

Research focuses on long-run

University stresses academic freedom over immediate results

This is the second in a three-part series examining the role of the University and high-technology industry in diversifying Eugene's economy, what advances are being made and what problems the University and Eugene face in making a high-tech dream become reality.

By Sandy Johnstone
Of the Emerald

Research is the backbone of the University — but upon close examination, little research that will benefit industry immediately (applied research) is being conducted here.

It is the indirect, or basic, research conducted at the University that eventually may help high tech.

"Most research advances are made by allowing very bright people freedom to follow their noses, not to constrain themselves to a particular type of research that has applied dimensions," says Robert Berdahl, dean of the arts and sciences college.

The best research labs allow scientists that much freedom to avoid conducting narrowly focused research, he says.

"Pure science is absolutely essential," Berdahl says. Any university that tries to concentrate only on applied science sometimes constrains scholars and limits results, he says.

"Education doesn't know where it's going and it can't," says Frank Stahl, a University biology professor. "You can't have applied science unless you're strong in basic science."

Although the molecular biology department works mainly in basic science, Stahl says a "bit of information discovered here can be plugged into technology to increase the usefulness of a product."

If high-tech companies jump on a scientific advancement, they can reap some benefit from it, he adds.

Industry is paying more attention to research and technological developments these days, says Peter von Hippel, head of the chemistry department.

"In the past most industries have not been interested in research unless they can see the profit or product in a few years," he says. "Now they are realizing when basic research stops so will other discoveries."

He says industry must realize that scientific investigation into a problem, such as cancer, is essential.

"Something like cancer can only be understood against a background of basic science," von Hippel says. "This country is, on the whole, the most successful basic research country in the world because they unleashed professors to do their work."

Most research in the math department does not have immediate application to industry, says Theodore Palmer, head of the department.

"On the other hand, the kind of expertise we have here can be applied to all sorts of problems. In the past we have consulted in areas not in line with our own research," he says.

Some research which may lead to developments in industry is being conducted at the University.

Stahl points to his work with the virus Lambda, which is widely used in gene cloning. His research answered a basic question about the cloning process and is used widely in the field.

"The usefulness of Lambda is dependent on years of research about the virus. Armed with the basic knowledge we can alter it and make it suitable for a

carrier of genes of other creatures," Stahl explains.

Gene cloning can inexpensively produce human insulin for diabetics, who usually get insulin from pigs and cows. Human insulin is cheaper because of high food prices for animals and more effective for diabetics to use because of a slight difference between animal and human insulin.

Gene-cloning techniques allow scientists to isolate the gene that dictates insulin production. Transferring that gene into another cell produces human insulin.

"It's no where near as hard as one might think, and if it works as well as one suspects it will be on the market soon," Stahl says.

Gene cloning has other potential uses as well, he adds.

"You can change organisms to be more like what you want — build your own animal," Stahl says. "We don't know what the limit is."

Stahl says there is a possibility that people will misuse this type of knowledge — particularly if they can make a quick buck.

"Some will use it unwisely but we still do not want to deny the dwarf full stature or a person that chance of a complete cure for a tumor."

"These things will come from this research," Stahl says. "Any new information about the nature of humankind will help understand it better."

Mathematician Palmer stresses the importance of "bio-tech" and math research to different areas of industry.

"Many people feel 'bio-tech' may be even more economically important than electronics and data processing are now, and that is an area the University is

High-tech:
Finding
the future



Graphic by Shawn Bird

very strong," he says.

"Math is different from others because any type of industry will have problems of a mathematical nature, where as Tektronics doesn't care about bio-tech and a bio-tech company doesn't care about computers."

And right now, many computer companies may not be interested in the research the computer science department is conducting.

"We're not hardware oriented — and a lot of companies are looking for ways to build a new idea — but our research is going to be more important in the long run," says Art Farley, computer science department head.

The types of software researchers are working on include computer vision, robotics and artificial intelligence.

"Software is what we need to make the systems usable — to put smart programs on these systems," says Farley. "The hardware explosion can be important and significant, but it takes the software to make it able to really interact with the naive user."

The What of Who? THE TAO OF POOH

Benjamin Hoff

What does an English bear have in common with an ancient Chinese way of living? And what does it have to do with you and me? In this delightful book, the world-famous Pooh Bear, Master of Humor and Dispenser of Sensible Wisdom,



explains to us the principles of successful living.

44 original line drawings by Ernest H. Shepard. From the publishers of Winnie-the-Pooh. \$8.95 at the UO Bookstore.

Upstairs in the Book Dept.

UO BOOKSTORE
13th & Kincaid
Mon-Fri 7:30-5:30
Sat 10:00-3:00
Textbooks 686-3526 • General Books 686-3510 • Supplies 686-4331

DUTTON

FOREIGN AUTO CLINIC

presents

HONDA TUNE-UP SPECIAL

MAJOR ENGINE TUNE:

- ✓ Replace plugs, points, LUBE & OIL SERVICE: condenser
- ✓ Set dwell and timing
- ✓ Check compression
- ✓ Replace air & fuel filters
- ✓ Minor carburetor adjustments
- ✓ Check charging system
- ✓ Check all ignition components
- ✓ Change engine oil
- ✓ Replace oil filter
- ✓ Check transmission differential, battery, brake fluid, washers, and rear brake adjust
- AND:
- ✓ Cooling system flush
- ✓ Anti-Freeze protection to -10
- ✓ Safety road test

ALL FOR \$62.85

That's right...

THE FOREIGN AUTO CLINIC

782 E. Broadway 485-2252

Offer good October 4-29 1982
Electric Ignition is only \$50.85
No additional parts or labor without consent