tingent lamented that information from biotech companies can be inconsistent or hard to get, and that the financial community needs to be apprised when predicted benchmarks will not be reached on time. Nelson Schneider, vice president of E. F. Hutton & Co. (Washington, D.C.) noted, for example, that when a company does an R&D limited partnership, it should make public the "confidential" material in the plan, since analysts will see it eventually anyway.

Attendees from biotech firms complained that Wall Street sometimes asks for too much—more, for example, than it demands of large pharmaceutical houses. In reply, analysts pointed out that the more established firms have significant earnings, product flow, and a track record of commercialization, so analysts do not have to scrutinize sensitive R&D divisions as thoroughly to evaluate the companies.

In these times of unsettling stock market performance, biotech companies are learning that the distance from Wall Street to Easy Street is not the painless hop that they once envisioned. According to IBA executive director Harvey S. Price, the most important result of the meeting is that it opened valuable lines of communication. —Arthur Klausner

TO STRESS MARINE MICROBIOLOGY

UNIVERSITY OF MARYLAND DIVES INTO BIOTECHNOLOGY

COLLEGE PARK, Maryland—The University of Maryland wants to be a hub of biotechnology: in separate moves it is forming a Center for Advanced Research in Biotechnology, a Marine Biotechnology Institute, and a university-wide program in biotechnology to include an Institute for Biotechnology. "We expect to have a sort of 'Biotech Valley,'" summarizes Rita R. Colwell, University of Maryland vice president for academic affairs and professor of microbiology. "What will be very unique about our effort will be that it includes local, county, state, federal, private, and industrial cooperation, interaction, and joint funding. I don't think there is any other such combination of community support anywhere else."

The largest of the new projects is the Center for Advanced Research in Biotechnology (CARB), established with the National Bureau of Standards (NBS) and Montgomery County. University and NBS researchers will form the scientific core, with a total of approximately 130 academic and industrial researchers expected

eventually. Montgomery County will provide some 35 acres of land and the necessary roads and infrastructure in the Shady Grove Life Sciences Center industrial park. Donald R. Johnson, director of the NBS National Measurement Laboratory (Gaithersburg, MD), says he hopes the planned 50,000 square-foot building will be constructed using funds from a long-term municipal bond issued by Montgomery County. The facility will house laboratories, offices, classrooms, and computer terminals.

"Biotechnology is developing very rapidly, and one of the needs, certainly, is reference compounds that have been properly standardized for production as well as standardization of measurements and measurement techniques," reports Colwell. NBS will contribute its expertise in measurement technology, analytical chemistry, chemical engineering, and mathematical modeling, while the University will provide knowledge about gene cloning and basic science. "It's a beautiful fit," claims Colwell. "I think that if you were to design a

collaboration to be ideal, you couldn't have done better."

Both the University of Maryland and NBS have long histories of interaction with industry, and they expect this kind of collaboration to be enhanced at CARB, especially as biotech specialty firms identify their needs for measurement technology. Johnson notes that local enthusiasm is running high: Genex Corp. (Rockville, MD) has expressed strong interest in doing work at the Center on computer modeling of biologically active molecules, and Litton Bionetics (Kensington, MD) may work on analytical chemistry. The NBS is gearing up for what it expects will be an increased demand from biotechnology for its services, such as help identifying, measuring, and characterizing proteins. The Bureau has requested a fiscal 1985 biotech budget of \$5 million (up from \$2 million this year), with which it plans to increase related staff from about 20 to 50 researchers.

The second of the University's efforts is the first Institute for Marine Biotechnology in the U.S., which was recently approved by the state university's board of regents. The Institute will be allied closely with Maryland's Sea Grant College in an effort to exploit the vast resources of Chesapeake Bay. Planned projects include

Rita Colwell working in the lab.

cloning genes into striped bass and winter flounder to make these species survive better in the Bay, developing different monoclonal antibodies against sea nettle toxins and for use as fish vaccines, and genetically engineering marine bacteria to produce useful products. Colwell envisions marine biotechnology providing pharmaceuticals, novel chemicals, better pollution biodegradation

agents, and biomass from the sea.

Colwell expects funding for the marine institute to be about \$5 million a year, perhaps financed in part through an R&D limited partnership. The proposed staff of the institute includes four molecular geneticists, two molecular marine microbiologists, and two marine biochemists. In addition, the plan calls for a director, six technicians, six graduate students, and support staff.

Crowning the University's effort is its biotechnology program, established in January, which will span all five campuses of the 80,000-student university. Colwell says the scheme calls for funding of at least \$15 million over five years to expand and upgrade equipment. Research is planned in plant sciences (to include genetics, protoplast fusion, and gene cloning); animal sciences (such as cattle breeding and domestic animal diseases); vaccine development (including an oral cholera vaccine); biosensors; and marine biotechnology.

The University's new programs will grow out of extant academic and industrial support, so Colwell predicts that within a year, "I think they'll all have developed and will all be in place and functioning, with possibly even a few discoveries announced.

—Arthur Klausner

▲ GEN II Microprocessor Instrumentation System

◀ 500 Liter Open Frame Industrial Fermentor

Now! Fermentors with microprocessor-controlled instruments that "talk" to each other...

for interactive control of the fermentation process.

Why buy a "dumb" fermentor when you can have an intelligent fermentation system for the same price. You don't pay for software and you don't pay for a computer interface — NBS includes them in every instrumentation system.

GEN II is used with bench-top, pilot plant and production fermentors to provide a variety of control strategies including time-based and event-based profiling.

Individual instruments have full PID control capability with proportional gain, as well as integral and derivative time adjustments. The system incorporates fully distributed control and manual back-up of every parameter.

With GEN II, any fermentor has the brainpower it needs for super sophistication and reliability. And, if you can operate your calculator, you can operate GEN II. **Send for our new 84 page Fermentation Catalog.** New Brunswick Scientific Co., Inc., P.O. Box 986, Edison, N.J. 08818 or call 800-631-5417.

NEW BRUNSWICK SCIENTIFIC

At NBS Advanced Technology is a Way of Life

Circle No. 48 on Reader Service Card