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Fluid is freely movable continuum. Wave is the transmitting phenomena of variation occurred in a point of space with the finite velocity.

These handling owes to the arrival of idea of continuum, on which, above all, we summarize the topics of heat and fluid as the background from the viewpoint of mathematical history in 18-19th centuries as follows :

1) On the attraction and repulsion of molecule, Laplace starts with the analysis of capillarity and Navier with formulation of elastic solid and fluid 2) Navier depends on Fourier's principle of heat molecule. The then physico-mathematicians had little evaluated Navier until the top of 20th century. 3) Poisson points out strongly Navier's hypothesis on molecular structure in natural state and Fourier's invalid handling of De Gua's theory into the transcendental equations. 4) We introduce Prévost's preceding work to Fourier. Formulating of heat motion in the fluid, Fourier had submitted the paper, in which he seems to aim the unity of hydro- and thermodynamics 5) The trigonometric series is introduced in the process of expression of wave equations of sound by Lagrange in 18th century and completed by the follower in 19th century. (Received September 14, 2014)