledge and interest in nephropathology he was chosen to conduct the historical analysis of the autopsy protocol of King John III Sobieski. In the result he concluded that the cause of the monarch’s death was chronic renal failure within renal and suprarenal insufficiency [35].

As director of a bacteriological analytical laboratory that investigated the causes of infectious diseases
and epidemics, he published many works on typhoid, paratyphoid and dysentery [36, 37, 38, 39].

His modifications enabled detection of the smallest possible quantity of indole produced by the bacteria as a hallmark of presence of typhus or *Escherichia coli* [40]. He described the morphological changes in the aorta after injection of adrenaline into rabbits [41]. He also conducted experiments in the organs after application of extracts of the anterior and posterior lobe of the pituitary [42]. He attempted to demonstrate the relationship between the presence of the human roundworm (*Ascaris lumbricoides*) and the incidence of liver abscesses [43]. He described a case of congenital absence of a part of the intestine [44]. Along with Stanislaw Orzechowski, he described Recklinghausen’s disease and tuberous sclerosis as lesions that appeared to be related anatomically [45]. He also studied the anatomical changes in cadavers as a result of gas poisoning from bullets [46].

Nowicki took an active part in scientific meetings, symposia and congresses [47, 48, 49]. In addition, he reported some congress topics, e.g. issues devoted to the necessity of Polish medical periodical publication [50], and the problem of early detection and management of appendicitis [51]. He also published a report about anti-alcoholic exposition [52]. Nowicki summed up the ‘Medical News’ in the forty years of its existence [53]. He was also the editor in chief of Lvov Medical Weekly and the Polish Medical Newspaper [54].

**Social activity**

Being a true social activist, he presided over the Lvov Medical Chamber, the Lvov Museum of Hygiene and the Lvov Committee against Cancer. He was involved in numerous social issues. Together with the leading pre-war Polish professor of dentistry Antoni Cieszynski, he appealed to the government for improvement of inappropriate hygiene conditions in the local dentistry department and called for establishment of a centre for training of future dentists [55]. He was interested in reasonable legal regulations for private clinics and organization of courses for medical doctors [56]. He appealed for opening the Polish Medical Association and publication of a bulletin of the society [57]. He wrote many obituaries remembering his former co-workers as well as their achievements and merits [58, 59, 60, 61].

**Prophylaxis and spa rehabilitation in the plans of Witold Nowicki – the spa Morszyn-Zdrój**

He actively fought for renovation and restoration of Morszyn-Zdrój as a health resort [62, 63, 64, 65, 66]. Thanks to his efforts, this Polish spa was modernized. Morszyn-Zdrój was the most elegant and modern health resort and spa in the vicinity of Lvov. It was a place where obesity, liver diseases, lithiasis, gastro-enteritis, nephrolithiasis and hyperacidity were treated. At that time Morszyn-Zdrój underwent many changes. In consequence, spa buildings such as salt and mud baths and numerous modern guest-houses were build. At this time of development, the resort was owned by the Association of Polish doctors in Lvov. During German occupation Morszyn was transformed into medical facilities of the army and became a military hospital.

During the night of 3/4 July 1941, Prof. Witold Nowicki and forty other Lvov professors were arrested by Einsatzkommando zur besonderen Verwendung under command of brigadeführer dr Karl Eberhard.
Schongarth, transported and shot to death at dawn on 4 July in the Wulecki Hills [3, 67, 68]. It is very important to remember these eminent representatives of Polish science, who perished in such a dramatic way during World War Two [67, 68]. One of them was Witold Nowicki. At every step of his professional activity he was calm, efficient and very meticulous. Witold Nowicki was described as being "small in size but great in spirit" by one of his associates [67].

He is still recalled as an outstanding example of a meticulous pathologist, patient tutor and great social activist to follow.

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