



### **Professor George Hartley Bryan (1864 – 1928)**

The photograph and the following text are from Wikipedia, the free encyclopedia:

George Hartley Bryan FRS (1 March 1864 – 13 October 1928), generally referred to in the technical literature as G. H. Bryan, was a professor at University College, Bangor, Wales who is generally credited with developing the modern mathematical treatment of the motion of airplanes in flight as rigid bodies with six degrees of freedom. Aside from minor differences in notation, Bryan's 1911 equations are the same as those used today to evaluate modern aircraft. (Perhaps surprisingly, Bryan's equations - published just eight years after the first aircraft flew - are most accurate when applied to supersonic jets.) In evaluating aircraft mathematically, Bryan focused on issues of aerodynamic stability rather than on control; stability and control of an aircraft tend to lie on opposite ends of the same spectrum. Bryan's aeronautic results were an extension of his earlier work in fluid dynamics. In 1888, Bryan developed mathematical models for fluid pressures within a pipe and for external buckling pressures. These models are still used today.

In 1890, Bryan discovered the so-called "wave inertia effect" in axi-symmetric thin elastic shells. This effect is the theoretical basis for modern solid-state gyroscopy using "wine-glass" resonators, which were elaborated by Dr. David D. Lynch, at almost a century after Bryan's original discovery. These novel, precise sensors are

now developed in the United States, Ukraine, Russia, France, South Africa, and China. They are used for satellite guidance systems, among other applications.[citation needed]

He was elected a Fellow of the Royal Society in June, 1895.

Bryan's seismologic studies of Coriolis effects in massive liquid spheres have received experimental confirmation from data collected by seismologic stations set up to detect nuclear explosions in the aftermath of World War II, as well as from seismographic data from the Great Chilean Earthquake of 1960.

G.H. Bryan was an earlier pioneer in the field of structural buckling:

Bryan, G.H., "On the stability of a plane plate under thrusts in its own plane, with applications to the buckling of the sides of a ship", *Math. Soc., Proc.*, Vol. 22, London, 1891, p. 54

Bryan, G.H., "On the buckling and wrinkling of plating when supported on parallel ribs or on a rectangular framework", *Math. Soc., Proc.*, Vol. 25, London, 1894, p. 141