ON THE CAMPUS: FAT ENDOWMENTS AND GROWING CLOUT

By granting millions to U.S. universities, Japan is gaining access to America's best minds

Are American universities getting hooked on Japan's money? Consider:

■ Japanese Prime Ministers Noboru Takeshita and Yasuhiro Nakasone have received honorary doctorates from Columbia University and Johns Hopkins University, respectively. In both cases, the universities then received substantial endowments from Japanese sources.

■ At Massachusetts Institute of Technology, Japanese corporate giants such as Mitsubishi Corp. and Mitsui & Co. have endowed 16 chairs at roughly $1.5 million apiece and spend some $4 million a year for access to research.

■ In exchange for a $12 million donation, Hitachi Chemical Co. for 40 years will use two-thirds of the space in a University of California at Irvine biotech laboratory that opens next year.

BUILDING BRIDGES. Japanese corporations, scattering multimillion dollar grants to universities across the country, have emerged as by far the largest foreign source of university research funding. Much of Japan's spending is intended to foster goodwill. But Japan's attraction to U.S. universities is not purely philanthropic. The money, including an estimated $30 million in research contracts, is a modest investment to gain access to America's top minds. "Some Japanese support for research is predatory," says Chalmers Johnson, professor of international relations at the University of California at San Diego. "It is to buy research they can't get otherwise."

By pouring money into think tanks and universities Japan may also be blunting research critical of its economic practices. "It's very hard to find experts who are not on the Japanese payroll one way or another," says Peter C. White, president of the Southern Center for International Studies in Atlanta.

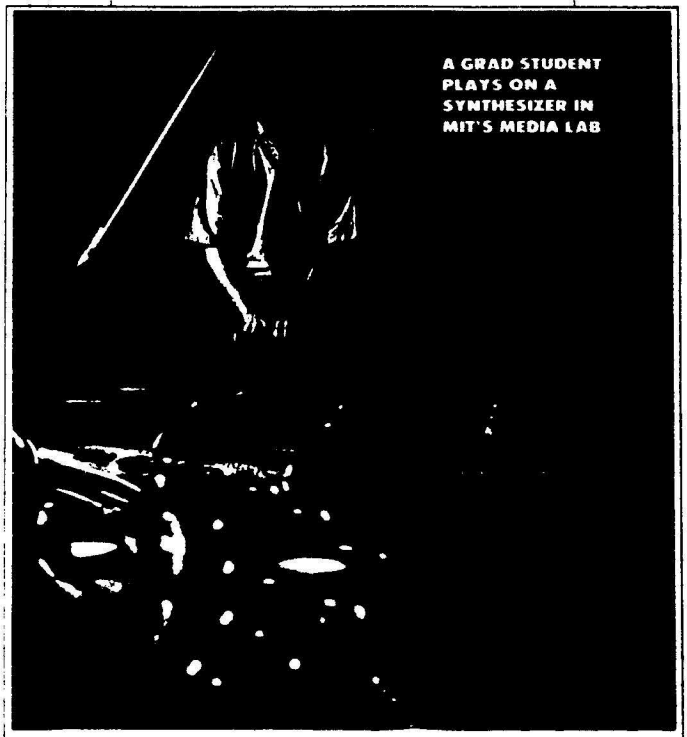
Universities and think tanks bristle at suggestions that Japanese money might affect their research. "To suggest there is anything evil, wicked, or sly is total bull—," says George R. Packard, dean of the Johns Hopkins School of Advanced International Studies. "We are not for sale."

Others insist that the source of money for academic research is unimportant because strict university codes prevent undue influence. "Our job is to take money that is not so clean and make it clean," says Hugh T. Patrick, director of Columbia University's Center on Japanese Economy & Business, which enjoys a $2 million endowment from Japanese financial institutions. "Once they give the money, they don't have any control."

But Japanese money may have more power than universities realize. There has been an explosive growth in Japanese studies, with 24,000 U.S. students involved in 1986, up from 13,000 in 1983. As U.S. funding for the field declines and the cost of doing research in Japan rises, universities are turning to Japan. "Everybody is tripping over each other [in Japan] looking for money," says Patricia Steinhoff, director of the Center for Japanese Studies at the University of Hawaii.

SKEWED DIALOGUE. The result? Professor Johnson estimates that 80% of the money for research on Japan now comes from Japanese sources. "The truth is that without the money from Japan, there wouldn't be any research," he says. Johnson adds that many Japanese-funded scholars are "ready quickly and easily to express Japan's official point of view." Clyde V. Prestowitz, former trade negotiator at the Commerce Dept., says this has impact in the policy arena. "Very often the discussion [on trade] is skewed because the Japanese position is less questioned or examined," he says. Example: the acceptance by many academics that it is the low quality of U.S. products, rather than Japanese barriers, that accounts for their poor sales in Japan.

The growing Japanese clout in Asian studies concerns some scholars outside the field. Lester C. Thurow, dean of the Sloan School of Management at MIT argues it is O. K. for the



A GRAD STUDENT PLAYS ON A SYNTHESIZER IN MIT'S MEDIA LAB

JAPANESE-ENDOWED CHAIRS AT MIT

DAICHI KANGYO BANK Finance	**MITSUI** International management Contemporary technology (2)
FUJITSU Electrical engineering	**NEC** Computers/Communications Software
FUKUTAKE PUBLISHING Media laboratory	**NIPPON STEEL** Civil engineering/policy
KOKUSAI DENSHIN DENWA Media laboratory	**NOMURA SECURITIES** Finance
KYOCERA Material sciences	**TDK** Materials
MATSUSHITA Electrical engineering	**TOYOTA** Materials
MITSUBISHI BANK Finance	

DATA: MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Japanese to fund research in technical or financial fields. "But suppose Russian centers were funded by the Russian government," Thurow says. "We would be worried about it, right?"

Japanese companies say they simply want to help Americans study more about Japan, and they point out that in many cases they were invited in after U. S. companies begged off. "There is an enormous amount of misunderstanding about Japan," says Toshio Mori, chairman of Nikko Securities Co.'s U. S. arm. Nikko is one of several companies that have set up programs to send 20 or more students from elite colleges to Japan on one-month trips.

A larger portion of Japan's university funding, however, goes to scientific research for more concrete returns. NEC Corp. Chairman Koji Kobayashi credits access to MIT research for much of NEC's success in computers. NEC has endowed two chairs at MIT, and it is one of more than 50 Japanese companies that pay up to $100,000 a year for membership in programs at schools such as MIT and Stanford University that offer pre-published papers and ready access to university laboratories.

EXCITEMENT. Larger donations, usually more than $500,000, win Japanese companies the right to send researchers to key university labs. Such researchers are assigned to MIT's Media Laboratory, which looks at exotic new applications for video, digital audio, and personal computers. "You couldn't pick a project that they haven't been excited about," says Timothy P. Brown, the Japanese-speaking director of sponsor relations at the Media Lab.

Japanese companies are beginning to play similar roles at universities across the country. In addition to the Irvine biotech lab, another Hitachi affiliate, Hitachi America Ltd., has established a $1.2 million chair at Stanford and hopes to win the university's help in establishing a research program in the U. S. At the University of California at Berkeley, Japanese companies donated $4 million last year, much of it to build a computer laboratory. The companies hope to improve their ties with Berkeley's leading computer researchers. And Kobe Steel Ltd., which is trying to diversify, gave a $666,000 grant to North Carolina State University to establish a chair in materials science and engineering.

Some critics believe Japan's extraordinary ability to tap U. S. university research means that the huge investment the U. S. government is making in such fields as materials technology is incidentally helping Japanese industry. "They pick up research ideas that have a commercial application," asserts Kenneth A. Gabriel, a scientist at the U. S. Army Materials Technology Laboratory. The MIT response? If Japanese do a better job than Americans at exploiting MIT research, "shame on us," says Kenneth A. Smith, MIT vice-president for research.

WHOSE SONG? While it is more difficult to evaluate donations to the social sciences, the impact in those disciplines may be more far-reaching. Stephen S. Cohen, director of the Berkeley Roundtable research institute, notes that the Japanese may influence perspectives on Japan by using its funds to "determine which songs get played louder."



Many Japanese-funded scholars are quick 'to express Japan's official point of view'

CHALMERS JOHNSON
Professor of International Relations, University of California at San Diego

Much of Japan's research support goes to institutions, such as the Institute for International Economics in Washington, that focus primarily on macroeconomic factors such as savings and growth rates rather than on trade obstacles posed by Japanese cartels and distributors. Its conclusions often blame the trade problem on U. S. mismanagement. A 1985 study, for instance, that said an overvalued dollar, not protectionism, was responsible for Japan's trade surplus, was widely quoted by policymakers opposing U. S. trade legislation. The institute receives about $280,000 of its $3.6 million annual budget from Japanese-supported sources, but director C. Fred Bergsten says the Japanese have not sought "one iota of influence."

There is also the danger of self-censorship by institutions hoping to obtain Japanese funding. "The dangers are insidious," says Robert B. Reich, political economist at Harvard University's Kennedy School of Government. "Researchers might shy away from questions that might be potentially embarrassing to Japan." Says Prestowitz in more graphic terms: "You shine your shoes because you anticipate he [the donor] would like your shoes shined, not because he tells you to shine your shoes."

Although Japanese companies never tell a university which professor should occupy a company-endowed chair, controversial scholars are often avoided. The Center for Strategic & International Studies in Washington, a way station for former government officials and academics aspiring to influence U. S. foreign policy, has a Japan chair, established with a $1 million endowment from Toyota Motor Co. "We aren't going to bend over backward to put a Japan-basher in the chair," admits John Yochelson, the center's vice-president.

ONE-WAY FLOW. Few blame Japanese donors for giving money to universities—or blame universities for accepting the money. In view of the decline of federal and state funding, universities must find funds somewhere. But some feel frustrated because the U. S. can do so little of the same in Japan. Since most scientific research in Japan takes place in private companies rather than universities, the findings are generally inaccessible to U. S. scientists.

Some academics are working at increasing the flow of information from Japan rather than closing off U. S. access. Richard J. Samuels, director of MIT's Japan Science & Technology Program, is taking advantage of MIT ties with Japanese corporations to send 20 students into Japan's laboratories. The program is financed by U. S. companies.

But such efforts amount to a trickle against the tidal wave in the other direction. Universities may have to be more aggressive in raising money from U. S. sources to balance their Japanese donors. And they should remember that the old American adage also applies to Japan: "There's no such thing as a free lunch."

By Leslie Helm in Boston, with Alice Z. Cuneo in San Francisco, and Dean Foust in Atlanta

Memo No.: 003

MEMORANDUM

DATE: July 13, 1988

TO: Don Fruehling

FROM: Norm Latker

NJL

Enclosed are two articles from The Washington Post on job training that may be of interest to SRA. The Arnold Packer article references a five hundred page Office of Technology Assessment report entitled "TECHNOLOGY AND THE AMERICAN ECONOMIC TRANSITION" which we can make available if there is any further interest.

cc: Bill Miles w/enclosures

NJL/kte

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workforce to meet the needs of the next century. Packer is senior research fellow at the Hudson Institute and co-author with William Johnston of "Workforce 2000"

JOB TRAINING

Retooling the American Worker

By Arnold Packer

TODAY, American workers are the most productive in the world. But unless the nation's "workplace literacy" is upgraded markedly, we will lose that distinction by the year 2000—with profound consequences for millions of individuals and for our society as a whole.

Presently the education of America's workforce is inadequate to the demands of the next century. Consider the statistics:

Even as the workplace becomes more complex, our hard-pressed inner-city schools are responsible for educating a growing fraction of tomorrow's labor force. Each year, despite sometimes heroic efforts by their teachers, 700,000 young people drop out of high school and an equal number graduate without functional literacy. Add to that a million new working-age immigrants, and we have almost 2.5 million persons entering our complex economy annually with limited language and work skills.

In 1986, minorities accounted for about 21 percent of the jobs in the American workforce of 115 million. Between 1986 and the year 2000, the number of jobs will increase by 21 million—and an astonishing 57 percent of those additional jobs will be filled by minorities. Yet if present trends continue, disproportionate numbers of those workers will lack the skills needed to do the job properly. Put another way, unskilled minorities are a growing fraction of the workforce and unless their abilities are upgraded, the nation's overall skill level will not be sufficient for tomorrow's economy.

Early in the next century, this "majority of minorities" will replace—and have to support—a large proportion of the workers who were born during the baby boom of 1946-64 and who will be retiring from the labor force. These are tomorrow's workers, whose paychecks will pay the taxes, finance social security and support private benefit plans. This is the labor force that must master tomorrow's technology and carry our banner in international competition.

Moreover, even if the next president successfully transforms American education, the change will not affect the workforce by the year 2000. Three of every four people who will be employed that year are already at work, and others will be immigrants. To avert the obvious economic and social troubles of a mismatch between workers and jobs, more immediate attention is needed.

How are tomorrow's workers doing?

The Educational Testing Service recently conducted a National Assessment of Educational Progress (NAEP) survey of 3,600 21-to-25-year-olds representing the entire population of that age bracket who lived in households. It came up with these discouraging figures:

- Only 80 percent of whites, 60 percent of Hispanics and 40 percent of blacks could locate two items of information in a sports article.
- Only 65 percent of whites, 35 percent of Hispanics and 20 percent of blacks could follow directions from one location to another using a map.
- Only 80 percent of whites, 60 percent of Hispanics and 40 percent of blacks could enter and calculate a checkbook balance.

Clearly, they will have to read, write and calculate better.

25 Million Challenges

The economic challenge, in simplest terms, requires upgrading the skills of 25 million American workers by 40 percent by the end of the century. We came to that conclusion by comparing NAEP's survey of today's 21-to-25-year-olds to the skill requirements forecast in a Hudson Institute report entitled "WorkForce 2000."

The Hudson report projects a growing economy (a real Gross National Product increase of nearly 3 percent annually) but only if workers become more skilled, better educated and more productive. A strong back and willing hands will suffice less and less.

The report anticipates a gain of 25 million workers from 1984 to 2000 and breaks them down by job. For example, we project that jobs in health-diagnosing-and-treating occupations will grow by 53 percent while jobs as machine setters, operators and tenders will fall by 8 percent. We also projected skill requirements for those jobs, using a Labor Department standard that rates each job on a scale of one to six. (A level 1 job requires a reading vocabulary of 2,500 words and the ability to write a simple sentence; level 6 job-holders must use technical journals, financial reports and legal documents.)

Of the net increase of about 25 million jobs expected to be created between 1984 and 2000, "WorkForce 2000" projects that:

- Approximately 40 percent, or 10 million jobs, will be professional or technical positions requiring language skills of level 4 or better.
- Another 58 percent, or 15 million jobs, will be marketing and sales, administrative, services, supervisor and similar positions requiring skill levels between 2.5 and 3.9.
- Only 2 percent, or about a half million jobs, will require language skills less than 2.5.

"WorkForce 2000" forecasts that the average skill level required for these new jobs will be 3.6. But NAEP's estimate of the skills of young white, black and Hispanic adults averages only 2.6. Thus 25

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million new workers will have to improve from 2.6 to 3.6 on the Labor Department scale—a 40 percent increase.

Some will have to improve from level 1 (or below) to level 2 and be able to read comic books and instructions for assembling model airplanes. Some will have to go from level 2 (or below) to level 3 and read safety rules and maintenance instructions. Some will have to reach level 4 and be able to read periodicals and write business letters. Others will have to be trained sufficiently to serve in technical, managerial and professional positions requiring skills at levels 5 and 6.

In theory, we already have the tools. Five million adults are estimated to take some form of Adult Basic Education program, English as Second Language or literacy course every year. If every student were successful, it would only take five years to upgrade the skills of 25 million adults.

But success is limited; dropout rates are high and students often take the same course repeatedly. One can only conclude that the wrong skills are being taught or the wrong methods are being used—or both.

Students interested in construction would learn to read blueprints and prepare cost estimates. Those interested in health care would get to see patient charts and insurance forms.

Learners would control the pace of instruction, based on their own needs and knowledge. Students would learn by engaging in realistic workplace problem-solving. Multimedia training aids would replace exclusive reliance on books and other forms of text. New educational technology—such as interactive videodiscs combining video, audio, text and graphic animation—would gives educators the capacity to meet these specifications (see sidebar).

Technology and Training

The goals of upgrading the skills of 25 million workers to achieve economic growth of nearly 3 percent annually during the 1990s cannot be achieved with current methods of teaching adults.

The congressional Office of Technology Assessment (OTA), in a report entitled "Technology and the American Economic Transition," warns that educational technology poses "stark alternatives." The present rigid system, it says, gives the average student less than one minute a day of individual instruction by teachers who spend large fractions of their time repeating standard lectures. By contrast, it says, productive learning systems could tailor instruction to allow students to meet their individual needs and capabilities.

OTA's recipe for success includes capital investment and adequate research (neither much in evidence in current educaiton and training). The report urges consideration of cooperative efforts for national goals in a "Learning Research Institute." It suggests using artificial intelligence and realistic simulations to give students practical mastery of subject changing " . . . what is taught, when it is taught and where it is taught . . . ."

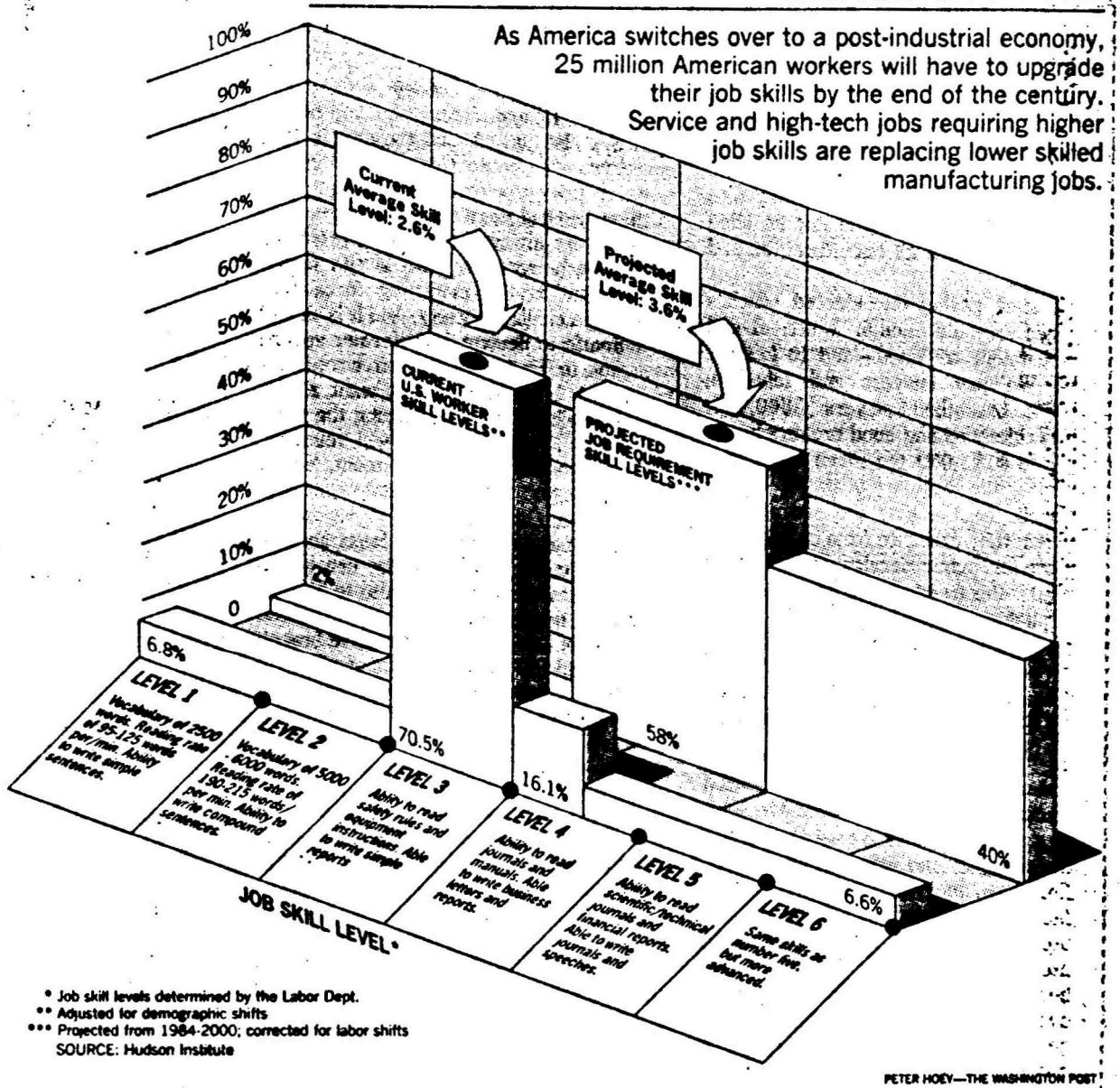
Efficient progress requires:

- More precise knowledge of the skills needed in diverse workplaces—i.e., in hospitals and hotels, on trucks and in shipping rooms, in offices and so on;
- Curricula based on workplace specifications and instructional designs based on the findings of cognitive science and adult learning theory;
- Better and less costly training technologies and a better understanding of how instructors should use this technology to teach adults.

With these results in hand, the systems used for training to adults can be transformed to help American workers meet the challenges of the 21st century.

THE JOB SKILL GAP

As America switches over to a post-industrial economy, 25 million American workers will have to upgrade their job skills by the end of the century. Service and high-tech jobs requiring higher job skills are replacing lower skilled manufacturing jobs.



* Job skill levels determined by the Labor Dept.
** Adjusted for demographic shifts
*** Projected from 1984-2000; corrected for labor shifts
SOURCE: Hudson Institute

PETER HOEY—THE WASHINGTON POST

Schooling for Grownups

What skills are needed? This spring the Labor and Education departments published a report ("The Bottom Line: Basic Skills in the Workplace") recognizing that the skills taught at school are not the same as those required at work. Students take notes and read assignments to answer teachers' questions and pass exams. Workers read and write, compute, operate machines and communicate orally to perform tasks and solve problems. They use manuals, invoices, blueprints, patient charts and street maps.

As yet there is no generally accepted term that describes these skills. "Basic skills," "functional literacy" or "workplace literacy" are not synonymous with the capacity to use computer files, business documents and safety manuals. Because this capacity is required before workers and the economy can move to a higher level, we have called them "upgrading skills." They are more work-related than general literacy skills and more generic than vocational skills.

How should these upgrading skills be taught? Cognitive and learning theories offer useful insights. Jerome Brunner, author of "Toward a Theory of Instruction," tells us that words and symbols go only so far. Construction workers, for example, must understand images represented by blueprints. Dealing with an accident or similar situations can only be learned through experience. Brunner also emphasizes the adult's need to understand the reason for an abstract system: *Why* does the alphabet or arithmetic work the way it does?

Seymour Papert, a professor at MIT and the inventor of the "Logo" computer program for youngsters, writes in his book "Mindstorms" that humans are learning machines. More accurately, adult humans are problem-solving machines—and they solve problems that they believe are relevant (which is why books on sex and taxes are best sellers).

Theorists of androgogy (helping adults learn) find that what distinguishes their approach from pedagogy (leading children) is control. Adults want to decide, for themselves, what is relevant to them. They demand instruction that builds on, and shows respect for, their experience.

How would adult education be designed if these theories were taken into account? Instruction in upgrading skills would be integrated with vocational training. Generic skills would be taught for clusters of jobs.

Touch Me, Feel Me

"PLEASE INSPECT the shipment and call me back," prompts an actor addressing two adult students sitting in front of a video screen. They comply by comparing pictures of tools and other items shown on the screen to an invoice.

"How many parts did we get?" the actor continues, "Is the shipment complete?" The students respond by touching one of several numbers on the screen.

That answer determines the next image the students see (video, computer graphics, text, or all three) and the next voice they hear.

"It's the modern way to learn English," said one student in her fifties, pleased by her ability to control the pace and sequence of instruction.

The technology is interactive laser-videodisc (IVD). The pictures of the tools, the sound of the actor's voice and the video vignettes all come from a laser videodisc that looks like a large version of a compact disc but carries visual as well as audio information. Each side of the videodisc carries 54,000 still frames or 30 minutes of running video.

A personal computer, after receiving input from the touch-sensitive screen, directs a laser beam to specified frames on the disc. The computer can also superimpose graphic images on the video image coming from the videodisc player. Thus an arrow may point to a diagram of a pump just as a live instructor points to an illustration in a traditional classroom.

"The gasket is here," says the voice, which is synchronized with a graphic pointer. In both the live and IVD modes of instruction, students are later asked to point to the gasket and explain its function.

One difference between the two courses is that each IVD student is called on to answer every question. Another difference is the student's absence of embarrassment as the IVD patiently and privately corrects wrong answers.

The computer program that controls the process "knows" what is on the screen and where the student has touched it. The computer program, the videodiscs and accompanying written and audio-taped materials constitute IVD course materials.

I have produced an IVD course called "Skillpac" for adults who are not native speakers of English. Students learn the upgrading skills needed to place an order over the phone, use a maintenance log, compare two personal computers and solve other common workplace problems. Hundreds of other IVD courses are available. One teaches basic literacy to non-readers; others show doctors how to diagnose ulcers, executives to manage, pilots to fly.

Evaluations show that IVD reduces the time required to learn by 30 percent and more in most cases. Retention is increased. Students are motivated because the medium is exciting and because they control the pace of instruction.

Although most courses cost $200,000 or more to develop and the equipment costs $5,000 to $10,000 per work station, the technology is often less expensive then alternative means of instruction. If 2,000 or more students use the same course, the $200,000 development cost is only $100 per student. A $6,000 work station, used for 3,000 hours over a five-year period, works out to a dollar an hour.

—Arnold Packer

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Employing New Tools to Recruit Workers

Faced With a Shrinking Pool of Job Candidates, Businesses Are Investing in Training

By Martha M. Hamilton
Washington Post Staff Writer

Alicia Ventura has been cleaning houses for a living. Now she wants a better job.

Margie Ellis is recently divorced. She has three years of college but no work experience to help her find employment.

Anna Calloway is working on a high school equivalency diploma. She hopes to break a pattern of finding jobs and losing them.

The three women are part of a training program in Adams-Morgan designed to help them get entry-level retailing jobs. Supported by the Greater Washington Board of Trade and area retailers, the program teaches basic skills for holding onto a job, things like showing up for work on time. Like countless programs around the country, this one is aimed at adding to a shrinking work force by training those who might otherwise remain unemployed.

Fifteen or 20 years ago, women with such limited experience would probably have had a tough time landing a job in one of Washington's retail stores. But that was at the crest of the baby boom. Employers could afford to be picky and frequently had the luxury of hiring overqualified candidates.

Now, not only is the baby boom ebbing, but the nature of those entering the work force is changing. Between now and the end of the century, demographers estimate that about 80 percent of new workers will be women, minorities and immigrants. Many of them will be poor, single mothers with children.

As a result, companies of all types are being forced to undergo major changes in the way they hire, train, pay and retain employees. Unless new sources of workers can be found, jobs may be lost to automation, the quality of service to which consumers have become accustomed may decline, and more jobs may be exported overseas. In the long run, the nation's competitiveness could suffer, according to business and education officials sounding the alarm.

Already employers are investing more time and money in finding and training workers for entry-level jobs—an investment that diverts expenditures from other, more productive investments. Exacerbating the situation is the fact that entry-level jobs in service industries require an increasing level of skills.

In their effort to find new pools of workers, businesses are looking everywhere: at senior citizens, mothers on public assistance, disabled workers and virtually anyone else. "You can't just put an ad in the paper and wait for people to walk in," said Joseph C. Culver, senior vice president for personnel and services at Woodward & Lothrop and a principal mover in creating the training program.

In this shift—from a time in which the least trained, least educated applicants could be discarded, to an era in which business is compelled to try to recycle society's onetime rejects—another change is occurring, too. Business is being forced to focus on the quality of public education in the United States and get involved in improving it.

"The data is just so sobering. It's sobering for 1988 and more sobering for the year 2000," said Richard Berendzen, president of The American University and chairman of

See TRAINING, H3, Col. 1

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Firms Invest In Entry-Level Job Training

TRAINING, From H1

the Greater Washington Board of Trade. "There are 23 million U.S. adults who are functionally illiterate and another 47 million who are borderline illiterate." Nearly 4,000 students a day drop out of school, and in many large urban school systems the drop-out rate often equals the number of students who complete high school.

In the year 2000, when today's 5-year-olds will be entering the work force, the picture gets even worse. "Among our 5-year-olds, one in four lives below the federal poverty line," Berendzen said. The groups that will dominate the ranks of new workers are those that have traditionally been ill-served by the nation's school systems—the poor, minorities and immigrants.

With unemployment now at 5.3 percent, the lowest level in 14 years, businesses that hire entry-level workers are being forced to worry about how well a 20-year-old who dropped out in seventh grade can handle a job.

"What we're seeing in our business is that we're continuing to have a problem finding entry-level people who are qualified for entry-level duties in areas like simple mathematics or correctly constructing a letter," said William F. Sinclair, president of Washington Federal Savings and Loan. "If the basic skills aren't there



BY DAYNA SMITH—THE WASHINGTON POST

Veronica Rodriguez teaches a retail-training class as Alicia Ventura listens.

school systems, because that's the society's source of entry-level workers," said William H. Kolberg, president of the National Alliance of Business, which has been particularly active in this area. "For the 50 percent of kids who don't go on to college, the 12 years they spend in school is the way we . . . get them ready for the world of work."

One of the earliest and most successful efforts is the Boston Compact. Boston area businesses entered into a series of agreements with the city's school system that resulted in a number of programs aimed at keeping students in school, improving their skills, introducing them to job opportunities and guaranteeing work for those who stayed in school.

In return for promises that businesses made, the school system made a commitment to producing measurable improvement in areas such as dropout rates, daily attendance and basic skills in reading and math.

In addition, the Board of Trade has begun a program to hire high school guidance counselors as interns in area businesses to help them better counsel job-bound seniors.

In New York, the state bankers association is in the third year of a project run in conjunction with the East Brooklyn Churches and the Board of Education. The first year of the program was a public relations disaster: Publicity focused on the fact that many of the students who stayed in school in hopes of landing a banking job did not have the basic skills to be hired. Still, 120 high school graduates ended up with jobs.

This year about 200 graduates of six East Brooklyn high schools received job offers or college scholarships as a result of the effort. Terry L. Myers, vice president for human resources at Chase Manhattan, said that the banks' experience with the graduates has been good. "Of the 29 we hired last year, 14 of them left. That's much less turnover than nor-

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Loan. "If the basic skills aren't there it really causes severe problems."

"The entry-level workers we're running into now versus 18 or 20 years ago are like night and day," Sinclair said. "In the early 1970s, so many of the entry-level workers were well-trained and prepared with basic skills. . . . Now we have to train a receptionist to look at people when they come up to the front desk and smile at people."

Sinclair said he now has an employee in the marketing department whose job it is to screen all correspondence before it goes out to make sure it is properly done. "That takes away from the bottom line," he said.

In fact, according to Anthony Patrick Carnevale, chief economist for the American Society for Training and Development, the nation's businesses are spening $210 billion for on-the-job training and education—creating a system about equal in size to the nation's public elementary, secondary and higher-education institutions combined.

As part of its effort to address educational deficiencies, businesses are forming partnerships with schools to improve their product.

"We have to get involved with the basic skills in reading and math.

When the program began, the economy was in recession and unemployment was high. High school graduates competed with college graduates for jobs, and only about 50 percent of the graduating seniors ended up employed, said Edward Dooley, executive director of the Boston Compact. Now, both as a result of the program and a tighter labor market, only 3 percent of high school graduates are neither employed nor receiving further education.

Last year, the program placed 1,007 graduates in decent-paying jobs that can lead to permanent careers, Dooley said. In addition, students who go on to college can now count on the city's businesses for a package of financial aid when needed.

"In the first five years of our compact, I can really say we've eliminated the concern that there are no opportunities for kids once they graduate," Dooley said.

In the Washington area, where the unemployment rate is 2.7 percent, there is not only the retail services training program, but also a culinary arts program and a program for entry-level workers in banking.

we hired last year, 14 of them left. That's much less turnover than normal," he said.

Banks and retailers once had a relatively free hand in setting wages, hours and working conditions for their employees. Now they find themselves competing with new service industries for a shrinking pool of workers. The result: in retailing, for instance, wages have been upgraded and better work schedules are now the norm, according to Woodies' Culver.

Myers said the bank's employees, once trained, are likely to be hired away by other employers. "It's a tough situation in the New York area," he said. "We have 800 to 900 teller positions, and there's a lot of competition to take those people away. Once they get through Chase's training program, you've got a pretty good product."

Hiring workers through the EBC Nehemiah II program, as it is called, has proved to be a more efficient way for the bank to fill vacancies, he said. "Normally to hire 64, my staff would have to interview 400 to 600 applicants." In contrast, out of 113 applicants from the program, the bank has hired or is hiring 64 workers.

MEMO

DATE: 11 July 1988

TO: Mr. Bill Miles

FROM: Mr. Norman Latker

SUBJ: SUPA Journal

I spoke to Paul Waugaman of Bowman-Gray Medical School, who has the assignment from SUPA to create the journal for the society. He is making the following assumptions which should be your initial focus in talking to Don Freuhling about Pergamon assistance in producing the journal:

1. Selection of articles and editorial review will be undertaken by SUPA members under a SUPA Editor & Chief.

2. If possible, Paul would prefer that the managing editor (who undertakes the editing of selected articles) be a USET or Pergamon employee. As I noted, Joan Markessini has had experience in this area.

3. Printing would be undertaken by Pergamon.

4. The journal would involve approximately 600 volumes per edition. Paul is going to recommend 1 edition in 1988 and two editions annually thereafter. He believes that each journal will be 40 to 50 pages long.

5. SUPA dues do not now provide sufficient funds to produce a journal.

Paul did not rule out paying for the services that USET & Pergamon undertake in assisting SUPA to produce the journal. But as noted, at this point a charge would require raising the SUPA dues. In the future we will be approaching SUPA members as possible USET clients and at a minimum for contributions of technology for our technology information system. If our assistance in creating and producing a journal could be considered a minor expense to the corporation, waiving it may provide greater returns in the form of cooperation to USET.

University Science, Engineering
and Technology, Inc.
8000 Westpark Drive, McLean, VA 22102
Tel: 703/821-2030 Fax: 703/821-2049

June 29, 1988

Mr. Alan Bennett
714 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Dear Alan:

This is a belated response to your request for selected technologies that might be of interest to your clients. Closing on our last acquisition has taken more time than expected. Now that our acquisition program is completed, I would like to pursue the suggestions you made at our last meeting. I am enclosing a number of new technologies that seem to touch around the area of your interest. If they do appear to be the kind of things that you wish to see, I will continue to search our portfolio for additional technologies as they arise.

Sincerely,

Norman J. Latker
Vice President, Legal
and Technology Affairs

NJL/kte

enclosure

NEW CLASS OF ANTI-GLAUCOMA DRUGS

Executive Summary

In the United States, approximately 180,000 new cases of glaucoma are diagnosed each year. The disease affects the vision of more than 1 million Americans. The market of glaucoma pharmaceuticals is over $215 million per year. Market growth will be powered by an aging population and effective new product introductions.

Although offering relief, currently available medications have noticeable side effects and patient compliance problems. New drugs are sought that are more effective, easier to use routinely with lower risk of serious side effects. The discovery outlined below offers the possiblity of a topical, once a day new glaucoma drug.

By chance, an individual introduced drops of a naturally occurring liquid into his eye. His ophthalmologist measured an intra-occular pressure drop of 40% after 24 hours of application persisting at the same level for 72 hours.

Researchers at the Georgia Institute of Technology and the Medical College of Georgia have reproduced this effect routinely in rabbits, but with an IOP drop during the first 24 hours. The apparent active ingredient (a small molecular weight compound) has been isolated and characterized. A close chemical analogue has no effect.

Plans are being made with the Medical School to carry out a systematic study of the active ingredient, its analogues and prodrug forms of the compounds.

Preliminary studies indicate that a strong patent position can be obtained and a US patent application is being prepared.

University Technology Corporation as the exclusive agent for this invention is seeking an interested party to sponsor further development with a view to evaluating commercial introduction of this series of compounds.

ANTI GLAUCOMA DRUG

Executive Summary

Glaucoma which some estimate effects two million adults over forty, is an impairment of vision caused by too much fluid pressure within the eye. Although current ocular pharmaceuticals are sold to the tune of $220 million dollars in the U. S. per year, many of the major compounds have serious side effects for individuals with cardiovascular or asthma problems. There is still a need for an effective topically applied drug with minimal side effects.

This invention, a benzimidazolesulfonamide and analogs has been discovered to be effective in causing intra ocular pressure drops. Simple to synthesize, these materials in rabbit studies have caused a significant pressure drop in rabbits with artificially induced hypertensive eyes. A drop of 25% over a ten hour period was consistently measured. Studies to measure accuracy and long term effectiveness are currently underway.

A U. S. Patent application has been filed.

University Technology Corporation, as the exclusive licensing agent for this technology, is seeking parties to finance further research and development and evaluate commercial potential of this technology.

these materials in rabbit studies have caused

PACKING CHROMATOGRAPHIC BEDS

Executive Summary

By 1990 the market for chromatography consumables is estimated to be $250–$300 million of the entire separations market of $1 billion - estimated to double from a 1985 market of $500 million. The largest growth area in the separation business will be bed packings for gel filtration, ion exchange, affinity and reverse phase chromatography, where 15–20% growth is predicted. The largest portion of this growth is expected to come from purification of biologically produced materials resulting from genetic engineering technology. Rapid development of products such as insulin, bovine growth hormone, and interleukin-2 have spurred the biotechnology industry to search for methods to scale up current laboratory processes and improve current methods of separation of products from production liquids.

There is a need today, in both research and commercial settings, for chromatography columns which offer high loading, and rapid and reproducible results for the separation of products from downstream processing fluids.

Researchers at the University of Maryland, College Park, Department of Chemistry have developed a very fast, efficient and non-labor intensive method for packing chromatographic beds for use in separations. The method is very reproducible and is applicable to both small and large columns. A packed column made by this new method behaves similarly to packed columns made using current techniques, but the production costs are expected to be significantly lower, give more reproducible results and allow faster column production. These beds produce superior flow properties and avoid preferential flow characteristics sometimes referred to as channeling. The method is easy, requires no "special skill" and is accomplished in minutes.

University Technology Corporation as exclusive licensing/marketing agent for this technology is seeking a corporate partner to evaluate the technology, fund further development and introduce the process and products commercially.

CHEMOTACTIC FACTORS

Executive Summary

The body's response to tissue damage or infection is begun by the migration of neutrophils from the blood circulatory system to sites of infection or damaged tissue. Biochemical factors increase cell adhesion to the injured sites and activate neutrophils to release toxic agents such as oxygen metabolites and proteases. It has been believed that these factors are primarily derived from low molecular weight serum protein components, (C3a and C5a) as well as compounds from activated immune cells (leukotriene B4 and interleukin 1). Still unanswered is the question of what are the initial signals that recruit and activate the neutrophils to the injured or diseased tissue.

A recent research discovery of potent neutrophil chemoattractant factors (NCF) from stressed heart tissue in the absence of serum proteins and immune cells has been made at the University of Connecticut. These factors might be the original signal which recruits neutrophils to stressed areas. There is a large difference in molecular weight (300,000 daltons) between these factors and the previously cited factors. Specific radioimmune assay studies have further differentiated the two groups of materials. The factors have been isolated from the heart muscle of several non-primates (rabbit, cow, pig). They have also been found in corneal and gastrointestinal tissues and possess a high potency for specifically stimulating the neutrophil function associated with inflammation.

These research findings hold long term potential for better clinical management of patients. For example, it is known that inflammatory immune cells accumulate in the heart after open heart surgery. With much further development, these factors might alleviate or prevent such accumulation and stress and thus dramatically increase the survival of patients undergoing open heart surgery. There are other applications as well (organ transplants, inflammatory disease). If further evidence shows tissue specificity of the factors, the potential exists for their use in a blood test for diagnostic purposes.

University Technology Corporation, Durham, North Carolina, as exclusive licensing agent for the University of Connecticut, is seeking interested parties to evaluate and sponsor further research to elaborate on these findings and to assess possible commercial potential.

A U.S. Patent application has been filed and foreign patent protection has not been compromised by pre-publication.

IMPROVED DIAGNOSTIC FOR INFECTIOUS BURSAL DISEASE VIRUS

EXECUTIVE SUMMARY

Infectious Bursal Disease Virus (IBDV) has been recognized as one of the principal economic drains on the poultry industry, responsible for the loss of extraordinarily high numbers of poultry individuals, and millions of dollars annually.

One problem widely encountered in the poultry industry in treating and preventing IBDV is identification of the level of antibody effective in neutralizing IBDV present in the serum of poultry. A determination of the antibody level is necessary to assess the need for, and amount of, further immunization treatment. However, the current method for determining protective antibody titer, an indirect-ELISA, does not give reliable, reproducible results. For example values obtained through this indirect assay when compared to virus neutralization (VN) studies are frequently dissimilar.

It has been discovered that this lack of reproducibility and reliability in results may be due to two significant factors. That assay measures not only antibodies effective in neutralizing IBDV (i.e. Poultry protective antibodies) but also significant amounts of other antibodies which bind to the IBDV at non-neutralizing antigenic sites, giving a falsely high reading of protective antibody titer. In addition, current IBDV ELISA antibody kits employ IBDV antigens that contain non-related protein antigen (e.g. fetal bovine serum). Antibodies which bind to these extraneous antigens are frequently present in serum of vaccinated chickens. This binding also falsely indicates protective antibody.

A researcher at the University of Maryland, College Park, College of Veterinary Medicine has produced monoclonal antibodies specific to known IBDV strains and serotypes. The monoclonal antibodies compete for binding sites on IBDV only with themselves and other antibodies which neutralize IBDV. This specificity gives a more accurate determination of the level of protective antibody. The inventor has also developed a competitive ELISA for determination of neutralizing IBDV antibody.

The monoclonal antibodies have now been tested using the competitive ELISA technique and shown to be superior to the current test method and compare favorably with VN results (see following table).

PASSIVE IMMUNIZATION OF POULTRY

Executive Summary

Infectious Bursal Disease Virus (IBDV) is perhaps the most important single disease entity facing the poultry industry today and has been shown to be of great economic significance. The preferred method of control is based on proper immunization of breeder hens, which then transmit protection to their progeny via maternal antibody. This protection is very important since the virus has the greatest effect on chickens younger than three weeks of age who themselves are not yet immunologically competent. When breeder hens are not adequately immunized, modified live vaccines administered to the progeny chicks early in life may be useful in improving livability and performance in the broiler house. However, under the current industry practice, broiler chicks from different flocks of breeder hens are intermixed, thus, resulting in a wide variation in maternal antibody levels in any given broiler house. This leaves proper administration of a live vaccine, a hit or miss proposition. Due to inadequate immunization of breeder hens, and a lack of antibody uniformity in broiler chick flocks, a serious problem exists in the poultry industry today.

Researchers at the University of Maryland College of Veterinary Medicine have produced monoclonal antibodies which have been demonstrated to afford a high degree of "passive" protection against infectious bursal disease virus. This protection was demonstrated in tests conducted at the University, according to USDA guidelines, using 34 fully susceptible one-day old chicks. The chicks were immunized with the "passive vaccine", monitored for antibody levels, and challenged with virulent IBDV on the eighth day. The results showed that not only were the chicks protected against the challenge, but 50% of the chicks retained measurable levels of antibody after fourteen days. This technology has the potential to replace and/or augment both live and killed vaccines for IBD and is competitive with proposed recombinant DNA vaccines.

A USDA approved field trial has recently been completed at a large industrial poultry producer's facility to determine whether the protection demonstrated in the laboratory is achieved under practical field conditions. The field trail was undertaken with 15,000 progeny of a flock of breeder hens which have been demonstrated to transmit an inadequate maternal antibody titer resulting in failure to protect against natural field challenge by IBVD. Seven thousand five hundred (7,500) chicks were immunized with the monoclonal antibodies whereas the other seven thousand five hundred chicks were not immunized and were used as controls.

The results of the trial obtained by the industrial poultry facility show the following:

* The treated group was significantly more refractive to filed challenge by infectious bursal disease then controls. This was measured by gross histopathology and onset of active serologic response in treated and control groups. See Table 1. Serology showed that both the control and the treated birds were challenged prior to the 21st day of the trial.

* There was a significant difference in feed conversion between the treated and control group. The treated group performed noticeably better, saving an estimated 1.5 cents per bird in feed costs.

* Even more impressive was the nutritional efficiency rating for the treated birds (15.20) as compared to the control birds (16.02) where 15.96 was the average rating for all non-field trail birds.

* Interestingly there was not a significant difference between the treated and untreated birds when mortality rates and condemnation rates were measured.

In the summer of 1987 the poultry producer will carry out a larger trail consisting of approximately 200,000 treated birds in addition to control birds. The protocol for this much larger field trail has now been approved by the USDA. Distribution of the monoclonal antibody cell lines has been restricted.

Patent protection is being pursued. University Technology Corporation as exclusive licensing agent for this technology is seeking a corporation to aggressively pursue further development, to evaluate commercial potential and to acquire rights to introduce this commercially.

TABLE 1

Field Trail Results
Passive Protection Against IBVD

Ratio of Bursa to Body Weight*

Day	Treated	Control
1	0.0013	0.0012
7	0.0024	0.0023
14	0.0031	0.0030
21	0.0028	0.0034
28	0.0029	0.0011
35	0.0018	0.0008
42	0.0008	0.0008
49	0.0006	0.0005

Feed Conversion (lb feed/lb bird at 49 days)

49	1.99	2.06

Nutrition Efficiency Rating

49	15.70	16.02

*values are average of 10 birds

Patent applications are on file in the United States covering the monoclonal antibodies and a number of uses. Rights to file foreign applications have not been compromised by prior publications.

University Technology Corporation, exclusive licensing agent for the University of Maryland, College Park, seeks licensees interested in developing and marketing a new test kit based on this technology.

Table: Comparison of C-ELISA, Indirect ELISA, and Virus Neutralization Tests for Determining Antibody Titer to IBDV

Sample ID	C-ELISA[a,b]	ELISA[b,c]	VN Test[d,e]
NCS-0[f]	1.093	0.000	<10
1-0	0.164	>1.500	204,800
2-2	0.184	>1.500	102,400
3-4	0.262	>1.500	51,200
4-8	0.383	1.410	12,800
5-32	0.603	0.756	3,200
6-64	0.696	0.351	800
7-128	0.826	0.312	400
SPFY-0[g]	1.095	0.595	<10

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[a] Average optical density at 450 nm.

[b] Background subtracted.

[c] Average optical density at 405 nm.

[d] 100 $TCID_{50}$ of virus was used.

[e] Neutralization titers are the reciprocal of a dilution.

[f] ...-0 designates samples evaluated at a 1:500 dilution, ...-2 designates samples diluted 1:2 and evaluated at 1:1000, ...-8 was evaluated at a final dilution of 1:4000, and, etc., by 2-fold

[g] SPFY - a monospecific antiserum prepared against a heterologous antigen

METHOD OF PREPARING TIFLUOROMETHYL-CONTAINING COMPOUNDS

Executive Summary

University of Iowa researchers have developed a process to prepare trifluoromethyl-containing compounds by using a novel trifluoromethylated metal reactant. The process uses cheap, commercially available halogenated methanes to introduce the trifluoromethyl group in a single reaction step, under mild conditions and gives yields on the order of 90%. Furthermore, the process is free of competing side reactions which could generate contaminants and lead to disposal/remediation problems.

The process is economically attractive and would be useful for agricultural chemicals, particularly herbicides, some of which are based on trifluoromethylated aromatics. The process could also be applied to pharmaceuticals and polymers which involve the trifluoromethylation of saturated rings and other complex organic structures.

Two U. S. Patents have been awarded and a third application is under review.

University Technology Corporation, as exclusive agent for the University of Iowa, is seeking companies to evaluate the opportunities created by this technology, to finance further development, and to introduce products into the commercial marketplace.

08-12-87

05-83-024

IMAGE ENHANCEMENT IN THE BRAIN

Executive Summary

The development of techniques to make biochemical measurements in the living human brain offers tremendous potential for assessing abnormalities in psychiatric and neurologic disorders. The usefulness of one such technique, positron emission tomography (PET), has been demonstrated for visualizing pharmaceutical binding sites with putative roles in mental illnesses such as schizophrenia (dopamine) and anxiety (benzodiazapine), as well as for quantitating glucose metabolism. However, in spite of the demonstrated value of PET in the brain, there are significant limitations in its application. The most important of these is the dose of radiation which can be safely administered to humans. With PET, the quality of the image increases with the dose of radiation and image clarity must be sacrificed to patient safety.

Magnetic Resonance Imaging (MRI) represents a valuable alternative to PET. MRI uses the same powerful data reconstruction methods as PET (computerized tomography), but utilizes an entirely different source of information (nuclear resonance) which does not depend on ionizing radiation. Unfortunately, the available methods for MRI enhancement is not useful in soft tissues such as the brain.

New compounds have been developed at The University of Iowa which permit image enhancement of MRI in the brain and promise a new diagnostic capability for mental illness, movement and seizure disorders. A method has been invented to chemically modify psychoactive drugs which bind specifically to neurotransmitter receptor sites of known importance in these disorders. The method, which involves the addition of a spin label image enhancer to these psychoactive drugs, provides for the first time the ability to visualize and evaluate functionally important receptor sites <u>in vivo</u> in the human.

Several image enhancing compounds have been synthesized; these include drugs which bind to GABA receptors (antianxiety and anticonvulsant compounds), and to dopamine receptors (anti-psychotics). The GABAergic compounds have been tested as MRI enhancers in the rabbit with exciting results. Additional work is needed to synthesize more compounds and to optimize the conditions for use in MRI in the brain. Funding to support this work is being sought.

The method of enhancing MRI of specific receptor sites in the brain with these modified psychoactive drugs will provide an improved diagnostic tool, allowing for both treatment and continuing research. The technique is applicable to receptor ligands important in a wide spectrum of disorders including schizophrenia, mania, depression, dementia, Parkinson's disease, Huntington's disease, and epilepsy.

Patent protection of this invention has been issued. University Technology Corporation, as agent for The University of Iowa Research Foundation, seeks a corporation to sponsor further development of this technology and to acquire the commercial rights.

PHOSPHATE SELECTIVE MEMBRANE ELECTRODE

Executive Summary

University of Iowa researchers have under development a new ion-selective membrane electrode with a high specificity for phosphate ion. It is able to differentiate phosphate from many competing anions such as sulfate, chloride, bromide, iodine, nitrate and acetate.

The membrane system which incorporates a new compound that displays a high affinity for phosphate in a rugged polymer-based membrane, shows excellent response to phosphate levels of 0.01-10 mM. This is well below the range of competing electrode systems.

Preliminary membrane selectivity characterization has been performed in simple solutions with the anions previously referenced. Based on this data, the membrane system would find application in industrial process control systems and environmental monitoring. Further characterization is required to determine applicability of this electrode for biomedical use, primarily due to the more complex mixture of molecular species in biological fluids.

Patent protection for this process has recently been granted for the United States and is being evaluatted for European jurisdictions.

University Technology Corporation, as agent for the University of Iowa, intends to license this invention to a suitable manufacturer either on an exclusive or non-exclusive basis as desired by the licensee. A license fee and royalties will be required and additional licensee sponsored development is available, if desired, to select and prototype specific applications for individual products.

ALKYLATED NUCLEOSIDE ANALOGUES AND THEIR USE AS ANTIVIRAL AGENTS

Executive Summary

A new class of alkylated nucleoside analogues has been developed for use against retroviruses (i.e. AIDS or HIV). The technology that is the subject of this invention includes the economic and straightforward synthesis of these analogues including an evaluation of effective therapeutic compositions.

Preliminary in-vitro testing of a limited number of these analogues has been performed. One compound, in particular, has indicated a therapeutic index (T.I) of 1000 (a T.I. of 50 or better indicates a potentially useful therapeutic agent). This and other analogues are undergoing continued anti-viral, in-vitro testing as well as an in-vivo study in conjunction with the U. S. Army Medical Command.

U. S. Patent application has been applied for.

University Technology Corporation, as the exclusive agent for this technology, intends to license it to suitable manufacturers either on an exclusive or non-exclusive basis as desired by the licensee. A license fee and royalties will be required and additional licensee sponsored development is available, if desired, to select and prototype specific techniques for individual products.

COCKROACH REPELLENT FORMULATION

Executive Summary

Researchers at Kansas State University have isolated several of the basic chemicals responsible for repelling cockroaches. Of the thirteen compounds initially isolated, approximately five show superior repellent effect, with two being extremely effective. All of these compounds exceed the repellency of the Fencholic acid used as the standard cockroach repellent by the U. S. Department of Agriculture.

The compounds were also tested for odor-effectiveness against natural compounds based on folk lore such as bayleaves, cucumber slices and the fruit of the osage orange tree. All of the compounds produced were more effective than any of these "home remedies".

Applications of these compounds include a time release agent on tape to attach to kitchen cupboards, grocery sacks, etc. to repel roaches and keep them from being carried into the home; addition to the glue on stamps to prevent the glue from being eaten by the cockroaches; incorporation into a floor wax to keep roaches out of sight, and treating paintings to prevent cockroaches from eating the glue on the back.

University Technology Corporation, as agent for Kansas State University, intends to license this invention to suitable manufacturers either on an exclusive or non-exclusive basis as desired by the licensee. A license fee and royalties will be required. Additional licensee sponsored development is available, if desired, to select and prototype specific applications for individual products.

AN IMPROVED ANTIGEN MIX FOR USE IN SKIN TEST DETECTION OF PENICILLIN ALLERGY

Executive Summary

A number of clinical studies suggest that the majority of patients (80-90%) who are labeled allergic to penicillin can safely take the drug at a later time. There are at least two possible explanations for this discrepancy between a patient's history and his or her ability to tolerate penicillin. The rash or other symptom that was originally diagnosed as an allergic reaction to the drug may have been exaggerated or totally caused by the original infection. Alternatively, the patient may have lost his or her sensitivity to the drug over a period of time. Thus, there is a real need for a testing procedure that can accurately detect those individuals likely to experience a severe reaction to penicillin, thereby enabling all other individuals to take penicillin whenever appropriate.

Researchers at the University of Connecticut have used a unique test mixture to evaluate approximately 1200 individuals having a history of reaction to penicillin. Each of the subjects was tested with penicillin G, commercial benzylpenicilloyl polylysine (PPL) and the unique mixture containing the so-called "Minor Determinants". This Minor Determinant Mixture (MDM) contains benzylpenicilloate and benzylpenillate. In these studies, of those having a positive skin test, about 12% reacted only to the minor determinants. Furthermore, those patients reacting only with MDM include those individuals most likely to experience a severe reaction to penicillin. For example, patients with a positive skin test to MDM alone have about a 40% chance of an immediate allergic reaction to a therapeutic dose of penicillin. Individuals having a negative skin test to MDM, penicillin itself and its major determinant PPL have less that a 1% chance of such reaction.

It is believed that the use of the University of Connecticut invention in conjunction with commercially available technology will offer a fast, inexpensive and more accurate test, particularly eliciting a response from those who could expect to have a severe reaction to penicillin. Such an accurate test, particularly in a hospital environment, would ensure that intravenous penicillin can be more safely applied in situations where the case history is unknown. For use in a doctor's office it would add a further level of accuracy to minimize allergic responses.

The University of Connecticut researchers have also developed novel and efficient techniques for synthesizing both minor determinants and for providing a stable dosage form for these reagents. Protocols for administering the skin test reagents have been well developed.

To summarize, skin testing that includes the minor determinants provides a safe and effective means for screening out those individuals likely to experience severe allergic reactions to penicillin. University Technology Corporation, as agent for this invention, can offer a significant supply of the synthesized form of the minor determinants and information on clinical testing. A corporation is sought to evaluate the commercial potential and consider introduction of a new product.

VACCINE FOR POTOMAC HORSE FEVER

Executive Summary

Potomac Horse Fever (PHF) is a recently recognized disease of horses of all ages caused by an organism named Ehrlichia risticii. Although first recognized in Montgomery County, Maryland in 1979, the disease has been identified in 18 other states. In Maryland alone between 1982 and 1984, 88 deaths have resulted from 338 reported clinical cases.

There is clearly an urgent need for quick, sensitive and reliable means for diagnosis. More urgently still is the need for a vaccine by which susceptible horses can be protected against PHF.

Researchers have been studying this new equine disease in the hope of developing a means of diagnosis and a method of protection against PHF. Recent results concerning an experimental vaccine and method for inoculation against PHF have been successful. In addition, during the course of the research, university scientist have developed an assay for the detection of antibodies against E.risticii.

University Technology Corporation, the agent for the University of Maryland, intends to license this invention on an exclusive or non-exclusive basis as desired by the licensee. Additional licensee sponsored development is available to select and prototype specific product applications.

09-04-87

02-86-003

DETERMINATION OF MICROBIAL SENSITIVITY TO ANTIBIOTICS

Executive Summary

The determination of microorganism sensitivity or resistance to antimicrobial agents is critical for successful treatment of disease. The ability to reduce the time and increase the sensitivity for these determinations is a constant goal.

Current technology routinely utilizes antibiotic-agar diffusion and minimum inhibitory concentration (MIC) methods to measure antibiotic sensitivity. The diffusion method, requires cultivation of pure cultures of the suspected organism, establishment of a bacterial "lawn", application of antibiotic discs, incubation and visualization of inhibition zones. The MIC method is similar to the diffusion method, except that bacteria are added to a series of dilutions antibiotic, incubated, and turbidity noted. Both methods require pure cultures and 1 to 2 days of incubation.

A new technique has been developed by University of Maryland researchers to determine microorganism sensitivity and resistance to antibiotics. The process does not require agar media, petri dishes, sensitivity discs, or lengthy incubation time. Instead this technique requires only a microscope and a "special solution" containing antibiotics. In addition, the assay can be completed in as little as 1 to 2 hours, and can be applied to mixed cultures. This technique will be applicable in clinical medicine, general field testing, commercial research and used in educational institutions.

On behalf of the University of Maryland, College Park, University Technology Corporation intends to license this invention to suitable manufacturers either on an exclusive or non-exclusive basis as desired by the licensee. A license fee and royalties will be required and additional licensee sponsored development is available, if desired, to prototype a test for specific applications.

M E M O R A N D U M

TO: Lowell Harmison May 16, 1988

FROM: Norm Latker

SUBJECT: Columbia University

The attached ad for "Director of the Office of Science and Technology Development" for Columbia University responds to a number of the questions we asked Bill Ragun when he visited with us.

Since it appears Ragun is on his way out, this may provide us with an opportunity to solicit them as a client. Their budget and quality of research, and their in-house experience in managing technology suggests that this may be a university that requires an offer of a man-on-campus.

At any rate, if you are able to go to the Vice Provost or other high official, we might have a chance. Given that they have an in-house program, giving them a written proposal does not seem a very good first strike.

Any interest or suggests?

UNIVERSITY SCIENCE, ENGINEERING and TECHNOLOGY, INC.

USET

8000 WESTPARK DRIVE
McLEAN, VA 22102
703-821-2049
TELECOPIER: 703-821-2049

April 25, 1988

Dr. Robert Bender, Director
Associate Vice President for
Academic Affairs
University of Illinois
363 Administration Building
506 E. Wright Street
Urbana, IL 61801

Dear Dr. Bender:

At our recent meeting Sid Alpert indicated that we would present a proposal to continue UPI's patent management services to the University when our planned acquisition of UPI reached and appropriate stage. We have now executed a letter of intent which is intended to be concluded shortly.

We are, therefore, now able to propose an arrangement along the lines of the previous University of Illinois - University Patents, Inc. Servicing Agreement which will include additional very valuable services.

In exchange for a first right of refusal to the exclusive authority to license on behalf of the University the rights that the University may acquire in inventions arising from its research, we propose to provide at our expense to the University the following:

(i) The services of a professional technology transfer individual, subject only to the University paying office expenses. This individual's responsibility will include providing patent related educational services for campus Investigators, interviewing Investigators to search out new inventions and help prepare invention disclosures; providing liaison for our headquarters' personnel, making on-campus visits for Investigator interviews and licensing efforts; helping Investigators work with our electronic data base system (described below); and, generally being available to respond to technology transfer and research proposal inquiries from campus Investigators and Administrators.

(ii) Incorporation of all University technology disclosures in our electronic data base system. As described at our recent meeting, this system will enable us to widen the scope of our licensing activities, on your behalf. If you should like, the system will also enable University Investigators to solicit research funding from industry or other non-traditional funding sources. In addition, if you should like, we will promote the licensing of software and biological and engineering materials, such as monoclonal antibodies, through the data base system. These services

servicing Agreement which will include additional very valuable services.

will be available at no cost to the University other than our normal 40% share of royalty income from licensed technologies, together with a 15% share of overhead obtained from research grants generated through the system.

(iii) The filing patent applications throughout the world for elected inventions, prosecuting the patent applications and maintaining patents issuing therefrom. In addition, we shall bear the costs of licensing and other services, except as noted above and except that foreign filing, prosecution and maintenance costs will be deductible from royalties or other income derived from elected inventions.

(iv) A six-months evaluation period from our receipt of a complete disclosure, at which time we will notify the University of election or non-election, or request an extension which will not be unreasonably withheld. Our election will require us to file a patent application for the elected invention. As to incomplete disclosures, we suggest that this be handled as set forth in Section 2.6 (a) of the University/UPI Agreement.

(v) With respect to inventions subjected to our agreement, a 40/60 division of royalty income, paying over to the University 60%. In addition, we will pay directly to your employee inventors the sum of $250 at the time a United States patent application is filed. We will distribute income to the University on a quarterly basis.

If you agree, we propose an initial term of this agreement of three years, subject to automatic one-year rollovers, or renegotiation at the end of such initial term.

We trust that the foregoing summary of terms and conditions will provide your Intellectual Property Committee with sufficient details upon which to act. Obviously, if additional information is required or you wish to discuss alternatives to our proposal we will be promptly available. Also, as noted above, the "boiler plate" provisions will be basically those as set forth in the existing University/UPI Servicing Agreement.

Finally you should know that we plan to use the same personnel as University Patents, Inc. now employs, supplemented as we discussed at our recent meeting, by additional personnel in a variety of fields. Of course, as the need arises, other USET employees with appropriate backgrounds may be employed to facilitate handling the University inventions in the most expeditious way.

If you have any questions or comments regarding the foregoing, I invite your direct inquiry to me. If you would like to have a proposed agreement for consideration now, we will be pleased to provide same. I look forward to our continuing relationships with your committee, the Intellectual Property Committee, and the University.

Sincerely,

Norman J. Latker,

Vice President for
Legal and Technology

Esq.

Affairs

NL/ac

nl003