

CORRESPONDENCE

To the Editor of the JOURNAL OF THE ROYAL AERONAUTICAL SOCIETY.

Dear Sir,—Mr. W. O. Manning, in his letter in the *JOURNAL OF THE ROYAL AERONAUTICAL SOCIETY* for July, 1933, voices a popular but erroneous belief that it was the coming of light power that gave to the Wrights the opportunity to fly that had been denied to their predecessors.

Although, as Mr. Manning very rightly says, the Wright aeroplane engine was not available in 1848 for Stringfellow, I would remind him that other engines of lighter weight per horse-power had been built previous to the Wright engine by Maxim and by Manly. Both Maxim and Langley, who used these engines when they built their power-driven machines in 1891 and 1903, had the knowledge of the earlier work of Sir George Cayley and of Stringfellow, but the possession of this knowledge and adequate power did not enable them to fly. There seems to be no ground for supposing that they would have succeeded had they possessed the Wright aeroplane engine instead of the lighter engines which they did possess.

It was in the decade preceding the Wrights' invention of their aeroplane that at least two Governments, encouraged by the fact that adequate power was then available, subsidised the building of flying machines and the attempts to fly them. They failed, not for lack of power, but because of their lack of knowledge of how to apply and control that power. In order to fly it was necessary to make efficient wings, produce efficient propellers, direct the thrust in the right direction, and manipulate the machine in such a way as to enable the man not only to rise in the air, but to remain in sustained flight and subsequently to land so as to fly another day.

Perhaps Colonel Lahm might not have drawn Mr. Manning's criticism had he referred to the Wright Brothers as the inventors of the first successful airplane, but the word "successful," to my mind, is included in the term "airplane" in the same way that "flight" is now recognised, since the Gorell Committee, as being confined to actual flight and is not applicable to unsustained hops or to flights assisted by towing from a car.

I would therefore submit, with all respect to Mr. Manning's long experience, that Colonel Lahm, in referring to the Wright Brothers as the inventors of the airplane, is justified in this expression without requiring the qualification "successful" or "capable of flight" to be added after the word "airplane."

Yours faithfully,

GRIFFITH BREWER.

THE BEHAVIOUR OF FLUIDS IN TURBULENT MOTION

To the Editor of the JOURNAL OF THE ROYAL AERONAUTICAL SOCIETY.

Sir,—I read with great interest the lecture of December, 1st, 1932, on "The Behaviour of Fluids in Turbulent Motion," by Mr. Fage, as I have followed for many years his very valuable contributions to the modern experimental hydrodynamics. I especially appreciated in his last paper the statement that the fully developed turbulence is essentially three-dimensional even if the mean motion is two-dimensional. I came to the same conclusion by some theoretical statistical investigations on turbulence which I recently carried out where the assumption of a two-dimensional turbulence failed.