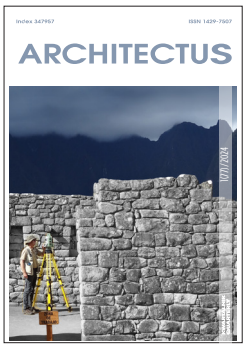

Architectus

2024
1(77)

DOI: 10.37190/arc240112

Nasi Mistrzowie/Our Masters

Professor Jacek Kościuk

A tall figure stands in front of a laser scanner. A hat, glasses, and a gently smoldering cigarette. It is Professor Jacek Kościuk working on a new research material. The location? It could be a medieval castle in Poland, the Temple of Hatshepsut or a late antique Christian pilgrimage centre in Abû Mînâ, both in Egypt, as well as Machu Picchu in Peru or a Bolivian archaeological site of Fuerte de Samaipata, and many others.

Professor Jacek Kościuk is characterized by the sensitivity of a humanist and the precise mind of an engineer. He is a person with exceptionally broad interests, ranging from the general issues, such as the theory of design, through the architecture of Wrocław and Lower Silesia, ancient and early Middle Ages Mediterranean, and pre-Columbian South America constructions to computer modelling and advanced 3D scanning methods in various fields of applications.

On the occasion of his retirement, we present the profile and remarkable achievements of our dear Master and Friend (Fig. 1).

Jacek Kościuk was born in 3.10.1951 in Mielec. He started his studies at the Faculty of Architecture of Wrocław University of Science and Technology in 1969 and remained strongly connected to our university throughout most of his academic and teaching career.

From the beginning of his studies, Jacek Kościuk was deeply interested in the history of architecture and the interactions between monuments and new buildings. During his studies, he was engaged enthusiastically in student life (Fig. 2). Ha also keenly participated in the activities of the Institute of History of Architecture, Art, and Technology, both in the field (e.g., research on the Castle in Iłża) and in conservation projects, as well as in a students' scientific movement. Having obtained his diploma in 1974, with a thesis *Residential and Industrial Units* supervised by Professor Bolesław Szmidt from the Department of Industrial Buildings Design, he started

Fig. 1. Jacek Kościuk (drawing by E. Niemczyk)

Il. 1. Jacek Kościuk (rys. E. Niemczyk)

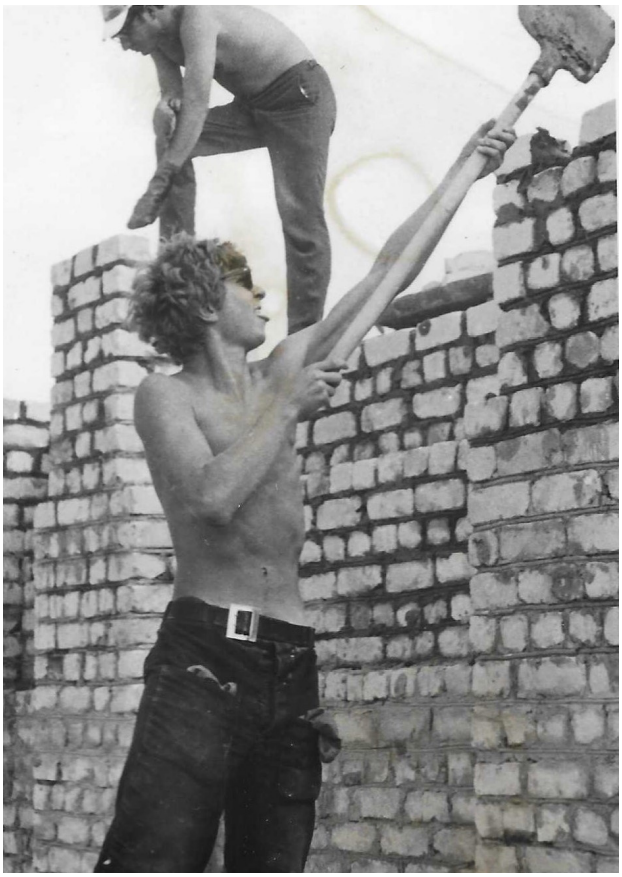

Fig. 2. Jacek Kościuk, a first-year Architecture student, during the first student exchange between Wrocław University of Science and Technology and a university in Volgograd at the Kumylga collective farm, 1970 (photo by A. Sokalski)

Il. 2. Jacek Kościuk, student I roku architektury podczas pierwszej wymiany studenckiej Politechniki Wrocławskiej z uczelnią z Wołgogradu w kołchozie Kumylga, 1970 (fot. A. Sokalski)

Ph.D. studies under the supervision of Professor Edmund Małachowicz, the director of the Institute of the History of Architecture, Art, and Technology.

During his doctoral studies, Jacek Kościuk joined the team focused on the conservation of architectural monuments. After successfully finishing the doctoral thesis *The integration of contemporary architecture in historical ensembles* on October 18, 1978, he was employed as an Assistant Professor in the Institute (now Department) of the History of Architecture, Art, and Technology with which he is still associated until now. Initially his research interests were focused on the medieval architecture in Lower Silesia, in collaboration with the Provincial Archaeological and Conservation Centre in Wrocław, and resulted in the studies of the rotunda of St. Gotthard in Strzelin, the castle in Świdnica, or Mikołajska Gate in Wrocław.

At this early stage of his scientific career, Jacek Kościuk became interested in non-invasive techniques of archaeological prospection. In collaboration with the Institute of Building of Wrocław University of Science and Technology he applied the thermovision method to detect the internal structures of walls. This approach was considered a pioneering research technique at that time. Innovative, especially non-invasive methods of measurement, testing and documentation in architecture and archaeology remains one of the central interests of Jacek Kościuk throughout his entire academic work.

The year 1981 brought a significant change to Jacek Kościuk's scientific career when he went to Cairo on a scholarship from the Egyptian Government. Due to the martial law in Poland he remained in Egypt until 1984, studying the local architecture of Late Antiquity and the early Middle Ages. These studies marked the beginning of Jacek Kościuk's long and fruitful collaboration with the German Archaeological Institute in Cairo (DAIK), which continues to this day. The foundation of this partnership was laid through research in Abû Mînâ, one of the largest pilgrimage centres of early Christianity, and a site inscribed on the UNESCO World Heritage List. Jacek Kościuk became the architect of the archaeological mission. Since 1985 he has been in charge of the research on the early medieval phase of Abû Mînâ from the second half of the 7th century and subsequent centuries. His research in this area, continued for over twenty field seasons, and resulted in numerous participations in international conferences and lectures as well as publications, including a monograph *Early Medieval settlement at Abû Mînâ* from 2009 that became the basis for his habilitation in January 27, 2010 by the decision of the Scientific Council of the Faculty of Architecture at Wrocław University of Science and Technology. The continuation of architectural research on Abû Mînâ was presented in numerous reports, articles, and another monograph *Plac Targowy wczesnośredniowiecznej osady w Abû Mînâ* published in 2019. The ongoing research on the architecture of Abû Mînâ by Jacek Kościuk was presented in numerous reports, articles, and another monograph published in 2019.

Jacek Kościuk's collaboration with DAIK extended far beyond Abû Mînâ. In subsequent years, he participated in numerous field missions in Egypt, including: the upper temple of the Snofru pyramid in Dashur (1982 and 1983, led by Professor Rainer Stadelmann); the Roman settlement within the temple complex in Luxor (1983, led by Dr. Peter Grossmann); the temple of Seti I in Gurna (1983 and 1984, led by Professor Rainer Stadelmann); the early dynastic necropolis of Umm el-Qa'ab (1983 and 1984, led by Professor Gunter Dreyer); the necropolis of El Salamuni (1984, led by Dr. Klaus Kuhlmann); and the early dynastic settlement layers on Elephantine (1984, led by Professor Werner Kaiser and Professor Gunter Dreyer). During these studies, Jacek Kościuk successfully continued his pioneering work with non-invasive measurement methods, including the usage of the electro-resistance equipment for the ground penetration, constructed according to his guidelines at Wrocław University of Science and Technology.

He supplemented his further studies of Abû Mînâ with literary research conducted in 1992 in Berlin under the guidance of Professor Wolfram Hoepfner. During this six-month scholarship from the German Academy of Sciences and Literature he also participated in field researches on the settlement of Thira Archai in Santorini and on two sea nymph sanctuaries from the archaic peri-

Fig. 3. Jacek Kościuk next to the model of the Mausoleum at Halicarnassus (photo by W. Hoepfner)

Il. 3. Jacek Kościuk obok modelu Mauzoleum w Halikarnasie (fot. W. Hoepfner)

od in Rhodes. The next research expedition, this time to Deir-Salib in Syria in 1993, resulted from collaboration with Professor Hans-Georg Severin.

In the subsequent years, he continued his research on residential architecture in collaboration with Professor Wolfram Hoepfner. Thanks to this partnership reconstructions of ancient Antioch architecture, residential homes in Priene and Kolophon, architectural orders of the Leonidaion in Olympia, and the palace in Vergina were created, using CAD software, a pioneering method in archaeology at the time.

The detailed analyses of two famous ancient edifices: the Pergamon Altar and the Mausoleum at Halicarnassus brought the most spectacular results of the cooperation between Professor Wolfram Hoepfner and Jacek Kościuk (Fig. 3). Their studies took into account the contemporary state of research and all known at the time fragments of these structures, scattered around the world. Based on meticulous studies, Jacek Kościuk created virtual reconstructions followed by models of the buildings made from artificial marble (Corian). These models were exhibited, among others, in the Metropolitan Museum of Art in New York, and currently they can be seen in the Berlin museums.

The Ptolemaic Temple of Repit in Athribis is another archaeological site in Egypt where Jacek Kościuk worked, this time invited by of Professor Christian Leiz. Starting from 2001 he participated in the preparation and then the activities of the German-Egyptian research mission financed by the DAAD grant. Being the chief architect and the main conservator of the mission he was responsible for preparing the documentation of the temple's architectural relics and their analyses followed by the temple's theoretical reconstruction. The site had to be tidied up including dismantling of the ruined parts of the temple which was accomplished by Jacek Kościuk using among others pneumatic cushions, his another innovative idea in Egypt. The works were presented in a series of articles and a monograph of the Athribis Temple.

Another turning point in Jacek Kościuk's career occurred in 2006 when, he got the grant of the *Sectoral Operational Program: Improvement of the Competitiveness of Industry* WKP1/1.4.2/2/2005/87/168/464, and opened the Laboratory of Scanning 3D and Modelling (LabScan3D) at the Institute of the History of Architecture, Art and Technology – one of the first laboratories of the kind in Poland and the first one at a university. The laboratory crowned Jacek Kościuk's long-standing interests in various methods of digital documentation and 3D modelling. Since the opening of the Laboratory, he and his team participated in numerous projects from various research fields. One of the most interesting is the documentation work on the Upper Terrace of the Temple of Hatshepsut in Deir el-Bahari, another monument on the UNESCO list, carried out as a part of the works of the Polish Archaeological and Conservation Expedition of the Polish Centre of Mediterranean Archaeology of Warsaw University (Fig. 4).

Another significant chapter in Jacek Kościuk's scientific work began in 2011 when he received an invitation to participate in the Polish studies in the South and Central America from Professor Mariusz Ziółkowski, the director of the Andean Research Centre of Warsaw University. The collaboration has continued to this day and yielded excellent scientific results within more than 10 research projects.

The participation in the *Qorikancha A comprehensive historical and architectural study of the former Sun Temple in the capital of the Inca state – Cusco* grant (2281/B/

Fig. 4. Jacek Kościuk in front on the Sanctuarium of the Hatshepsut Temple in Deir el-Bahari, Western Thebes, Egypt, 2010 (photo by Wo. Wojciechowski)

Il 4. Jacek Kościuk przed Sanktuarium Świątyni Hatszepsut w Deir el-Bahari, Teby Zachodnie, Egipt, 2010 (fot. W. Wojciechowski)

Fig. 5. Jacek Kościuk working in Machu Picchu, El Mirador, 2013 (photo by M. Ziółkowski)

Il. 5. Jacek Kościuk w Machu Picchu, El Mirador, 2013 (fot. M. Ziółkowski)

T02/2011/40) was the first one. Thanks to Jacek Kościuk's precise three-dimensional documentation of the temple, previous assumptions regarding its astro-orientation in space were verified.

The 3D laser scanning documentation of the Machu Picchu site, also listed on the UNESCO World Heritage List, was another project of exceptional significance conducted by Jacek Kościuk and his team from the LabScan3D (Figs 5–6). The project involved also specialists from Universidad Nacional de San Antonio Abad del Cusco trained in 3D scanning by Jacek Kościuk.

From 2013 onward, Jacek Kościuk, his PhD students, and LabScan3D staff began cooperating with another team of Polish researchers working in Peru led by Dr Patrycja Giersz and Dr Miłosz Giersz from the Department of Archaeology of the Americas of Warsaw University. His participation in the *Architectural research and documentation of the Wari culture mausoleum in Castillo de Huarmey* project (Fig. 7), assessed as one of the most important archaeological discoveries of 2013 by the Archaeological Institute of America, consisted in preparing documentation with structural light scanning of particularly valuable finds, e.g., a unique ceremonial *qero* cup or the skull of Wari queen which then were printed in 3D technology in Poland. During next seasons Jacek Kościuk completed the architectural documentation of the whole archaeological site including its stratification using the 3D laser scanning method as well as the digital short-range photogrammetry.

In the same year, Jacek Kościuk also initiated partnership with the Archaeological Museum in Arequipa. In the primary stage of the work, he created 3D models of over twenty ceremonial *qero* cups, which now paradoxically represent the only trace of these artefacts as they were stolen from the museum's collection. The second stage involved participation in another research project led by of Professor Mariusz Ziółkowski: *The study of the Inca pilgrimage centre Maucallacta, and The study of the Inca sanctuary in the region of Coropuna volcano*.

The successful verification of the earlier assumptions regarding the orientation and function of the *Qorikancha* as an astronomical observatory led to similar studies of other Inca structures. These investigations were conducted by Jacek Kościuk in collaboration with Professor Ziółkowski in the Inca ceremonial sanctuary *Templo de la Luna* in the Sacsayhuamán area, the Intimachay, an astronomical observatory of Machu Picchu, or *el Mirador de Inkaraqay*. Using the 3D laser scanning, digital short-range photogrammetry, architectural analyses, chronological stratification and astronomical orientation, the team proved for the first time, that the Incas were capable of conducting advanced astrological observations, including the December solstice, the June solstice, as well as the so-called lunar standstill or the Pleiades' heliacal rising. These discoveries are considered to be ones of the most important in the field of Inca's cosmology.

The outstanding achievements of Jacek Kościuk and his team in the field of pre-Columbian architectural research have resulted in invitations to participate in subsequent research projects directed by scientists from the Centre of Andean Research of Warsaw University in Cuzco: *Satellite sites in the Machu Picchu neighbourhood: Inkaraqay, Chachabamba and high-mountain lakes near Nevado Salcantay (Peru)*, led by Professor Mariusz Ziółkowski (grant NCN Opus 10, UMO-2015/19/B/HS3/03557); *Armakuna: ritual functions of Inca's "baths" on the example of the ceremonial site Chachabamba (Historical Sanctuary of Machu Picchu, Peru)* directed by Dominika Sieczkowska (grant NCN Preludium 10, UMO-2015/19/N/HS3/03626) and *Archaeological musical instruments in Polish museum collections* led by Professor Anna Gruszczyńska-Ziółkowska (grant financed by the Ministry of Science and Higher Education as part of the *National Program for the Development of Humanities*, 11H 13038282).

His next two projects extended beyond South America. Jacek Kościuk documented and investigated traces of human activity preserved in lava cave on Easter Island and

Fig. 6. Jacek Kościuk next to a Laser scanner working in Machu Picchu, 2016 (photo by A. Kubicka-Sowińska)

Il. 6. Jacek Kościuk przy skanerze laserowym podczas prac w Machu Picchu, 2016 (fot. A. Kubicka-Sowińska)

in the archaeological park of the Maya civilization in El Salvador (*Documentation of Joya de Cerén in El Salvador*), another site from the UNESCO World Heritage List.

The architectural research and comprehensive documentation of the Samaipata site (Fuerte de Samaipata/ Bolivia) under the World Heritage List project led by Jacek Kościuk (grant NCN Opus 014/15/B/HS2/01108), represents the culmination of his research in South America. The precise documentation of the *Samaipata* archaeological site with famous and very fragile petroglyphs is the major aim of the project, including the recording of the present condition of the petroglyphs. This is particularly crucial since they are prone to rapid erosion. In the light of the ongoing destruction of these historical artifacts, the documentation prepared by Jacek Kościuk and his co-workers is invaluable, being not only their record allowing to conduct further research, e.g. establishing their chronology, but also constituting a base for the necessary conservation interventions. It is also worth emphasizing how broad the spectrum of specialists from various fields and international institutions was whom Jacek Kościuk invited to collaborate within the *Samaipata* project. Scientists from the Faculty of Architecture of Wrocław University of Science and Technology, Warsaw University, Centro Italiano di Studi e Ricerche Precolombiane in Nasca, the University of Wrocław, Wrocław University of Environmental and Life Sciences, Cracow University of Technology and the Ministry of Culture of Bolivia were involved in rescuing, documenting and investigating the *Samaipata* site.

Simultaneously with the research projects conducted in South America, Jacek Kościuk was involved in several studies carried out in Poland at Wrocław University of Science and Technology. In 2015 he took part in Professor Małgorzata Chorowska's grant *The beginnings of castles in Lower Silesia in the light of research into the chronology of the construction workshop (brick, stone, mortar)* (NCN grant: 2012/05/B/HS3/03704). He also participated in a scientific consortium consisting of the Faculty of Architecture of Wrocław University of Science and Technology and the Jordahl & Pfeifer Company working on *System of modifiable prefabricated multi-level car park facilities – UniParking in bi-Concrete® technology* project financed by the National Centre for Research and Development and European Regional Development Fund. The LabScan3D staff led by Jacek Kościuk also participated in research projects of Prof. Jerzy Kaleta from the Department of Mechanics and Materials Engineering, Wrocław University of Science and Technology: firstly *Enhanced Design Requirements and Testing Procedures for Composite Cylinders for the Safe Storage of Hydrogen (HYCOMP)* and secondly *Research of the composite pontoon bridge*.

The partnership between the LabScan3D, the Police School in Piła and the Department of Forensic Medicine at the Medical Academy in Wrocław brought about one of the most interesting and innovative applications of the modern methods and techniques of documentation in the field of forensic science. The team led by Jacek Kościuk took part in research projects and prosecution proceedings which were presented at conferences and in publications. Thanks to this partnership, *Laboratory of 3D Expertise* dedicated to virtual reconstruction and examination of crime scenes, the first laboratory of that kind in Poland and the second in Europe was established

Fig. 7. Jacek Kościuk with the members of the *Castillo de Huarmey* project (photo by Archives Castillo de Hurarmey project)

Il. 7. Jacek Kościuk z członkami projektu Castillo de Huarmey, 2014 (fot. Archiwa Castillo de Hurarmey project)

at the Department of Forensic Medicine, University of Medical Sciences in Wrocław. Jacek Kościuk serves as a consultant there, and the LabSkan3D was approved by the Lower Silesian Department of the National Public Prosecutor's Office in Wrocław (File No. PK I Wz. Ds. 29.2016) as a team of experts in, among other things, procedural experiment documentation.

The impressive scientific career of Jacek Kościuk is reflected in his numerous publications and participation in many conferences. He published about 120 scientific papers including 2 monographs, a lot of articles and chapters in monographs, mostly in English. He was also the editor of 2 monographs. His publications have been and continue to be widely cited.

Jacek Kościuk took part in over 50 scientific conferences, most of them of international importance. Many times he chaired the conference sessions. In at least 8 conferences he was a member of the scientific and organizing committees and once the chairman of such a committee. In 2008 he became an external expert of the National Foresight Program Poland 2020. Since 2018 he has been a member of the Scientific committee of the journal *Teka Komisji Architektury, Urbanistyki i Studiów Krajobrazowych*, PAN Lublin.

Long and successful scientific career of Jacek Kościuk resulted in his being awarded the title of Professor in 2020. Many times he received *Rector's Award of the Wrocław University of Science and Technology* as well as *Honorary Badge of Merit for Polish Culture awarded by the Minister of Culture and National Heritage of the Republic of Poland* (2011), *Docendo Discimus special Rector's award for special achievements in teaching* (2018) and *Medal of the National Education Commission* (2018).

Working in the Institute of History of Architecture, Art and Technology, Jacek Kościuk performed many prominent functions at the Faculty of Architecture of Wrocław University of Science and Technology: director (2005–2014) and deputy director (1991–1993, 2014–2021) of the Institute; founder and director of the Laboratory of Scanning 3D and Modeling (LabScan3D, 2007–2021) and a member of 6 Faculty Committees (Program Committee, Hospitalization Committee, Faculty Development Plan Committee, Research Committee, Staff Policy Committee, Doctoral Scholarship Committee). In 2022 he retired from Wrocław University of Science and Technology and now he holds an Associate Research Fellow position at the Centre of Andean Studies of the University of Warsaw.

Alongside his academic career, Jacek Kościuk also developed successfully a professional career as an architect. In 1994, he with his wife Anna Kościuk established their own design studio ARCHIKON s.c., where he was actively working till 2005. He gained design experience while working in Poland and abroad. Throughout his professional career, he participated in 32 projects, including 17 related to monument protection, and 3 architectural competitions with one awarded the first prize and one nominated for

Fig. 8. Jacek Kościuk with students from the ArcHist students movement during workshops *Zamki i ich cienie* in Zagórze Śląskie, 2019 (photo by A. Gryglewska)

Il. 8. Jacek Kościuk z uczestnikami koła studenckiego ArcHist podczas warsztatów *Zamki i ich cienie* w Zagórzu Śląskim, 2019 (fot. A. Gryglewska)

the Proactive Engineering Award (USA) in 1996 for the *project of restoration of the White Stork Synagogue in Wrocław and the innovative use of 3D software in conservation design*. In his professional practice, he obtained many qualifications in the field of architecture and design (building qualifications for unlimited design in the architectural specialty; authorizations for design work on heritage monuments, experts' rights of the Association of Monument Conservators in revalorization of architectural heritage and MicroStation Institute Certified Instructor qualifications). As an expert Jacek Kościuk became a member of many professional and scientific organizations: the Architecture and Urban Planning Section of the Polish Academy of Sciences in Wrocław; the Association of Monument Conservators, where he was a v-President in 1994–1997 and 2010–2014; the Polish National Committee ICOMOS; Société d'Archéologie Copte; the Commission on Archaeology of Mediterranean Countries of the Polish Academy of Arts and Sciences; the MicroStation Community, where he was a founder and president in 1998–2000, the Chamber of Polish Architects; Koldewey Society; the City Planning and Architecture Commission at the Mayor of the City of Wrocław in 2003–2007; the jury of the FACADE OF THE YEAR competition organized by BAUMIT Polska in 2013–2019; and expert teams of NCBiR, NCN and Norwegian Fund in 2010–2019, Inter-American Society of Astronomy in Culture and Society for American Archeology.

His broad scientific knowledge and professional experience made him an outstanding lecturer and understanding and patient teacher. He started teaching during his PhD studies at the Faculty of Architecture of Wrocław University of Science and Technology with a course *Conservation of Monuments*. He continued his career as a lecturer teaching various classes, including a seminar *Aesthetics*, design classes *Conservation of monuments*, computer laboratory *Introduction to CAD systems*, and practical exercises *Architectural and construction documentation*.

With a team from the Institute (now Department) of History of Architecture, Art and Technology Jacek Kosciuk prepared and introduced a new specialization for students of Architecture: Monuments Protection (now Architecture and Historic Preservation). He also conducted courses for the students of this specialisation such as *Introduction to CAD systems*, *Advanced CAD methods*, *Architectural and conservation documentation*, *Generative Components*, *Laboratory of architectural and conservation documentation*, computer laboratory *Advanced methods of 3D documentation*, design classes *Conservation design* and Master's diploma seminars.

Many times he organized workshops and practices for students and PhD students in Poland (Fig. 8) and abroad. He was also a founder and a supervisor of student research circles: *DigiFabLab* and *FOCHUS*, both at the Faculty of Architecture of Wrocław University of Science and Technology.

Jacek Kościuk supervised engineering diploma works and master's theses, overseeing over 15 of the former and nearly 40 of the latter. Participating in numerous research projects, he always aimed to involve his students, doctoral candidates, and collaborators in these studies. This resulted in numerous doctoral theses that he supervised as a promoter. As an expert he also reviewed several doctoral dissertations. His students were rewarded and received grants many times. He also participated in many habilitation proceedings, also as a reviewer and a chairman.

The contacts of Jacek Kościuk with foreign scientific institutions and participating in numerous international researches resulted also in cooperation in the field of teaching. In Abû Mînâ he supervised a field practise for the students of the Faculty of Architecture at the Technical University of Karlsruhe. This partnership continued in Poland in a joint scientific project organized for Polish and German researchers and students on wooden churches of Lower Silesia. Jacek Kościuk taught also students from of classical archaeology the Free University of Berlin the use of CAD techniques in archaeological documentation.

Participating in many international scientific projects and broad cooperation with researches working on pre-Columbian architecture resulted in many invitation of Jacek Kościuk from universities as well as other cultural and scientific institutions in South America. Many times he was asked to conduct lectures, classes and workshops for their students and employees which took place at Universidad Nacional de San Antonio Abad del Cusco, the Francisco Gavidia University in San Salvador, El Centro Nacional De Conservación y Restauración in Santiago De Chile and the Father Sebastian Englert Anthropological Museum. He presented his own impressive studies, as well as the modern methods of documenting heritage monuments, especially the use of 3D laser scanning technology, but also the ideas and achievements of the Polish school of research and conservation of heritage monuments.

The legacy of Jacek Kościuk constitutes a significant contribution to the advancement of science in various fields, encompassing participation in many diverse research projects and numerous publications that have been widely cited. The area of his research extends from South America to eastern Mediterranean and from Antiquity to modern times. It is worth noting that Professor Kościuk continues to be active professionally with excellent results, currently focusing on the research on pre-Columbian architecture in South America. We look forward to further results of his works! The Laboratory of Scanning 3D and Modelling (LabScan3D), the Jewel in the crown of his work, has been working with subsequent successes to its credit led by his protégés: Dr eng Bartłomej Ćmielewski and Dr eng arch Anna Kubicka-Sowińska. Numerous architects and scholars trained by Jacek Kościuk, including the author of this article, keep working on archaeological sites, or with monuments, using skills, methods and knowledge provided by Jacek Kościuk. We all remember his kindness and patience, as well as sometimes sharp sense of humour, and we are all very grateful. Thank you, Professor Jacek Kościuk!

Aleksandra Brzozowska-Jawornicka