

Approved: 2/9/94
Date

MINUTES OF THE HOUSE COMMITTEE ON ECONOMIC DEVELOPMENT.

The meeting was called to order by Chairperson Bob Mead at 3:30 p.m.. on February 1, 1994 in Room 423-S of the Capitol.

All members were present except:

Representative George Dean, excused
Representative Jerry Henry, excused
Representative John Toplikar, excused

Committee staff present: Lynne Holt, Legislative Research Department
Bob Nugent, Revisor of Statutes
Ellie Luthye, Committee Secretary

Conferees appearing before the committee:
Richard Bendis, KTEC

Others attending: See attached list

The Chair called on Richard Bendis, KTEC, to give a brief history of KTEC. Mr. Bendis stated KTEC began as the Advanced Technology Commission established within the Department of Economic Development. Based on the results of the Redwood-Krider report in 1986, which looked on how economic development could be better focused in the state of Kansas, KTEC was formed by the Kansas Legislature and established as a state owned corporation. The first year of funding was 1987. He continued the mission of KTEC was to foster technology innovations from an economic development standpoint and to create growth and expansion of Kansas enterprises. He emphasized it was important to utilize all of the economic development programs to support economic development in Kansas. He further stated their mission was not to help every small business become a business entity but to assist only those businesses where there is technology involved.

He distributed a handout which showed Kansas newspaper clippings featuring KTEC projects and companies and called special attention to the BioCore article regarding the new technique for processing collagen. (Attachment 1)

Chairman Mead opened the floor for questions. Following discussion, some members of the committee had some concerns regarding the administration of the Ad Astra fund and also with the composition of the board and how the companies of members of the board might be directly profiting from KTEC funding.

At the request of the Chair, Mr. Bendis stated he would supply a list of all sitting Board or committee members of KTEC who may be either personally or directly financially benefitting from any of the KTEC programs. Mr. Bendis reminded the committee that each board member did have to file a public disclosure document so this information was a matter of public record.

Chairman Mead adjourned the meeting at 4:50 p.m.

The next meeting is scheduled for February 2, 1994.

Kansas Newspaper Clippings
featuring
KTEC Projects and Companies

*Economic Development
February 1, 1994
Attachment 1*

Fertile fields

Salina
Journal
1-23-94



Bob Moss, president of Moss Sales and Service, stands in front of the company's prototype fertilizer applicator. It is designed to save time,

money and labor by handling both liquid and dry fertilizer. The Salina company serves customers in seven states.

Salina company makes better fertilizer applicator

From its location at Interstate 135 and State Street, Moss Sales and Service has built a clientele of about 1,500 customers in seven states.

The Salina firm sells and services fertilizer application systems, those large trucks with oversized tires and swing arms that look like some sort of bug on atomic steroids.

Three years ago when fertilizer dealers and fertilizer application firms said they were facing rising costs and high worker turnover, Bob Moss hit upon an idea to help — an application system that could handle both liquid and dry fertilizers.

But to get that idea from conception to creation, the company needed some help itself. It turned to the Kansas Technology Enterprise Corporation and became the first Salina company to receive KTEC funding, an \$84,000 grant.

"Without the grant, I don't think a company our size could bring this product to the market place and do the studies to make it a good product," Moss said.

KTEC is a non-profit state corporation created in 1987 to promote economic development in companies that use advanced technology. The corporation, which provides grants to cover research and development costs, is funded with proceeds from the Kansas Lottery.

In its first five years, KTEC helped fund 97 company start-ups and 25 company expansions. From that, 3,722 jobs

were created in Kansas.

"What we saw in Moss, number one, is good commercial potential," said Kevin Carr, KTEC vice president for grants and contracts. "Technically, they seemed to have the wherewithal to pull it off with some assistance."

It was in 1991 that Moss decided what his customers needed is an applicator that could handle dry and liquid fertilizers — something that isn't available on the market.

Such a system would save the cost of needing a different system for dry and liquid fertilizer and require fewer people to do the work.

It costs time and money, Moss said, to have two systems and change them back and forth depending on the fertilizer farmers want on their crops.

Individual systems cost about \$50,000 and the truck chassis to carry them costs about \$80,000, he said. The Moss system will cost in the range of \$140,000 to \$150,000.

With one system, dealers and applicators can apply a load of one type of fertilizer, then turn around and handle a load of the other fertilizer.

"We had to invent a way to build a dry box that would spread (dry) fertilizer pneumatically (using air pressure to apply), which is state of the art, and then be capable of sealing the box so it could hold liquid," Moss said.

Working after hours and on weekends for more than two years, the company came up with a system that does just that.

The new system is a covered box that holds 12,000 gallons of liquid fertilizer or seven tons of average weight dry fertilizer. It's built from a heavier gauge stainless steel

than normal systems and has seams welded both inside and outside the box. A new auger system that could be used with both dry and liquid fertilizers also was developed.

Work on the whole system improved its parts.

"What we started out to do was build an adequate dry system with an adequate

"The reaction has been all the way from 'It won't work' to 'It's too good to be true.' Once you go through the product, no one can tell us why it won't work."

— Bob Moss, owner of Moss Sales and Service

liquid system," Moss said. "What we ended up with is a superior dry system with an adequate liquid system."

The project faced its share of skepticism.

"The reaction has been all the way from 'it won't work' to 'it's too good to be true,'" Moss said. "Once you go through the product, no one can tell us why it won't work."

Not being a manufacturing firm, the company approached the project one step at a time. Outside engineers were hired and manufacturing was done by KASA Fab, 3600 Airport Road.

During the process, Moss read a newspaper article about KTEC and decided to seek assistance. The grant process, he said, wasn't that difficult.

How the state helps

KTEC will invest about \$1.25 million this year in 30 to 35 projects across the state. Without the grant process, Carr said, "the smaller companies such as Moss would be very limited" in what they could accomplish.

To be considered, a company submits an application that goes through an extensive review process. KTEC performs market research and technical screening, asking an independent expert to review the project.

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KANSAS
Salina Journal

JAN 23 1994

► FROM PAGE 19

State has stake in success of projects

Then a panel of 11 professionals and academicians reviews it and interviews the applicant. The panel makes a recommendation to the KTEC board of directors, which has final approval for funding.

KTEC provides up to 40 percent of project funding and requires applicants to provide the remaining 60 percent. Moss matched the grant with \$126,000.

The grants aren't paid in lump sums. Recipients submit bills for research and development costs.

If a project is commercially successful, the grants are actually loans. KTEC recovers its funding through a 3 percent royalty of each unit sold until its principal is recovered. After that, the royalty is 0.5 percent until the full amount borrowed is repaid.

If a project isn't a commercial success, then the funding is a true grant.

"We feel very confident we're enticing some of these small companies with good sound ideas," Carr said.

Moss would have proceeded with his project without the grant, he said, but it would have taken longer.

"I think it's one of the few things that our state does to keep Kansas industry in Kansas," he said.

Moss now is in the last phase of testing the one unit that has been built. A limited number will be built this year to fill initial orders.

The company also is pursuing a patent on the new system.

The new product comes in the company's 15th year. Moss started the firm in 1978 as a distributor of fertilizer equipment in a small office on Seventh Street south of the United

11-3-93
Topeka
C-J.

gun WRHS peers

rs raised the issue in the wake
reck that killed Colette Illum,
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states

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nton is a very unpopular presi-

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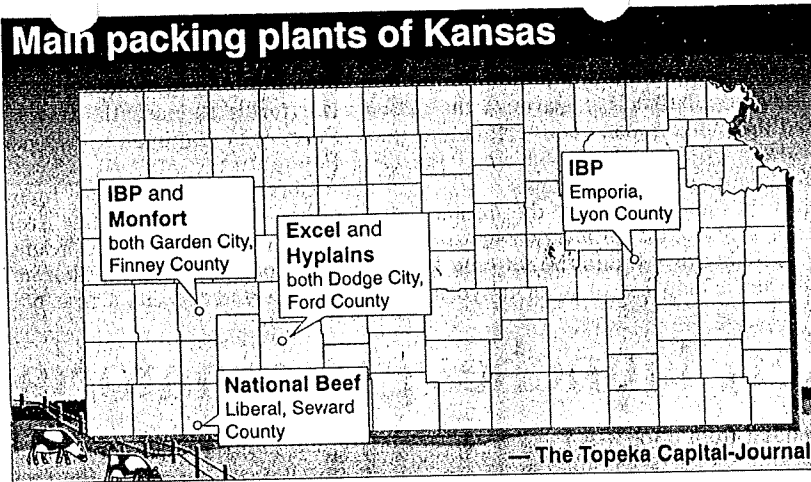
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Companies in the final reporting
ges for their United Way
paign effort include:

- Roach True-Value Hardware
- Berberich, Trahan and Co., P.A.
- Mize-Houser and Co.
- Duffens Optical
- Valley Inc.
- Peoples State Bank

As of 10/29/93: \$2,283,063
Goal: \$4,222,000



Conversion of tallow to biodiesel intrigues scientists, companies

By JIM SUBER
The Capital-Journal

Technology and cattle exist to supply one-fourth of Kansas' diesel fuel needs.

Theoretically the tallow from the 6.2 million head of cattle slaughtered and processed each year in the giant packing houses of south-western Kansas could be converted into enough biodiesel to displace 400,000 gallons of diesel fuel a day.

Richard Nelson, a bio-energy specialist at Kansas State University, has completed several studies recently about biomass, which has some surprising items in its ranks. Animal fat is a form of biomass, which is organic matter derived from plant and animal growth.

The biodiesel idea is the hottest one going in the field right now, Nelson

said. The biodiesel can be made from soybeans and waste grease, too, but the idea of converting the tallow so readily available at the packing plants is intriguing, he said.

In fact, Excel, one of the three largest beef packers in the nation, helped fund a study of biodiesel being used in the Kansas City area.

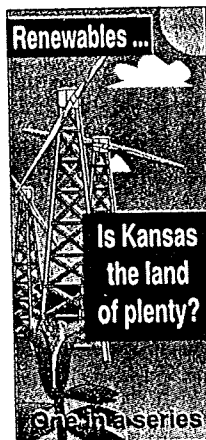
If Nelson could buy tallow at 8 cents a pound and be assured of a market for glycerol, a byproduct in the processing, he could be in business. But sometimes tallow costs more. Right now he figures it would cost from 90 cents to \$1.70 a gallon, depending on the variables, to make biodiesel from tallow.

Each steer or heifer slaughtered yields about 140 pounds of tallow. One gallon of biodiesel can be derived from 7.5 pounds of tallow.

Nelson figures capital costs will run 50 cents to \$1 a gallon of biodiesel produced a year.

Thus far, no one in Kansas has made biodiesel on a commercial scale, although some pilot projects have yielded test amounts.

The Kansas City study is looking to compare buses' engine wear and deposits left by conventional diesel



Continued on page 8-A, col. 1

Tallow use intrigues scientists, firms

Continued from page 1-A

and biodiesel.

The burning of biodiesel leaves no sulfur emissions, fewer particulates — less carbon — and fewer hydrocarbon emissions.

"It will go to environmentally selected areas where reduction in emissions are mandated. Our primary focus is on urban mass transit systems in which we'll have about 45 at the end of the year running on our fuel or testing it already," said Bill Ayres, executive vice president of Interchem Environmental. Interchem is an Overland Park company that pioneered making fuel from soybean oil to run in diesel engines.

Kansas is already the "biodiesel capital of the world," he said.

Ayres is working on a proposal for the Department of Energy to provide fuel to the entire Kansas City metro-

politan area bus fleet — about 250 vehicles — as a follow-up to an earlier test with buses in Kansas City. Five vehicles in Topeka are using biodiesel from Interchem, Ayres said.

The U.S. Bureau of Mines is studying biodiesel as a fuel for underground mining because of its low emissions and lack of explosiveness.

Ayres said Europe started a lot sooner and now produces 40 million gallons. Construction is under way on plants, he said, to add 160 million gallons of capacity.

The biodiesel fuel is non-toxic and will completely degrade in 30 days if spilled on the ground, Ayres said.

"It is a potential new fuel which will clean up emissions on urban areas," he said. "At the same time it will promote substantial economic development in rural areas. There are a lot of acres idle that could go into industrial uses."

With the vast collection of tallow at the packing plant, it would seem to make sense to build plants nearby those facilities.

Nelson wants to do a study on its use in farm tractors in southwest Kansas. He is looking for sponsors.

Grain dust, beef tallow and sunflower hulls are all biomass forms and are energy forms. One thing all three have in common is that they have already been collected for other reasons.

In fact, the main drawback to using biomass products is it generally is found where it won't be used. Energy is required to gather and transport it.

"So, the deliverable energy is a lot less than the gross value," Nelson said.

An economic key to using localized sources of biomass for energy is to beat the price of natural gas, Nelson said.

bet prices

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—David Eullt/
The Capital-Journal

Ken Wong, chief consultant, (center) and John Carlin, president (right), of Midwest Superconductivity, Inc. in Lawrence.

\$UPER\$TAKES WITH SUPERCONDUCTORS

By KEVIN F. BUTLER
The Capital-Journal

In the mountingly high-stakes world of superconductor technology, Kansas' lone entrant might appear overmatched.

Headed by former governor John Carlin and University of Kansas physics professor Kai Wai "Ken" Wong, Midwest Superconductivity Inc., is racing with corporations all over the world to unlock the potential market for superconductors.

To the victor, the profits could be in the billions. Some in the field refer to the largely untapped market as "Electricity's Holy Grail."

Many large U.S. corporations like IBM are pumping in a flood of money and man-hours to study superconductivity. In Japan, the government is working in conjunction with businesses to capture a large share of the market. And the same is true of European companies.

But the company nestled on the west side of Lawrence can find inspiration in one respect. In a research-centered field, it isn't unheard of for small, nimble companies to run circles around their larger competitors.

As Wong points out, virtually all of the progress in the superconductor field has been made by one- or two-man teams of scientists. MSI employs a staff of just 12.

"Ingenuity is not necessarily a thing that only exists in large corporations or large research labs," Wong said. "Everyone has an equal chance."

"If a big company wants to try something unorthodox, it isn't easy to do, particularly when you have administrators who have to approve such a try and don't understand all the matter."

Make no mistake, this is not a low risk venture for those involved. The volatile superconductor market changes dramatically with each new discovery. Several players, Wong and Carlin among them, aren't even certain there will ever be any large scale applications for the technology.

"There's always a high risk with new technology," Carlin said. "We're very optimistic and pleased with the progress we've made in the last few years, but

you always have to factor in that there's no sure, guaranteed deal. We also have the potential upside of that risk, a very large return."

Fortune or failure for MSI, then, rests with Wong and his fellow researchers' ability to follow the swerving road of the new technology and get to the next step ahead of everyone else.

Superconductor concepts

The concept behind superconductors isn't new or even complicated. Almost every household electrical device — personal computers, televisions, microwave ovens — will begin to feel warm after prolonged use. This is because electricity in the appliances' circuitry will run into imperfections or impurities — called resistance — within the wiring, which allows electricity to escape in the form of heat.

Since the early 1900s, physicists have known that some elements, when cooled to extremely low temperatures, would carry an electrical current without any resistance, which would prevent wasted electricity. Unfortunately, the elements had to be cooled to extremely low temperatures, about 30 degrees Kelvin or minus 406 degrees Fahrenheit. Such temperatures were difficult to obtain outside a laboratory. Hence for almost 80 years there was no practical use for superconductors.

Then in 1987, a series of discoveries found that certain ceramic materials could reach superconductivity at much higher temperatures, about 97 degrees Kelvin. Thus they were named high-temperature superconductors, or HTS's. And while 97 degrees Kelvin, or minus 292.9 degrees Fahrenheit, wouldn't register in most people's definition of "high temperature," it is warmer than the boiling point of liquid nitrogen, a relatively inexpensive coolant. Therefore, HTS's could conceivably be used in machinery at a practical cost.

When this was discovered, interest in superconductors mushroomed. Shortly after, in 1989, MSI was born. Wong was contacted by Campbell-Becker, a Lawrence venture capital firm interested in the potential of HTS's and willing to finance a research lab.

Wong, a Hong Kong native, came to the U.S. in 1957 to study physics. He had been a professor at KU

LAWRENCE

since 1964. His research had made him internationally renowned within the field. He agreed to Campbell-Becker's offer and began conducting research.

Carlin was asked to preside over the business in late 1990. The former governor said he was intrigued by the business and accepted the offer.

Today, there's talk of expansion. MSI has secured a patent for a vanadium-based HTS. Others are pending and several more are ready to be submitted.

But MSI hasn't yet marketed any of its research and there is no cash flow built into this year's budget. Carlin said they are looking into the possibility of federal support, but to date MSI hasn't spent a dollar of government funding. And as is always the case in the business world, there is pressure to make a return for its investors' money.

Breaking down boundaries

It would be difficult to try to foretell MSI's future, Carlin said. Many of the large corporations researching superconductors primarily focus on a single product they already make and then use the HTS technology to make them better. But by doing so, they are less likely to delve into unexplored territories.

MSI's researchers don't have such strict boundaries. Everything's on the table.

"That's probably our biggest advantage," Carlin said. "An electronics manufacturer would have to stay focused on their product. It makes sense from their perspective. But we are part of a smaller crowd that has less boundaries."

"Some would say that means that we aren't focused. But my response is that with such a young technology, something new can pop up at any time. And so you really don't want to limit the direction you take."

Probably the first commercial product to be marketed by MSI will be a shielding-type material. In this case, the ceramic substance is used for shielding electronic devices from magnetic interference.

SUPERSTAKES
CONTINUED ON PAGE 6-C

Race car business going full throttle

By KEVIN F. BUTLER

Superstakes

Continued from page 1-C

As an example of how it could work, Carlin described an electronic machine that took air samples for agricultural purposes. Stray electricity from nearby power lines and radio signals interfered with the machine's operation.

But by using the HTS material as a shield around the air sampling machine, all interference could be blocked out, because in addition to having no resistivity, Wong said, the superconductors absolutely repel magnetic fields.

"The shielding would be a much less complicated application for the technology," Carlin said. "We could likely make and distribute that on our own. If we were to build an electronic device, we would probably have to approach a larger business that had the manufacturing capacity to make it because we don't, at least not right now."

For the dreamers, and there are many in the field, Wong said in the long-term there could be some extremely high-tech developments derived from HTS's.

Much research is being done to construct wiring derived by the HTS's. Current metal-based wires are higher in resistivity and as a result electricity is wasted warming the wires.

"We lose anywhere from 30 to as much as 70 percent of our electricity by heating the power lines," Wong said. "There's a big effort to replace power lines with superconducting wires, particularly in the cities. It probably wouldn't be efficient, at least not at first, to build them in rural areas."

Several companies are building sample wires but there's isn't even a vague time line for implementation. "It could be five years, 10 years, 50 years, 100 years," Wong said. "Nobody can say."

Another application being studied, particularly in Japan, is to construct a train, using superconductors, which would

float over its track. "If you constructed magnetic railings, you could build the train with a superconductor on the bottom," Wong said. "Because the superconductors absolutely repel magnetic fields, it would float above the track. So without wheels, the train could slide along faster and not require as much energy to pull it."

Some of the other commonly tossed around ideas include small, ultra fast computers and superior medical imaging machinery.

Stumbling blocks

Before any of these grand ideas become reality, certain stumbling blocks must be overcome. One common problem is that the ceramic material is often brittle and difficult to fashion.

At one time, researchers worked intensely to find different variants of the ceramic substance which would overcome these problems. Wong said currently the chances of finding such an element are slim.

"The Japanese have taken the process of testing new elements and made it totally robotic. The robots could test literally thousands of elements a day and they still never found one that worked. You can make as many different variants of an element as you can imagine, but after that experiment by the Japanese, it doesn't seem likely that we'll find new materials."

Another drawback is that if there was ever a malfunction in the cooling system, the ceramic material quickly would go from non-resistant to highly resistant, where it allows virtually no electricity to pass through it. At the very least this might damage the machinery.

But there is massive research to overcome such difficulties. And the fact that scientists in virtually every nation are digging for answers, if nothing else, bodes well for an interesting venture.

"When you consider where we were just a few years ago, it's really moving at extremely rapid pace," Carlin said. "It's something almost new everyday."

Fingerprint system could change identification methods

Pittsburg firm nearly ready to file patent

By ANDRA BRYAN
Morning Sun Staff Writer

PITTSBURG — A new invention by The Phoenix Group, Inc., Pittsburg, could revolutionize the scope of identification methods nationwide.

Now, automatic teller machines, computers, and access cards require users to enter PIN numbers or personal passwords which can be lost, stolen, or forgotten. Also, law enforcement agencies could use a more efficient, expedient method of determining suspects and their backgrounds.

So what does each individual have comparable to no one else's? A fingerprint.

The Phoenix Group has designed a software program to identify individuals via fingerprints with the simple press of a finger on a "scanner" — similar to a photocopy machine — which transfers any image placed on it into computer memory.

The company, established in September 1989, plans to apply for a patent on the software in June.

"Our system is on the automated side of identifying individuals. This way, you don't need a forensic technician sitting there looking at the prints," said Derald Caudle, co-founder of the company.

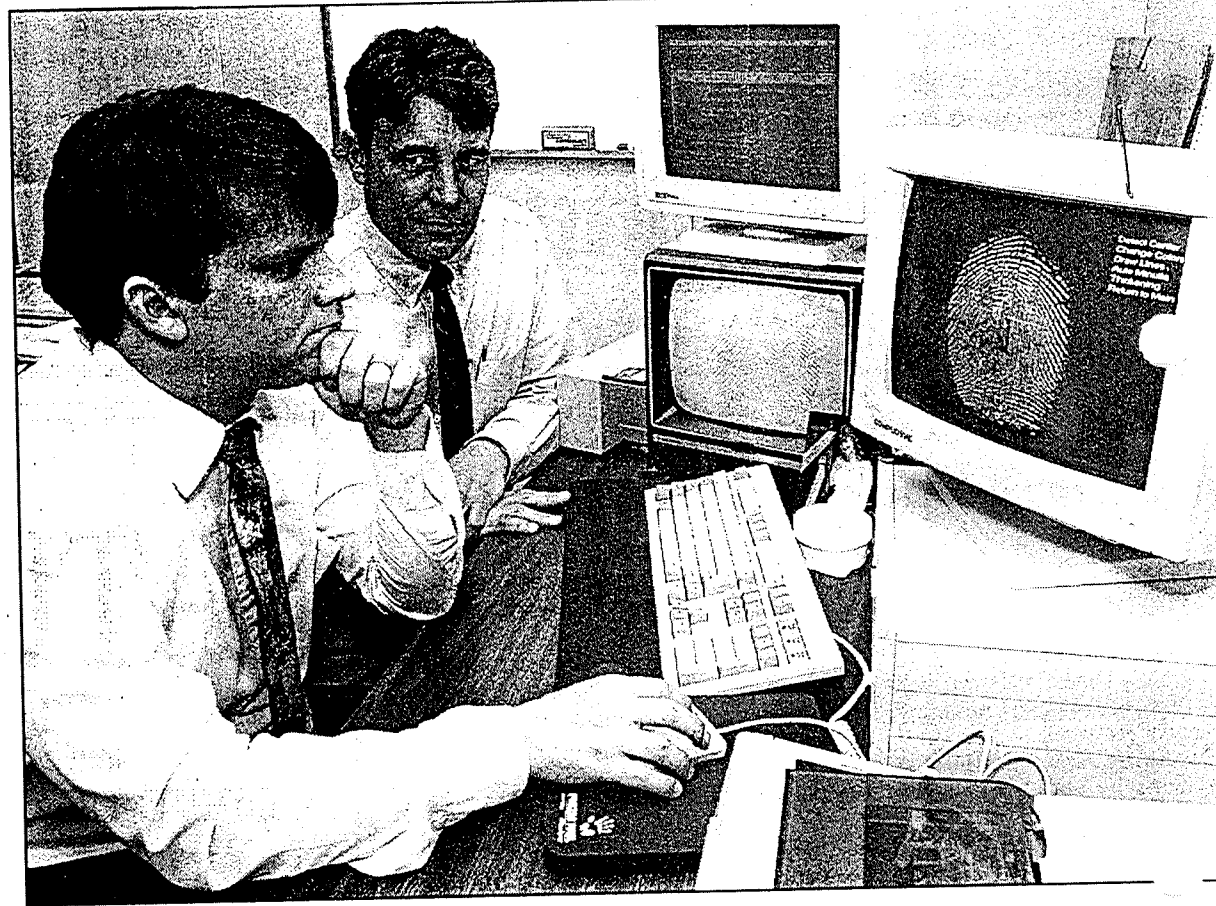
The company submitted a proposal for a program to the FBI some time ago. When the FBI published its intention to build a similar identification system, the company changed its direction to develop just the key part of the matcher, according to Jim Scudamore, who joined the company in 1990.

After establishing shareholders, developing a working prototype, and planning a marketing strategy, the company is ready to make "AFIX," (for Automated Fingerprint Identification eXpanded), a reality.

AFIX is software which can operate on computer platforms from a personal computer to a mainframe. When an individual first places his or her finger on the scanner, it is "enrolled" in the computer system with an identifying label. Any subsequent time the finger is placed on the scanner, the fingerprint is compared to all enrolled prints in the system until it finds a match, or rejects it with no match.

The Phoenix Group, with the computer expertise of member Phillip Davis, worked on developing the computer programming that runs the system.

"There are companies that supply the hardware. Our technology and



Sunphoto/Steve Rosebro
The Phoenix Group, Inc., computer software designer Phillip Davis, left, and company president James Scudamore look over a fingerprint matcher program the company has designed.

expertise focuses on the software, because that's what's lacking out there. No one has ever perfected every part of this," Davis said. The system is accurate, fast, and reliable.

The company made its first match in mid-February, and since then "there have been significant changes in terms of speed and accuracy," Caudle said. "There is a need to

accurately identify a person in virtually every area now, from law enforcement to international security to the welfare system."

(See SOFTWARE Page 4)

(Continued from Page 1)

One example which could be used on a daily basis on a local level would be ATM cards. An ATM card could be made with a microchip containing the cardholder's fingerprint. No PIN number would be necessary, eliminating the chance for forgetting it or someone else using it. At the ATM, the cardholder could insert the card, then place his or her finger on a scanner, matching a fingerprint to the one on the card.

The best fingers to use with the matching system are the index and middle finger on the hand least used by an individual, Davis said.

"Of course, in terms of patterns, fingerprints are completely individual and unchanging, but the quality often changes. Some wear off, or if it's warm the moisture on your finger might cause greater ridges and valleys," Caudle said.

The system potentially could benefit the medical system, gun dealers for identification checks, and in missing person searches.

To become the fingerprint matching supplier for the FBI, AFIX must perform well in a "compute off" scheduled for March 1994, Scudamore said. The event will be held for all companies with competitive programs.

The Phoenix Group's work was assisted by a grant last September by Kansas Technology Enterprise Corp. for research and development.

KTEC's mission is to foster technological innovation and the creation, growth, and expansion of Kansas enterprises.

"They paid us 40 cents on the dollar for research and development expenditures, and we are obligated to repay it once it is commercially successful," Scudamore said. "Quite frankly, that award really helped further our work in research and development. The rest of our operations are supported by our shareholders.

After filing a patent application, AFIX will be patent pending. The Phoenix Group will continue research and development.

SMALL BUSINESS

THE KANSAS CITY BUSINESS JOURNAL

■ Next Week:

A typical small business needs financial services that are cooperative, rather than unconstructive. What kind of bank accounts are right for your company?

U rmd

TECHNOLOGY

GROWING A COMPANY

Starting, running a high-tech company takes a special approach

BY BRIAN KABERLINE

Alan Scott admits he doesn't have the same deep technology background as his partners at PDA Inc. But it is Scott, a former insurance executive, who has the title of chief executive officer of the Overland Park-based software and data processing firm.

The lesson PDA has to teach, he said, is that a technology company, whether a start-up or maturing enterprise, needs more than a knowledge of computers, electronics or other high-tech fields if it is to prosper. A technology business is still a business.

In fact, Scott and others say technology companies present special challenges that entrepreneurs need to be aware of. Scott, along with Don Peterson, president of Lenexa-based DeskStation Technology Inc., will discuss some of these hurdles in a seminar later this month called "Growing a Technology Company."

Finding investors

Most entrepreneurs struggle to find starting capital. But finding capital to begin a high-tech business can be more difficult because the basic equipment needed to go into business usually is more costly, and potential products and services can be tougher to explain to potential investors.

Peterson acknowledged the importance of programs, such as those offered by the Silicon Prairie Technology Association and the Kansas Technology Enterprise Corp., that help entrepreneurs find initial seed money. But these sources are only a first step, he said.

"In general, you need to find a way to make whatever you plan to make or whatever you plan to do a reality before you can get anyone to invest in it," said Peterson.

Besides having a tangible product or service to show, he said, potential investors want to see that the entrepreneur has a serious commitment to the business, evidenced by how much money, time or personal security the entrepreneur has on the line.

Peterson makes a distinction between what he calls a lifestyle

Growing a Technology Company

The Silicon Prairie/Scientific Education Partnership's Information Technology Network is presenting the seminar "Growing a Technology Company" from 7:30 to 9 a.m. Nov. 30, at the Doubletree Hotel in Overland Park.

Featured speakers at the seminar are Alan Scott, president and chief executive officer of PDA Inc., and Don Peterson, president of DeskStation Technology Inc.

PDA specializes in providing software and data processing services, primarily to the insurance industry. The 18-year-old company now has a staff of nearly 130 and annual sales of \$10 million. DeskStation Technology, formed in 1989, is a leader in providing RISC-based computer technology to the personal computer industry.

The cost is \$10 for members of the Silicon Prairie Technology Association and \$15 to non-members. Call 888-6807 for more information.

start-up — (Such as someone who starts his own company because he's tired of working for a big company) and a high-growth start-up (Such as one based on a novel product or service). Venture capital firms are only interested in high-growth companies where the investment amount and possible returns are larger. Entrepreneurs with lifestyle start-ups, he said, should stick to finding individual investors.

Business management

Another trap waiting to snare technology companies is the question of how entrepreneurs handle the non-technological aspects of the business.

"Sometimes the inventors and scientists are extremely bright in their own areas," said Rich Bendis, director and former chairman of the Kansas Technology Enterprise Corp. "But as early as possible, they need to surround themselves with business professionals who can help them evaluate marketing and licensing opportunities for technology they are develop-

ing." Bendis said people starting technology companies often have little business experience themselves and are afraid to approach other people for advice. One good way to get this advice, he said, is by forming an advisory committee of business people.

Scott goes a step further, advocating that entrepreneurs with technology companies bring in people with business experience as partners.

"I think they have to be honest with themselves," he said, "as far as a skills inventory of the participating partners and seeing deficits in that skills inventory."

PDA founder Dave Fuller brought in Scott, first as a partner and then as company president. Besides adding general business knowledge, the addition of Scott brought the company experience in the insurance industry, where it marketed its products, and freed up Fuller to get back to research and development. The company later brought in a third partner, former IBM salesman Tom McCarthy, to direct PDA's its

marketing efforts.

Both Scott and Peterson said the trick to adding business experience is not only in finding the right personnel but in giving these people the authority needed to really help the business. For a high-growth business, Peterson said, founders get a better payback from the growth of the business than in keeping a tight rein on company ownership.

"The important thing is, people can't let their egos get in the way if they are going to have a successful business," he said.

Smart hiring

One acute problem for growing technology companies in this area is finding good employees.

A limited talent pool in some specialties means technology companies have to be willing to go far and wide to attract the talent they need. Scott said companies need to keep in mind which areas of the country are strongest in their particular specialty and recruit heavily there. A good 75 to 80 percent of PDA's recruits in the past one-and-a-half to two years, he said, have been from outside the Kansas City area.

To make matters worse, the same relative lack of high-tech companies that makes local talent rare also discourages qualified employees from coming to the Kansas City area.

"There are people in our industry who won't come to Kansas," said Peterson. "It's not that they wouldn't like to live in Kansas, but, if they lost their job, what would they do? Move back to California?"

There is no one solution to this problem. Peterson talks about having new offices in areas where qualified employees are more plentiful, while Scott said his company relies on competitive wages and training opportunities to keep employees challenged.

"We have tried to compensate key employees at a level competitive with what they could get running their own businesses," he said.

CALENDAR

NOVEMBER 30

8:30 a.m.: Educational seminar on the Consolidated Omnibus Budget Reconciliation Act (COBRA). Associated Industries of Missouri, Park Plaza Hotel. \$50 for members; \$65 for non-members. Contact: Darla Gardner, (314) 634-2246.

1 p.m.: Seminar on customer service phone skills. Johnson County Community College, 212 Cultural Education Center. \$45. 469-4421.

6 p.m.: Seminar on "Opportunities and Options for Women Today in Nontraditional Careers." U.S. Department of Labor's Women's Bureau. Pierson Hall. University of Missouri-Kansas City, 50th and Rockhill Road.

DECEMBER 1

7:30 a.m.: Dennis O'Neill with Cigna "Emotions: The Key to Selling." O.P. Sales Professionals meeting. Lenexa Holiday Inn, I-35 and 95th Street. Free. Contact: Donna Zdanek, 888-2339, or Sheila Crites, 491-3330.

DECEMBER 3

9 a.m.: Workshop on developing fund-raising skills, presented by Robert Buchanan and John Shehane. Center for Management Assistance, MARC Boardroom, Rivergate Business Center, Sixth Street and Broadway. \$75; \$65 each for three or more people. 283-3000.

AWARDS

James Coulter, founder and CEO of Wichita-based Lone Star Steakhouse & Saloon, has been named a national finalist in the 1993 Entrepreneur of the Year program.

Coulter was selected a finalist in the category of Emerging Entrepreneur of the Year, which recognizes the business start-up process.

Lone Star, which features country and western music and a limited menu of entrees, has grown in four years from one unit to 30 units in 10 states.

The Entrepreneur of the Year program is sponsored nationally by Ernst & Young, Inc. magazine and Merrill Lynch.



A business dream in development

Fred Rice

Twenty years ago the 500 largest companies in the U.S. employed about 20 percent of our workforce. Today the top 500 employ less than 10 percent. Part of this drop is due to outsourcing — the shifting of production jobs outside the company, or offshore outsourcing — shifting of production outside the American continent.

An even greater force is the impact of computers and high tech communication equipment that has replaced layers of middle managers in large organizations. The bottom line is that hundreds of thousands of bright, fully qualified managers are looking for work. The best help for many of them would be a concerted effort to teach them how to turn their creative and management abilities into new business ventures.

Kansas Technology Enterprise Corporation recently announced plans to help foster the formation of three small business innovation and commercialization corporations in Manhattan, Lawrence and Wichita. These non-profit corporations would draw on the existing expertise at the universities, economic development agencies and business communities to form strong assistance teams to foster the business startup process.

Since 1978—1983 in Kansas—the Small Business Development Center program has been developing into a nationwide network of more than 500 counseling offices at universities and business schools that help individuals convert their dreams into business startups. SBDC counselors provide assistance with business plans, management and operations, marketing and sales, and financial

planning. They can refer clients to specific technological, legal or accounting assistance. Referrals also can be made to incubators such as the Kansas Entrepreneurial Center where fledgling businesses can benefit from low-cost startup laboratory and office space.

The KTEC proposal goes one step further. By investing up to \$200,000 in the Manhattan Center, KTEC hopes to stimulate additional investment from foundations and matching funds from city and county governments, the business community and area educational institutions. The dream is to develop an incubator building somewhere in Manhattan that would house a number of startup businesses whose likelihood of success would be enhanced by having business assistance agencies located in the same building. One or more satellite centers might be established in north-central part of the state. Lawrence is considering three such buildings that would house up to 10 businesses each.

These startup business would receive coordinated business assistance and entrepreneurship training from the university and the SBDC. Help might also come in the form of student interns from the Colleges of Business, Engineering and Agriculture, who could consult on technical problems. These student interns could perform market research, help develop a business plan or provide technical assistance to turn an innovative idea into a commercial success. After the startup period, the businesses would be “graduated” and moved out of the incubator to privately owned or rental facilities.

A steering committee of 13 members has been formed to develop an overall plan and select a name for the Manhattan commercialization corporation. Separate committees will be looking at facilities, financing, marketing, legal questions and hiring a full-time director. Corporation papers and bylaws are being developed and a board of directors will be named to provide operational guidance. Obviously there is much work to be done, but I personally feel that this is the Manhattan area's best hope for using the expertise of Kansas State University to cooperate in a program designed to create jobs to sustain the local and regional economy.

Federick H. Rice is director of the KSU Small Business Development Center, (913) 532-5529.

MAMTC awarded \$5.8 million training grant

The Mid-America Manufacturing Technology Center in Overland Park has won a \$5.8 million federal award to provide manufacturers "one-stop service" in product development, prototyping, shared production and training in the use of new machinery.

The award comes from the Technology Reinvestment Project, a \$471 million federal program that provides federal matching funds for projects aimed at defense conversion and manufacturing competitiveness.

The MAMTC project, called Manufacturers EnterCorp, was one of 41 winners selected in a national competition that began with 2,800 proposals. Manufacturers EnterCorp will link 16 manufacturing facilities in Missouri, Kansas and Colorado, which will eliminate the need to travel to each location to share information. The program is scheduled to come on-line in the spring of 1994.

To get the project up and running, companies and non-profit organizations in all three states will provide cash and in-kind resources to match the federal award. The project will cost \$21.6 million for two years. The partners include AlliedSignal, Sprint, DeMaTec Foundation and the Metropolitan Community Colleges.

"Manufacturers EnterCorp will be an important new resource for area manufacturers looking for ways to turn their ideas into real products cut the cost and time involved in developing products, and take advantage of shared production equipment and training capabilities," said Paul Clay, MAMTC's chief executive officer. "Most firms will be



TECH TALK
BARRY HENDERSON

able to work with groups in several states without significant travel."

MAMTC is not-for-profit organization that aims to improve small and medium-sized manufacturers' productivity and competitiveness. Its primary business is consulting, but it also provides technical seminars, product testing and equipment demonstrations. It is funded by the Kansas Technology Enterprise Corp. and organizations in Missouri and Colorado.

Gateway expands network

Gateway Communications is making a bid to expand its wireless network by taking advantage of a partner's two new strategic agreements.

By 1995, Gateway hopes to be able to take advantage of a national personal communications network that customers can use to make cellular and two-way radio calls, send and receive faxes and receive messages via pager, all through one piece of hardware.

The Wichita company, which has done business in Kansas City since the 1950s, sells two-way radio systems to businesses. It's the primary agent for CenCall Mobile Business Networks.

CenCall recently announced an alliance with Nextel Communications, expanding its coverage area to include Arizona, New Mexico and Minnesota. The CenCall-Nextel agreement also expands CenCall's existing coverage in Colorado, Kansas, Missouri, Oklahoma, Washington, Oregon and Idaho.

CenCall also has reached an agreement with Motorola to acquire its specialized mobile radio business in CenCall's service area.

Those two deals are the first steps in the creation of a digital, nationwide communications network that will make nationwide wireless communica-

tion a reality for Kansas City residents, according to Steve Katz, Gateway's general sales manager.

Nextel already has a test system in place in Los Angeles, said Katz. Kansas Citians will have to wait for the company to bring some hardware on-line and construct antennae in the area before the new digital network is up and running locally. He expects that to happen in 1995.

Isn't it romantic?

After racking his brain for a catchy moniker for his new company, Dan Murphy came back to two words he thinks about on a daily basis: Christine Michelle, his fiancée's first and middle names.

He experimented with combinations of the two, until he settled on Chrimex.

"The only reaction we've gotten so far is from people who think we're selling crime software," Murphy said.

His company, incorporated in July, hopes to provide manufacturing software to small and medium-sized manufacturers. Murphy said his product will put the power of management informa-

tion systems into the hands of smaller manufacturers who don't need larger systems.

"This product is for the made-to-order, short-run type of company," he said. It can do accounting operations and scheduling, generate financial reports, and perform inventory control, among other

things. The program was originally developed by the Air Force in 1987 to improve its secondary suppliers' delivery and production.

If everything goes according to plan, the product will cost between \$1,000 and \$5,000, Murphy said. He expects small suppliers for the aircraft and automotive industries will be his first customers.

Right now the Center for Business Innovation is helping the company identify test sites, raise capital, develop its management team and do competitive analysis. Product testing is set to begin in January.

"THE ONLY REACTION
WE'VE GOTTEN SO FAR
IS FROM PEOPLE
WHO THINK WE'RE
SELLING CRIME
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DAN MURPHY
CHRIMEX



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| 23. | Meadowlark Hill 9152 Foster Overland Park, Kan. |
| 24. | Rolling Hills Apart 3116 Coronado Roa Kansas City, Kan. 6 |
| 25. | Essex Place Apart 8900 W. 102nd St. Overland Park, Kan |

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The following apartment complex:

Bi-Rotor technology has Little River connection

Ka County Mon
Journal

11-1-93

by K.A. Wedel
The Traveler

If you think you've seen the last word in combines, think again.

Earlier this month, Strother Field-based Agri-Technology tested its revolutionary bi-roto combine on corn and sorghum samples in Cowley County. After more than a decade of brainstorming, seeking funding and turning wrenches, builders of the combines report promising results.

They are also witnessing a dream come true.

Agri-Technology's vice president, Ralph Lagergren — who founded the company with his cousin, Mark Underwood of Burr Oak — said he and Underwood's long journey into harvesting history began 12 years ago when Underwood said he had a new idea for a combine.

"Right from the beginning, I think we were an ideal team," Lagergren said. "He had the mechanical skills, and my skills are marketing."

At first, the going was surprisingly tough. Patent costs and government regulations were imposing, and making cold calls on investors to fund a new combine took audacity Lagergren said he didn't know he had.

"It was the most incredible obstacle I've ever encountered, but we believed we had something," he said.

Their first break came in 1989 when the cousins received a modest grant from the Kansas Technology Enterprise Corporation. Underwood and Lagergren used the funding to build a 1/2-scale model of their bi-rotor threshing system in a Kansas State University agricultural engineering laboratory with the help of Professor Stanley Clark and graduate student Sushil Dwyer.

Lagergren knew he would have to pursue the project full-time so he quit a \$60,000 a year corporate job.

"You know, it wasn't really a hard decision to make," he said. "I always knew in the back of my mind I wanted to do something like this."

"What scares me is a lot of people won't try it today, to go after their dream. There's a quote that's very important to Mark and I from Oliver Wendell Holmes: 'Many of us die with the music still inside us.' Basically, in corporate life, that's how I felt. And Mark felt the music burning in him."

The bi-rotor system's most striking difference from other rotary combines, to say nothing of traditional raddle units, is its revolving concaves, fitted like a sheath over the roto cylinder, but turning with it — in the same direction — at approximately 50 rpm to the cylinder's 800.

In standard rotaries, grain deflected off the cylinder typically bounces several times between the cylinder and the concaves before finding a hole through the concaves, Lagergren said. More grain, then, never finds a hole and is thrown with straw and chaff out the back of the threshing unit.

By rotating the concaves with the cylinder at a speed calculated to reflect the actual speed of the grain during threshing, kernels and concave holes line up better, allowing more threshed grain to exit the concaves on the first try, he continued. The concave holes are therefore about half the size of those in other machines to let less "trash" pass through them with the grain.

So efficient is the design that Underwood and Lagergren's threshing unit is only four feet long. The first two feet of length are four feet in diameter before tapering down to the two-foot diameter second section. In KSU tests, on the 1/2-scale model, Lagergren said 96 percent of the grain exited the concaves in the first, wider section. Because such a small quantity of grain passed into the second section the combines eliminates the need for post-threshing additions such as strawwalkers.

The lighter, simpler system — which Lagergren said eliminates 50 percent of the moving parts on other rotaries — allows room for a 400-bushel grain bin. Combined with a retrofitted Caterpillar rubber traction system results in lighter weight for less compaction and an easier design to maintain and repair.

"The machines that are out there today are good machines, but a lot of people don't think about there being room for improvement," Lagergren said.

Computer designers, he said, didn't know the potential of their products until Apple Computer founders Steven Jobs and John Wozniak proved how much more could be done.

"That's what we feel we have to offer in the combine market," he said. Underwood is a farmer, so "this combine, the bi-rotor combine, was designed by a farmer with a farmer in mind," Lagergren said.

Once the KSU tests proved successful, they fabricated a full-scale threshing unit from scratch and inserted into a gutted-out Case-IH. At the time, Lagergren said, the white-painted combine (with a snappy mural on the side) caused a stir as the cousins cut into fields from Texas to Kansas.

When the time came to build a true prototype the scene shifted to Gordon-Piatt Energy Group, who providing fabricating and computer-design services.

"We started with nothing, and we

built the frame, the threshing system, the whole thing," Lagergren said. Except for the Caterpillar tracks and a John Deere cab, virtually the entire machine was built from the ground up. Prototype construction began in April; field testing began this month.

Lagergren said Agri-Technology's focus now is testing. He said he does believe, with its simpler design and fewer parts, the combine could be produced competitively.

Throughout, Lagergren said the most exciting aspect of building and testing their radical design and fewer parts, the combine could be produced competitively.

Throughout, Lagergren said the most exciting aspect of building and testing their radical design was the teamwork it inspired. This is the story, he said, of two Americans with a new idea getting a break from a state economic development group, a private fabricator and a team of self-motivated individuals employed by Agri-Technology itself.

Clark's graduate student, Dwyer, went on to work for Underwood and Lagergren, and others — Jeff Hawkins, Kingman; Joe Lutgen, Osborne; Alan Van Nahmen, Columbus, Ind.; Glen Jackson, Krum, Texas; and Ken Jackson, Henrietta, Texas — joined along the way.

"It's the best team effort I've ever seen," Lagergren said. More than once, he would be ready to quit after a 15- or 16-hour day only to hear his hired men ask to stay and finish the job they were on.

Wherever the project leads, however long it takes until farmers can use the new technology, this project, to Lagergren and Underwood, has demonstrated what American teamwork, entrepreneurship and free enterprise are all about.

"We had guys come from all over the country to help us and Gordon-Piatt put this thing together," Lagergren said. "It's no longer just two cousins going after the American dream."

STRATEGIES IN:

SMALL BUSINESS

THE KANSAS CITY BUSINESS JOURNAL

■ **Next Week:**
The Access Project, established by the Black Chamber of Commerce of Greater Kansas City, is aimed at getting more black-owned businesses off the ground.

FINANCING

GETTING RESULTS

Group uses funding to promote high-tech start-ups

BY BARRY HENDERSON

When TouchFAX Information Systems Inc. wanted to spiff up its product line, it turned to the Kansas Technology Enterprise Corp. for funding.

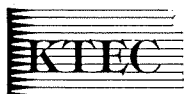
The Lenexa-based company received a \$75,000 KTEC grant for the next generation of its computer-driven public information kiosks, which allow customers to send faxes, make copies and do word processing anywhere from shopping malls to government buildings.

"It (the grant) helped us supercharge our efforts and get up to the next level more quickly," said John Massey, founder and chairman of the company. He said the company was determined to go ahead with the project even without KTEC's help, but the grant helped expedite the process.

"We would have done it some way, somehow, but the grant gave us the additional stimulus," Massey said.

Several thousand Kansas companies have received a helping hand from the Topeka-based non-profit corporation. The state of Kansas set up KTEC in 1987 to stimulate new technology start-up companies.

This quasi-public entity has provided grants for collaborative applied research programs between academic institutions and industry, established a seed capital fund for emerging technology-based industries, and helps businesses apply for the federally funded Small Business Innovation Research grants, among other things.



KANSAS TECHNOLOGY ENTERPRISE CORPORATION

KTEC Accomplishments

Funding levels for KTEC and programs in fiscal 1992.

Investments

- \$8.0 million in state funding
- \$6.6 million in industry funding
- \$6.6 million in federal funding
- \$4.1 million venture capital
- \$0.2 million institutional funding

Results

- \$15.4 million in increased sales
- 17 company startups
- 130 jobs created
- 700 industry-employees trained
- 12 new technologies
- 3 patents issued
- 55 inventors assisted

By Program:

KTEC Centers of Excellence, FY 1992

- Investments
- \$3.21 million in state funding
- \$3.15 million in industry funding
- \$5.67 million in federal funding

Applied Research Matching Grant Fund, FY 1992

- Investments
- \$1.35 million in state funding
- \$3 million in industry funding
- 42 grants awarded
- 5 projects completed

Source: Kansas Technology Enterprise Corp.

"We're probably one of the 10 best technology economic development centers in the country," said Bill Brundage, president of KTEC. "We've also done it for less money."

KTEC started on a total budget of \$300,000 in 1987, compared to the multimillion-dollar budgets similar entities were getting in other states. The smaller budget made KTEC more efficient.

"We had to operate as a business," said Brundage, who is resigning his position at KTEC as of Oct. 15. He is moving to Orlando, Fla., where he will be president and chief executive officer of the Enterprise Florida Partnership.

KTEC's 20-member board of directors hopes to select a successor by the first part of next year.

Part of KTEC's philosophy involves using public funds to invest in companies that are considered high-risk ventures by other investors. In 1988 the state appropriated \$1.8 million to invest in the Ad Astra fund, a seed capital fund managed by a Lawrence venture capital firm that puts the money in technology businesses.

Although some laissez-faire economists might raise their eyebrows at a state government making a direct investment in companies, Brundage believes that providing start-up money for technology companies is a

crucial part of KTEC's mission. "We seed the seed capital."

KTEC also funds the five Centers for Excellence at four state universities in Kansas. The centers at the University of Kansas, Wichita State, Kansas State and Pittsburg State allow companies to develop and test products at a fraction of what it would cost to do it on their own, said Janie Rutherford, director of marketing at KTEC.

Osborne Industries, an Osborne, Kan.-based agricultural products company, contracted with the Center for Excellence at K-State to test a fan for barns and animal sheds. With the help of university researchers, the company came up with a more efficient, cost-effective design.

"They reduced costs, improved their productivity and sold more fans because of the project," said Rutherford.

In addition, KTEC runs six Mid-America Manufacturing Technology Centers (MAMTC) in four locations in Kansas, including one in Overland Park.

The centers, which are staffed with 61 engineers, technical assistants and administrative people, act as consultants to small to medium-sized manufacturing companies.

MAMTC, KTEC's wholly owned subsidiary, was established in 1991 with a six-year, \$12.9 million federal contract from the National Institute of Standards and Technology. In fiscal 1992, MAMTC reported increasing its clients' annual sales by \$700,000 and reducing their total costs by \$318,000.

KTEC doesn't have any hard and fast guidelines about the companies that can qualify for its programs, Rutherford said.

"We're interested if we can put a marketable product on the shelf, or create a new company or keep a smaller business going," she said.

CALENDAR

OCTOBER 1
8:30 a.m.: Business seminar on leadership and team development. Johnson County Community College, 212 Cultural Education Center. \$95. 469-4421.
9 a.m.: Seminar on working with people. University of Missouri Extension Center, Holiday Inn-Sports Complex. \$65. 373-5500.
1 p.m.: Business seminar on accounting basics. Johnson County Community College, 234 Cultural Education Center. \$95 (3 sessions). 469-4421.

OCTOBER 5
5:45 p.m.-8:45 p.m.: Course on accounting and financing at Rockhurst College. 10 Tuesdays. Course can be counted toward a certified employee benefit specialist designation. 926-4579.
11:30 a.m.: Satellite seminar on turning recycables into new products. Environmental Protection Agency. For registration information and location nearest you, call Brenda Freney at 235-1096, Ira Salvini at 551-7817, Ann Leinn Gibson at 373-5500 or (800) 223-0425.

OCTOBER 6
8:30 a.m.: Business seminar on effective supervisory skills. Johnson County Community College, 212 Cultural Education Center. \$95. 469-4421.
9 a.m.: Seminar on "Today's Woman in Supervision and Management." University of Missouri Extension. Holiday Inn-Sports Complex, 170 and Blue Ridge Cutoff. \$65. 373-5500.
6 p.m.: Ask-an-Entrepreneur question and answer session. Kansas City Entrepreneurs Club. Center for Business Innovation, 4747 Troost Ave. David Logsdon, president of B.C.Q. Marketing, will be the featured guest. Free. 561-0588.
Evening: Registration reception for the 1993 Family Firm Institute Conference, which runs Thursday through Saturday. In New York City. Marriott Marquis. Topics include "Real Estate and Family Business" and "The Anatomy of A Deal." (617) 738-1591.

OCTOBER 7
5:30 p.m.: Seminar on prospecting your way to millions. Executive Training & Development, 10999 Metcalf Ave. \$10 in advance, \$15 at the door. 469-1015.

Awards dinner kicks off entrepreneur conference

Barnett Helzberg Jr., who has been at the helm of Helzberg Diamonds since 1967, will be recognized later this month as Kansas City's Entrepreneur of the Year.

Helzberg, chairman and chief executive officer of Helzberg Diamonds, will receive the honor from the University of Missouri-Kansas City and the Council for Entrepreneurship during an awards dinner Oct. 20. Additionally, Dick Clark, founder and chairman of Dick Clark Productions Inc., and his wife Kari

WINNERS

Clark, the company's vice president of administration, will be recognized as International Entrepreneurs of the Year.

The awards dinner kicks off the Entrepreneur Leadership Conference sponsored by the Ewing Marion Kauffman Foundation Center for Entrepreneurial Leadership and UMKC's Henry W. Bloch School of Business and Public Administration.



HELBZBERG

match successful entrepreneurs with scholars and authors in the field, followed by interactive workshops.

The Oct. 21-22 conference, "Entrepreneurship and Leadership: Personal and Organizational Development in Entrepreneurial Ventures," will

Jack Stack, president and chief executive officer of Springfield Remanufacturing Corp., will open the conference Oct. 21 with the keynote address. The company's open-book style of management has led to sales of more than \$75 million.

The conference, at the Hyatt Regency Crown Center, is designed for the entrepreneur in a growth company with \$1 million to \$40 million in annual revenues. The fee is \$295. For more information, call 235-2208.

Topeka C.
Sept. 26, 1993

■ New agricultural products could improve state's economy and ecology.

By JIM SUBER
The Capital-Journal

If a trend keeps building, agriculture will soon have a significant second mission to grow key non-food industrial and commercial products far beyond its current markets for fiber and fuel stock.

Some call it new uses. Some call it alternative uses. The movement has been building for at least a decade as a way to give strapped farmers new markets and now also as a way to find renewable and environmentally friendly replacements for some products.

Several Topekaans have actually led a national charge in the past few years to bring legitimacy and credibility to the cause of alternative products. And, new technologies and ideas have actually helped bring onto the marketplace a few new items.

Some of the Kansans who have been involved in the evolution include Sam Brownback, former Board of Agriculture secretary; Ray Burns, Board of Agriculture industrial use expert and Jefferson County rancher; Sherry Schoonover of the Kansas Value Added Center's industrial agriculture program; and William Brundage of the Kansas Technology Enterprise Corp., who provided space and support for the fledgling years of the New Uses Council.

The NUC is a non-profit organization chartered in 1990 for education and promotion. It is funded by dues from member individuals, companies and institutions.

Brownback and Burns helped spark the idea for the federal Alternative Agricultural Research and Commercialization Center within the 1990 farm act, and AARC finally is up and running, albeit with a greatly reduced budget. AARC's job is to help fund development and research of products.

AARC will soon announce a town in Kansas as home to a regional office. The Kansas Value Added Center will be the host

New uses: Growing new products for non-farming markets



Sherry Schoonover held samples of recycled cotton wall insulation (right hand) and a composite building tile that has soybeans and waste paper as key ingredients. —Amy Kunhard/The Capital-Journal

agency. Burns is the liaison for the regional center and potential applicants.

"It's time now to start interaction between the center and the applicants," Burns said.

Meanwhile, AARC announced 25 projects across the nation it will help fund this year.

One of those involves a biodegradable substitute for plastic film and coating made from wheat.

Midwest Grain Products Inc., Atchison, is working with AARC to develop and commercialize wheat-derived polymers for adhesives, films and coatings.

Currently, the polymers for those materials are petroleum based and will not biodegrade.

The USDA's statistics-keeping arm, the Economic Research Service, began in July issuing biannual outlook reports on industrial uses of agricultural products. In its first report the USDA said the amount of plant matter used in the next three years in industrial materials, excluding paper and rubber, could increase by five million tons, or double that used in 1990.

Mark Dungan, a 40-year-old former staffer in charge of new markets for former Secretary of Agri-

culture Ed Madigan, is the new chief executive of the New Uses Council, now based in St. Louis.

Dungan sees the NUC purpose in three phases: The first is to be a forum for the renewable resources industry to work together on common issues and to bring together industry leaders, researchers and policy-makers; a second mission is to educate the public on environmental and economic contributions of the industry and to expand demand for all renewable resources; and a third component is to advocate helpful public policies.

Dungan has a law degree and was for 10 years on the staff of Congress, including some time as associate minority counsel to the House agriculture committee.

"This isn't worth doing if we don't create economic opportunity and jobs so people can feed their kids and can move forward," Dungan said. "That ought to be the driving force."

He sees the education role as vital.

"The public is basically unaware of the fact that we can take a bushel of corn and turn it into polymers or plastic," Dungan said. "Anything you can make with petroleum you can make with agricultural materials."

Dungan sees two global influences converging. One is that the United States imports "more than 50 percent of its oil." The other is that U.S. farmers are having to idle 50 to 60 million acres of farmland because of lost markets. And they are being compen-

sated. The AARC center in Kansas will not mean a lot of jobs or bricks and mortar, said Bernie Hansen, KVAC board chairman who is president of Flint Hills Foods in Alma. Instead, it will be the nerve center for new projects coming from nine states.

"We'll be really close to the activity and will be helping review the proposals," Hansen said.

An imminent breakthrough in technology will bring a commercially practical way to convert cheap cellulosic feedstocks like stover and grass into industrial raw materials by getting to the sugars from which "a whole raft of things" can be made, Dungan said.

This should happen within months, rather than years, he added, and that one development alone "could turn a lot of things on their heads once a process like that breaks through."

While AARC received but \$9 million of the proposed \$20 million President Clinton had proposed for it for fiscal 1994, it is still sponsoring 25 projects.

Incidentally, Kansas Lee Reeve, a pioneer in the ethanol production and fish production in Garden City, is on the AARC board of directors.

The Kansas center will serve Kansas, Arkansas, Colorado, Missouri, New Mexico, Oklahoma and Texas, and two more to be named.

Besides the AARC projects, there are many other projects, too, said Dungan of the New Uses Council. For example, soon it will

Some projects that may spur new products

The Capital-Journal

Funding the development and research of new products is the role of the federal Alternative Agricultural Research and Commercialization Center. It recently announced 25 projects across the nation that will get financing this year.

The projects include ones from 18 small businesses, one from an agriculture cooperative, three from mid-size companies, one from a large corporation and two from non-profit organizations. AARC actually invests or becomes limited partners in some of the ventures.

Here is a capsule of some of the 25 projects.

■ Kansas, Midwest Grain Products, Atchison. The company hopes to capture 1 to 3 percent of the 2.5 billion pound market for comparable polymers within the first four years of production. AARC will be repaid its \$800,000 investment over an unspecified period of time, the New Uses report said, while Midwest Grain will risk \$850,000.

■ Michigan, Strandwood Molding Inc., Lake Linden. Using compressive molded wood strands, this

Uses cultivated milkweed down for insulation in pillows and comforters and insulation. AARC spent \$150,000. Milkweed requires but one-fourth the water corn does.

■ Minnesota, Phenix Composites, Inc., Mankato. Makes a product that looks like granite but works like wood from 45 percent high protein soy flour, 45 percent recycled newsprint cellulose and 10 percent color and other additives. Environ is harder than red oak and has woodworking characteristics comparable to hard maple. Touted as a good use for waste newsprint, which now takes up 40 percent of the nation's landfill space. AARC will invest \$1 million with repayment plans.

■ California, ARKENOL Inc., Laguna Hills. Plans to use a concentrated acid hydrolysis method to process waste wood and paper to make ethanol. AARC will spend \$1 million.

■ Texas, AFEX Corp., Brenham. Converts cellulosic biomass material like hay, cornstalks and wood into low cost sugars to make ethanol.

■ California, Agro-Fibers, Inc., Corcoran. Uses the long bast fibers of kenaf to make mats into which are embedded grass seeds. The seeded mats become the basis for grasses.

K&A firm offers an alternative to nursing homes — a self-contained care unit that fits in the family garage

A new choice for long-term care

By JAN LANDON
The Capital-Journal

GREAT BEND — When 86-year-old Bill Hart of Liberal fell and broke his hip in April the choices for long-term care seemed bleak.

Staying in his own home was impossible, promising too much strain on himself and his wife of more than 60 years.

The kids? They're so busy with their own lives, their own kids, their own problems. A nursing home? Surrounded by strangers, away from loved ones and costing thousands of dollars?

No option seemed right, leaving the Harts and thousands of older Americans each year, wondering where to turn when age or chronic illness or both have forced them from their homes.

An ex-hospital administrator believes he has found the answer to the question of care for the elderly and chronically ill. Steve Menke is the president of Mobile Care, Inc., operating in what used to be a car dealership in Great Bend.

Menke's idea, awarded a patent just over a month ago, is called the Health Care Suite. It's a self-contained unit that converts an attached garage into an apartment that provides a temporary home.

The rental cost is \$500 to \$800 a month, with installation about \$1,000.

In the case of the Harts, their daughter's garage was converted into such an apartment. The family is a test site for Menke's idea.

The suite enables Sheryl Paxman to have her parents near, her father can be in a loving environment while he receives support services from community health care agencies.

"They're able to be together," Paxman said about her parents. "She never could have stood being in a nursing home. My dad gets to stay near home and have the personal care. If he were in a rest home we would all be five miles away."

Paxman said while her mother stays in her daughter's house, her father is just a few steps away in the suite. A nurse works for the family about 40 hours a week.

The Home Care Suite was



—Chris Ochsner/The Capital-Journal
Steven Menke, president of Mobile Care Inc., hopes the Health Care Suite his company manufactures will revolutionize health care for the elderly and chronically ill. The suite is set up in the attached garage of a home to make a handicapped accessible apartment for elderly or ill patients.

designed by Kansas State University. The wheelchair-accessible unit, made with fire retardant material, has a hospital bed and bathroom facilities designed for people with disabilities.

Menke has one of the suites in place at his Great Bend factory and show room. The suite had the feel of an apartment, even when surrounded by concrete. Once inside the feel of the garage was gone.

Designed in two-foot sections, the specifications of the insulated suites can be altered for each garage. The unit's floor sits 7 inches above the garage floor, and the electricity and water are hooked into the utilities of the attached home.

The garage doors are replaced with walls and siding that match the house. An outside door and window are also constructed.

Menke said installation takes about 2 1/2 days.

"We try to make it as easy as possible for the families to provide health care," he said.

Menke, who came up with the idea for suites about three years ago, describes them as part of an integrated health care approach, which involves the patient's family and professional services.

"The needs in our health care system are changing from acute care needs to chronic needs," Menke said. "This is on the cutting edge of health care. We simply cannot afford to have society take care of the health care needs of everybody."

"My goal is to help reshape how health care is delivered in the U.S. We can do better than we have. There's been too much concern about making money and not as much for the quality."

Menke's interest in reshaping health care has piqued the curiosity of officials at both the state and federal level.

Earlier this year the National Institute on Aging awarded a \$50,000 grant to study the Home Care Suites. Conducting the two-phase study is the University of Kansas Gerontology Center.

The first phase involves an opinion survey and the second phase establishing five test sites. Deborah Altus, a researcher at the KU center, said she had been surveying physicians, professional care givers and family members about their thoughts on the suites.

She said while some people have been uncomfortable with the thought of housing a loved one in the garage most of the responses have been favorable.

"It's a wonderful option and

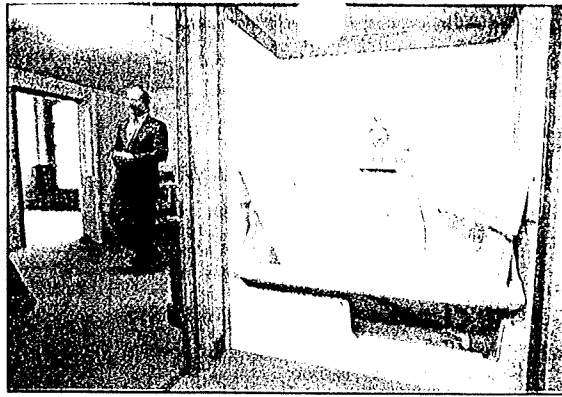
older people desperately need options," Altus said. "We're going to see a lot of housing options. People are demanding independent living options. People are saying we don't want to be institutionalized."

Altus said they are still seeking test sites for the second phase of the study. It's hoped that all test sites can be established by Nov. 1, and there is funding available for the families involved.

Menke said he hopes to begin manufacturing on a larger scale in his Great Bend plant by the end of the year.

He isn't worried about making money on the deal, but said it's an idea whose time has come.

"It's not the right answer for everyone," Menke said, "but for some people it's exactly what the doctor ordered."



The bathrooms of the suites are equipped with handicap accessible shower-bathtub combos

Joseph Capital - Journal 9-12-93

Cow hides provide dressings for wounds; more uses on way

By DOUG GLASS
Associated Press Writer

TOPEKA, Kan. (AP) — In a tiny building on the outskirts of the city, workers spoon a pasty, lard-like material into a converted ice cream machine.

It's the first step in a new technique for processing collagen, an organic material perhaps best known for plumping lips or smoothing wrinkles through cosmetic surgery.

But the materials produced at BioCore Inc. will serve a higher purpose, as dressings for wounds.

"No one has been able to produce collagen dressings in a number of different forms that are useful for wound dressings at affordable prices," said Dr. Manoj Jain, the company's founder.

The raw collagen that Jain buys comes from cow hides, a resource Kansas has in abundance. It leaves Jain's modified ice cream machine as a gel, which is placed in shallow metal trays and freeze-dried.

The freeze-drying removes water and leaves a spongy latticework of material. Cut into pads, ground into powder or turned into paste, the collagen, when placed on a wound, provides a structure intended to encourage new cell growth.

Jain, 29, who earned his doctorate in biomedical engineering, biochemistry and pathology from Rutgers University in New Jersey, is as much salesman as scientist.

He sees collagen as the next plastic, someday being used to clean up oil spills or as a drug delivery system similar to a nicotine patch. It might even be used as a diet pill, he says.

"We have a lot of ideas, a lot of areas we want to grow into," he said.

For now, BioCore's focus is creating materials to cover skin punctures, abrasions, deep scratches and almost any injury involving skin damage.

While Jain says collagen accelerates healing, doctors are split on its effectiveness.

Dr. Kelman Cohen, executive director of the Wound Healing Center at Medical College of Virginia in Richmond, says no substance has been proven more effective than

most ordinary dressings.

"Just because they're made of a biological material called collagen doesn't mean they're any better than anything else," Cohen said.

But Jeffrey M. Davidson, a professor of pathology at Vanderbilt University School of Medicine in Nashville, Tenn., says collagen is a good support for tissue growth.

"The use of collagen sponges is not a novel concept," Davidson said. "But having developed a manufacturing process that has reduced cost without increasing risk is a real benefit."

The Food and Drug Administration reported in 1991 that people who use injectable collagen for cosmetic purposes had a higher risk of two connective tissue diseases.

"That in fact is a very rare event," Davidson said. "Using collagen in a wound healing application is a little different. If it's only being used temporarily, there's little chance it's going to set up much of a response."

While doctors debate collagen's value, officials at one state agency just hope BioCore succeeds financially.

The Kansas Technology Enterprise Corp., a non-profit agency set up in 1986 to promote technology and economic development, gave the company \$153,000 for research and development and another \$250,000 for seed capital.

Charles Becker is a partner in Campbell Becker, a private company in Lawrence that manages the KTEC's Ad Astra fund, which provided start-up money. Becker says the fund directors took a long look at BioCore's prospects before making a decision.

"It's a growing market and since it's a natural product, it has a good field from our point of view," Becker said. "The wound care marketplace is huge. Just to get a

small portion of that would be great.

"We're not planning on becoming Johnson & Johnson in six weeks," he added. "But we do plan to make a significant impact on that market."

Other companies are also developing new uses for collagen. An Italian firm has produced similar collagen pads and another company, Celtrix Pharmaceuticals in Santa Clara, Calif., is working on a dressing that uses collagen to deliver a patented molecule it says promotes skin growth.

MAR 29 1993

KANSAS
Russell Record

282 TouchFax Information Receives Governor's New Product Award

TOPEKA — Governor Joan Finney has presented Touchfax Information Systems, Inc., of Lenexa, with the 10th Annual Kansas Engineering Society Governor's New Product Award.

The award recognizes the benefits of new products to the Kansas economy.

TouchFax was founded in 1989 to produce a public fax terminal especially for business people who travel frequently, and for business and individuals who only occasionally needed fax service.

The business received an early boost with a contract from the United States Postal Service for more than 200 machines. In 1991, TouchFax received a grant of more than \$80,000 from the Kansas Technology Enterprise Corporation to improve their public fax terminals.

To activate the terminal, customers must insert a credit card or telephone calling card into a slot. A list of options then appears on the screen. Customers simply touch the selected option that appears on the screen and the terminal does all the work.

"The machine has become a user-friendly vending machine of information," said John Massey, creator of the terminals and chairman of TouchFax. "We designed it in such a way that anyone can use it."

In 1992, Touch Fax received another grant from KTEC totaling \$85,000 to further the development of an electronic library for

the machines. With the electronic library, users will be able to access financial updates, current news, and sports reports, and even purchase airline tickets through the terminals. Busy executives also will be able to access their fax mailbox from anywhere on the globe.

Users also can request details of weather conditions in their destination city, maps, and direc-

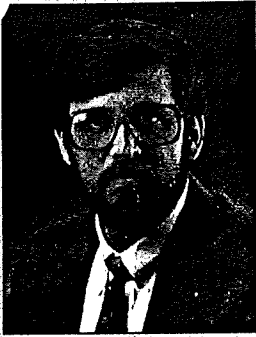
tions to specific locations, as well as city guides to dining and sightseeing.

TouchFax public terminals also can provide many useful services, such as word processing and high quality laser printed copies in addition to its primary communications capability of phone, fax and computer.

Last fall, the company began placing the first of a planned 70 terminals in the Lawrence and Kansas City areas. In the future, Massey plans to place public fax terminals in airports, hotels, truck stops, apartment complexes and super markets. Since inception in May 1989, TouchFax has grown from two employees to 25.

In 1992, sales hit the \$3 million mark on the company's primary product. Customers include: AT&T, Sprint Corporation, Bell Canada, and Landis & Gyr Communications Corp., a large Swiss-based telecommunications company.

TouchFax is projecting 1993 sales of more than \$5 million and the addition of several new Kansas-based jobs.



Philip G. Hubbard

From the Executive Director . . .

As it turned out, my first day on the job was Sept. 28, the day of the Tom Peters seminar. What an event! More than 800 business leaders and educators listened as Peters entertained, challenged and motivated us with his urgent call to virtually reinvent every aspect of the way we do business.

At the Business and Industry Institute, we are moving ahead, working as a team and harnessing the state-of-the-art computer technology that we teach to give our business clients the best possible customer service. We are looking closely at continuously improving everything we do in our efforts to reach out to new and expanding businesses in Johnson County.

If you are receiving this newsletter for the first time, it is because we have expanded our mailing list. The goal of the newsletter is to pass along timely, useful information and advance notice about special events sponsored by the institute. Your comments and suggestions are always welcome.

Philip G. Hubbard
Executive Director

Technology Center Joins Institute

The Mid-America Manufacturing Technology Center has joined the Business and Industry Institute. Two field engineers, Glenn Andregg and Peter Fitzsimmons, are housed in the institute office.

MAMTC is a funded, not-for-profit corporation established and sponsored by the Kansas Technology Enterprise Corporation and the U.S. Department of Commerce's National Institute of Standards and Technology.

MAMTC provides a range of consulting services as well as vendor searches, seminars, company assessments and industry forums to manufacturers. Special areas of expertise include:

- Operations improvement projects, such as new facilities or operations layout planning, manufacturing process development and change, and equipment, tooling and process recommendations.

- Business systems assistance, such as selection and implementation of an MRP (requirements planning) software system, development of a MIL-STD or ISO 9000 quality assurance system and manual, or selection of a computer information system for business accounting needs.

- TQM, SPC and work force education and training through the Business and Industry Institute.
- Product design and specification, project management services and technical solution research in engineering technology focus areas (e.g., mechanical, electrical, chemical).
- Environmental and EPA-related education and training through AlliedSignal.

For more information, call Glenn Andregg at (913) 469-2305 or Peter Fitzsimmons at (913) 469-2306. ♦



Glenn Andregg



Peter Fitzsimmons

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All correspondence should be directed to: Philip G. Hubbard, Executive Director
Business and Industry Institute
Johnson County Community College
12345 College Blvd.
Overland Park, KS 66210-1299
(913) 469-3845

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