Physicists Nix ISABELLE, Endorse Super Machine

In a bold and risky bid to regain the American lead in high energy physics, HEPAP, the Department of Energy's High Energy Physics Advisory Panel, has decided to abandon Brookhaven National Laboratory's controversial, half-finished Colliding Beam Accelerator (nee ISABELLE) and embark upon a 12-year, multibillion-dollar effort to build a behemoth with 50 times the energy.

The plan was devised in June by HEPAP's Subpanel on New Facilities [the "Woods Hole" subpanel (*Science*, 20 May, p. 809)], and endorsed by the full panel on 11 July.

The new machine—dubbed the Superconducting Super Collider (SSC) by the Woods Hole subpanel, and also known as the "Desertron"—would be a proton-proton colliding beam facility using superconducting magnets to reach energies of 10 TeV (trillion electron volts) to 20 TeV per beam. The main ring would be roughly 30 kilometers in diameter. The cost in the most optimistic estimate, would be some $2 billion spread over 12 years "plus or minus 2 years."

The SSC has emerged as a viable possibility only within the past year or so, yet "the United States high energy physics community appears united in support of the project," said subpanel chairman Stanley Wojcicki of Stanford University, in explaining the decision to HEPAP. "There is strong agreement that the exploration of phenomena in the 1 TeV to 2 TeV mass range [which requires the 20 TeV to 40 TeV center of mass energy] could lead to real progress in our understanding of the fundamental interactions." In addition, he said, more than 20 years of research and development has brought the technology of superconducting magnets to a state of readiness, while the demand for high-quality superconducting cable in the Fermilab Tevatron project has led to the development of an industry that can supply such cable in quantity.

"The time is ripe," concluded Wojcicki. "We need to start *now*." This is a national committment, he emphasized. "It should involve *all* the national laboratories, the universities, and private industry as well."

The Woods Hole subpanel agreed that the SSC effort should not detract from such ongoing programs as the Stanford Linear Collider or Fermilab Tevatron. Brookhaven's Colliding Beam Accelerator (CBA), however, was another matter. It was by far the most difficult issue discussed at Woods Hole, said Wojcicki. More than $150 million has already been spent on the project. The facility's high-intensity beams promise a unique sensitivity to rare and unexpected phenomena, albeit at a lower energy than some other machines. Brookhaven has mastered the magnet problems that threatened the project previously; indeed, the laboratory has built up a world-class team of magnet designers. CBA offers six interaction regions, allowing for greater diversity in experimental approaches and, not incidentally, increasing the opportunities for physicists to do research.

And most importantly, CBA would be a natural—and prudent—first step toward the super machine. In fact, the super collider recommended at Woods Hole essentially *is* the CBA, just scaled up a factor of 50 or so in energy.

Against all this, however, the Woods Hole group had to weigh the very real danger that the diversion of manpower and resources to CBA might delay the higher priority supercollider. Was CBA worth the risk? It came down to personal philosophy and taste, said Wojcicki. In the end, by a narrow vote which he declined to enumerate in public, the subpanel's decision went against CBA.

HEPAP voted unanimously to accept that decision. For CBA supporters, after so many years of effort and controversy, it was clearly a moment of personal and professional anguish. Yet, after so much divisiveness, the time had come for unity. "I think it a grave mistake that we decide not to build CBA," said Brookhaven director Nicholas P. Samios to the panel. But Brookhaven would not fight the decision.

It was summed up best, perhaps, by Sidney Drell of Stanford Linear Accelerator Center. "We knew that there could be no really happy outcome when we called the subpanel. Let Brookhaven know that they have been judged not a failure, but a success—but that physics moves on."

—**M. Mitchell Waldrop**

VDT's No Threat to Vision

Employers must be more industrious about applying findings from industrial psychology if they want to make the best use of the new technology they install. That seems to be one theme from a report on video display terminals (VDT's) produced by the National Academy of Sciences.

VDT's in the workplace have been multiplying like rabbits since 1980, when the number of operators was estimated at 7 million. Workers and unions have been worrying about their effect on vision and other health effects, namely miscarriages.

The National Institute on Occupational Safety and Health (which is conducting a study on miscarriages) asked the Academy to look into the visual aspect. The panel found there was nothing "inherent" in VDT technology that would cause eyestrain, blurred vision, or cataracts and noted that the radiation emitted by VDT's is far lower than occupational radiation exposure standards.

The group, headed by Edward J. Rinalducci of the Georgia Institute of Technology, did, however, identify three areas that could use improvement. First, bad lighting can cast glare on the screens and an inappropriately designed work area can lead to musculoskeletal problems in the operator. Second, many bargain-priced off-the-shelf VDT's provide low-quality image display. Third, jobs may be badly designed, calling for repetitive, fast-paced work without variation.

The panel said there was not enough information to provide a basis for mandatory standards, as exist in some countries in Europe. However, it said "application of well-established principles of good design and practice" would take care of much of the problem.—**Constance Holden**

Bees and Yellow Rain

A story in last week's issue (p. 242) reporting additional evidence that bees are involved in yellow rain, was missing a crucial "i" in the headline. The headline should have read "The Apiology of Yellow Rain." A bug evidently entered our system and created an apology.