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Mathematics Outside In.

For more than twenty years, the mathematics community has played the role of academic chicken littles: the sky is falling, our profession is in desperate trouble! Following a review of the actual evidence, this paper offers an historical analysis of events, commentary, and studies (particularly by the NRC and NSF) that shed light on both the real condition of mathematics and the causes for this condition. The argument: the condition of mathematics is largely self-caused, and is a result of being out-of-touch with mainstream issues and trends in the larger science community of which it is a part. In the 20th Century, from Hilbert to Bourbakism, mathematics became its own subject of study, reflecting Hardyism by pitting elegance against utility. Meanwhile, during the same century, the scientific community has undergone its own changes through the growth of interdisciplinary fields, particularly new fields of the science of complexity. This has heightened scientific and societal interest in the relevance of mathematics. We show that patrons (e.g. funding agencies) are asking mathematics to "remake" itself to get into the mainstream. Mathematicians have much to offer, but they must join the club. (Received September 20, 2004)