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IN MEMORIAM

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MIHOVIL VUKELIĆ  
(1931.-2008.)

Mihovil Vukelić rođen je u Senju 15. studenoga 1931. U rodnom gradu završio je osnovnu školu i gimnaziju. Studij medicine završio je na Medicinskom fakultetu u Beogradu 1967. godine. Nakon diplomiranja liječnički je staž obavio u Rijeci. Nakon toga radio je kao liječnik opće medicine u Domu zdravlja u svome rodnom Senju. Godine 1969. prešao je na rad u tadašnji Zavod za zaštitu zdravlja u Rijeci (sada Zavod za javno zdravstvo Primorsko-goranske županije). Poslijediplomski studij i specijalizaciju iz medicine rada te poslijediplomski studij iz socijalne psihijatrije završio je na Medicinskom fakultetu Sveučilišta u Zagrebu. Magistarski rad pod naslovom "Karakteristike osoba mlađih od 29 godina liječenih od alkoholizma" obranio je godine 1981. također na Medicinskom fakultetu Sveučilišta u Zagrebu. Doktorsku disertaciju pod naslovom: "Sociomedicinske specifičnosti alkoholizma mladih u urbanoj sredini" obranio je 1984. na Medicinskom fakultetu Sveučilišta u Rijeci. Godine 1989. izabran je za izvanrednog profesora na Medicinskom fakultetu Sveučilišta u Rijeci, a redoviti je profesor na istom fakultetu bio od 1992. godine.

Bogati stručni, znanstveni i nastavni rad prof. Vukelića bio je najdirektnije povezan sa zaštitom zdravlja radnika. Djelatnost u medicini rada, gdje je proveo niz godina radeći u jedinici za radnike i članove njihovih obitelji u INI-noj rafineriji nafte u Rijeci, predstavljao je u ono vrijeme model izuzetno kvalitetnog, kompleksnog oblika zaštite, kao dijela primarne zdravstvene zaštite.

Prelaskom u Zavod za zaštitu zdravlja u Rijeci prof. Vukelić je organizirao dio koji se odnosio na djelatnost medicine rada, koji se također po koncepciji te po praktičnim rezultatima može smatrati vrlo uspješnim modelom u zaštiti zdravlja radnika na jednom od područja s razvijenom proizvodnjom. Osim specifične zdravstvene zaštite radnika koja je

uključivala probleme profesionalnih bolesti i zaštitu te sudjelovanje u zbrinjavanju ozljeda na radu, značajno je mjesto zauzimala prevencija bolesti ovisnosti. Baveći se posebno proučavanjem problema alkoholizma u radnim organizacijama i u mladim, prof. Vukelić je već u počecima svoje stručno-medicinske karijere objavljivao zapažene radove koji su se na to odnosili. Sudjelovao je na brojnim domaćim i međunarodnim skupovima iz socijalne psihijatrije i medicine rada te u edukativnim i preventivnim programima u poduzećima na području Rijeke.

Može se bez pretjerivanja zaključiti da je prof. Vukelić najneposrednije zaslužan što je na jednom od najvažnijih područja naše zemlje po proizvodnim kapacitetima i razvojnim učincima bila dobro organizirana i učinkovita služba medicine rada koja je svojom aktivnošću pridonosila efikasnoj zaštiti zdravlja zaposlenih i uspješnom poslovanju privrednih subjekata.

Uz svoje istaknute stručne aktivnosti prof. Vukelić je odigrao važnu ulogu u izgradnji i osposobljavanju kadrova potrebnih za provedbu zacrtanih planova proizvodnog razvoja i efikasnosti poslovanja. Bio je inicijator i voditelj više kolegija na dodiplomskim i poslijediplomskim studijima na Medicinskom i Hotelijerskom fakultetu Sveučilišta u Rijeci. Utemeljio je i dva nova poslijediplomska studija medicine rada i pomorske medicine te dodiplomski studij za diplomirane sanitarne inženjere. Dugi niz godina bio je predstojnik povjerenstva za specijalističke ispite iz medicine rada za područje pokriveno aktivnostima Medicinskog fakulteta odnosno Sveučilišta u Rijeci. U vezi s njegovim znanstveno-nastavnim aktivnostima treba istaknuti mentorstvo u više od 100 diplomskih radova, desetak doktorskih disertacija te isto toliko magistarskih radova. Vodio je nekoliko istraživačkih projekata između kojih treba istaknuti projekt: Ocjena radne sposobnosti pri oboljenju krvnih žila, zatim projekt o organiziranju regionalnih centara za medicinu rada u pomorstvu.

U okviru tih projekata bila je pripremljena jedna doktorska disertacija te dva magistarska rada, a

objavljeno je nekoliko zapaženih znanstvenih priloga višekratno citiranih.

Ukupno objavljeni opis prof. Vukelića sadržava 150 stručnih i znanstvenih priloga, od kojih su mnogi predstavljeni u svijetu uz njegovo osobno sudjelovanje na 50 znanstvenih i stručnih skupova. Tijekom svoje stručne, znanstvene i nastavničke karijere prof. Vukelić objavio je nekoliko priručnika iz područja medicine rada, bolesti ovisnosti, pomorske medicine i zdravstvene ekologije.

U zadnjim godinama svojeg djelovanja prije umirovljenja prof. Vukelić je bio prodekan za poslovne odnose Medicinskog fakulteta te predsjednik upravnog vijeća Sveučilišta u Rijeci.

Prof. Vukelić bio je organizator ili član znanstvenih programskih odbora nekoliko međunarodnih i domaćih znanstvenih skupova od kojih treba posebno spomenuti I. hrvatski kongres medicine rada (Opatija 1996.), Međunarodni simpozij pomorskog prometa i medicine rada (Lovran 1998.), II. hrvatski kongres medicine rada (Zadar 1998.) te tri međunarodna simpozija "Društvo i tehnologija" (1995., 1996. i 1997.).

Tijekom više godina prof. Vukelić bio je član savjeta *Medicine te Arhiva za higijenu rada i toksikologiju*.

Bio je dugogodišnji član upravnog odbora Društva za medicinu rada HLZ-a, Hrvatskoga društva za pomorsku, hiperbaričnu i podvodnu medicinu te predsjednik komisije za pomorsku medicinu od osnivanja Društva, a odranije član sekcije za alkoholizam SR Hrvatske te član predsjedništva Udruženja za medicinu rada u bivšoj Jugoslaviji.

Za svoj rad i zasluge dobio je brojna priznanja, između ostalog odlikovan je 1996. odličjem "Red hrvatske Danice s likom Ruđera Boškovića" te "Srebrenom Kamelijom" - visokom nagradom koju dodjeljuje grad Opatija.

Uz dugogodišnje osobno poznanstvo i prijateljstvo s prof. Vukelićem meni će osobito u sjećanju ostati naša suradnja u pripremi i obrani nekoliko magistarskih radova i doktorskih disertacija koje je on inicirao i vodio. Ostvarenja takvih projekata pridonosila su podizanju kvalitete djelatnosti u zaštiti zdravlja radnika ne samo na području njegova užeg djelovanja nego i u Hrvatskoj kao cjelini.

Marko Šarić

## ANDREJ O. ŽUPANČIČ (1916.-2007.)

Academician Andrej Otona Župančič died in December 2007. He was professor at the Ljubljana University Faculty of Medicine (FM), and an acknowledged scientist and researcher. A. O. Župančič established pathophysiology as an important subject in medical studies at the FM, and was also the first head of the Institute of Pathophysiology within the FM. He was a great researcher, not only in medical science, but also of the human life, and an exceptional man and a visionary.

Andrej was born in Ljubljana in 1916 into a family of one of the greatest Slovenian poets, Oton Župančič. At a very early age Andrej knew that he would study medicine. During medical studies he was attracted by research work. He worked in the laboratory of his teacher of physiology professor Albin Seliškar, a man of great depth and width. First he worked there as a student during holidays and then for a year and a half after graduation. Together they published a paper about the release of neurotransmitter acetylcholine (ACh) in the retina under the influence of light. This paper was the first to prove that ACh is released in the central nervous system. The study was done only 10 years after the Nobel prize winner Otto Loewi had shown that ACh is a transmitter of the excitation in the heart and three years after an enzyme for biodegradation of ACh had been discovered in the brain.

Andrej dedicated his research career to studying the physiology and biochemistry of cholinergic receptor mechanisms. Later he investigated the microstructure of some membrane cholinesterases, and after that the relation between neurobiology and consciousness.

WW2 interrupted the fruitful era of his research in Albin Seliškar's laboratory. During the war, which threatened to obliterate Slovenians as a nation, A. O. Župančič was a very important organiser of the Slovenian Liberation Front and partisan sanitary service. Early in 1942, when he joined partisan resistance and worked in partisan hospitals in different parts of Slovenia, he was dubbed "doctor Mike".

It was difficult to organise war health service in guerrilla conditions. Partisans were active on a territory occupied by the enemy, and, unlike the Allied forces, they could not retreat to a safe haven to treat their wounded. To avoid carrying the wounded along, which caused a lot of suffering to the wounded and put partisans in extra danger, partisans built small hospitals consisting of groups of huts deep in the

Slovenian forests. Information about hospital positions was kept top secret to protect thousands of wounded soldiers from the enemy. Medical doctors and many medical students worked in these hospitals. This kind of organisation of the Slovenian partisan sanitary service was unique in the world.

Doctor Mike took medical care of the wounded soldiers and other patients and cared for their mental wellbeing: he read them poetry and prose, and held conversations with all of them.

The resistance organisers of Slovenian sanitary service made an important agreement: medical staff should follow international conventions and should treat not only wounded partisans, but also wounded enemy soldiers. Doctor Mike strictly respected this convention, but this decision caused a tragedy. A Slovenian native and German collaborator, who was treated in one of these hospitals, brought the enemy soldiers to where the hospital was. Twenty-two wounded patients who were unable to move perished in flames together with the hospital. Doctor Mike was deeply affected by this tragedy, and the image of carbonised dead bodies and hospital in ashes haunted him all his life.

In autumn 1944, he was sent to treat Slovenian wounded partisans in Bari in southern Italy. Andrej was a holder of Partizanska spomenica 1941 (a partisan resistance memorial medal awarded to people who joined anti-fascist resistance from the very beginning of the WW2). Andrej did not like to talk much about partisan times. He wrote: "Partisan medical service was a very hard school. Often we treated wounded soldiers and patients deficiently and against medical doctrine. There were no tools – we could only improvise".

When the war ended in 1945, A. O. Župančič helped the Faculty of Medicine in Ljubljana to complete its teaching programme with clinical subjects (which it lacked between 1919 and 1945). He established the Institute of Pathophysiology (IPP), became the head of the Institute, taught physiology as associated professor at the FM, and eventually chaired the pathophysiology programme.

At the time, his Institute had an area of 150 m<sup>2</sup>. Academician Župančič wrote: "I had to solve a riddle: how to start teaching and research with nothing but bare hands and bare walls. At the time I was the only staff of the Institute. Pathophysiology was a new subject at the FM. For me too! Six hours a week!" He introduced the seminar (as opposed to *ex cathedra*) way of teaching for small groups of students. This

caused an outcry among the students. The protest extended to the political top of Slovenia, and Župančič nearly lost his post at the FM. However, he held to his convictions, and seminars remained an important form of teaching at the IPP and later at the whole FM.

The research work at the IPP intensified with the arrival of new co-workers. Župančič selected them among different professions. Under his guidance and with a lot of effort of his co-workers (including a lot of physical work during construction, which is difficult to imagine today), a new building of the IPP was completed in 1955. Later he described this result of his co-workers' effort with a metaphor: "They sewed a coat to the button".

Shortly before that he presented an original and bold hypothesis about receptor enzymes at the congress on receptors in Stockholm. This hypothesis was a strong incentive for vivid and diverse research work at the IPP. Under his guidance, it resulted in the first strong nucleus of nervous system research in Yugoslavia. Župančič later said that as the time passed this hypothesis became less and less credible to everyone else but him. However, time has proven him right, and to this day many receptor enzymes have been described in standard text books.

In less than ten years, the IPP became a modern European research and teaching institution. A. O. Župančič also deserves much credit for the development of the Ljubljana University FM; in less than a decade it became a good medical school comparable with medical schools in the rest of Europe. At the time, many researchers from Yugoslavia, Europe, and North America visited the IPP to perform their research there.

Academician Župančič was a charismatic person with an original way of thinking. His enthusiasm for research and his sense of humour were infectious. He inspired many of us to dedicate ourselves to research after graduation. He encouraged young physicians at hospitals and other medical institutions to introduce modern research at their institutions. Unfortunately, they did not always receive the same enthusiastic support from their institutions. One such young enthusiast, Milan Dimitrijević, established the Laboratory of Clinical Neurophysiology as part of the Department of Neurology of the University Medical Centre Ljubljana. Župančič supported him all the time and helped him to establish the Institute of Clinical Neurophysiology of the University Medical Centre Ljubljana, the second important centre of neuroscience in Slovenia.

Academician Župančič is also the “father” of the first postgraduate studies at the FM in Ljubljana. The studies were planned as scientific research studies and were different from postgraduate studies at other schools of medicine in Yugoslavia. The basic concept has been preserved by the Ljubljana University FM to this day, even though it has recently become a doctoral study of biomedicine.

In 1964, A. O. Župančič became an associate and in 1970 a full member of the Slovenian Academy of Science and Arts (SASA). In those years he began to investigate the microgeography of the active site of acetylcholinesterase (AChE) using the method of electron paramagnetic resonance with one of his PhD students and with co-workers from the Institute Jožef Stefan and from the Faculty of Pharmacy. They discovered and published that “the active centre of AChE is situated in a structure resembling a pocket”. It was a complete surprise; AChE is one of the quickest acting enzymes among all known enzymes, and it was difficult to imagine an active centre at such a traffic of substrates and products to be situated in a deep hole of a molecule. Fifteen years later some other researchers who established the tree-dimensional structure of AChE by crystallographic analysis made a great display of their finding that the active site of the enzyme was situated near the bottom of a deep and narrow molecular hollow.

In 1973, academician Župančič retired. He left the teaching, research work, and IPP management to his younger co-workers and began a new life. Finally he could pursue his love of nature. He spent all his free time outdoors: he was a mountaineer and alpine skier; he joined an expedition to the Himalayas; he was an ornithologist, and he also studied tropical rain forests and its native inhabitants.

Soon after retirement he became a co-worker of the Centre of Tropical Ecology in Venezuela. The Centre launched an expedition deep into the rainforests along the Orinocco, where Župančič spent a few years studying the ways of life of the Indian Yanomami tribe. There he shot a wonderful film about the tropical rainforest and the tribe. After coming home, he turned his attention to the nature of Slovenia and made another beautiful film about Slovenian flora and fauna.

Mother Nature rewarded him with an inexhaustible vitality, cheerfulness, energy, and clearness of mind, which remained with him nearly to the last day of his life. In spite of retirement, his intellect never rested. In 1993, when he was the head of the Institute of Medical

Sciences of SASA, he wrote a study about protection against ionising radiation in Slovenia. A year before his death, he wrote a short but wonderful book of reflections about creativity in scientific research work. The last sentence in this booklet says a great deal about the author: “He who has read this booklet and feels he knows less about the creativity in scientific research than he knew before reading it did not waste his time. He can hop between dream and reality without making either one suffer for it”. This sentence gives a glimpse of the most remarkable characteristic of Andrej’s mind, that is, lateral thinking; his thoughts never flowed in the midstream but always in whirls beside and against it. What a veritable godsend for a scientist! Not only was his way of thinking a source of admiration, but also of frustration, and caused a great deal of amazement in people who would meet him for the first time. In the late 1960s when it was a scandal and a political heresy to doubt science as the only foundation of progress, he said: “[...] to my belief science is such a Pandora’s box from which all kinds of evil and misery derive [...]. The development of consciousness is an evolutionary dead-end which in itself is very interesting, but which through the application of science leads to the destruction of the global ecological system and, eventually, to self-destruction”.

Because of this sort of thinking, of exceptional knowledge of different fields of science and of arts, of rich imagination, Andrej was a witty partner in conversation, very often a centre of dynamics and the very soul of many cheerful gatherings he readily joined. He was able to make friends with everybody, equally well with young research workers or students and with elderly academicians, but also with friends from less educated circles and with other people he appreciated. He thought a great deal of other people’s genius, and he gave ready ear to their opinions. However, he did not like hypocrisy, pompousness, and insincerity; he disliked people who “took themselves seriously”, as he used to say. Yet, Andrej Župančič was an unbending man. It was hard to persuade him against what he believed was right, unless one had adamant arguments.

As an exceptional personality, he would turn any friendly meeting into an unforgettable event. On the occasion of his 80<sup>th</sup> birthday and 50<sup>th</sup> anniversary of the IPP, his co-workers invited him to plant a walnut tree in a small garden behind the Institute. In the 13 years since that day the tiny plant has grown into a strong tree that is bearing tasty fruit. As long as the



walnut tree will grow in the garden behind his Institute, Andrej O. Župančič will remain in our thoughts as a unique and great man.

*Metka V. Budihna*

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