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EGIDIO TOSATTI: The Man, the Scientist, the Lymphangiologist

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Prof. Egidio Tosatti (1913-1990)

When Prof. Egidio Tosatti left this world on the night of Friday, January 19, 1990, an immense sorrow was felt by his close relatives and disciples. It was easy to understand, particularly for those who had the privilege of benefiting from his teachings and recognized the huge void created in the scientific circle of the Surgical School he had founded. Despite passing years and an incurable disease that gradually undermined his physical strength, Prof. Tosatti remained inspired by an insatiable thirst for knowledge which complemented his unrivaled clinical skill.

He was born in Parma on April 7, 1913, son of a surgeon, Prof. Carlo Tosat-

ti, and a noblewoman, the Countess Bianca Bartolomasi. He obtained a degree in Medicine and Surgery in Padua in 1936, and was a protégé of the famous Prof. Raffaele Paolucci from Valmaggiore, Clinician and Surgeon in Rome. Prof. Tosatti was civil pilot of the Air Force, "Verdienst Kreuz. v. Deutsche Adler mit Schwertern", awardee of the bronze medal for military valor in the field (1944), "Commendatore della Repubblica Italiana" in 1958, Great Officer in 1976 and "Cavaliere di Gran Croce" in 1981, and Professor on the permanent staff of Clinical Surgery from 1951 in Cagliari, Siena and since 1965 in Genoa. Prof. Tosatti's special interests were in the pancreas, large intestine, transplantation, and lymphatic surgery. He was also an enthusiastic bibliophile and renowned for his love of poetry, painting, antique ceramics, and botany. As for his pioneering studies on lymphatics, the main subject behind this *mémoire*, it is noteworthy that Prof. Tosatti's highly respected original research earned him appointment to the Advisory Board of the International Society of Lymphology (ISL) in 1973 in Zurich along with Profs. Courtice, Fisch, Fischer, and Peters. Later he was a member of the Executive Committee of the ISL in 1975, and he became a member of the Editorial Board of *Lymphology* in 1973.

Among the many international scientific prizes awarded in his long and distinguished career, Prof. Tosatti was most

proud of the Bichat Prize (Medaille des Entretiens) he received in Paris in 1954. Again in Paris, he was invited in 1974 by the renowned publisher Masson et Cie Editeurs to write "Lymphatiques profonds et lymphoedèmes croniques des mem-bres" honored by a preface by the ac-claimed lymphatic surgeon Prof. Marceau Servelle. This book solidified Prof. Tosatti's worldwide reputation as a leading lymphologist. In the meantime, in 1965, he founded the Italian Society of Lymph-angiology, of which he was Chairman until his death. In conjunction with our humble cooperation, Prof. Tosatti thereby realized a longstanding dream of promot-ing and founding the Latin-Mediterranean Chapter of the ISL in Genoa on June 24, 1989. At that time, he was unanimously elected Honorary Chairman along with Prof. Servelle.

The early '70s was for Prof. Tosatti a time of fervent scientific activity into disorders of the lymphatic system. He founded the "Center for the Study, Pre-vention and Therapy of Lymphatic Dis-eases and the Teaching of Microsurgery" at the University of Genoa along with forming the Section on Lymphatic Micro-surgery within the Italian Society of Lym-phology. Among his disciples, many con-tributed important and even their most illustrative discoveries to the field of lymphology.

It is appropriate to summarize the basic contributions of Prof. Tosatti and his School's scientific activity. As clinician and surgeon in Siena (1952-1965), after completing a "short but memorable expe-rience" in Cagliari (1951-1952), as Prof. Tosatti himself used to describe it, num-erous were the areas in which his tal-ented scientific personality flourished. These included "Open-heart" surgery (Prof. Tosatti was one of the first to perform cardiopulmonary bypass in Italy and to construct an experimental extra-corporeal circulating device in 1949 as well as to author a major monograph on "The Artificial Heart" in 1951), the first total gastrectomies with esophago-jejunal-duodenal reconstruction, surgical replace-ment of the common bile duct, ureter, or

bladder with pedicled intestinal segments, the surgery of the sympathetic nervous system, with self-designed operations such as sub-stellectomy and resection of the 2nd sympathetic ganglion for treatment of facial hyperemia and palmar and axillary hyperhidrosis, and the pioneering opera-tion of cutolipofasciectomy modified from De Gaetano and Charles in the manage-ment of limb elephantiasis.

The first radiological evidence of sub-fascial or deep lymphatics of the limbs (1956) dates back to the period spent in Siena when Prof. Tosatti con-ceived of x-raying the anatomic specimens housed at the museum of Paolo Mascagni who, almost two centuries earlier, had vividly preserved the structure of deep lymphatics by the injection of elemental mercury. These studies became the cor-nerstone of his highly respected work described earlier "Lymphatiques profonds et lymphoedèmes chroniques des mem-bres." From 1959 to 1965, Prof. Tosatti was also Chairman of the Medical Section of the Physiocrat Academy in Siena as Mascagni had once been more than 150 years earlier.

Besides being a founding member of the Roman Society of Surgery (1939) and Editor-in-Chief of "Clinica Chirurgica" (1948), the most famous Italian surgical journal of its time, Prof. Tosatti was also Co-editor of the periodical "Chirurgia Toracica". While in Siena, Prof. Tosatti received the award of Minerva Medica, Turin for a remarkable movie related to the study of the lymphatic system. When he relocated from Siena to Genoa, his reputation had grown enormously and of his many disciples in Siena, two became leading professors. One, Prof. S. Armenio (Prof. Tosatti's main collaborator in "Chronic oedema of limbs from a surgical viewpoint" presented at the Italian Society of Surgery in 1959), is Clinician and Sur-geon in Siena and also "Chef de file" of our School, who is known especially for studies on lymphatic pathophysiology including contractility and vasomotion of truncal collectors. The other, Prof. G. Bellucci, became an anesthesiologist (note that among the original early studies of

Prof. Tosatti was "The curare in anaesthesia"). Other disciples became renowned in general surgery primarily in Tuscany and Emilia Romagna (e.g., Prof. A. Parma and I. Bacchini) whereas still others followed him to Genoa. Among the latter, three chose to pursue a university career:

1. Prof. M. Casaccia, currently Director of the Department and School of Specialization in Emergency Surgery with special interest in the pathology of chyliiferous vessels and use of laser in treatment of chyloous lymphedema. After the death of Prof. Tosatti, Prof. Casaccia was appropriately appointed President of the Italian Society of Lymphangiology.
2. Prof. Ermio Cariati, currently Director of the Department of Surgical Anatomy and Course in Surgical Operations and of the School of Specialization in Thoracic Surgery, is well-known nationally and internationally for his original studies on lymphatics. He is the author of a monograph published by Piccin, Padova entitled "Lymphostasis and Pathology of the Thoracic Duct" (1978). Prof. Cariati has also been a member of the Executive Committee of the ISL and is currently a member of the Editorial Board of *Lymphology* and Founder and Chairman of the European Academy of Lymphology.
3. Prof. Carlo Prior is the oldest, and currently Pathologist and Surgeon in Genoa and Director of the School of Specialization in General Surgery in which he succeeded Prof. Tosatti. Prof. Prior is well-known for his studies on the lymphatics of the pancreas and colorectum.

In Genoa, Prof. Tosatti became first Chairman of the Ligurian Society of Surgery (1967-1969), and later Chairman of the Medical Academy of Genoa (1974-1977), and still later its Honorary Chairman. In 1965, as mentioned, he founded the Italian Society of Lymphangiology.

Among his lymphologic studies in Genoa, that on "lymphoedema classification," which has currently been adopted by our School for its rational pathophysiologic and etiopathogenetic approach, is particularly noteworthy. Other contributions include "antigravitational bindings of ectatic and insufficient lymphatic collec-

tors", and an operation described by Prof. Tosatti similar to that of Prof. Servelle for the treatment of abnormal chyliiferous lymphatics in primary chronic lymphedema of the legs due to "gravitational reflux" (recall the landmark article in *Lymphology* in 1973 entitled "The Unsolved Problem of Peripheral Lymphoedema"). Another Genoese contribution is the lymphangiographic demonstration of so-called "interruptor nodes" (recall the original article entitled "Lymphangiographic Demonstration of the Illusory Interruptor Nodes of the Lymphatic Collectors of the Limbs" published in *Surgery in Italy*, a renowned journal founded by Prof. Paride Stefanini). These unusual "ganglions" are more commonly seen under pathologic conditions, and have an appearance similar to lymph nodes but are conspicuous by their lack of a capsule and germ center. They probably represent the "ganglions interrupteurs" of the old French anatomists which according to some signify lymphodynamic imbalance but are probably poorly developed primordia of the lymphatic system.

Studies on the lymphangiographic phenomenon of "lymphangiospasm" belong to Prof. Tosatti's early Genoese period. Lymphangiospasm may characterize primary lymphedema especially of the lower limbs, and for which Prof. Tosatti had once proposed lumbar sympathectomy.

Despite the multitude of scientific activities of Prof. Tosatti, in his later years he devised a personal technique of "intensive prolonged pressotherapy" for treatment of chronic lymphedema. Intuitively, he also recognized the potential application of microsurgical technique to management of lymphedema and, not surprisingly, he provided the inspiration for the development of lymphatic-venous-lymphatic microsurgical reconstruction. At the same time, Prof. Tosatti organized and advanced in Genoa with Prof. U. Valente the speciality of organ transplantation performing the first pancreas allograft in Italy. He also entrusted to Prof. G. Accarpio, another of his disciplines renowned for studies on lymphatics

(countercurrent lymphangiography), the headship of a leading Department of General Surgery in Liguria (La Spezia). In this way, Prof. Tosatti came full circle from the time he had just come to Genoa when his student-colleague who had followed him from Siena, Prof. A. Andrei, became Head of another major Ligurian Department of General Surgery (Cogoleto). Prof. Tosatti accomplished all this in Genoa both in conjunction with, and independent of, the School of Prof. Mario Battezzati, a respected and renowned "lymphologist" assisted by his disciple Prof. I. Donini, currently Clinician and Surgeon in Ferrara, Prof. Belardi, Vascular Surgeon in Genoa, and Prof. F. Bresdola, Clinician and Surgeon in Udine.

And now we arrive at today...

Although Prof. Tosatti is no longer physically with us, his invaluable heritage of teachings and "humanitas" remains with us forever. The echo of his refined eloquence, full of Latinisms, the unforgettable ambiance created on each important occasion by his deep humanistic culture, the admiration aroused by his imposing demeanor, his always inspiring and unrivaled lectures at the University, his unusual innate insight for original ideas on the frontiers of surgery to be nurtured and cultivated, his love and sacred respect for sick patients, especially for those who "no surgeon would ever want" (as he used to say), for the patients requiring extremely difficult and complicated care

including the poor and those affected by monstrous elephantiasis, his religious devotion to the scholarly calling of doctor, surgeon, and university professor, his rapid, safe, confident, and elegant performance during even the most delicate surgical operations—all this will live forever in our hearts and memory. Prof. Tosatti had a genuine and imposing personality with a noble mind and body, "a man of his time," as some might say. Equally important, however, his teachings have been incorporated and carried on by figures of similar dignity and example. Together with Prof. P. Valdoni, P. Stefanini, and E. Melan, Prof. Egidio Tosatti has been on the forefront of half a century of Italian Surgery as well as Italian and international lymphology. As acknowledged by all those who were his friends, admirers, colleagues, and students or who were just fortunate enough to have met him, his contributions to Lymphology were in keeping with the finest and oldest traditions of our country. From Gaspare Aselli to Paolo Mascagni and then to Egidio Tosatti, we are dedicated to continuing this precious legacy.

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