

H5N1 Gain-of-Function Research

by Dawn P. Wooley, Ph.D., SM[NRCM], RBP, CBSP



*Drs. Yoshihiro Kawaoka and Ron Fouchier,
Gain-of-Function Influenza Researchers*

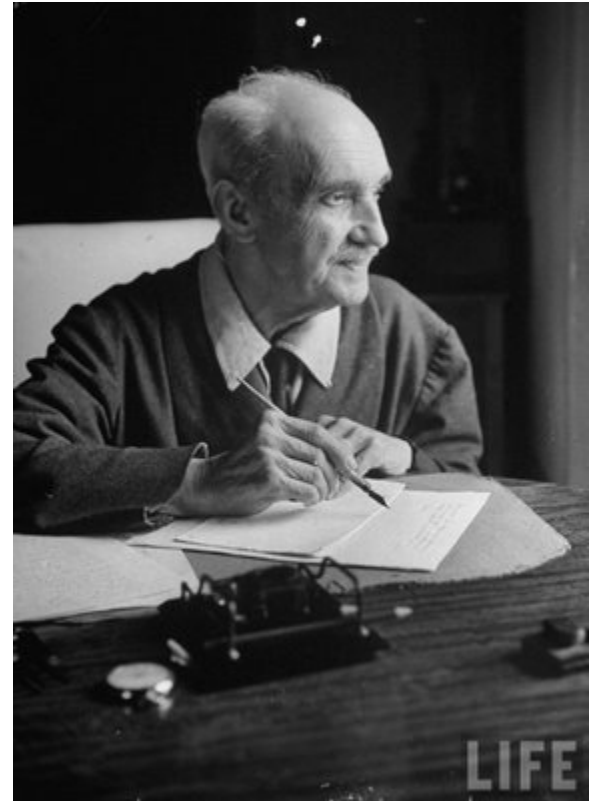
Disclaimer: The views presented here are my own.

“Those who cannot remember the past are condemned to repeat it.”

George Santayana

The Life of Reason

Volume 1, 1905

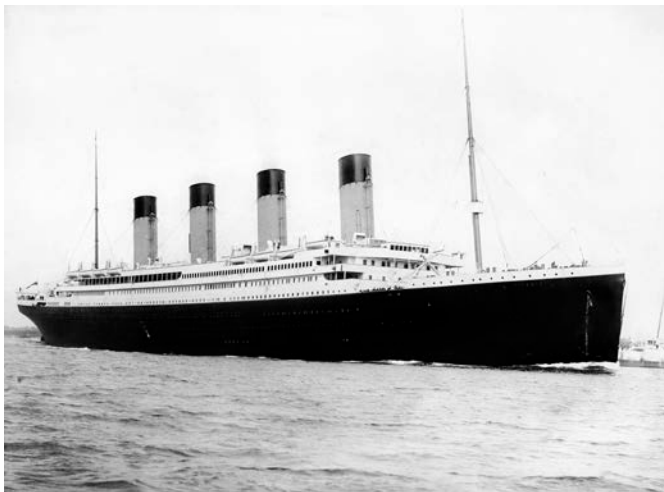


"UNSINKABLE."

SAFETY APPARATUS OF THE TITANIC.

Mr. Franklin, vice-president of the International Mercantile Marine, which controls the White Star Line, issued in New York yesterday the following statement:—

"We are perfectly satisfied that the Titanic is unsinkable. We are absolutely certain that she is able to withstand any damage. She may be down by the head, but would float indefinitely in that condition."



"...even God himself could not sink this ship!"

-- Unknown Titanic crewmember to embarking passenger Mrs. Sylvia Caldwell

BUILDER OF TITANIC SAYS SHE IS SAFE

Belfast, April 15.—A representative of Harland & Wolff, the constructors of the Titanic, interviewed today, said if the Titanic were sinking the collision must have been of great force.

The plating of the vessel, he said, was of the heaviest caliber and even if it were pierced any two of her compartments could be flooded without imperiling the safety of the ship.

“...the Olympic is unsinkable, and the Titanic will be the same when she is put in commission.”¹

– *Edward John Smith, Captain of the Titanic*



“...if in the unlucky incident of an individual exposure, the public will not be exposed.”²

– *Ron Fouchier, Gain-of-Function Influenza Researcher*

¹*Washington Times*, April 16, 1912

²*Royal Society of London Meeting*, April 3, 2012

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TITANIC SINKS, 1500 DIE

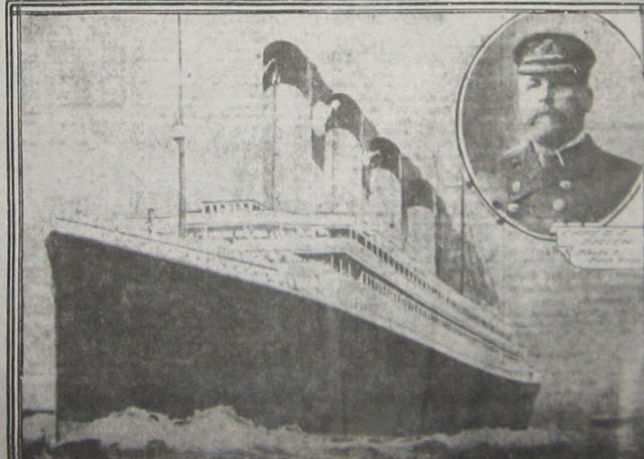
Carthia Picks Up 675 Out of 2200---Races for New York---Survivors Mostly Women and Children.

POLICE ORDER DORR'S ARREST

Lynn Chief Accuses Him of the
Murder of George E. Marsh.

Suspect Said to Have Left Boston
Thursday Night--Auto Found Here.

LYNN, April 15--Though facts were added to facts today with dramatic swiftness, the mystery of the murder of George E. Marsh, the man who was found shot through the heart on the West Lynn beach Friday morning in a boat, tonight thought that it had been at



Giant Steamer Goes Down
Before Help Arrives.

Virginian or Parisian May
Have Some Survivors

White Star Officials Admit
"Horrible Loss of Life".

Greatest Sea Tragedy in History

“Titanic, name and thing, will stand as a monument and warning to human presumption.”

The Bishop of Winchester, 1912

“...overconfidence seems to have dulled the faculties usually so alert.”

Senator William Alden Smith, 1912

“We designed an experiment to force the virus [HPAI H5N1] to adapt to replication in the mammalian respiratory tract and to select virus variants by repeated passage....”



Herfst S, Schrauwen EJA, Linster M, Chutinimitku S, de Wit E, Munster VJ, Sorrell, EM, Bestebroer TM, Burke DF, Smith DJ, Rimmelzwaan GF, Osterhaus ADME, Fouchier RAM. 2012. Science. 336:1534-1541.

Treatments and Preventions

Antivirals

- M2 Inhibitors
 - Amantadine (Symmetrel)
 - Rimantadine (Flumadine)
- Neuraminidase Inhibitors
 - Zanamivir (Relenza)
 - Oseltamivir (Tamiflu) ?
 - Peramivir (experimental; emergency use)



de Jong, MD et al. 2005. *Oseltamivir Resistance during Treatment of Influenza A (H5N1) Infection*. *N. Engl. J. Med.* 2005; 353:2667-2672.

Hurt, AC et al. 2009. *In Vitro Generation of Neuraminidase Inhibitor Resistance in A(H5N1) Influenza Viruses*. *Antimicrob. Agents Chemother.* 53(10)4433-4440.

H5N1 Vaccine



NIH Recombinant DNA Advisory Committee meeting, January 24, 2013
<http://videocast.nih.gov/summary.asp?Live=12452&bhcp=1>

H5N1 Vaccine – Recap

To make a new H5N1 vaccine:

“...it’s going to take 24 weeks [5 ½ months]....”

“...the pandemic wave would peak before we were able to deliver a substantial amount of vaccine....”

Armen Donabedian, Ph.D.
Scientific Advisor, Influenza Division of BARDA
Delegate of Robin Robinson, Director
Biomedical Advanced Research and Development Authority
U.S. Dept. of Health and Human Services



NIH Recombinant DNA Advisory Committee meeting, January 24, 2013
<http://videocast.nih.gov/summary.asp?Live=12452&bhcp=1>