ing here employed gave the clue to all subsequent attempts to deal with the difficult problem of the interaction of the ether and ponderable matter; of the possible alteration of the density or the rigidity (called the elastic constants) of the ether when filling the interstices of transparent bodies; of the mechanical differences which make some bodies transparent for some and opaque for other rays of light. Many possible modifications were theoretically foreseen, giving rise to remarkable unexpected phenomena, and these were frequently verified by subsequent experience. The whole theory of light entered upon a new phase as it became more and more evident that the study of the vibrations of the elastic medium was not sufficient, but that it must be supplemented by that of the interaction of two vibrating systems, the ether and the molecules of the ponderable substance, which give rise to the phenomena of partial reflexion, refraction, dispersion, and partial or complete absorption. This more complicated problem in the theory of elasticity had already presented itself in its simpler form in the theory of the pendulum. To the principle of optical consonance which had been employed to explain the phenomena of absorption of light was added, in order to explain the phenomena of dispersion, the principle of the free and forced vibrations of a vibrating system.[1]

[1] "If to the bob of a pendulum, executing horizontal vibrations, another pendulum be attached, executing vibrations of a slightly shorter period, the effect of the latter will be to increase the period of the former and *vice versâ*" (see A. S. Percival, 'Optics,' 1899, p. 181). Anomalous dispersion such as was foreseen by Sellmeier and Lord Kelvin and discovered by Christiansen and Kundt depends on the change of wave frequency independent of the change of wave length in refracting media.