The use of wanted fire leads necessarily to unwanted fires, which are fought by the fire services, designed against by the fire engineers, and observed and explained by the fire sciences. This paper explores the current position of one of those sciences—fire physics, defined as the study of the physical mechanisms by which fire is initiated, grows throughout a system, and is extinguished. The motivations for pursuing given technical areas are examined (promises), the tasks to be performed are described (problems) and the accomplishments to date are summarized (progress). The field of Fire Physics is broken into four broad categories: I.) Fluid Dynamics, II.) Diffusion Flames, III.) Flame Spread and IV.) Compartment Modeling. An inclusive list of topics within each category is presented. Space constraints prohibit a more comprehensive review; however reference is made to many competent reviews already available. Due to the author’s linguistic limitations, the English language literature is emphasized.

Keyword(s):
Compartment fires: models, Diffusion flames, buoyant, Excess pyrolyzates, Flame spread, History, Plumes, Pyrolyzates, Radiation, Review: fire physics, Soot:

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