



In the Shop with

WALT & MIKE

*By Melissa Hendricks
Photos By Mike Ciesielski*

Enter the subterranean world of Walter Krug (left) and Mike Franckowiak (far right), two men who are in one respect the cog of Hopkins's research labs. It's a world of practical ideas, in which bandsaws buzz, milling machines whir, and a fine layer of gray metal dust coats everything.

Hopkins is a place full of heady ideas, where scientists test their theories of how the world works, or invent technology to make it work better. But many of the tools and instruments that Hopkins researchers use to test and invent with come from a world of another sort. One beneath Maryland Hall.

Here, framed diplomas do not hang on the walls. The people who work here do not deal with abstract theories, nor will they perish if they don't publish. It is a place of practical ideas, where machines and hands are what matter.

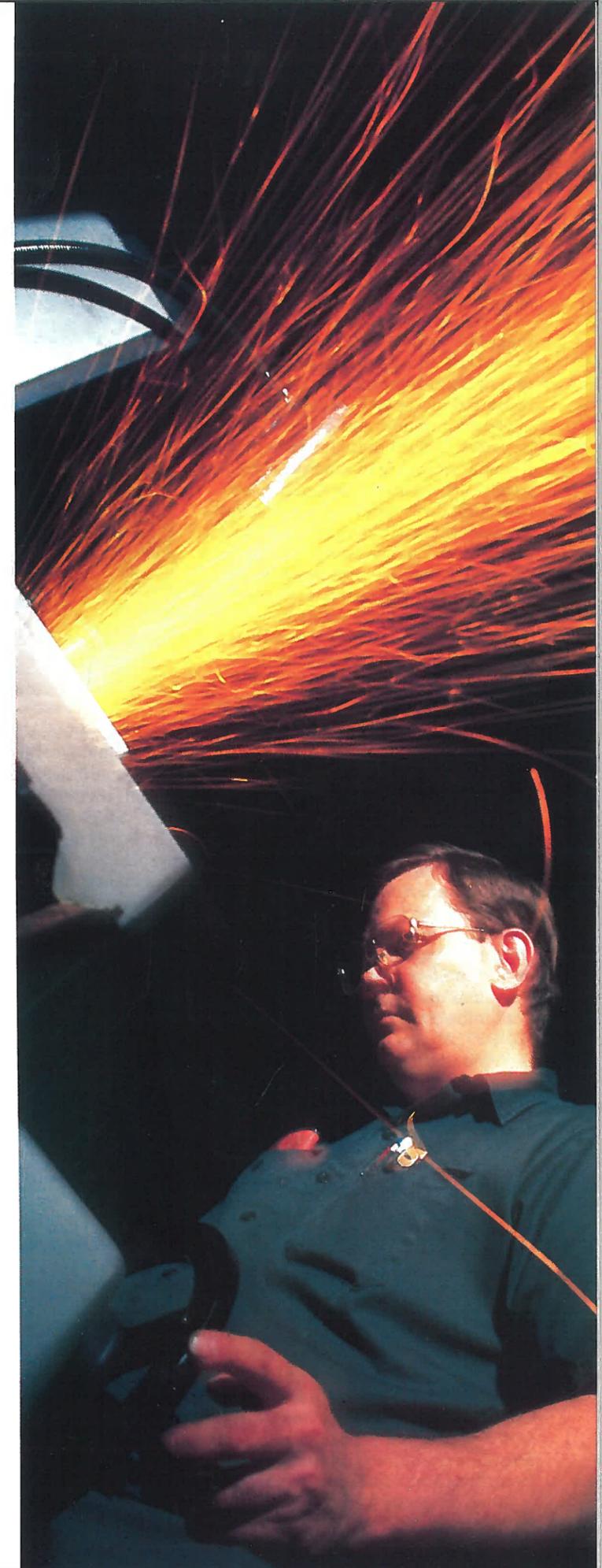
The basement smells of machine oil and buzzes with a symphony of machine sounds—the whir of a milling machine, the squeal of a metal-cutting lathe, and the piercing song of a buzzsaw echo in the vast room, whose ceiling rises high enough to contain a crane. Under the fluorescent lights, the rows of machines give off a greenish glow. No natural light penetrates here; the windows have been painted black.

In this subterranean world, two men work who are, in one respect, the cog of Hopkins's research labs. Machinists Walt Krug and Mike Franckowiak build instruments and devices used by scientists at Homewood, the Applied Physics Lab, the Medical Institutions, and just about every other part of Hopkins where people do experiments.

They have built mounts for force-sensitive plates on a pitcher's mound (used to analyze the physics of pitching a baseball), parts of a magnet for a magnetic resonance imaging (MRI) lab, and two score of bird cages for a psychology lab. They also fix snowplows and garbage compactors. They've done some weird jobs. One time they had to drill a hole in the knee of a cadaver. "We never tell anybody we can't do it," says Franckowiak, of the jobs he's asked to do. "We'll try someday, somehow."

Franckowiak and Krug are friendly, talkative men, both in their 40s. They were both raised on farms—Krug in rural Pennsylvania, Franckowiak in Maryland's Mount Airy countryside. Krug, foreman of the shop, who has worked at Hopkins for 20 years, is more soft-spoken, but his conversations build gradually and often end in a rumbling belly-laugh that creases his face into a sheaf of wrinkles and puts a sparkle in his blue eyes. Franckowiak is heavyset, with a broad, expressive face and prominent ears. He wields a dry wit and is more parsimonious with his laughter. Ever since his wife died 14 years ago, he has been a loner and he's come to enjoy it. The two men work their audience, whether it's a scientist with a request or an inquiring reporter, like a comedy team: Krug provides the jokes, Franckowiak the cynical follow-up. They even dress like a team—Krug's work clothes are all blue, Franckowiak's all green—every day.

There are more specialized and sophisticated shops at Hopkins. Whitehead Hall houses a carpentry shop. In the airy, modern shop in the Bloomberg Center for Physics and Astronomy, instrument makers have fashioned particle detectors used in sub-atomic particle accelerators at Berkeley and in Switzerland. A shop in Latrobe Hall caters exclusively to the mechanical engineers. But the Maryland Hall Machine Shop is the only one that has existed since the Homewood campus was established in 1912, and it is the



only one that handles jobs for anyone at the university.

In the shop one March day, what looks like a door-sized metal tic-tac-toe game rests on a front table. It's a section of a wind tunnel, which Franckowiak will saw apart and re-weld into a new configuration. At another table are pea-sized O-rings that Franckowiak is trying to fit into inch-long stainless-steel cones. Minute windows in the cones will direct laser light into a high-pressure cell used to observe molecular phase changes. A section of black wrought iron fence with three broken rails is propped against a worktable. It needs to be fixed and returned to the Johns Hopkins Club. "We bet one of those boys had a little too much," Franckowiak jokes. Tucked in a far corner is a beaten-up boat motor. (When they have the time, the machinists do personal repairs for Hopkins faculty and staff, though free time is sparse. The boat motor has been in the corner for a year.) And filling most of the shop's entryway, which doubles as the machinists' office, are enormous chunks of steel, some of the disassembled parts of an M-1 tank. They include what looks like an axle, a wheel, and a few six-foot-long cylindrical rods.

The tank parts comprise the thesis project of Steve Johnston, a doctoral student at the School of Engineering's Center for Nondestructive Evaluation (CNDE). About the time of the Persian Gulf War, the Army asked Johnston's advisor, CNDE director Robert Green, to help them measure the magnetic properties of M-1s, because iron in the tank's steel triggers landmines, like the Russian-built ones the Iraqis buried in the desert. "The idea is to design tanks that don't set off magnetic mines," explains Green. "We might be able to tell the Army what to do to steel to make it less magnetic." (Substitute a ceramic composite for some of the steel, for example, or reduce the proportion of iron.)

Johnston, a thin, intense man with the anxious look of a veteran student eager to graduate, comes into the shop to explain his project. Franckowiak and Krug nod hello but unhurriedly finish their conversation with a prior visitor. This shop is not like a Burger King. Here, Krug and Franckowiak set the pace.

Johnston needs the machinists to cut



Why do two guys need 5,000 square feet of space? the machinists sometimes are asked. Because it's two guys and dozens of specialized machines. Krug and Franckowiak build scientific instruments for researchers throughout the university.

several specimens from the various disassembled tank parts. Some should be the size and shape of a flat doughnut, he tells them. Others should be rectangular boxes, about the size of a stapler. The boxes must fit into Johnston's permeameter, a toaster-sized device that measures the magnetic field induced in a specimen in response to an applied magnetic field.

In addition, Johnston wants to see how the magnetism changes as a force is applied to the steel, as often happens when a tank is driven over rough terrain. He hands the machinists a pencil drawing of a device he calls a "nutcracker." A rectangular tank specimen—the "nut"—will be screwed into the ends of the nutcracker's two arms. The nutcracker will compress and stretch the sample while the permeameter takes its recordings, explains Johnston.

The sketch he gives the machinists is fairly detailed and to scale; Johnston



has worked briefly in a machine shop and knows something about the tools. But that is unusual, says Green, his advisor. "Most sketches they get are off-the-cuff things," Green says. "No one takes mechanical drawing anymore."

One student became notorious in the Maryland Hall Machine Shop for his impractical ideas. "He submitted drawing after drawing," recalls Franckowiak, shaking his head. "He was a rich Texas boy, and kept asking, 'Can't you use a fatter O-ring? Just use a fatter O-ring.' He wanted all kinds of ridiculous stuff. If you had 10 million bucks and the rest of your life, maybe you could do it. But at some point you gotta say, 'How much is enough?'"

The machinists, who bill clients by the hour, are keenly aware of the financial limitations of grant-dependent scientists. Affixed to their bulletin board, a quote from *Reader's Digest* sums up their philosophy:

*We can do three types of jobs:
Cheap, quick, good.
You can have any two.
A good quick job won't be cheap.
A good job cheap won't be quick.
A cheap job quick won't be good.*

"A lot of people think that just because you work with your hands, you don't know anything," says Franckowiak. He is a journeyman toolmaker, and prepared for the license by completing a five-year apprenticeship at a



Franckowiak and Krug see a project through from rough sketch to finished product. The first step is making sure a blueprint is do-able (left). Above right, graduate student Chris Kirby and Franckowiak modify a design to get O-rings to fit into a high-pressure vessel for a chemistry experiment.



machine shop in Baltimore—a year longer than a Hopkins undergrad takes to earn a degree. He says that throughout their careers, he and Krug have gathered knowledge not only about machining, but about the physical and chemical characteristics of metals.

"You can't just pick a machinist off the street and put him in that shop," says Green. "These guys do everything. I'd call them instrument makers more than machinists, though they also fix lighting fixtures."

Professor of chemical engineering Mark McHugh agrees. "They really make one-of-a-kind equipment," he says. "I'd be dead without them."

Although Franckowiak pokes fun at the legendary Texan student, he and Krug are almost paternal to most of their student customers. Both machinists are, in fact, parents. Krug, whose wife, Karen, is a nurse, has three kids,

including a son who is an engineer and works at Hopkins in the heating, ventilation, and air-conditioning department (HVAC). Franckowiak has raised his daughter, Beth, 21, by himself since his wife died.

One afternoon, graduate student Andy Gavens comes into the shop to collect a shiny brass device the machinists have built for him. He'll use the device to hold samples of a new composite material while he probes them with ultrasound. Cradling the instrument in his arms, he thanks Krug and Franckowiak, and backs out the door. Franckowiak grins like a proud papa. "He'll be like a kid with a new toy tonight," he says.

One of this week's jobs, the M-1 project, seems to fall into the category of mission impossible—How do you cut up tank steel?—yet the two

men find a way. Krug starts with a bandsaw. A "DoALL power bandsaw" to be exact. It has a flexible, circular blade that passes through a slot in the worktable at speeds up to 6,000 feet-per-minute. With the right blade, it can cut bricks, granite, glass. "There's just no easier way to take a larger piece of material and rough it into the shape you need," says Krug.

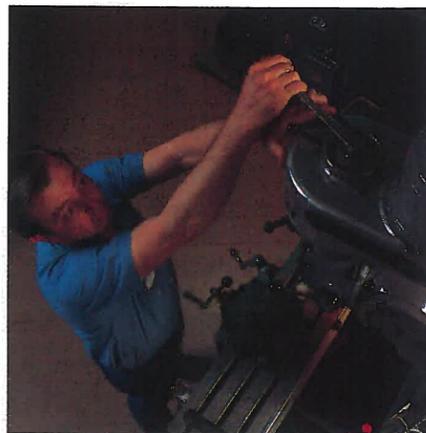
Earlier, Krug had used the bandsaw to cut a crude, oval-sized disk from the wheel of the tank. It is three inches wide and almost two inches thick, and on one side, Johnston marked a circle in chalk. Now, Krug follows that chalk pattern, using the bandsaw to carve out the circle.

The bandsaw towers over Krug. He puts on his safety glasses, turns the bandsaw on at a rate of 95 feet-per-minute, sets the oval specimen down flat on the saw's platform, and starts pushing it through the saw blade. The saw screeches as metal hits metal, and tiny silver whirligigs of metal fly off, speckling the worktable, floor, and his workshirt. You can see why a fine layer of gray metal dust coats everything in the shop. Krug leans into the machine, and the veins in the backs of his hands protrude. He works steadily but without rushing, always watching the metal disk, totally engrossed in the task. In 10 minutes he's done; in his freckled hand is a rough metal disk almost too hot to handle.

Next he must machine the sample perfectly smooth—since any deformities on the specimen's surface could perturb Johnston's measurements of its magnetic field—and make sure its surfaces are perfectly parallel. First, Krug quickly roughs out the job by running the specimen through a milling machine, a machine that shapes material with a rotating cutter called an end mill. He places the disk on the mill's table, fastens it down with a machine vice, pulls the end mill down over the disk's surface, and turns on the machine. As the end mill spins into the steel disk, Krug alternately cranks two handles that move the table back and forth, side to side, so that the mill covers every part of the disk's surface. He works with lips pursed. The mill's whirring grows stronger. "That material's got a little guts to it," says the machin-



The machinists also do maintenance jobs like repairing lawn mowers, (above). At right, Krug changes cutting tools in a milling machine. Below, graduate student Peter Shull and Krug discuss the design for a device that will hold an optics instrument.



ist. "It's not mild steel."

Krug does not know exactly what the tank is made of. The formula is classified information, so the machinists have to guess which of their tools will work best. Krug is used to that guessing game. Before coming to Hopkins, he worked as a machinist for AAI, a government contractor that produces research and development equipment for the military. A job with Martin Marietta originally brought him to Baltimore from Pennsylvania, where he had been doing factory work.

After he runs the disk through the milling machine, he puts it under the surface grinder, a slower process and one that works the disk's sides even closer to parallel than the milling machine does. Sparks shoot out as the aluminum oxide grinding wheel rolls back and forth over the disk.

With the lathe, he attacks the disk's outer rim. The metal disk is sandwiched between the jaws of the lathe chuck, like a piece of baloney stuck between two slices of bread. As though the lathe's cutting tool were a natural extension of his arm, Krug sets it squarely on the disk's edge and turns on the machine. The tool trims away uneven bits of metal on the rim, rounding the disk into a perfect circle.

Getting to this point in the operation has taken the better part of a

stopped by to talk about a fellow worker who died the day before, and a graduate student asked the machinists to make some aluminum cylinders.

The machinists are used to working on several projects at once. During the month they are machining the two dozen tank samples, they also work on dozens of other projects, always juggling jobs and deciding who gets priority.

"I bring all sorts of crazy ideas to them, one-of-a-kind devices," says Peter Olson, professor of earth and planetary sciences. Although the shop sometimes bumps back his jobs (for instance, if the machinists get a rush call for a heating system repair), he is willing to wait. "The quality is very high," he explains. "They want to do something right and to do it well." Like many other investigators, Olson frequently asks the machinists to modify a device built for one experiment to suit a new experiment. "I could submit a blueprint to any other machine shop in Baltimore," he says, "but here I can always take a device back to them. They stand behind their work. It's like buying a service contract on the item."

Olson has had the machinists build several spheres made out of copper or Plexiglas™, which he fills with water and dye and spins at 400 rpm to simulate fluid flow within the Earth, Jupiter, and Saturn. The models enabled him to conclude that fluid flows within the Earth in a characteristic columnar structure; vast whirlpools stretch from one end of the Earth's interior to the other, spinning in parallel. But filming that fluid flow turned out to be a problem.

When Olson set the globe spinning, his camera saw only the rotation of the globe, not the spinning columns of whirlpools. His solution is to view the rotating globe through a device called a rotoscope. The rotoscope contains a prism, known as a Dove prism, that reverses an image 180 degrees. When the Dove prism spins in the opposite direction to the spinning sphere, it cancels the rotation of the sphere so that the camera can see the inner whirlpools, says Olson. The job of constructing the rotoscope has fallen to Franckowiak and Krug; they'll build the metal housing that will contain the prism and the bearings that will spin it.

morning, and Krug still has to carve the hole to make the disk a doughnut. For that he'll use a drill and boring tool. Finally, he'll polish the doughnut with a lathe. The whole operation may take another hour, or several hours, depending on how many interruptions he has.

Krug and Franckowiak rarely get to complete a job uninterrupted. Today, Johnston walked in to update his sketches, a plumbing contractor brought in a faucet that needs a custom-made valve, colleagues from HVAC

The Rich History of the Lathe

In its heyday, the machine was a premier instrument in the machine shop. Today, coated by dusty oil that has hardened over the years, it rests. A nearly 100-year-old Rivett lathe, it is stowed away in the Physics archives—but not forgotten. To those who know something about Hopkins history, the lathe tells a rich story.

"It was a special lathe designed for scientists and engineers to do super-special accurate work," says James Bell, professor emeritus of mechanical engineering. For him, that accuracy meant etching 154 lines in a space the width of a hair.

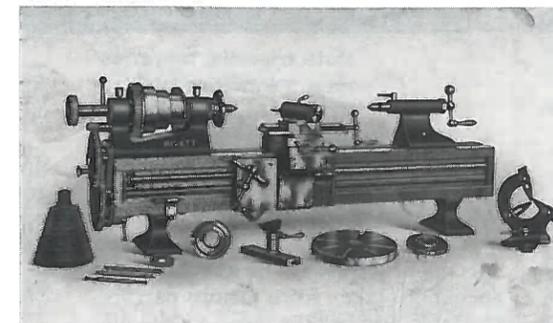
In his cramped office in Maryland Hall, Bell, white-haired and bearded but still spry for his 80 years, clasps a 10-inch-long metal rod. It looks ordinary enough until you peer closer. A hair-thin line circles the rod a few inches from one end. Turn the rod, and a tiny rainbow reflects from the line.

The line, explains Bell, is actually 154 evenly spaced lines making up a diffraction grating. Polychromatic light, such as sunlight, diffracts off the grating as a brilliant rainbow; monochromatic light shining on the grating diffracts at a single angle that can be determined with a photomultiplier tube and an oscilloscope.

In the 1950s, Bell devised a way to measure strain in metals with such gratings. The technique involves firing a rod like the one Bell holds at a metal target. The impact crunches together the grating's lines, changing the angle of diffracted light. Bell discovered that the new diffraction pattern reflected the material's stress limits. But figuring out how to create the metal rods and gratings would take him and two machinists named C. "Reds" Woods and

Bernard Baker eight years, and would involve a major rebuilding of the Rivett lathe.

Hopkins had purchased the lathe around 1900 from the Rivett Lathe Manufacturing Company in Boston, for \$500, says Bell. (The various types of Rivett lathes were used for everything from etching threads in screws to machining sophisticated scientific tools.) The Hopkins Rivett lathe was first housed in downtown Baltimore, in the old physics machine shop. When the Homewood campus was established, in 1912, the



Rivett lathe moved to Maryland Hall, under the care of machinist Sam Steyers, who later gave the lathe to Bell.

Steyers knew something about ruling diffraction gratings. In the 1890s, he told Bell, he had helped eminent Hopkins physicist Henry Rowland devise the ruling engine, the instrument that rules diffraction gratings on glass plates for use in spectroscopy. The invention had earned Rowland world fame, as physicists and astronomers use diffraction gratings to study spectral patterns from the sun and stars.

While Rowland had ruled diffraction gratings on flat plates, Bell wanted to rule them on metal cylinders. A problem, however, was that the Rivett lathe could

rule only 150 threads per inch—and Bell needed 30,000 threads per inch. Undeterred, he and the machinists set to work on modifying the machine.

A lathe rotates a specimen held firmly in its chuck while a cutting tool incises the surface. For Bell's gratings, the cutting tool was a diamond, which would have to advance precisely .0000325 inches per rotation of the cylindrical specimen.

During the years Bell, Woods, and Baker spent modifying the lathe, says Bell, "every day, we made a ruling and every day I took a measurement." He and the machinists figured out how fast the lathe should run, how to sit the diamond edge against the cylinder, what type of belt to use to turn the lathe.

One problem was that some of the metals being tested were extremely soft. "If you wanted to make a grating, it was like plowing through butter," Bell recalls. The ruling diamond left hills of metal at the edges of the ruled lines, deformities that compromised results. So Woods and

Baker devised a spoon tool, a rounded tool that formed cylinders so smooth that the lathe could rule lines without any leavings.

Over 20 years, Woods, Baker, and their successors machined more than 1,500 cylinders, and Bell's experiments with the gratings resulted in scores of publications. "The aid I received from the machine shop in this, as in many other projects, was invaluable," he says.

Bell donated the lathe—now properly called a ruling engine—to the physics archives a year ago. Its research days are over, though with a bit of oiling it would work just fine. In fact, just before he donated it, Bell dusted it off and used it to make a grating. —MH

"This is kinda' like Edison's shop," says Franckowiak, motioning around the room with an oil can. "We have just about everything in here. It's a collection of things. Sometimes someone'll come in here and say, 'Why do you keep this?'" He squirts oil into a milling machine. "It's because we never know when we'll need it."

During much of the time over the past few weeks that Krug has spent machining tank specimens, Franckowiak has machined a dozen lightweight clips for CNDE. He evades the question of what they'll be used for. "To hold some material together," he replies, coyly. Sometimes the machinists are asked

not to discuss a project in depth, for proprietary or national security reasons.

The clips are folded flat strips of aluminum about an inch long and a quarter of an inch wide. They look something like long, skinny V's. Each arm of the V has a narrow slot. Sounds easy. Just fold over a piece of aluminum and slice a hole through, right? Wrong. The clips, which need to be of uniform size with not the slightest raggedy edge around the slots, require a tool-and-die job. "Sometimes we need to build a tool to build a tool to build a tool," says Franckowiak.

For this job, he first made a heat-

treated steel block with a depression in the center—the "die"; then a cylinder about two inches long that has an edge a few millimeters long in relief on one end—"the tool," or punch; and an aluminum block of the same size as the steel block with a hole in the center the width of the cylinder—a guide for the punch.

Once the tools are made, the next step is relatively quick. Franckowiak slides a strip of sheet metal in between the stainless steel and aluminum blocks, then pushes the punch down through the guidehole, which indents the strip of aluminum. The machinist cuts a hole at the edges of the indenta-

Toward diversity, etc.



Both friendly, talkative men, Franckowiak and Krug enjoy teasing each other and joking with their many visitors.

tion with a milling machine, and with another machine called a brake, he folds over the aluminum strip, completing a clip.

Until recently, Franckowiak and Krug each worked a second machining job outside Hopkins. Franckowiak still has a well-equipped shop at home in his basement. He'll machine metal there, but his passion is for woodworking, and he reads books on furniture making. He's built two boats and rebuilt one, and dreams about building a steam engine. "There are a lot of things I want to do, but time is a factor," he says.

Krug, on the other hand, has given up doing work outside the shop. "I like the job a lot," he says, seated at his desk at the end of a long day. "But for a machinist to work on a weekend is like a mailman going for a walk on his day off." In his free time, Krug prefers to get outdoors. He camps, canoes, and practices archery. On the bookshelf above his desk, three green model pieces of farm equipment—two tractors and a hay bailer—are constant reminders of his roots in the country.

Franckowiak and Krug leave their shop only occasionally, and then usually only to do a job. They don't often see experiments in-the-works, and have never seen Steve Johnston's project in a lab in Krieger Hall.

The lab is a cavernous place, with light pouring in the high windows and brightly painted instruments throughout the room. Seated at his lab bench, Johnston turns knobs to calibrate the power supply to his permeameter. A photograph of an M-1 being blown up by a Russian-built landmine adorns the wall behind him.

Wired up to the power supply, two copper coils each about the size of a Slinky embrace a rectangular compartment that is open at the top. Johnston slides a rectangular tank specimen, ground smooth as a mirror by Krug, into the compartment. It glides in perfectly, like a piece of toast in a toaster. The copper coils apply a current that induces a magnetic field in the specimen, and a computer program calcu-

lates the magnetic field induced.

The process takes about an hour per specimen. Johnston will test about 100 specimens taken from various parts of the tank, and use the data to write his PhD thesis. Then it's up to the Army to use the information to design a tank that does not trigger mines. That will be tricky if not impossible, says Johnston. Tanks need to be heavy, he says. Substituting a non-magnetic material for some of the tank's steel could make the tank invisible to magnetic-sensitive mines—however, with less steel, a tank might also be too light. "But the experiment is a little amount of money for a potential lot of gain," says Johnston. On top of his power supply, toy models of an M-1 and an M-60 tank, with guns pointed toward the student, are constant reminders of his purpose.

For researchers like Johnston, ideas and data are their basic resources, the things that allow them to survive as scientists. To Franckowiak and Krug, their hands are their treasures. Franckowiak's are thick and strong, with wide, flat fingers. Large freckles pepper Krug's. By 9 a.m., of course, machine grease has turned their palms and fingers slate gray.

Hands are the machinists' livelihood, and a brush with danger—even a pencil point—could mean the end of a job. But rather than harp on their injuries, Krug and Franckowiak joke about them. There was the time Franckowiak accidentally slammed his hand down on a pencil sticking out of his pocket. The graphite rammed deep into his palm. "I worked on it for 15, 20 min-

utes," says Krug, "and couldn't get it out. Mike went over to the dispensary and they couldn't get it out either. They sent him to Union Memorial."

Franckowiak chuckles. "They kept asking me, 'Was that a self-inflicted injury?'"

"They thought maybe somebody'd stabbed him with a pencil," remarks Krug.

In a more serious tone, Franckowiak says, "They performed surgery, irrigated that thing, and flushed out the pencil. It only needed a stitch or two." The doctors cut only a thin slice in his palm. Delving any deeper, they told him, might destroy muscles and nerves.

Then Krug recalls the time they were working on a broken pump in the power plant, and his partner somehow got his finger stuck in the chuck key of a power drill. If he were to turn the key to relieve his finger, he would have turned on the drill. Krug was on the opposite side of the pump, close to where the drill was plugged in. "He was yelling something to me," recalls the foreman. "I said, 'What?' He yelled something again. I said, 'What did you say?' Then he screamed, 'Unplug that thing!' That time I heard him."

Franckowiak smiles widely and shakes his head, with a "Jeesh!" sort of expression. Krug, usually soft-spoken, doubles over in his chair, laughing out loud. Tears shine in his eyes.

When the last wheeze of laughter fades away, Franckowiak walks back into the shop and flicks off the switch to a mill, then turns off switches for the overhead lights and fans. A pacific hush comes over the shop, while rain patters faintly on the roof. A few machines glint in the near-blackness. Krug unties his work shoes and pulls out a pair of beige athletic shoes from beneath his desk. With the same measured precision he uses to run a bandsaw, he laces up his shoes, then tucks his heavy black work shoes neatly under his desk.

The two men walk out into the rain and head toward home, leaving the job behind.

Melissa Hendricks is the magazine's senior science writer.

The "16 Demands," two years later

In the two years since the Black Students Union (BSU) submitted its "16 Demands" for improving race relations at Homewood, the Committee on Academic Diversity has been working to address such concerns.

In April, the committee announced a summary of its findings, most notably the hiring of two African-American faculty members at the School of Arts & Sciences (which will bring the number from two to four), and the recommendation for a new major in comparative cultural studies that would offer concentrations in African, Asian, or Latin American issues.

While BSU members had pushed for the establishment of a black studies department, the committee concluded that a small freestanding program would lack political power and be unable to attract its "fair share of the fiscal pie" at Hopkins.

"In all good faith, we can't create something that will fail," said committee chair Mary L. Poovey, professor of English and acting director of women's studies.

BSU members were disappointed by the decision. "In a department with three primary focuses, how many resources can be devoted to black studies?" asks Kobi Little '94, past president of the BSU and an author of the "16 Demands." "There's no provision here for a thoroughgoing analysis of the African experience yesterday, today, and tomorrow."

Among the committee's other findings:

—The university has seen an increase in the number of black graduate students in Arts & Sciences, from eight students two years ago to 25 expected in the fall.

—Undergraduate applications to Arts & Sciences and Engineering from African-American students hit a record high this year of 552. (Last fall the freshman class included 54 African-Americans.)

—Arts & Sciences has brought two African-American scholars to campus this year through two-year appointments as Mellon Postdoctoral Fellows.

An additional African-American Mellon Fellow is expected next fall.

—The School of Engineering expects its current search to result in an offer to an African-American.

—The political science department has hired a specialist on Japan, and the anthropology department has hired a specialist on Chinese culture who is a native of the People's Republic of China.

Said Poovey, "This committee feels very committed that the university should be diverse in a multitude of ways. These changes will benefit everyone, not just minorities." —MH & SD

Hopkins's "hot" scientists

Hopkins's Bert Vogelstein has been named the hottest scientist of 1993. The professor of oncology published 16 frequently cited, or "hot," papers last year—more than any other scientist, according to *Science Watch*, a newsletter of the Institute for Scientific Information in Philadelphia. All his seminal papers report on mutations linked to cancer, particularly a mutation in the p53 gene. Several years ago, Vogelstein uncovered how a mutation

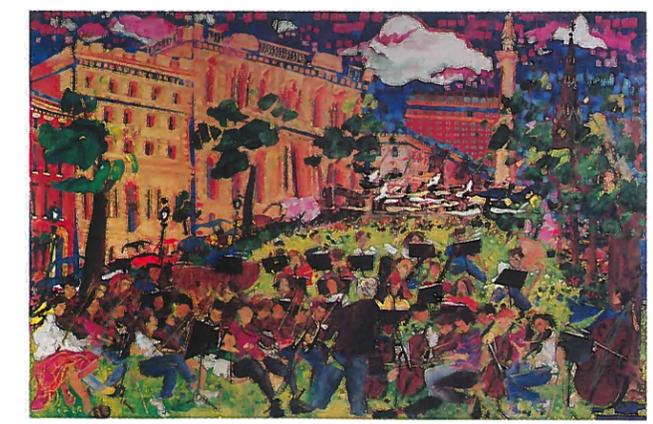
in the p53 gene leads to colon cancer. Since then, p53 has been implicated in several forms of cancer.

Several other Hopkins scientists also made *Science Watch's* top rankings. They include two who published with Vogelstein: Kenneth Kinzler, an assistant professor of oncology published nine hot papers last year, which puts him in second place on the list; and Stanley Hamilton, a professor of pathology and oncology, who earned sixth place for five hot papers.

Two Hopkins neuroscientists garnered hot rankings for publications on the role of nitric oxide as a neurotransmitter: Solomon Snyder (third place, for eight hot papers) and David Bredt, formerly a post-doc in Snyder's lab and now an assistant professor at the University of California in San Francisco (fifth place, with six hot papers). —MH

Kudos from U.S. News

Johns Hopkins won three honors in *U.S. News & World Report's* annual rating of America's graduate schools, in the magazine's March 21 issue. Hopkins's Master of Public Health pro-



Music and motion: "I wanted the whole piece to be like a sheet of music, pulsating with energy," says Jay Schlossberg-Cohen, of the painting he did to commemorate the Peabody Preparatory's 100th anniversary. He created the work by layering painted cutouts atop a sheet of linen that stretched 6 by 9 feet. Cutouts

"provide a way of getting your eye to keep moving," the artist explains.

Commissioned by Carol Jean Young, a piano faculty member at the Prep, the painting was reproduced as a Limited Edition poster, and copies were sold at the Prep anniversary that took place at Peabody on April 16-17. The celebration in-

cluded a Saturday Night Gala Concert that featured Baltimore-born opera and TV star Damon Evans, and it culminated in a free Festival on the Plaza that featured over 200 performers, ranging from chamber musicians to Mexican hat dancers.

The Peabody Prep is the nation's oldest and largest community music school.