

nature or quality (of the things introduced from now on) will be the subject as indicated by what was written so near the end of *The Infinite*:

Having finally arrived at this stage by the resolution of cause we are now for the first time in a condition to institute the question of quality (p. 133).

Notes and Comments

Swedenborg's Flying Machine

The Fall 1986 issue of *Logos*, newsletter of the Swedenborg Foundation, presents an interview between the editor, Mr. Darrell Ruhl, and Mr. Henry Soderberg, retired Vice President of Scandinavian Airlines Systems. Mr. Soderberg is engaged in research for a book he is writing "about the participation and role of the Scandinavians ... in the development of international aviation." He explains that his first encounter with Swedenborg's design of a flying machine was in an issue of the journal of the Royal Aeronautical Society of London which he encountered in the aviation library of the Massachusetts Institute of Technology.

More recently, Miss Elizabeth Whitehead of the Academy of the New Church Library called my attention to an article on the history of flight published in the magazine *Automobile Quarterly* by John C. Rhodes. Entitled: "On a Cushion of Air. An Informal History of Man's Attempts to Harness the Air for Land Travel" (*Automobile Quarterly*, New York, Winter 1967, vol. 5 no. 3, pp. 280-291), the article contains interesting comments on Swedenborg's machine as a device that has its modern counterpart in the hovercraft, rather than in the airplane, for which lift is gained by air flowing over wings. The article is illustrated by a photograph of a model of Swedenborg's machine, provided by the Stockholm Technical Museum.

On p. 285 we read the following:

In spite of its notable lack of success in providing a practicable and efficient motive power for vehicles, the properties and the possibilities of the gas called air had long fascinated

scientists and inventors. As early as 1716, the Swedish philosopher, theologian and scientist, Emanuel Swedenborg, devised a dome-shaped, oared machine to take advantage of the supporting properties of air. Although Swedenborg seems to have recognized that his machine could not really support itself (adequate mechanical power was simply not available and the man-powered oars would have beat the air futilely), his must, nevertheless, be acknowledged as man's first attempt to utilize the cushioning effect of air.

Almost two and one-half centuries later, Swedenborg's idea was to come to genuine fruition. In June of 1959, British engineer Christopher S. Cockerell's curious vehicle, bearing the designation SR-N1, soared—or floated or skimmed or hovered, if you will—over the choppy waters of The Solent, the western part of the channel separating the Isle of Wight from the English mainland

Officially designated a "hovercraft," the SR-N1 bore the aircraft markings G-TZ-4. Similar vehicles that have been constructed in various parts of the world have been termed generically Air Cushion Vehicles... or Ground Effect Machines.

Readers interested in this may care to consult the SSA publication *The Mechanical Inventions of Emanuel Swedenborg* translated and edited by Alfred Acton (SSA, 1939). In this work Swedenborg's description of the machine as given in the first Swedish scientific journal *Daedalus Hyperboreus* (for June 1716) is presented in full. With it is included Swedenborg's unpublished sketches and description of the machine, and a diagrammatic reconstruction of it by Mr. Gustav Genzlinger.

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