Cosserat, Eugène Maurice Pierre | Encyclopedia.com

(*b*. Amiens, France, 4 March 1866; *d*. Toulouse, France, 31 May 1931)

geometry, mechanics, astronomy.

Cosserat first studied at Amiens. When he was seventeen, he was accepted at the École Normale Superieure. His scientific career was spent in Toulouse: he was assigned to the observatory in 1886, became professor of differential calculus at the Faculty of Sciences in 1896 and of astronomy in 1908, and was director of the observatory from 1908 until his death. A reserved, kindly man and a diligent worker, Cosserat was one of the moving forces of the University of Toulouse for thirty-five years. He was a *membre non-résident* of the Académie des Sciences (1919) and a corresponding member of the Bureau des Longitudes (1923).

For the first ten years Cosserat divided his time between his duties at the observatory, where he made equatorial observations of double stars, planets, and comets, and his research in geometry. His doctoral thesis (1888), which deals with an extension of Plucker's concept of the generation of space by means of straight lines, considers the infinitesimal properties of space created by circles. The congruences and complexes of straight lines are the main subject of his later works, in which he remained a disciple of Darboux.

In studying the deformation of surfaces Cosserat was oriented toward the theory of elasticity and the general problem of continuous mediums. These studies were done between 1885 and 1914 in collaboration with his older brother François, who was chief engineer of the Service des Ponts et Chaussées. François was the main participant in tests on synthesis and philosophical concepts, the mathematical framework of the research being furnished by Eugène.

The most practical results concerning elasticity were the introduction of the systematic use of the movable trihedral and the proposal and resolution, before Fredholm's studies, of the functional equations of the sphere and ellipsoid. Cosserat's theoretical research, designed to include everything in theoretical physics that is directly subject to the laws of mechanics, was founded on the notion of Euclidean action combined with Lagrange's ideas on the principle of extremality and Lie's ideas on invariance in regard to displacement groups. The bearing of this original and coherent conception was diminished in importance because at the time it was proposed, fundamental ideas were already being called into question by both the theory of relativity and progress in physical theory.

The Toulouse observatory participated in the international undertaking of formulating the Carte du Ciel. Having become director, Cosserat organized the important work of meridian observations, photography, and computation of positions in order to make systematic determination of the proper motions of the stars. He personally supervised the details of these operations, including the computations, and was completely occupied with this task for the last fifteen years of his life.

Cosserat was particularly concerned with accuracy: he used his original research, which later appeared as notes in the now-classic works of Darboux, Koenigs, Appell, and Chwolson. Thus, although his name seldom appears in modern works, his influence on them was far-reaching.

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