Pioneers in Virology

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Walter Reed (1851-1902)

Major Walter Reed was a U.S. Army physician who in 1901 led the team that postulated and confirmed the theory that yellow fever is transmitted by a particular mosquito species, rather than by direct contact.

The research work with the disease under Reed’s leadership was largely responsible for stemming the mortality rates from yellow fever during the building of the Panama Canal, something that had confounded the French attempts to build in that region 20 years earlier. The risky but fruitful research work was done with human volunteers, including some of the medical personnel who allowed them to be deliberately infected. Reed proved that yellow fever among enlisted men stationed near the Potomac River wasn’t a result from drinking the river water. He showed officials that the enlisted men who got yellow fever were trekking through the local swampy woods at night, unlike their yellow fever-free fellow officers. On his return to Washington in February 1901, Reed continued his teaching duties. A military medicine research institute is named in his honor.

Adelchi Negri (1876-1912)

Adelchi Negri studied medicine and surgery at Pavia University, Italy. As a resident student he worked in the pathology laboratory directed by Camillo Golgi. After graduating with honors in 1900, he became Golgi’s assistant. In 1903, he discovered the eponymous Negri bodies defined as cytoplasmic inclusion bodies located in the Purkinje cells of the cerebellum in cases of rabies in animals and humans.

At the time, Negri mistakenly described the pathological agent of rabies as parasitic protozoan. This opinion, which Negri never abandoned, immediately became the object of scientific discussion. A few months later, Paul Remlinger at the Constantinople Imperial Bacteriology Institute correctly demonstrated that the etiological agent of rabies was not a protozoan, but a filterable virus and the argument about the significance of Negri’s bodies became wider and more intense, with eminent parasitologists taking conflicting positions. For many years, documentation of Negri bodies were the hallmark of rabies. Even today, despite research with the electron microscope, the significance of Negri’s bodies has not been definitively clarified. In 1912, at the age of thirty-five, Negri died of tuberculosis.

Baruch Samuel Blumberg (1925-2011)

Baruch Samuel Blumberg was an American research physician from Columbia University. Throughout the 1950s, Blumberg traveled the world taking human
blood samples and studying the inherited variations in human beings, focusing on why some people contracted diseases in similar environments that others did not.

In 1964, while studying yellow jaundice he discovered in the serum of an Australian Aborigine, an antigen which gave a clearly defined line of precipitation with sera from two hemophiliacs who had received multiple blood transfusions. This was named as the Australian antigen. By 1967, this antigen was found to be associated with hepatitis B virus. Blumberg and his team were able to develop a screening test for the virus to prevent its spread in blood donations and developed a vaccine. Blumberg later freely distributed his vaccine patent in order to promote vaccine development by drug companies. Blumberg shared the Nobel Prize for Physiology or Medicine in 1976 with Carleton Gajdusek for their work on the origins and spread of infectious viral diseases.

Blumberg’s book on his Nobel Prize-winning work, *Hepatitis B: The Hunt for a Killer Virus* was published in 2002. From 1999 to 2002 Blumberg served as director of the National Aeronautics and Space Administration (NASA) Astrobiology Institute, where he embarked on investigations into the possibility of life on other planets.

**Carlo Urbani (1956-2003)**

He was an Italian doctor and microbiologist and the first to identify severe acute respiratory syndrome (SARS) as a new and dangerously contagious disease.

Carlo Urbani graduated in Medicine in 1981 from the University of Ancona and obtained a specialization in infectious and tropical diseases from the University of Messina.

After years of working in the epidemic medicine field, in 1993 he became an external consultant of the World Health organization and in 1996 joined Medicine science Frontiers this took him to Vietnam and Cambodia for long term periods combating parasitic diseases and curing endemic pathologies. Soon he became president of the Italian Chapter of Medicine Science Frontiers and was one of the individuals who accepted the 1999 Nobel Peace Prize on behalf of that organization. With this money, he decided to create a fund to promote an international campaign for access to essential medicines for the world’s poorest populations.

In late February 2003, Urbani was called to The French Hospital of Hanoi to look at an American businessman who had fallen ill with what doctors thought was a bad case of influenza. Urbani realized that he did not have flu, but probably a new and highly contagious disease. He immediately notified the WHO, triggering the most effective response to a major epidemic in history. He also persuaded the Vietnamese Health Ministry to begin isolating patients and screening travelers, thus slowing the early pace of the epidemic.

Due to the work he did in Hanoi treating SARS infected patients, he became infected with the SARS virus himself and died. His death touched off a massive response by WHO that helped save the lives of millions of people around the world.

It is said that Dr. Urbani had an argument with his wife, Giuliana Chiorrini, who said it wasn’t responsible behavior for the father of three children ages 4 to 17 to risk his life treating such sick patients but Urbani replied, “if I can’t work in such situations, what am I here for? Answering e-mails, going to cocktail parties and pushing paper?”

**References**