

Bernoulli's Principle and the Theory of Flight

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Abstract. When an aeroplane moves horizontally through the air, the air pressure below the wings is greater than the air pressure above the wings. This causes a force to act vertically upwards on the aeroplane, at right angles to its direction of motion. Likewise when an electric current flows through a wire in a magnetic field, a differential pressure is exerted on either side of the wire, causing a force to act at right angles to the wire. In the former case the pressure arises from the centrifugal force that is being exerted by the air molecules, whereas in the latter case the pressure arises from the centrifugal force that is being exerted by the tiny molecular vortices that form the medium for the propagation of light.

Centrifugal Force

I. The classical planetary orbital equation indicates that centrifugal force is a radial inverse cube law repulsive force which is dependent on angular momentum. The inverse cube law relationship is indicative of a dipole field, and so centrifugal force must be an electromagnetic effect arising in a sea of electric dipoles.

Maxwell proposed that space is filled with a solenoidally aligned sea of molecular vortices. He demonstrated that it is asymmetric centrifugal pressure in this sea of molecular vortices which causes the force that acts on a current carrying wire. This is explained on page 172 in part I of his 1861 paper "On Physical Lines of Force".[1] Combining these two lines of reasoning, we can conclude that space is densely packed with rotating electron-positron dipoles in which the electrons act as aether sinks, and in which the positrons act as aether sources. Each dipole will entail an electron and a positron undergoing mutual circular orbit. These dipoles will be solenoidally aligned along their mutual rotation axes in a double helix fashion such that the alternate stacking of the electrons and the positrons gives rise to magnetic lines of force and the associated Coulomb tension along those lines of force.[2] The electron-positron sea will be referred to as "The Electric Sea". As regards aerodynamic lift, the source of the centrifugal force will be on a larger scale. Air pressure

arises because of the repulsive force that exists between the air molecules due to their vorticity.

Compound Centrifugal Force

II. Compound centrifugal pressure is the resultant of two opposing centrifugal pressures in a medium that is comprised of molecular vortices. It can be either written as $\mathbf{v} \times \mathbf{H}$ or as $\nabla(\mathbf{A} \cdot \mathbf{v})$, where \mathbf{H} is vorticity, \mathbf{A} is the momentum per unit volume of aether, and $\mathbf{A} \cdot \mathbf{v}$ is the centrifugal potential energy. See “The Coriolis Force in Maxwell’s Equations”. [3]

In the radial field of a planetary orbit, the gravitational tail on the far side of the planet ensures that no inward centrifugal pressure acts on that side. The outward pressure in this case is therefore a simple centrifugal pressure with formula $\frac{1}{2}\nabla(\mathbf{A} \cdot \mathbf{v})$. The compound centrifugal force is however observed in the transverse motion of a non-circular planetary orbit. The gravitational field of planetary bodies will entrain an extended region of the electric sea when they are undergoing translational motion. Motion of a planet and its entrained gravitosphere through the wider electric sea causes an interaction at the interface region which will generate an inertial aether pressure (kinetic energy). The radial component of the non-circular motion causes a differential between the inertial pressure on the windward side of the transverse motion and the inertial pressure on the leeward side of the transverse motion. This pressure differential reverses directions according to whether the planet is moving upwards or downwards. The relationship $\mathbf{H} = 2\boldsymbol{\omega}$ in the compound centrifugal force term $2m\mathbf{v} \times \boldsymbol{\omega}$, where $\boldsymbol{\omega}$ is angular speed, indicates that the electric sea must be a rigid solid. This solid will be permeated with an aether juice which oils the interface regions as the planetary bodies and their gravitospheres move through it. An effusion of aether pressure from the positrons will cause a hovercraft effect at the interfaces in line with Kepler’s laws of planetary motion.

If we increase the volume of a sample of gas, the molecules will dilate and the centrifugal pressure being exerted by the molecules will reduce. When an aeroplane is moving forwards, the camber on the upper side of the wings will cause the air above the wings to expand. The air pressure above the wings will therefore be less than the air pressure below the wings and a compound centrifugal pressure will induce an upward vertical force at right angles to the forward motion.

The Angle of Attack

III. The lift effect in aerodynamics can be enhanced by tilting the wings relative to the horizontal. This results in extra compression beneath the wings as well as an additional force due to the wind. However, while increasing the angle of attack creates these additional effects, it also reduces the vertical component of the reaction force against the underside of the wings. There is therefore an optimum angle of attack, and if the angle of attack becomes too large, the aeroplane will stall.

Conclusion

IV. The principle of flight is “compound centrifugal force”. The air molecules exert a centrifugal pressure, and they exert it differentially above and below the wings. This induces a resultant force at right angles to the forward motion of the aeroplane. The camber on the upper side of the wings causes a rarefaction and hence a reduction in the air pressure above the wings as compared to below the wings. The fact that in the process, the centrifugal potential energy of static compression (the potential energy) converts to kinetic energy is incidental. The kinetic energy of the air molecules is their inertial pressure, and it combines with the static pressure to cause the total pressure. Kinetic energy is the centrifugal aether pressure that is induced by virtue of motion through the luminiferous medium. The temperature of a gas is the kinetic energy of the molecules per unit volume, but the pressure of the gas on the other hand is the total energy per unit volume, hence it makes no difference to the total pressure when potential energy converts into kinetic energy. Bernoulli’s principle is merely a statement of the law of conservation of energy, but it is not the underlying cause of flight. The theory of flight is analogous to the force on a current carrying wire in a magnetic field. In the latter case, the compound centrifugal force arises because of the molecular vortices that form the luminiferous medium. These vortices cause an asymmetrical pressure and hence a net force across the current carrying wire. When the compound centrifugal force acts in the transverse direction in a radial field, we call it the Coriolis force. The Coriolis force has strong parallels to the case of an electric current that is induced when a wire moves at right angles through a magnetic field.

References

[1] Clerk-Maxwell, J., “On Physical Lines of Force”, Philosophical Magazine, Volume 21 (1861)

http://vacuum-physics.com/Maxwell/maxwell_oplf.pdf

[2] Tombe, F.D., “The Double Helix Theory of the Magnetic Field”

<http://www.wbabin.net/Science-Journals/Research%20Papers-Mechanics%20/%20Electrodynamics/Download/252>

[3] Tombe, F.D., “The Coriolis Force in Maxwell’s Equations”

<http://www.wbabin.net/Science-Journals/Research%20Papers-Astrophysics/Download/3161>

and also “Archimedes’ Principle in the Electric Sea”, Galilean Electrodynamics, Volume 20, Number 1, page 19 (2009)