EXECUTIVE SUMMARY

In a series of seven panel discussions, the 1998 Merrill Conference participants explored mechanisms to enhance research, including partnerships with industry, special funding sources, and collaborative external funding in humanities scholarship. Participants also discussed ways to enhance the productivity of life/behavioral sciences research and cross-disciplinary research, and ways to bring women into senior science roles.

Collaboration by universities in the region was a topic of considerable discussion, since development of a regional initiative or "niche" could lead to national funding. Potential niches that were discussed included: quality of life, high-speed telecommunications and information technology, bio-sciences and the environment, and plant sciences.

Much discussion was generated by the keynote speaker in his comments throughout the day. Here follows excerpts from his key presentation.

KEYNOTE SPEAKER

Michael M. Crow
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Professor of Science and Technology Policy

- The final form of the research university has not yet evolved.

- Before 1850, we saw a number of different strands of research university take hold, each peculiar to its own national history in Europe. In the 1890's in America, there were five prototypes of top research universities in each of three categories: state schools such as Illinois, Michigan, Wisconsin, Minnesota and California; private schools such as Columbia, Harvard, University of Pennsylvania, Princeton and Yale; and experimental/private schools such as MIT, Cornell, Johns Hopkins, Stanford and University of Chicago. Today most institutions are still chasing these fifteen schools, competing to enter this arena.

- When American research universities were taking hold in the 1890's, our technological resources were very different. Science was critical for only a select set of industries. A century later, science underpins innovation in virtually every major industry. In the future, we cannot imagine a separation between university research and emerging technology.

- Look at how innovation actually occurs and the role of universities. For example, in the realm of information technology, a set of disciplines owes much to the rise of one specific technology–computers; however, the ability to encode information in electronic signals, process and compute them, is a skill drawn from science and engineering in many fields, from physical chemistry and applied mathematics to applied physics. Thus, the convergence of applied and fundamental research. And universities are doing both, operating on the cutting edge. The continued vitality of companies depends on university knowledge generation.

- University-industry interactions sustain long-run technological change. Industry benefits from the universities by hiring trained scientific and technical personnel, acquiring instrumentation and methodologies, and from direct access to researchers capable of solving complex problems.

- Christopher Freeman describes the history of science and technology policy in three phases:

  1) beginning with military purposes;

  2) developing into commercially-centered science and technology policy; and

  3) evolving into a broader array of quality of life issues that can be tackled through science and technology.

  Most acknowledge that America exists somewhere in the second phase.

- Roger Noll believes that the decline in the growth of federal commitment to science will result in favored funding for elite universities, leaving second tier institutions to seek industry funding. This does not have to be a negative outcome. Universities distinguish themselves by their relationships to other segments of society.

- If universities are constrained to follow a model of the "American Research University" many options will be overlooked. Universities can legitimately contribute to many applied goals. To seize opportunities in a changing environment, universities must ask key questions, including "what niche is each institution willing to fill?"