

## **Celebrating Public Health Lives**

### **The origins of the modern hygiene in Bari: In memory of Enea Grosso**

#### ***Le origini della moderna igiene a Bari: in memoria di Enea Grosso***

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Prof. Enea Grosso working at his microscope

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## Abstract

*Professor Enea Grosso, a distinguished Italian scholar in Public Health, made significant contributions during his tenure at the University of Milan, Camerino and in particular Bari, expanding the discipline's research horizons. Born in Milan in 1922, Grosso's career included collaborations with renowned scientists like Albert Sabin. Notable achievements include his innovative response to the 1973 cholera epidemic in Apulia and his promotion of mathematical models in epidemiology. Grosso passed away unexpectedly in 1984, leaving a lasting impact on the scientific community.*

The Institute of Hygiene at the University of Bari was founded in 1925 and its history came to an end in 2002, when it became part of one of the brand new Departments. During the existence of the Institute, we can remember six directors in sequence, and seven more since the opening of the Departments (Table 1).

Every director left his personal mark, and, in particular, Professor Enea Grosso enriched the Institute and its Community with his profound knowledge and experience, expanding its horizons and fields of study. His Directorship lasted 20 years, and twenty years after his death his message is still alive, and we want to remind and describe his figure to the international Public Health Community.

In addition to all the information and the data on the life and activity of Prof Grosso in Bari, easily available from the many local sources, for the years Prof Grosso was active in Milan and Camerino we have resorted to the words of the Milanese Colleagues who spoke during a ceremonial day of 2009 dedicated to the memory of prof Fernanda Bergamini - the most important pupil of Grosso - and in particular Gaetano Maria Fara and Vittorio Carreri, the only two whose texts have been made available *in extenso* on the website of the Italian Society of Hygiene (1-3).

Born on March 10, 1922, in Milan, Grosso graduated in Medicine and Surgery in 1949 at the State University of Milan, presenting as a final dissertation an experimental study in Immunology titled "Contribution to the Study of Colicines" (4), which was immediately published (5). He enhanced his education through the guidance from prominent mentors like Professor Augusto Giovanardi, just arrived in Milano after a period of professorship at the prestigious University of Padua, who initiated him to the academic career.

Just a few years later another "beautiful mind" graduated in Medicine and entered the workforce of the Institute of Hygiene, Fernanda Bergamini. It is useful to talk about her because the collaboration of the two represented an important point in the scientific life of Enea Grosso. In an environment made up almost exclusively by males, Fernanda Bergamini stood out among all: not even thirty years old, blond, brilliant, cool, self-sufficient, determined, but also very feminine, she was an assistant of few words and many facts: she immediately identified which researcher was worth collaborating with, and so joined the Enea Grosso's Team. She became rapidly his most productive pupil, and the fruits of their collaboration marked for years the life of the Institute. It was interesting to compare the two: the refined but somewhat indolent thinker vs the woman of action, who insisted that the moment had come to publish that scientific article, who drew conclusions, who insisted on which was the conference to attend to present their results at their best. But they had also a negative thing in common: they were both very heavy smokers, unable to wait a minute before next cigarette, and in a moment of relaxed creativity they developed a system with two-way mouthpieces,

connecting tubes and a cigarette mounted on a single external mouthpiece, to be able to smoke both even in a sterile cabin without contaminating its atmosphere (2). Immediately built, it worked perfectly!

But the sources of all scientific research and of every organizational initiative was he, the Boss, the Dominus, Augusto Giovanardi.

A brown hat always on his head, he was on duty from early morning until 12 am, then disappeared to reappear at 4 pm and stay until night, because the mid-day sleep was sacred to him. When all of the young researchers, in the afternoon, exhausted by the sandwich and the 8 hour non-stop work, showed signs of tiredness, he teased them, showing them how fresh he was in his seventies: in front of them so young, what a shame! In conclusion..... he lived in good health to be 103 years old!

Obviously, at the end of WWII, the Italian University was not rich in human resources. Therefore, not so many were the researchers officially employed at the Institute of Hygiene of Milano: a few "Assistants", the "Aiuto", at that time Prof Vittorio Monaci, who soon left Milano to become full professor in Parma, where he completed his cursus honorum, and was replaced by Enea Grosso. But at that time some people, though not organic to the university but employed by some educational or sanitary institutions (Health Officers, Hospital Directors), were allowed to devote a small portion of their professional time, as volunteers, to an University Institute and so they could prepare themselves to pass the exams of the "Libera docenza" ("Free Lecturership"), an official authorization to teach and do research in the universities. It was a system that worked, and the top minds of the Health Service, in this way, participated in research, and also in teaching. In this way they were of great help to the institution and - personally - were proud of the title of Free Lecturer which gave a real prestige, because it was obtained only after passing hard state exams. The Free Lecturers were present also at the Bari University.

Professor Grosso furthered his education with periods of intense scientific exchange and travel, first to the United States, then to Denmark (Statens Serum Institut), where he deepened his research on the polio vaccine and initiated a fruitful collaborations with Albert Sabin (6-8), hosting him at the Virology Lab of the Institute of Hygiene in Via Pascal, Milan, whose direction he had been assigned by Prof Giovanardi; in these years Prof Sabin was already known for his virological studies on polioviruses, having demonstrated to the scientific community that intestine was the favorite site for the virus multiplication, while its replication and consequent paralyses in the spinal cord motor neurons were very infrequent. It was the time when Sabin and Giovanardi became intimate friends, meeting at the Sclavo Serum Institute of Siena, where the vaccine for Italy was close to be produced: "Caro Albert, Dear Augusto" had become their common nickname.

Grosso's new adventure began after being appointed Full Professor, initially in Camerino in 1962. Embracing the change with enthusiasm, he moved next year to Bari, becoming an active citizen of the Apulia Capital City for 20 years. He focused on the care of public spaces, which he defined "sanitary greeneries", collaborating with the WWF (World Wildlife Fund, now World Wide Fund for Nature) on a small manifesto to address environmental pollution and the need for urban green spaces that could be actively enjoyed rather than remain as mere decorative elements (9).

Even after relocating to Bari, he combined respect for colleagues with friendship within the emerging local healthcare system representatives (The Health Reform of

1978 was approaching). Every afternoon, Professor Ermanno Pirè, the Public Health Officer, Professor Stano, Director of the Provincial Medical Micrographic Institute, and sometimes prof. Giovanni Ricciardi, Pirè's deputy, and the virologist Giuseppe Leogrande used to visit the Institute to discuss the organization of health services, applying the results of their research. This was the root of the Hygiene School in Apulia, characterized by an intense collaboration between the academic world and the professionals of the Health Trusts; this history, born with prof. Grosso, is far from having reached its end! In 1973, a cholera epidemic struck Apulia. Professor Grosso played a crucial role in solving the epidemic: his innovative idea of chlorinating wastewater proved to be fundamental in halting pathogen transmission (10).

Along these years of intense creativity, Grosso accumulated numerous successes and roles, organizing and presiding over the Microbiology Service at the Policlinico Hospital. From 1971 to 1975, he was elected Dean of the Faculty of Pharmacy under Rector Ernesto Quagliariello. He served twice as President of the Regional Society of Public Health – SItI - of Apulia in 1952-57 and 1969-72. In 1975, he was awarded the national Gold Medal for Meritorious Service to Education and Culture.

He also cared, with great attention, the future of the discipline in Bari and spent lots of time in the training of his disciples, who continue the great history of Hygiene in Apulia; in particular, he led Salvatore Barbuti and Giovanni Rizzo to the role of Full Professor.

Professor Barbuti fondly remembered how, during the final day of the free teaching competition in Rome, Professor Grosso, a dedicated mentor, was present to offer support. Barbuti also remembered Grosso's attempts to explain the application of statistics in healthcare to those unfamiliar with the subject. Although not a mathematician himself, Grosso understood that explaining a wide range of epidemic phenomena, including the 1973 Bari cholera epidemic, required a significant generalization of mathematical models' infection force. These insights underpin the current international development of Behavioral Epidemiology (11).

Prof. Grosso encouraged also a multidisciplinary approach to the Public Health Sciences and was a pioneer in this field. In collaboration with the mathematician Vincenzo Capasso, Grosso pursued one of his favorite topics, mathematical models in epidemiological investigations, which he liked to call "third-generation epidemiology" (12). Besides contributing to the development of mathematical models, he promoted the mathematical approach in biology and medicine through organizing conferences, including one of the first major international congresses titled "Mathematics in Biology & Medicine" held in Bari in 1983 (13).

As a scholar of biological system dynamics, he stimulated theoretical models; as a laboratory experimenter, he was a brilliant virologist; as a 360° hygienist, he demonstrated daily commitment and competence in the Institute of Hygiene's laboratories, then located in Palazzo Ateneo in the city center, and during emergencies like the cholera epidemic (14).

But the tragedy loomed. A master to a generation of hygienists and an unforgettable mentor to many more, Professor Enea Grosso passed away suddenly on May 10, 1984, at the age of 62, missing the 32nd National Hygiene Congress in Bari, which he had ardently insisted to be assigned to the Institute in Bari. On October 2, 1985, during the opening address of the Congress, Professor Barbuti, his first pupil, commemorated him exactly with these words: "As a man, he brought us his intelligence, great availability, and constant balance in decision-making. As a scholar, he brought a modern approach

Table 1 - University of Bari, position of Hygiene in Institutes and Departments of Bari

<p><b>1. Directors of the Institute of Hygiene, 1924-1999</b>  Filippo NERI, 1924-1929 (later, Magnificus Rector)  Francesco Sanfelice, 1929-1931  Giuseppe Sangiorgi, 1931-1954*  Daniele Parvis, 1954-1964  Enea Grosso, 1964-1984  Salvatore Barbuti, 1984-1999</p> <p><b>2. Directors of the Departments including the Section of Hygiene (since 1999)</b>  <i>a) Dipartimento di Medicina Interna e Medicina Pubblica (1999-2006):</i>  Salvatore Barbuti, 1999-2000 (Professor of Hygiene)  Francesco Carrieri, 2000-2006 (Professor of Forensic Medicine)  <i>b) Dipartimento di Scienze Biomediche e Oncologia Umana (2006-2022)</i>  Gabriella Serio, 2006-2018 (Professor of Medical Statistics)  Maria Rosaria Carratù, 2018-2021 (Professor of Pharmacology)  Maria Teresa Montagna, 2021-2022 (Professor of Hygiene)  <i>c) Dipartimento Interdisciplinare di Medicina (since 2022)</i>  Carlo Sabba, 2022 (Professor of Medicine)  Roberto Catanesi, 2022-today (Professor of Forensic Medicine)</p>
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\*During the post-WW II years, Prof Sangiorgi was suspended for some periods, being his position under scrutiny for fascism, but finally he was returned to his directorial role

to research and new directions in which to explore” (5). His passing away so young was a significant loss to the scientific community of Public Health Professionals of this Country.

### Riassunto

#### *Le origini della moderna igiene a Bari: in memoria di Enea Grosso*

Il Professor Enea Grosso, insigne studioso italiano di Sanità Pubblica, ha apportato significativi contributi durante il suo incarico presso l’Università degli Studi di Milano, Camerino e in particolare di Bari, ampliando gli orizzonti di ricerca della disciplina. Nato a Milano nel 1922, la carriera di Grosso comprendeva collaborazioni con scienziati di fama come Albert Sabin. Tra i risultati degni di nota figurano la sua risposta innovativa all’epidemia di colera del 1973 in Apulia e la promozione di modelli matematici in epidemiologia. Grosso morì inaspettatamente nel 1984, lasciando un segno indelebile nella comunità scientifica

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## **Addendum to the paper**

### **The origins of the modern hygiene in Bari: in memory of Enea Grosso**

With this contribution, the Editor-in-Chief of *Annali di Igiene*, who will never forget having been masterfully followed by Prof. Grosso in his first years as Assistant in Milan, and faithful friend of Prof. Barbuti and all the other academic colleagues of Hygiene, Preventive Medicine and Public Health of the Apulian Universities, wishes to express his opinion that the message left to the School of Bari by Prof. Grosso before his sudden death, as well as the endowment of knowledge and technologies, have allowed the institution to grow and prosper to the point of becoming an “exporter” of Researchers and Teachers in Public Health throughout the Italian territory.

The first professors who collaborated with Enea Grosso were Salvatore Barbuti (a direct student of Grosso, Dean of the Medical Faculty for a long time, last director of the Institute and first of the new Department), Giovanni Rizzo (a true hygienist whose career was cut short by fate, but not before becoming director of the 2nd Chair of Hygiene) and Gabriella Serio (who worked on statistics and mathematical models with Alessandro Capasso). During these years, Michele Quarto (in charge of the Regional AIDS Center in the 1980s), Maria Teresa Montagna (expert in environmental hygiene and regional referent for the clinical and environmental surveillance of legionellosis) and Danila De Vito (who assisted Prof. Rizzo in microbiological diagnostics) were trained.

After the death of Prof. Grosso, Salvatore Barbuti brought his pupils to the chair as full professors and extended Apulian hygiene abroad. Let us think of the long service of Pietro Luigi Lopalco at the European CDC in Stockholm, before becoming full professor at the University of Salento in Lecce together with Maria Antonella De Donno; the activation of the School of Hygiene at the University of Foggia by Rosa Prato, now joined as full professor by her student Domenico Martinelli. But equal credit goes to those who, stable in their roles at the Bari site, have expanded the role of Hygiene both within the Apulian University, such as Cinzia Germinario (now Director of the Operating Unit of Hygiene), Silvio Tafuri (Head of the Control Room Program Unit), Maria Chironna (recently succeeded Professor Quarto), and outside Apulia, such as Christian Napoli (transferred to the Second Faculty of Medicine of Sapienza at the S. Andrea Hospital in Rome, now also temporary Health Director of the National Institute for the Promotion of the Health of Migrant Populations and for the Fight against Poverty-Related Diseases) and Caterina Rizzo (now Full Professor in Pisa and Pro-Rector for Continuing Education).

These people have also been able to face important growth and coexistence crises, a not uncommon event in many Departments, but they have had the strength to overcome the difficulties with the awareness of being part of a scientific community, which is much more important than the sum of the problems of each component, thus avoiding the risk of an irreversible crisis.

In participating with affection and emotion in the commemoration of Enea Grosso, the Editorial Board, the Section Editors and the Managing Editor of *Ann Ig* express through the undersigned their appreciation and their closeness to all the Colleagues, of all generations, of the Apulian Universities.

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