



History of Aviation and Aviation Medicine

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THE IDEA OF FLYING... ...LIKE A BIRD



EVEN IN LEGEDS...

Daedalus and Icarus



Lanterns and kites

KITE FLYING (Mo Di 468-375 BC)



KONGMING LANTERN

(Zhuge Liang (Kongming) 181-234)



MAN-CARRYING KITES

Yuan Huangtou (559)



Roald Amundsen (1909)



LEONARDO DA VINCI

15-04-1452 to 02-05-1519



LEONARDO DA VINCI

Father of modern aircraft



The oldest existing flying device... ...L'Intrepid (1796)



MONTGOLFIERE HOT AIR BALLOON

Brothers Joseph-Michel and
Jacques-Eugene
Montgolfiere

First public demonstration 4th
June 1783 (Annonay,
France)



Lighter than air...

The Gas balloon

Balloon filled with a gas (such as hydrogen and helium) that is "lighter than air)

First launch 27 August 1783

Robert brothers and prof
Jacques Charles – Paris,
France



The “Hop”

Clement Ader (France)

9 October 1890

First brief uncontrolled powered flight (hop):

50m 20cm from the ground

Steam powered

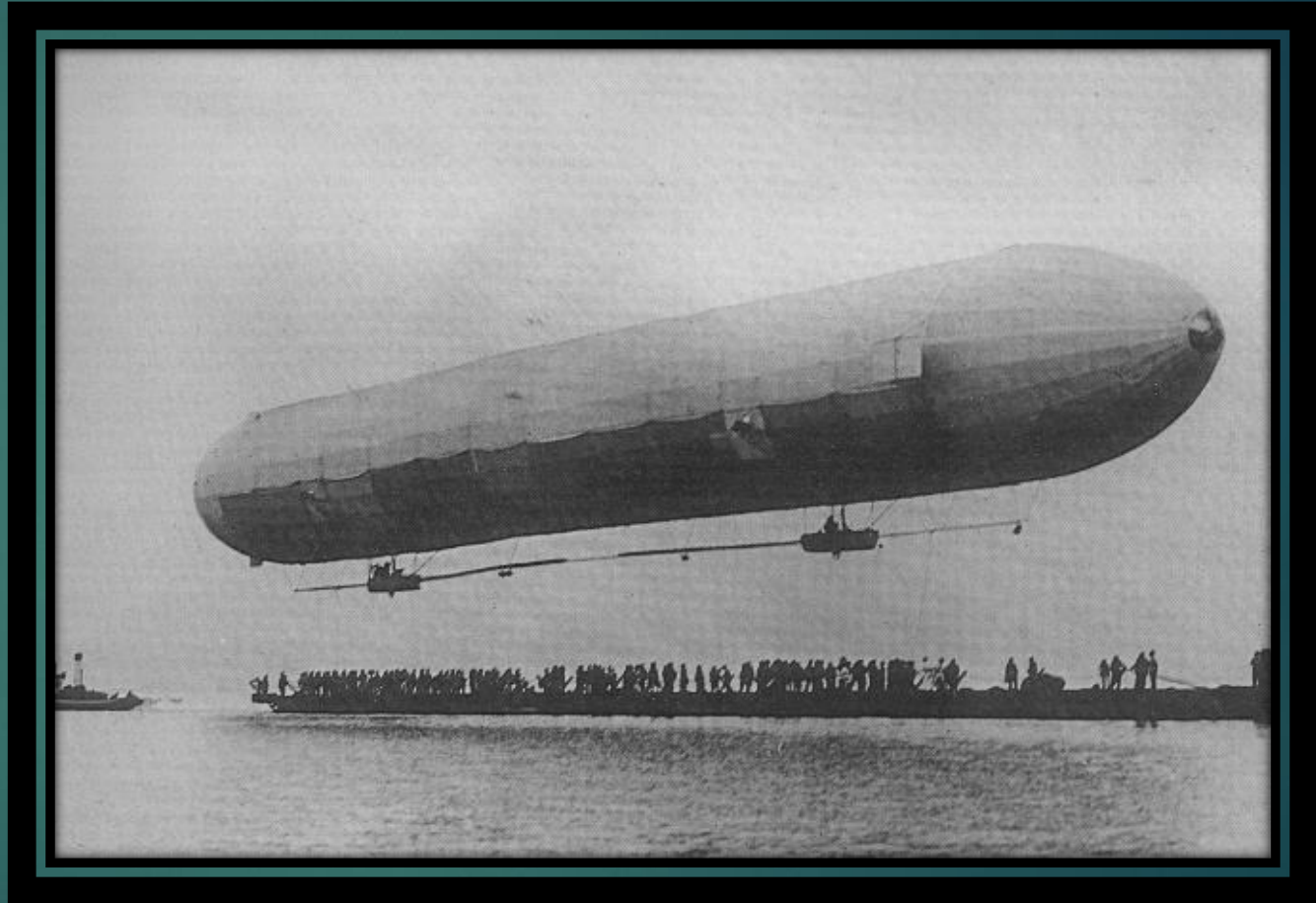


Ferdinand von Zeppelin

Flew as balloon passenger

Pioneered the rigid airship's design and advancement

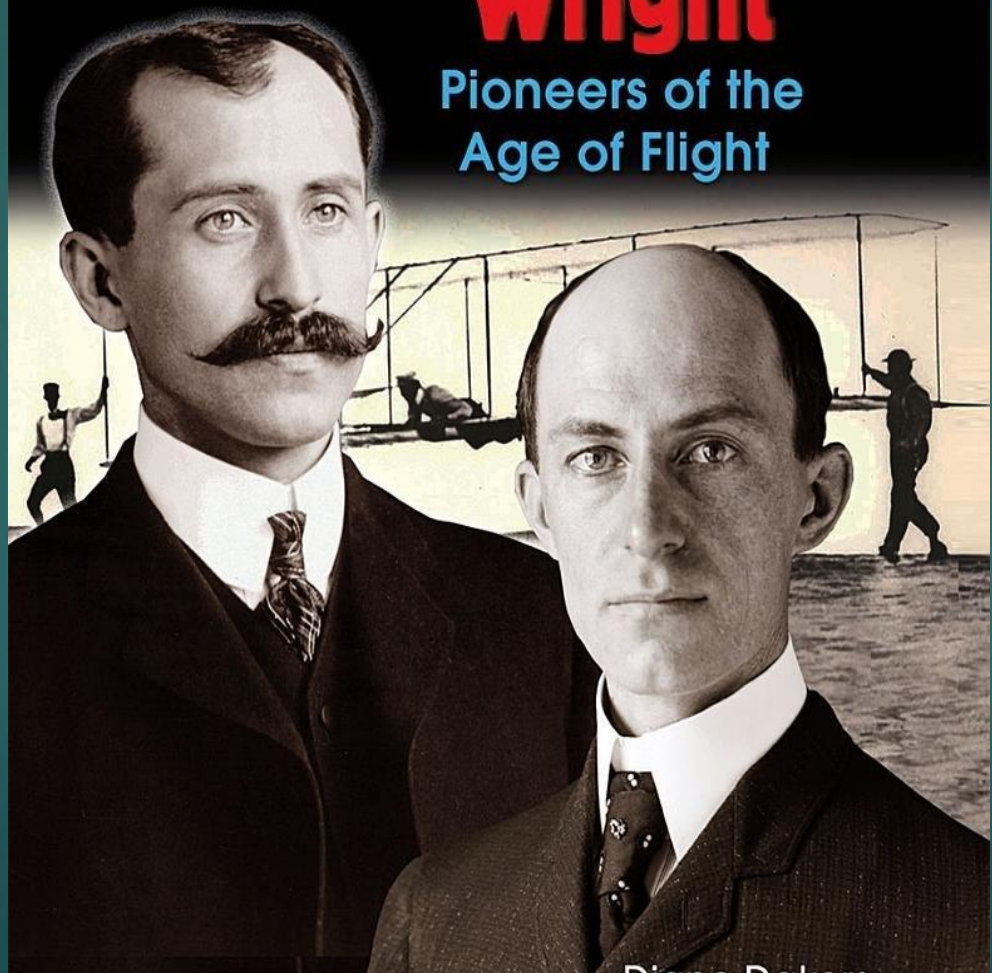
First flight 2 July 1900 – lasted 18 minutes





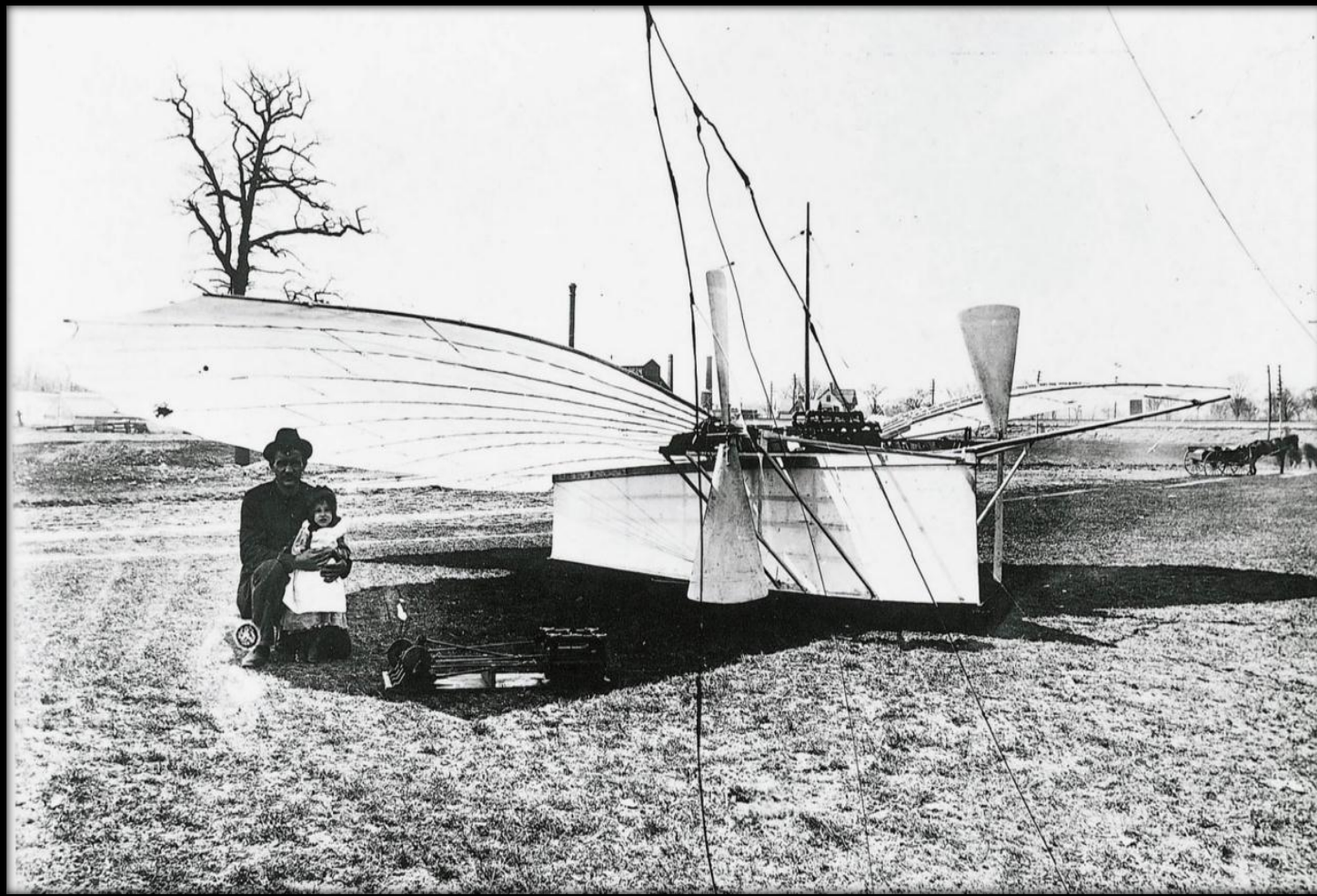
Orville and Wilbur Wright

Pioneers of the
Age of Flight



Directed by

GUSTAVE WHITEHEAD



WILBUR and ORVILLE WRIGHT

17 December 1903, Kitty
Hawk, North Carolina, USA

The first powered, sustained
and controlled airplane
flight

First heavier-than-air flight



THE FIRST HELICOPTER FLIGHT

14 September 1939

Designed by Igor Sikorsky:
The VS-300

Stratford, Connecticut

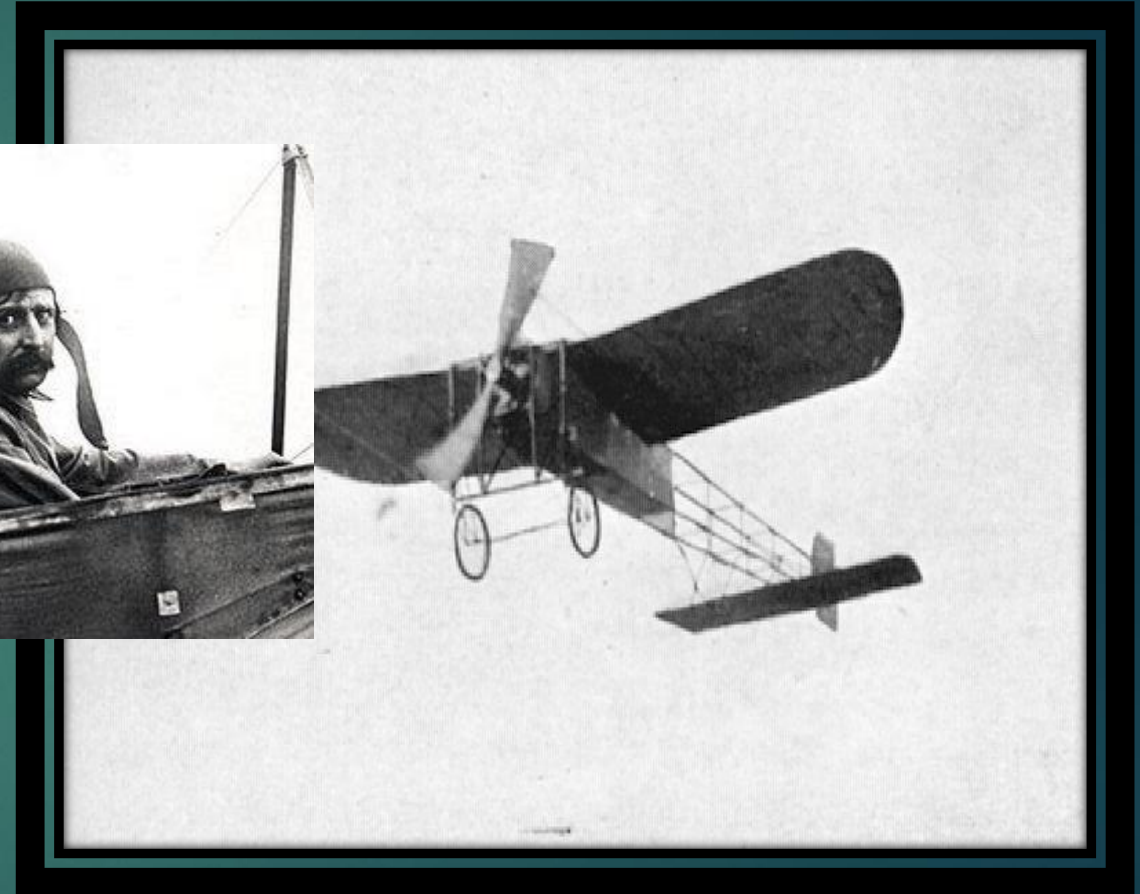


TESTING THE CONTROLS. Mr. Igor Sikorsky makes the first ascent on his new helicopter. Note that the machine is "tethered." Subsequently several free flights were made.

Louis Bleriot

Inventor and manufacturer

Joined Gabriel Voison in
1905 to form the world's first
aircraft manufacturing firm



The Bleriot XI

First airplane to cross a large water mass (The English Channel) (25 July 1909)

First European plane to be used for military campaign (1911)

First ever plane to be used to perform aerobatics (1913)



GEOFFREY DeHAVILLAND

Built his first plane in 1909

Joined the Royal Aircraft
Factory (RAF) in 1911

Within 1 year BE1 And BE2
planes

BE2 was the first inherently
stable aircraft – the basis of
all general / commercial
planes thereafter



SIKORSKY *ILYA MUROMETS*

Refinement of Sikorsky's
initial designs – several
variants

Four engine bi-plane

First flight 10 December 1913

First passengers (16):
25 February 1914



JUNKERS F13

World's first all-metal
transport airplane

Developed in Germany at
the end of WW1

First flight 25 June 1919

Retired in the 1930's



FIRST AND OLDEST AIRLINE

Royal Dutch Airline = KLM

Flew from Croydon Airport,
London to Amsterdam

7 May 1920

Leased DeHavilland



AVIATION IN SOUTH AFRICA

Major Allister Miller



Stamford Hill Aerodrome
Union Airways 1930



UNION AIRWAYS

First South African
Commercial Airline

Operated 1929 – 1934 when
it was taken over by the
government to form SAA

Fleet: 8 Employees: 40



FIRST COMMERCIAL JET FLIGHT TO SA

2 May 1952

London to Johannesburg

A DeHavilland Comet

British Overseas Airways
Cooperation



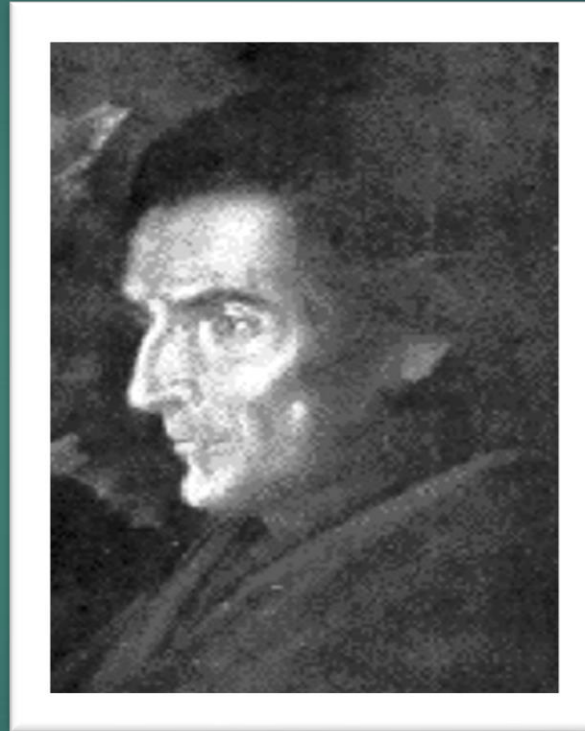
Gasses and Gas laws

Father Jose de Acosta

Spanish missionary and naturalist

Peru 1604

One of the earliest people to
describe altitude sickness

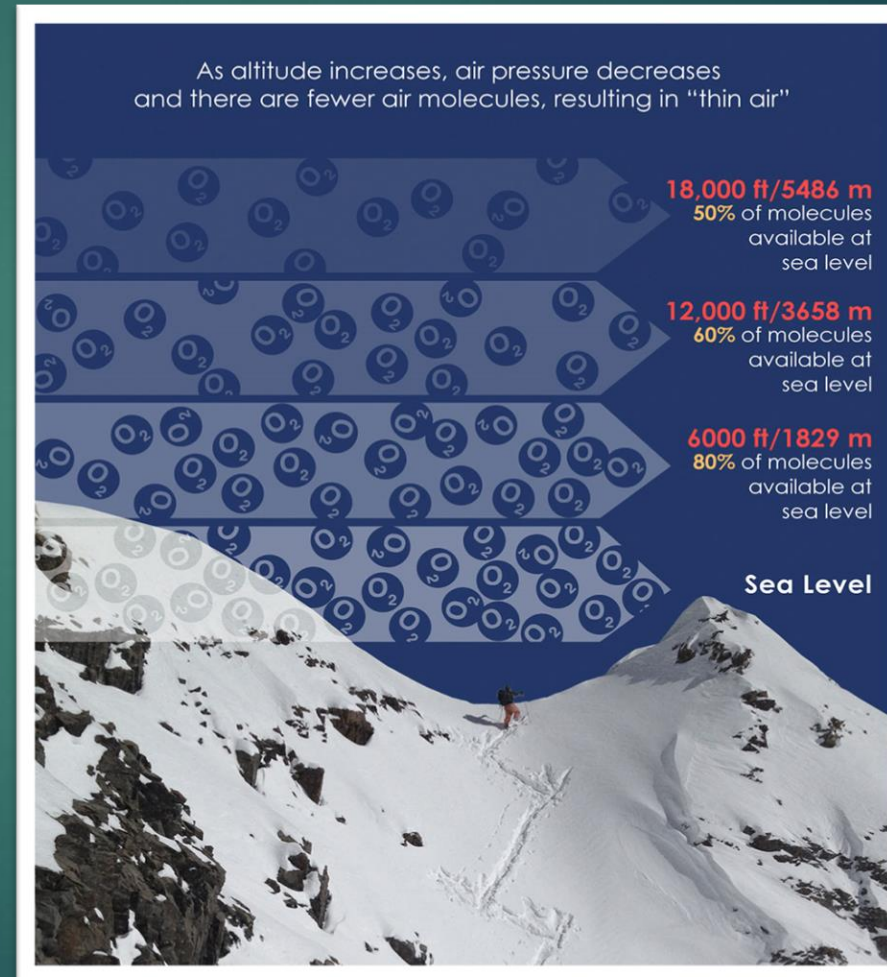


Gasses and Gas laws

Boyle: The pressure and volume of a gas have an inverse relationship if the temperature

Charles: Volume of gas at constant pressure is directly proportional to temperature

Important with the use of oxygen tanks at high altitude and in emergencies



OXYGEN

First isolated in 1604 by Michael Sindevogius

The element was independently discovered by CW Sheele (1773) and Jason Priestly (1774)

Priestlyn is accredited because he published first



HYPERBARIC CHAMBER

Neurologist James Corning (NY, USA) built first hyperbaric chamber in 1861

German inventors Bernhard en Dräger were the first to successfully use the chamber in decompression after a diving accident (1917)

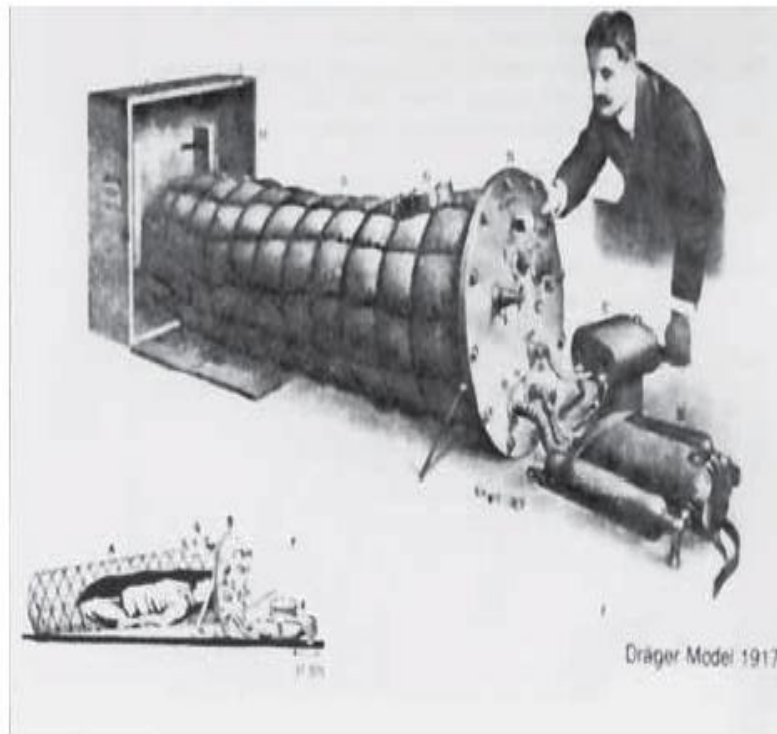


Figure 1.6
Sketch of the 1917 Dräger 2 ATA system for diving accidents, including oxygen breathing system. (Photo courtesy of Dr. Baixe, Toulon, France.)

AVIATION ACCIDENTS

First passenger death
accident: Thomas Selfridge
and Orville Wright

17 September 1908



WW1

Aircraft lost:

8% to mechanical reasons

2% to combat

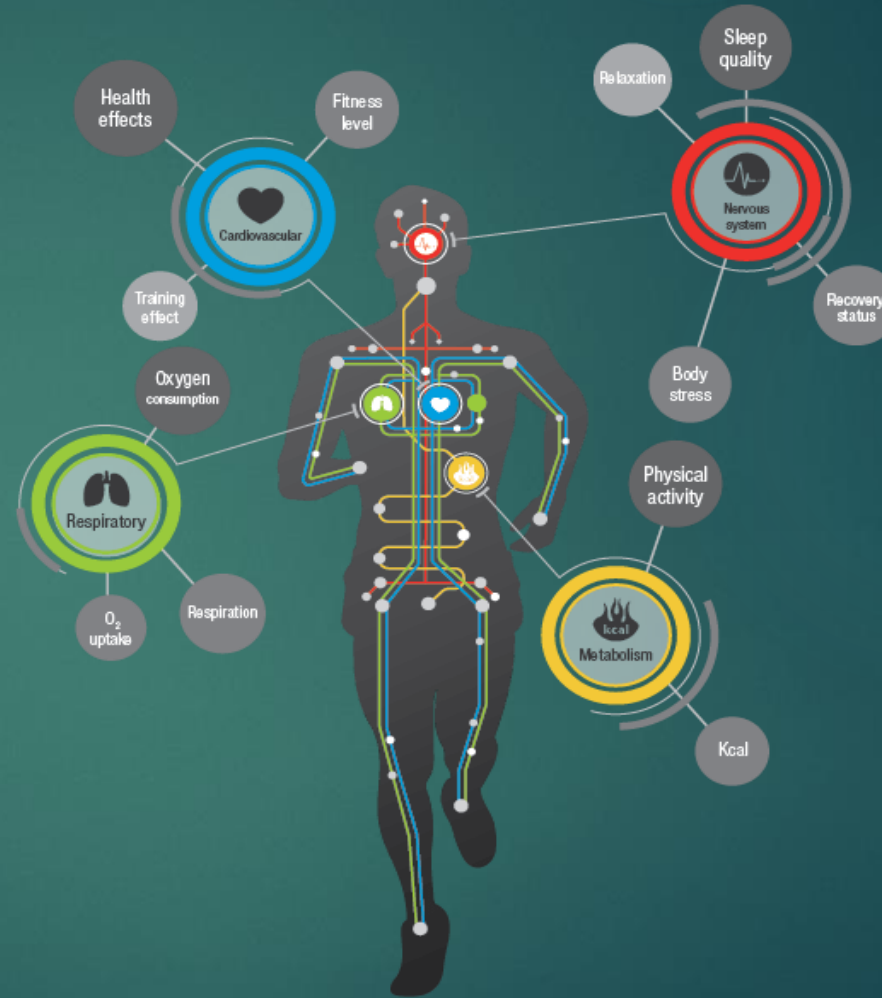
90% to human factors



It might have
been worse!



HUMAN PHYSIOLOGY HAS ITS LIMITATIONS



EVIDENCE-BASED MEDICINE

No longer conventional
wisdom and tradition

French physiologist Claude
Bernard (1813-1878)

Discovered the functions of
my systems in the body and
created the term
“homeostasis“

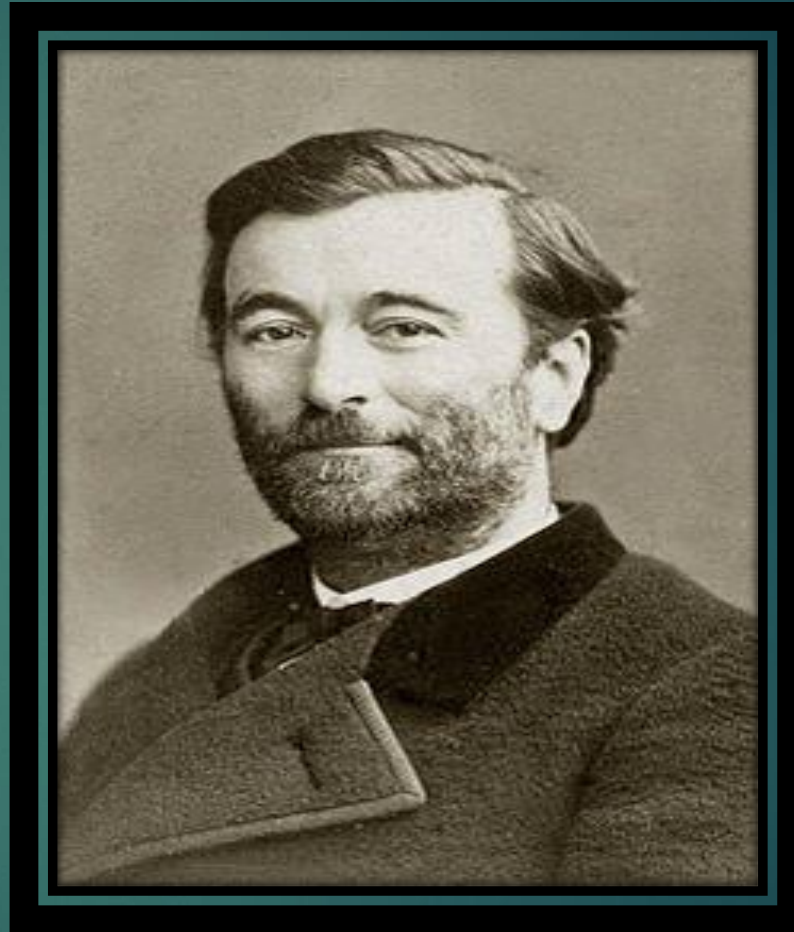


FATHER OF AVIATION MEDICINE

French physiologist Paul Bert
(1833-1886)

Published many articles in
the new field of flight
physiology

Very interested in the effects
of high-altitude on the body



FIRST HYPOBARIC CHAMBER

Paul Bert was the first person to state that the deleterious effect of high altitude is caused by low partial pressure of oxygen

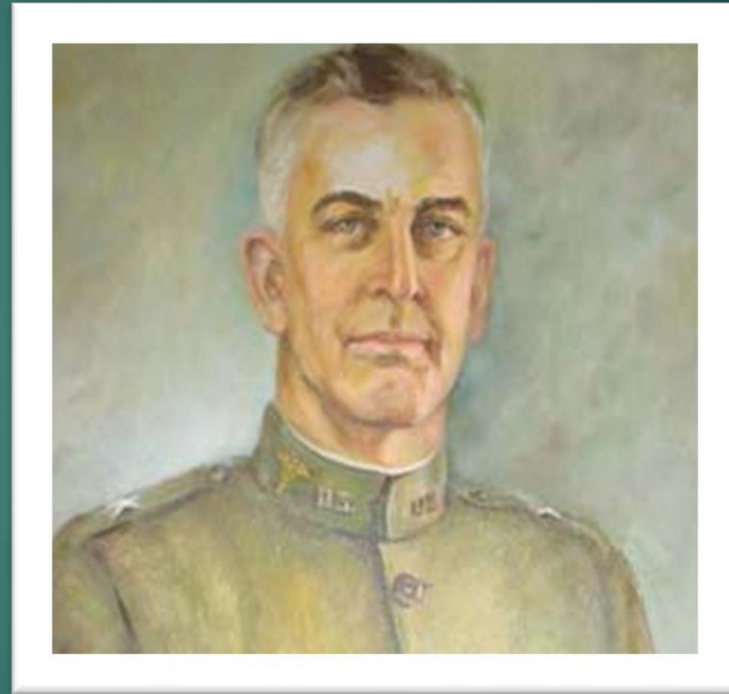


BRIG GENL THEODORE LYSTER (1875-1933)

Possible contender for Paul Bert as “Father of Aviation Medicine”

Served as Chief Surgeon of the Army's Aviation Section during WW1

Organized the first issuing of medicals / licenses to commercial pilots



NEW INVENTIONS AND TESTS

Barney chair (1919)



Modern Barney chair

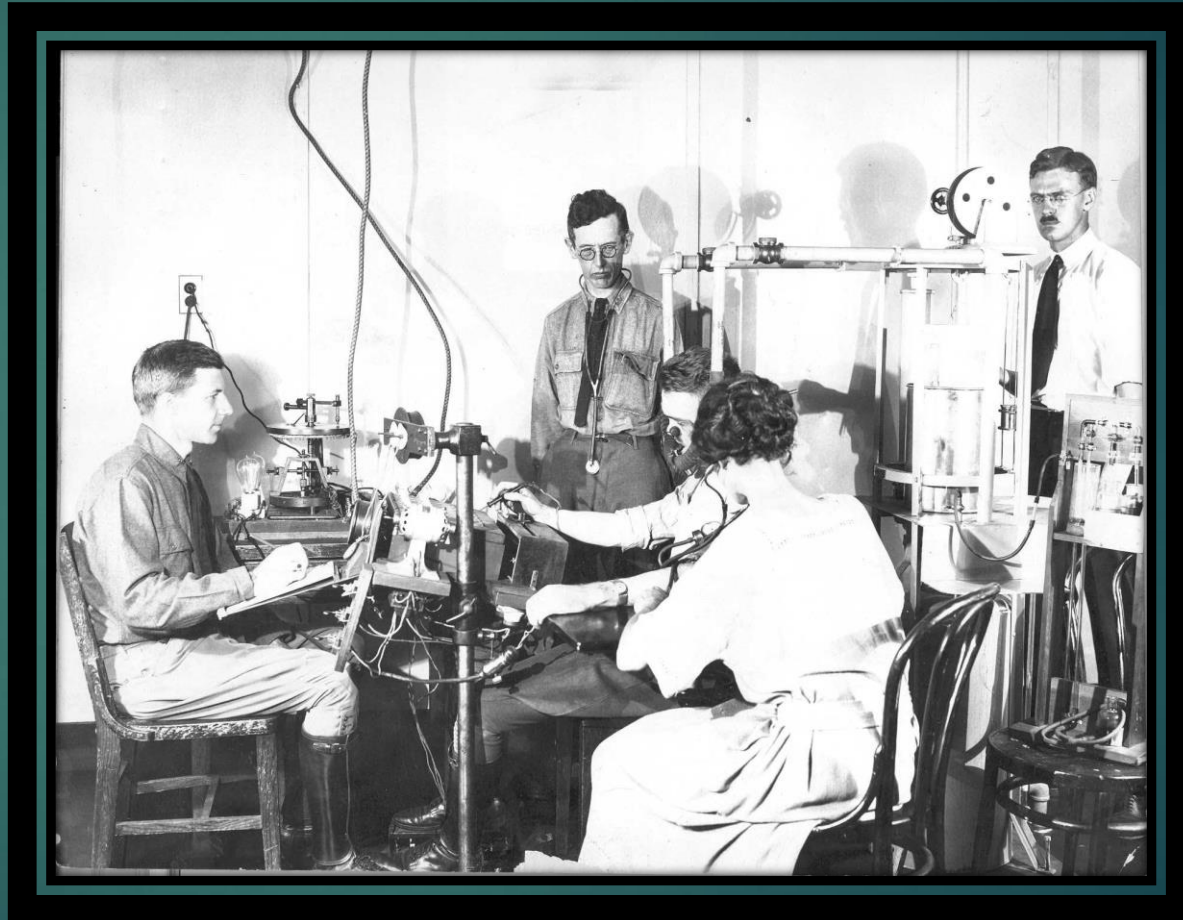


FITNESS TO FLY

Germans were the first to develop a minimal set of aeromedical standards for pilots (1910)

Soon followed by Italians, British and French

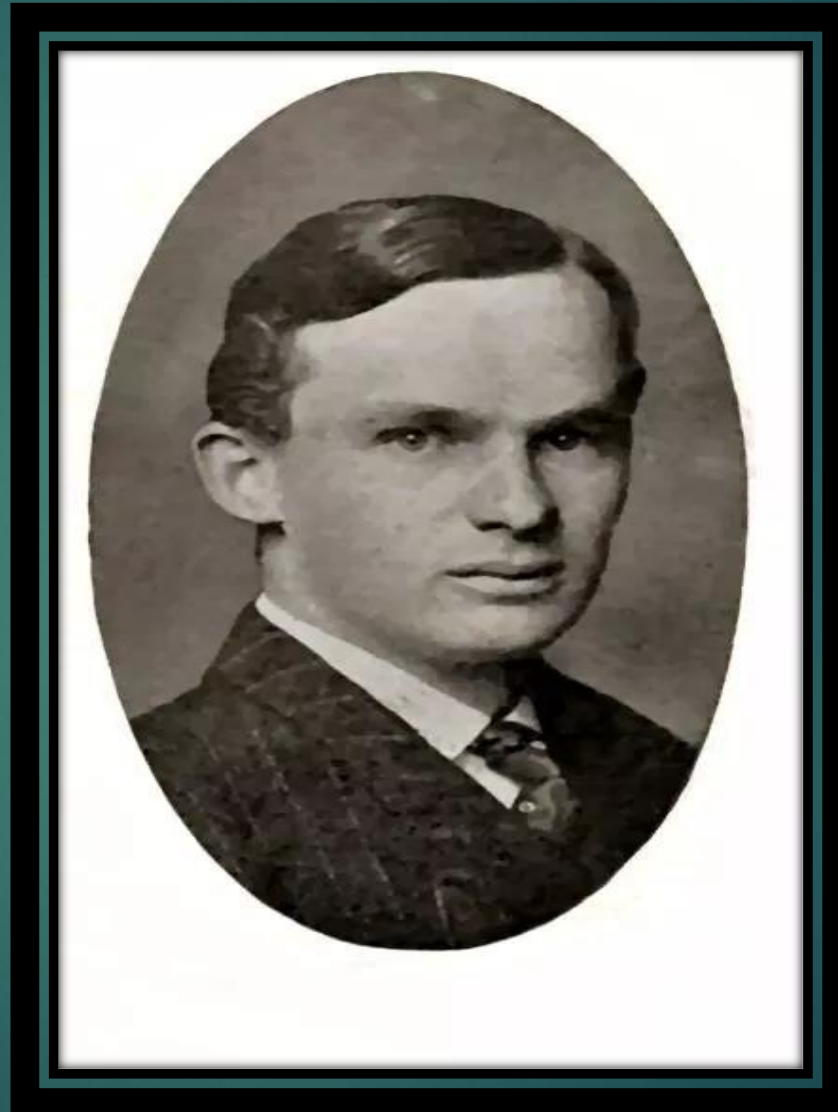
US published the first set of instructions for performance of an aviation medical in 1912



FIRST FLIGHT SURGEON

Theodore Lester chose otologists Isaac Jones and Eugene Lewis to assist with the expansion of aviation medicine

They trained 3 doctors: Dr Robert J Hunter reported for duty on 13 May 1918 to become the first official US "Flight Surgeon" (AME)



**History is a pack of lies
about events that never
happened told by
people who weren't
there.**



QuoteHD.com

George Santayana

Spanish Philosopher

1863-1952

**THOSE WHO DO
NOT LEARN FROM
HISTORY ARE
DOOMED TO
REPEAT IT.**



George Santayana

Spanish Philosopher

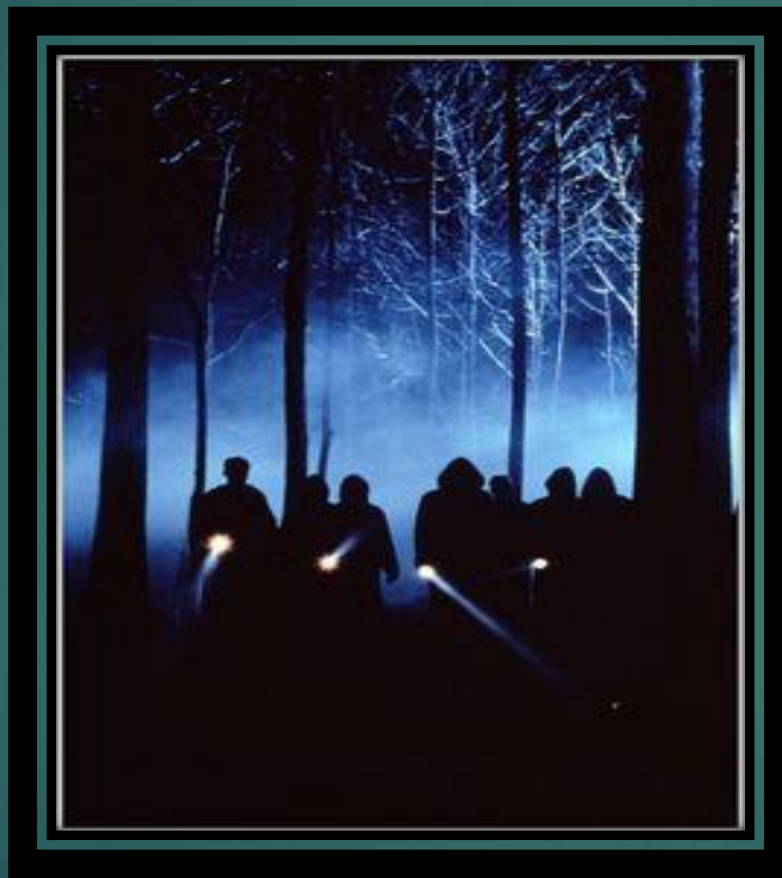
1883-1952

QuoteHD.com

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THANK YOU



THE FLIGHT OF ICARUS

▶ <https://youtu.be/blmCWFr2r58?t=4>