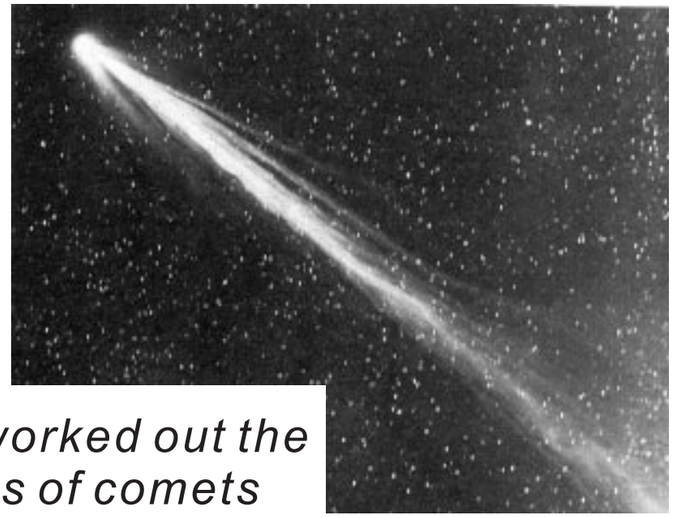
Rudjer Boscovich

1711 - 1787

Boscovich was a natural philosopher with broad interests who was known for his ideas about the structure of matter. He was born in 1711 in Dubrovnik, at the time an independent Republic. His father, who came from a village not far from the sea, was successful in commerce and married in Dubrovnik. He died when Rudjer was about 10. His mother, a robust and active woman with a happy temperament, lived to the age of 103. Rudjer was the eighth among nine children. His eldest sister Maria, nineteen years his senior, was the only member of his family to marry.

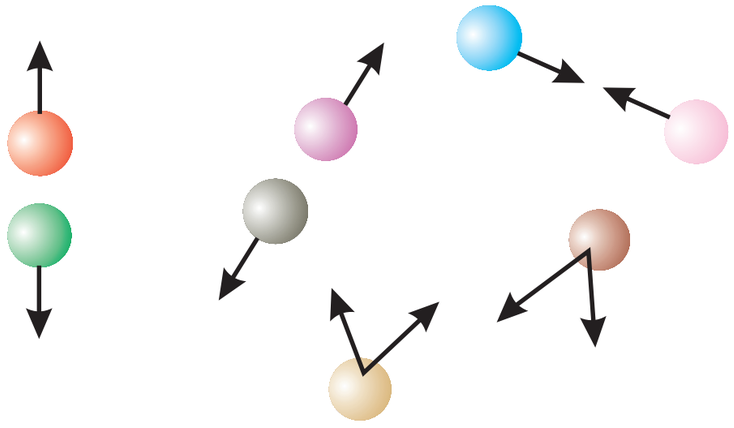
The initial education of Rudjer was provided in a school run by the Jesuits. His capabilities were noticed and he was recommended for further study. At the age of 14 he was sent to Rome where he remained for three decades, at first as a student in the Jesuit Collegium Romanum and later as its professor.

Later he held the chair of mathematics in Pavia, organized an astronomical observatory in Brera near Milan and on the invitation of the French king became director of optics for the navy. He was an ardent traveller and visited many places between London and Constantinople, but his plans for scientific missions in Brazil and California did not materialize.



He worked out the paths of comets

Among about 70 publications the most important is his 'Theory of natural philosophy, reduced to a single law of the actions existing in nature' published in 1758 in Vienna. There he advocates the idea that **matter consists of structureless point- like 'atoms'** which interact with a strong repulsive force at small distances and weakly attract each other at large distances. At intermediate distances he assumed that the force alternates between attraction and repulsion; this led him to conclude the existence of particular stable orbits of the particles around each other. These ideas had their reflection in the subsequent work of Faraday, Maxwell, Lord Kelvin and J.J. Thomson.



He had ideas about 'atoms' and the forces between them

Boscovich was a strong supporter of Newton's philosophy and in 1758 he clearly stated determinism as a basic scientific principle. He wrote: 'In this manner all other motions will be determined for all time, and thus the whole of Nature, depending as it does on motions, distances, positions and velocities of all points, will be determined only by the number of points and by the position, direction and velocity imparted to individual points at the moment of their creation, and by the single law of force which determines changes and which will therefore also include the force of inertia and all other active forces which determine all phenomena.'

He participated in the measurement of the meridian between Rome and Rimini, devised a geometric method for the study of the trajectories of comets, and **expressed his views on the relativity of time and space.**

On two occasions he provided his good offices to help Dubrovnik. In the first instance the authorities in Dubrovnik were afraid that there might be retaliatory action by the British because a French ship was undergoing repairs in the city port. In the other alarming situation there was a fear of Russian ships that at the time of their war with Turkey they might decide to act against the continuing commercial links between Dubrovnik and Turkey.

The last years of his life were tragic. His mental powers declined. He was pursued by ideas of persecution, the fear of poverty, of losing his reputation and overlooking errors in his work. His closest friend saved him from suicide. On February 13, 1787 Rudjer Boscovic passed away.

V.U.