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IN MEMORIAM

Prof. Prof. h.c. Dr. med. Michael Földi
January 10, 1920 - October 20, 2018
“Father of Lymphology”

N. Piller, L. Clodius, C.C.C. Campisi, O. Eliska, M. Ohkuma, A. Pissas,
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Fig. 1. Prof. Prof. h.c. Dr. Med. Michael Földi



Fig. 2. Michael and Etelka Földi at Michael's 90th birthday

With deep sadness the world of Lymphology learned of the death of Prof. Prof. h.c. Dr. med. Michael Földi (*Fig. 1*), a ground breaking pioneer of modern Lymphology. Words alone will never fully describe or capture the breadth and depth of Michael's contribution to our lymphatic knowledge and the legacy he has left for us all. We will all remember Michael for many different and personal reasons based on our interaction with him and on what we managed to read of the plethora of papers, commentaries, presentations and books he created over his lifetime with a vast group of colleagues and importantly in concert with his

wife and staunch supporter Professor Etelka Földi (*Fig. 2*).

Földi in Hungarian means “earthly,” “worldly,” “grounded” and that Michael certainly was!

Michael Földi was born in Budapest, the capital city of Hungary, on January 10, 1920. He studied medicine at the Royal Hungarian Nikolaus von Horthy University in Szeged. The medical faculty in Budapest gave an annual prize for essays written on unfamiliar medical topics and Michael won this prize – a book *The Proteins of Blood Plasma* (published in 1939). One chapter by Prof. Ruzsnyák described the pathophysiology of edema and

concluded with the statement: "The multitude of unresolved causes for the manifestation of edema will only then be understood when we pay attention to the role of the lymph vascular system." Michael saw that the lymphatic system was then the neglected child of medicine, as indeed it unfortunately still is today! Still just a student, Michael then asked Prof. Rusznyák if he could undertake research into the lymphatic system and Prof. Rusznyák accepted!

From 1945 to 1961, Michael was employed as an assistant physician at the Internal Clinic of the University in Budapest. After being an internist in the following years, he worked as a senior consultant and in the last three years as chief consultant and deputy medical director. From 1961 until 1969, he was Chairperson of the 2nd Department of Medicine at the University of Szeged, Szeged, Hungary. During these times two important events were turning points for Michael and the development of Basic and Clinical Lymphology: One was the question, as to the definition and causes of lymphedema and the other was the introduction of Lymphography as a new diagnostic measure of Lymphedema in 1952.

From 1969 until 1978, Michael (and his wife Etelka) led and worked in the Research and Development Department at the pharmaceutical company Schaper & Brümmer in Salzgitter. The focus during this time was drug treatments for

lymphological diseases and the consequences in different organs when the lymphatics were blocked or failed.

In late 1978, Michael and Etelka officially opened the specialist Clinic for Lymphology in Feldberg-Altglashütten in the Black Forest (Fig. 3) which carries their name. The clinic relocated to Hinterzarten in 1986 and became affiliated with the famous Földi School, which offers courses in complex physical decongestive therapy across the whole of Germany. In 1992, a new ward was opened. The second expansion phase also began with a further 37 beds in 2003/2004. The Földiklinik now has a capacity of 152 beds on 5 wards, each of which have been named after pioneers of Lymphology. So under the guidance of Michael and Etelka "big things from little things grow"!

Michael gained international renown through his clinical and research work and the publication of more than 400 scientific articles. He was awarded a multitude of honorary posts and distinctions: among them being Professor at the Albert Ludwigs University of Freiburg and Honorary Professor at the Salvador University of Buenos Aires.

In July 1989 he published *Földi's Textbook of Lymphology*, now in its 9th edition. With his scientific and clinical research, Prof. Földi made a decisive contribution to establishing the theoretical foundation for Complex Physical Decongestive Therapy (CDT), defining its practical application and making it possible for it to achieve recognition as a therapeutic method.

Professor Földi's activities in scientific societies were wide – he was a member of the Founding Committee of the International Society of Lymphology (ISL) in 1965; 1985-1987 Secretary General of this Society and from 1987-1989 President of the ISL. Prof. Földi was an honorary member of the French and German Society of Phlebology, French Society of Angiology, International Society of Angiology, International College of Experimental Dermatology and Brazilian Society of Angiology.



Fig. 3. Michael and Etelka Földi (center) at opening of Földiklinik (Mayor and architect also shown).

As a recent personal memory of Michael, during a visit to Michael just after the release of the 2012 edition of *Földi's Textbook of Lymphology*, I was always very interested and excited to hear his views on some recent lymphological issues but after showing me the new edition he said, "I don't want to talk about lymphology any more" and so after a few moments of amazement from me he initiated an in-depth discussion of the string theory of the universe which was then a current topic in publications such as *New Scientist*. So for some hours we immersed in this discussion and then watched a soccer match!

His life-long motto was the Latin phrase "Rerum cognoscere causas," which means "to learn the causes of things." This curiosity, this urge to understand the causes of things, maintained his life-long enthusiasm and passion for his work. We can all only hope that we too at his age will be able to hold such a broad and deep enthusiasm for knowledge and information.

I thank deeply Prof. Etelka Földi for her detailed input to this tribute in such difficult times and to A/Prof Gyozo Szolnok and Prof Dr Leo Clodius.

Professor Neil Piller
Editorial Board, *Lymphology*
Director Lymphoedema Clinical
Research Unit
Professor of Surgery
Flinders University
Bedford Park, South Australia



Michael Földi died – and again we realize his many contributions – in Lymphology. Not only laboratory contributions, he made Lymphology known, also through his many students, all over the world. For decades, there was the "Földi School of Lymphology" (Freiburg) and its basis was the application of Földi's thoughts and experiences with his patients. His lymphology school was patient-centered (*Fig. 4*).



Fig. 4. Michael Földi and Leo Clodius

Michael was a very clear, but also practical thinker – thus he was speaking of "lymphatic transport-capacity," of the "lymphatic load" and for him, this third system of circulation was absolutely necessary for the survival of living tissues.

Leo Clodius, MD
Co-Editor, *Lymphology*
ISL Past-President (1977-1979)
Plastic Surgeon (retired)
University Hospital
Zurich, Switzerland



On October 20, 2018, Prof. Michael Földi left us, after a full and long life devoted to the development of Lymphology, having been one of the Great Founding Fathers of our beloved International Society of Lymphology (July 19, 1966, Zurich, Switzerland). Undying, his majestic Presence is as a true Giant!

His exceptional scientific and clinical activity marked the life of our Society and the progress of Lymphology up to today. His fundamental contributions spanned many original and innovative articles within our discipline – textbooks, congresses, courses, consensus statements, etc.) representing basic milestones of the positive and illuminating progress of Lymphology and lymphologists all over the world during the past more than fifty years. His focus on searching for more effec-

tive solutions to the challenging treatment of lymphatic diseases inspired me as a surgeon to apply the medical-physical-rehabilitative standards defined by Professor Földi's work to multimodal approaches incorporating evolving surgical interventions. I am grateful to those, starting with dear Prof. Etelka Földi, Co-Editor of *Lymphology*, who continues Michael's unparalleled legacy in lymphology. "Ciao" Michael, thank you for everything you have given us and for all you leave us in inheritance from your immense human and scientific patrimony!!!

Prof. Corradino Campisi, MD, PhD, FACS
Past ISL President (1995-1997)
Co-Editor, *Lymphology*
Professor of Surgery
Operative Unit of Lymphatic Surgery
Lymphology and Microsurgery Section
University Hospital S. Martino
Genoa, Italy



I knew Professor Földi as a good man, a doctor, who was fully and lovingly dedicated to Lymphology. In lymphological discussions and during lectures, he always explained problems with erudition, defended his views, and stood firmly behind his opinions. His favorite topic was the pathophysiology of the lymphatic circulation in relation to blood supply. I met him for the first time not in person thanks to the extensive monograph by I Ruzsnyák and M Földi: *Physiologie und Pathologie des Lymphkreislaufes*, published in 1957. Our first personal meeting took place in 1977 at the International Congress of Lymphology held in Prague. We became friends after a lively exchange of opinions at one of the European lymphological congresses. When the tense discussion finished, we sat together with a glass of soft drink. Subsequently, we often sat together on buses during transport to social programs at congresses, and he often reminisced about his work in Budapest, his

colleagues, some of whom I personally knew. The fact that the Hungarian Lymphological Society expanded after the Second World War and achieved excellent results was due to the work of a number of personalities, including Földi. Then the Russian troops occupied Hungary in 1956 and many members of the Hungarian Society, including Földi, emigrated. Therefore, the unique spirit of this national lymphological Society was disrupted. We did not talk together only about lymphology, but also history as Professor Földi was a well-read man, able to speak Latin and Greek. His historical knowledge related not only to Latin and Greek texts, but also to music. I realized this fact during the performance of *The Marriage of Figaro* by Mozart staged at the National Theater in Prague in 1992. He wrote several hundred scientific studies, including some historical works, during his life. I keep some of them signed personally by him in my archive. He belonged to the generation of pioneers, the founders of the International Society of Lymphology. In recent years, he mentioned several times that the members of this Society did not hesitate to be involved in lively and relentless discussions, and that the modern times are more restrained in this respect. When remembering Michael, I realize that he was a Renaissance man with a broad view not only on Lymphology, but also on history and culture. In him, we are losing a man that we will miss, a man irreplaceable due to his manly appearance and presentation skills. If there is a lymphological heaven, Michael is surely sitting there and watching us here. Honor his memory.

Prof MUDr Oldřich Eliška DrSc
Department of Anatomy
1st Medical Faculty
Charles University
Prague, Czech Republic



Prof. Michael Földi passed away on Oct. 20, 2018. This is very sad news for us. As almost all lymphologists, I respect him best as a Father of Lymphology. Please let me mention four episodes.

1. There was a famous Hungarian textbook on lymphology written by Professors Ruzsnyák, Földi, and Szabó. The book was the first scientific one and a Bible of lymphology. While I stayed in KOKI Institute, Budapest, and learned Lymphology instructed by Prof. Ruzsnyák and Dr. Papp, I wanted to go to Szeged and visit him where he was working at that time. My hope was not satisfied until I met him during the 3rd International Congress of Lymphology in Brussels, Belgium in 1970. He, Prof. Seki, and I visited a downtown restaurant for lunch. And there he told us about the pathophysiology of lymphedema. After that, I decided to become a lymphologist.

2. We had a symposium on a specific drug for lymphedema in 1976 in Tokyo. We invited him with his wife Etelka as a guest speaker. They had just married. Later they traveled all throughout Japan. He told me it was a honeymoon travel.

3. When we visited Iguazü Falls together during a symposium run by Profs. Mayall and Nieto, he explained again the pathophysiology of lymphedema. There I recommended to him to persuade his daughter to specialize in dermatology (my speciality) when she finished university. But it was in vain. She became a gynecologist but subsequently also a clinical lymphologist.

4. During another congress, Peter Mortimer et al reported that lymphedema could exhibit low protein connective tissue fluid. Michael questioned them further for more details about connective tissue fluid formation.

5. During the National Institutes of Health Think Tank Conference on Lymphology in 2000 in Washington DC/Bethesda, Maryland, we lunched together. I mentioned that Professor Mayall was presenting papers although he was 90 years old. I promised that I would present my papers until the time when people would say they do not understand what

I am saying. He replied that he would refrain from presenting papers when the time came when he no longer notices spilt food on his necktie!

We can learn much about Lymphology and life from our Father of Lymphology.

Prof. Moriya Ohkuma, MD, PhD
Past ISL President (2003-2005)
Department of Dermatology
Kinki University, School of Medicine,
Osaka, Japan



Prof Michael Földi a Great Master!

When with Prof. Albert Leduc we created GEL (European Society of Lymphology) in Brussels in May 1979, Albert told me that the greatest master of lymphology was Professor M Földi. I did not know him, only his works – his book with Ruzsnyák and Szabó; I was personally involved in experiences and experiments and the important contributions to physiology and pharmacology of M Földi using melilot seemed to me of prime importance.

I had the honor and pleasure to be presented to him in Florence at the International Congress of Lymphology in 1979. I immediately felt the presence of a very important master who was at the origin of the conception in New Orleans in 1965 with A. Ruttiman of the founding of the discipline of Lymphology and the ISL. It seemed to us very important that Prof. Földi accepted to be an active member of GEL. Quickly our discussions witnessed enthusiastic response and with great pleasure he organized with our dear friend Prof. Etelka Földi the congress of GEL ESL in Titisee in the Black Forest in 1995. Many souvenirs, many exchanges upon lymphological problems, of internal medicine, and also history, philosophy and politics followed. I went three times to Hinterzarten and with great admiration I saw the work of the team built by Etelka and Michael.

Prof Földi takes the place alongside Aselli, Starling, Rouviere, etc....

Alexandre Pissas, MD
Editorial Board, *Lymphology*
Past-President of GEL ESL
Past-President of ISL (2001-2003)
Montpellier, France



The past fifty years have been the Renaissance of Lymphology. The great deployment of Angiology's youngest sister. The Spring of the great chapters of the mysterious orphan interstice and the transit and movement of lymph. Fifty-three years have gone by since the International Society of Lymphology (ISL) was born. And its pioneers, the great masters, the professors, the prophets perhaps, have opened remarkable roads unwaveringly. Throughout, Michael Földi's vocation, talent and effort have always been present.

In a sensitive children's tale, the infinite asks a child: "Weisst du wieviel Sternchen stehen, auf dem weiten Himmelsfeld?" – "Do you know how many stars are there in the huge sky?" Well, there is one more star up there now, a new sparkling star that guides us, gathers us, watches us and accompanies us. It is the light of Michael Földi, who has left just some time before we have.

Michael Földi always had time for time. For everyone. With passion. Time for doubts, for dialogue, for debate. Teaching. Making his mark, making a difference, opening paths as he walked. He motivated the new generation and created a large space for Vascular Rehabilitation.

Those of us who had the opportunity and privilege to know the scientist, the good family man, the friend, through chats in the garden or while walking the dog, in the mountains of his beloved Hintergarten and Feldberg, discovered a serious, simple, real life man. We have learned and we know a lot of what we do not know, and we have his creativity TODAY. He has motivated us to continue opening pages of

chapters of that LYMPHOLOGY with PASSION, with the colors of the shadow and the murmur of silence.

Christobal M. Papendieck, MD
Past ISL President (1999-2001)
Editorial Board, *Lymphology*
Fundacion Angiopediatria
Fronteras de la Linfologia
Buenos Aires, Argentina



Professor Földi with his wife, Etelka, Professor Casley-Smith, and Professor Piller gave the most important support when I introduced lymphology in Sweden. I was always grateful to him and his wife for allowing the whole lymphedema team at the Red Cross hospital to come to their clinic in Germany and learn the first steps which contributed immeasurably to the lives of so many patients in Sweden.

Iwona Swedborg, MD
Department of Physical Medicine
and Rehabilitation and Radiumhemmet
Karolinska Hospital (Retired)
Stockholm, Sweden



In the history of Health and Wellbeing, the understanding of how the body works can be presented as a series of milestones where and when anatomy and physiology were brought into what is known on the long road to complete understanding. Very gradually the lymphatic system has had its own milestones but its complete understanding is still delayed perhaps more than any other system. I am a dermatologist and when I started my exploration of the skin I focused on blood supply and had almost no reason to think about the lymphatic system. It was possible to write extensively about the blood supply of the skin and the needs of the epidermis without reference to a lymphatic. In the UK, Jarrett edited *The Physiology and Pathophysiology of*

the Skin in several volumes published by the Academic Press. In 1972, one of these volumes contained my contribution to understanding blood supply. Shortly after that, Jarrett asked me to review the lymphatic system. The ignorance of my profession including myself was absolute and as I set out to begin the review I found there was only one person in the whole world who was not ignorant. That was Michael Földi. Of course by noting his existence, it led me to some major texts that preceded him by many years, Unna, Drinker, Yoffey, Courtice, and Rusznyák came to my attention. In spite of attending lectures by Florey, I had not realized how interested he was in the lymphatic system and I was slow to appreciate the role of Casley-Smith and his link with that great man.

In 1984, I should have been more appreciative when Michael Földi appeared with 900 others, in my home for a barbecue when I was President of a World Microcirculation Conference.

It was about this time that I was able to persuade a junior in my department, Peter Mortimer, to take up the lymphatics as a life-long topic of interest. He was too busy at the Oxford conference managing the 16 coaches transporting attendees to spend much time to appreciate what an honor it was to have Michael Földi in Oxford.

It was not long after this event that we were approached by patients with lymphedema. There was a postmastectomy society complaining of the ignorance and unhelpfulness of the medical and surgical profession. It resulted in the setting up of a British Lymphology Interest Group with a focus on issues such as training nurses led by Caroline Badger, and improving palliative care led by Bob Twycross as well as Peter Mortimer's full time investigation of techniques to identify lymphatics and measure lymphatic flow.

The only way to make progress we now realized was to visit Michael Földi in Germany and what a major eye opener that was! This Giant in the field, with his wife Etelka, were creating gold standards of care that were making a difference.

Not much later, Michael Földi wrote to me appointing me to be an Associate Editor of the journal *Lymphology*, leading to more correspondence between us. We met at all subsequent significant Lymphology congresses, and his textbooks became Bibles. He was an imposing figure and I was too shy to engage in close friendship. As we became more knowledgeable, we became more impressed by his knowledge and collaborations, many of whom we made contact with to take the topic of Lymphology forward and embed it in our daily thinking. He was generous enough to organize for me to be given the Ratschow Medal of the Curatorum Angiologica in 2002. Later for a few years I joined him as one of the judges of that organization. He had a wide knowledge and high regard for many who worked in the field.

In the UK, we had been slow to discover Kinmonth. There had been an encyclopedia written for the British public in 1802 – its perspective on the function of lymphatics was by the standards of 150 years later unchanged. But as I consider our knowledge today, I realize that compared to other organs we still have a long way to go. However, as a dermatologist most focused on the epidermis I now find and write about it as an organ very dependent on its interaction with both its blood supply and its lymphatic drainage. This is something that applies to most organs and we should be grateful to Michael Földi in giving a lead to this major change in our thinking.

It is always sad to find old age diminishing participation and we were sad that he was not with us at recent conferences. Now, he has gone for good and we can replace sadness by simply remembering him as outstanding and those who have diseases of the lymphatic

system should regard him as the greatest of contributors to the enhancement of their well being.

Terence Ryan, MD
Editorial Board, *Lymphology*
Department of Dermatology Emeritus
Fellow,
Oxford University (Retired)
and Oxford Brookes University
Oxford, United Kingdom



The foregoing passionate tributes by lymphologic luminaries have highlighted the life and legacy of Michael Földi with so many “remembrances of things past.” In a Proustian stream of consciousness, I will add a few of my own memories, most together with my late husband surgeon Charles Witte, long time Editor-in-Chief of *Lymphology*: ...our medical school mentor surgeon John Mulholland’s life/career-changing advice for us to study something new – the lymphatic system – when he received an eye-opening complimentary copy of Rusznyák, Földi, and Szabó’s book in 1960... meeting Michael for the first time in 1965 in New Orleans but unable to converse with him because he spoke no English largely German on his first trip to the United States but rapidly became fluent... learning from him that “the difference between Capitalism and Communism is that in Capitalism Man

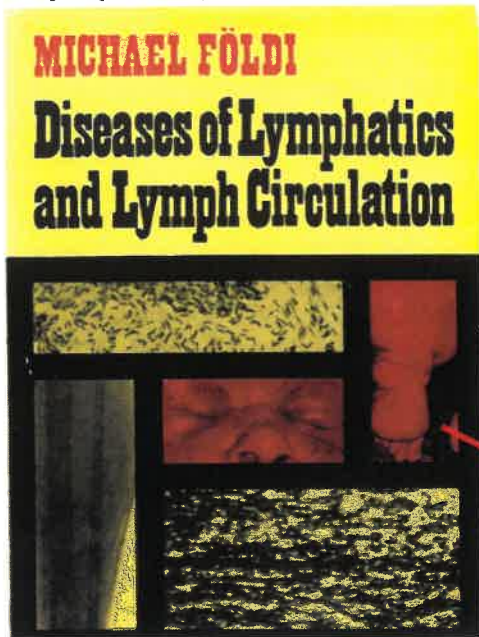
is exploited by Man and in Communism quite the reverse...sitting at Michael’s knee debating peripheral and visceral lymph formation ...attempting to answer his probing questions and leaving many to this day unanswered...defending new surgical approaches to lymphedema treatment ...walking together with husband Charles in the Black Forest (Fig. 5) and hearing about life in Hungarian lymphology and society in the 1950’s... laughing at his humorous often bawdy tales with twists and turns... savoring gourmet food like bone marrow and white asparagus together... and in 2016 (Fig. 6), finding that, despite his protestations to the contrary, he was still engaged with lymphology as he read with surprise the worldwide acclaim given the “new” revelations (or rather “re-discovery”) about the brain lymphatic system... finally helping him prepare his last publication (an e-letter to *Science* with Etelka Földi reminding the scientific world about his experimental and clinical observations on brain lymphatics and lymphogenic encephalopathy in the 1960’s (see also the article and references 56-61 by Bellini et al in this issue of *Lymphology*). Michael Földi now joins his many friends and colleagues who preceded him in the Celestial Chapter of the International Society of Lymphology (*Lymphology* 36:150-151, 2003). We are inspired here to advance his legacy worldwide by expanding and disseminating knowledge in Lymphology, exciting young lymphologists, exploring new frontiers, and enhancing the lives of those with lymphatic disorders.

Marlys H. Witte, MD
Editor-in-Chief, *Lymphology*
Secretary-General, ISL (1987-current)
Past President, ISL (1985-1987)
Professor of Surgery
University of Arizona College of Medicine
Tucson, Arizona USA

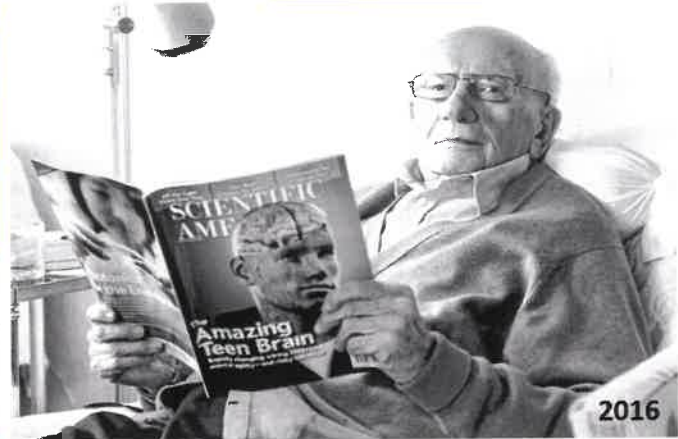


Fig. 5. Marlys and Charles Witte with Michael Földi

Lymphology Discovered, Rediscovered and **FORGOTTEN**



-Charles C Thompson, Budapest; **1969**



→ On Brain Lymphatics

*"According to prevailing textbook knowledge, the lymphovascular system has no role in fluid circulation of the brain substance and a functionally negligible one in cerebrospinal fluid drainage. **Connections between the intracranial structures and the lymphatic system are nonetheless well known.**"*

Fig. 6. Composite of Prof. Földi with his renowned 1969 book *Diseases of Lymphatics and Lymph Circulation* and reading 2016 article on brain lymphatics in *Scientific American*