

WINDOW

CREIGHTON UNIVERSITY



FALL 1996



THE ONLY
CERTAIN RACE
IS THE
HUMAN RACE

DENTISTRY FROM
FOOT-PEDAL DRILL TO LASER

GURU SHUGRUE HAS THE ANSWERS
WHEN THE PRESS CALLS

OLD OBSERVATORY HOLDS MEMORIES
AS WELL AS ANCIENT ITEMS

WINDOW

Volume 13/Number 1 ■ Creighton University ■ Fall 1996

Biology Recognizes Only the Concept of a Human Race

Biology Professor Theodore Burk weighs the concept of race. His discipline recognizes only one race—the human race. Society divides humankind into other “races.” Page 4



Dentistry Has Come from the Foot-Pedal Drill to Laser

Writer Mary Heng probes dentistry at Creighton's Boyne School of Dental Science, where lasers can replace old-time foot-pedal drills. Page 10

Meet Guru Shugrue: The Man With the Answers for the Press

Eileen Wirth profiles the man the reporters turn to when they have a question about politics — national or local. The Law School's Dick Shugrue knows the parties (political) for whom we vote. Page 14



The Old Observatory Holds Both Pathway to the Stars and Memories

Michelle Wirth finds an ancient, crumbling building that Creighton alums know and some remember fondly. They've been E-mailing their memories to us. Page 20



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LETTERS

WINDOW Magazine may edit Letters to the Editor, primarily to conform to space limitations. Personally signed letters are given preference for publication. Our FAX telephone number is: (402) 280-2549. E-mail to: [window@creighton.edu](mailto>window@creighton.edu)

About the Cover

Something has been added to the cover of WINDOW this issue.

It is a not-too-subtle reminder of Creighton's educational value to its alumnae/alumni and current and potential students. For years, *U.S. News and World Report* has been rating Creighton highly in its national survey of colleges and universities, but the 1997 rankings propel Creighton to the top position in its region — Number One in the Midwest.

We think athletic Number Ones are nice, too, but we value an academic Number One very highly.

After all, that is what we're all about.

Irma, the Bluejay Watcher

Bob Reilly's classic profile of a Creighton University Hall of Famer, Irma Trumbauer (Summer Issue), rekindles the spirit of Irma that was so pervasive on our campus for five decades. An inspiration, a friend, a counselor, one of the guys and gals.

I talked to her son, Bob, before emceeding a Creighton 2000 kickoff dinner. I wanted to use Irma as part of a C.U. trivia game I created. The question, what was Irma's middle name? Answer: Anastasia.

Then I asked Bob how she was doing. He said the family bought her a bird feeder and that she enjoyed that very much. “She looks out her window constantly, watching the birds, especially the bluejays.”

Bill Ramsey, BS'55
Another Bluejay watcher
Omaha

Irma Ran It All

I read with great interest, humility, and deep love, the article from WINDOW

The Only Certain Race is the Human Race

“Biologically speaking, human races do not exist.”

“A person’s race is one of the most significant influences on that person’s social interactions in modern American society.”

By Theodore E. Burk, Ph.D.
Professor and Chairperson
Department of Biology

While the two statements above may appear to be mutually incompatible, I am firmly convinced of the accuracy of each.

That a presumably logical person can simultaneously hold what seem to be incompatible views on “race” points out the ambiguity of the term “race,” as applied to human beings. What does “race” mean to a biologist? How might its meaning differ according to who is using the term or the context in which it is being used? Does the term “race” have any validity; if so, does that validity depend on the context? What do biologists think about “race”?

The understanding of the general public about human races would probably be that a race is a large, major subdivision of

the human species; that races are distinct and easy to distinguish (members of a race are very similar to each other, but quite different from members of other races); and that the number of races is

Race is not one of the Linneaus categories of biological diversity; biologists equate race with “subspecies,” a subdivision

small — perhaps as few as three or as many as seven, but not as many as dozens or hundreds. Not every identifiable group of people would constitute a different race; while one might hear talk of a White

or Caucasian “race,” one wouldn’t normally hear talk of a German “race,” an English “race,” a Scottish “race,” a Danish “race,” etc. — those identifiable populations would probably be labelled as ethnic groups instead of races.

But is this what the term “race” would mean in biology? Most *WINDOW* readers, when they were either in high school or college, had to learn at some point the different taxonomic categories introduced by Linneaus in the 1700s to make sense of biological diversity: kingdom, phylum, etc., on down to genus and species.

“Race” is not one of those categories; to the extent that biologists use the term, it is synonymous with the category “subspecies,” a subdivision of a species. Where such subspecies are recognized, a

third Latin name follows the two for genus and species. A biologist, for example, might speak of the West African versus East African races of chimpanzees, *Pan troglodytes verus* versus *Pan troglodytes troglodytes*. While every individual organism must be assignable to a particular species (such as *Homo sapiens* for people), there is no necessity that a species be divided into subspecies. Biologists would only do so in species that include very distinct, geographically separated, genetically well-defined subgroups. The general practice of biologists is not to classify every slightly different, localized population of a widespread species as a subspecies or race, but to recognize only a small number of highly different geographic clusters in that way.

Does the human species consist of such a small number of geographically separate, distinct and genetically well-defined groupings? The unambiguous answer is "no," and, therefore, in the biological sense, human "races" do not exist. There are a number of reasons for stating this answer so definitively.

First, if human races existed in a biological sense, one would expect the genetic differences between members of different human races to be of the same magnitude as the differences between subspecies of other species. This is not the case; instead, members of different human races are much more alike genetically than are members of different subspecies of other animals. For example, the two genetically well-defined subspecies of chimpanzees mentioned above are separated from each other by a "genetic distance" which is 5.5 times greater than the average genetic distance separating mem-

Diversity as Part of Creighton's Curriculum

As a faculty member in Creighton's Department of Biology, I have recently been led to ponder the question of race as part of the process of implementing the new Core Curriculum of Creighton's College of Arts and Sciences. One objective of the new curriculum is to raise the awareness of all the members of the Creighton community about domestic and international human diversity. Incorporation of aspects of diversity into the curriculum of our courses, wherever appropriate, is one means the College has selected for meeting that objective.

To help faculty members as they move to incorporate aspects of diversity into their courses, a College Diversity Project was developed by a committee of Arts and Sciences faculty, chaired by Dr. Patricia Fleming, and approved by Fr. Michael Proterra, S. J., dean of the Creighton College of Arts and Sciences; Dr. Fleming now serves as director of the Diversity Project. One part of the Diversity Project is the formation of semester-long Reading Groups, in which 10 faculty of the college select a topic, gather a set of relevant readings related to the topic, then meet frequently to discuss both the specific readings and the topic in general.

This spring I had the stimulating experience of being a participant in such a reading group, on the topic of "Race and Ethnicity." As one of two scientists in a reading group that contained eight faculty from the

humanities, I found the semester's experience extremely enlightening: We read and discussed prose essays, short stories and autobiographies, touching on the American experiences of individuals of a number of different "races" and ethnic groups. Only one week's readings dealt specifically with biological aspects of race and ethnicity, but that week revealed an interesting phenomenon.

Our readings suggested that, as long ago as the 1950's, biologists had largely abandoned the concept of race, as a biologically meaningful way to characterize differences among people. While the biologists in our group were familiar with that conclusion, at least some of the other participants were highly surprised to hear that biologists had abandoned the idea of race. Their assumption was that scientists considered a person's race to be a hard-and-fast, biologically-determined characteristic. Obviously, communication among the disciplines on this most significant of American issues has not been as complete as one might have hoped.

The purpose of this article is to present one biologist's viewpoint on the biology of human "races." I want to make it clear that what is presented are my opinions; but, while scientists disagree among themselves on any topic at least as much as other people do, I don't expect that any of what I say will be very controversial to a majority of biologists. — TEB

bers of two different human races. (Members of different species differ genetically by even greater amounts. An average human is different from an average chimpanzee, our closest biological rela-

way, 85.4% of the genetic differences between people are merely due to individual differences, with only an additional 8.3% being due to differences between populations within races, and only 6.3%

being due to differences between “races.”

Most of what makes two people different biologically is not “race” or ethnic group difference, but merely their being two different individuals. As Richard Lewontin — the source of these data — of Harvard University has said, if a nuclear holocaust were to occur and only one major ethnic group to

survive (for example, the Xhosa of South Africa, one of whom is Nelson Mandela), 85% of all human biological diversity would survive.

The extremely small genetic distances between members of purported human

If only one major ethnic group were to survive a holocaust, 85% of all human biological diversity would survive.

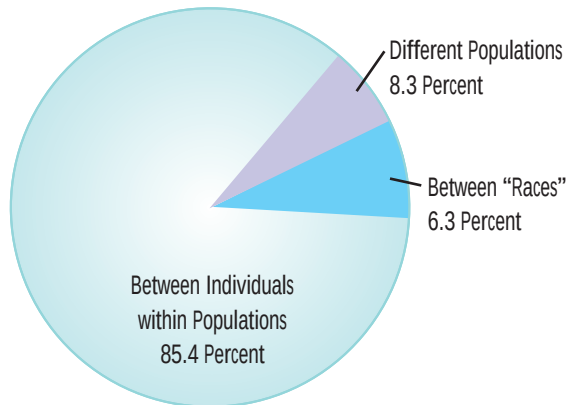
“races” is only one reason to doubt the validity of the race concept. A second comes from the fact that differences between human populations do not fall into a small number of discrete clusters, but instead continuously grade into one another. To take an example from a study by Matatoshi Nei and Arun Roychoudhury, Italians differ genetically

by 1 “genetic distance unit” from Englishmen (the exact definition of this unit doesn’t matter for the purpose of this article), 3 units from Finns, and 17 units from Lapps (as one moves north and east across Europe). Italians differ by 5 units from Libyans, 15 units from Saudis, 31 units from Sudanese, and 61 units from Bantus (as one moves across the Mediterranean and Africa). Genetic distance changes gradually with geographic distance, not in large discrete jumps as we move from one “race” to another. As Jonathan Marks of Yale University has put it, humans tend to be more similar to those people who live nearby, and more different from those who live far away, but humans cannot be divided up into a small number of coherent, discrete races. It is easy to forget the gradual, or clinal, way in which humans slowly get different from one another when we chop up human diversity into a few arbitrary groupings, average the traits of those groupings and then compare the averages.

A third reason for rejecting the race concept biologically lies in the fact that, using the traditional major racial groupings, there have always been human populations that were difficult to classify.

Some populations in India for example, have darkly pigmented skin (are “Black”), have European-like facial features (are “Caucasoid”), but inhabit the continent of Asia (are “Asian”). Such difficult-to-pigeonhole people cause endless problems in contexts such as racial classification on a census form. (On the 1990 U.S. census form, Americans of Asian Indian ancestry were classified as Asians, although by the traditional racial classifications of anthropology, they are “Caucasoids” rather than

Percent of Total Human Genetic Diversity



tive — genetically, a very close relative indeed — by an amount 20 times greater than a human is from another human of a different “race.”)

Another way of expressing the close genetic similarity of humans of different “races” is to divide the total genetic diversity of the human species into three components: one comprising the difference between two people that is due to their being unique individuals (for example, being one Italian person rather than another Italian person), a second comprising the additional difference that arises due to two people being members of different populations within a racial grouping (for example, being an Italian rather than a Swede), and the third comprising the additional difference that arises due to two people being members of different races (for example, being a European rather than a sub-Saharan African). When human genetic diversity is partitioned this

“Mongoloids”; in England, where I spent five years doing my Ph. D., they were often referred to as “Blacks.”)

In sum, the conclusion of most biologists and physical anthropologists is that, while humans show an impressive range of diversity, the true units of diversity are localized populations (such as Italians, Finns, Lapps, Saudis, Bantus), numbering in the hundreds, rather than “races,” numbering less than 10. Depending on your criteria, there are either no races (my opinion), or hundreds of races, if every genetically distinguishable population is called a race. In any case, there is no biological justification for speaking of three to seven major, distinct, coherent races.

At this point, you may be thinking, “It’s all well and good to say there are no races, but I can quickly and easily identify the race of most people I see walking down the street toward me, and if I were suddenly dropped into a foreign city, I would easily be able to tell whether it was Stockholm or Nairobi; so race must be real.” How would I respond to those points?

First, as to identifying a city you were dropped into, that might well not be primarily a function of something such as the color of the people’s skin there, but would most likely also involve their clothing, appearance of the buildings, sound of the language and so on. You would probably just as quickly distinguish London from Stockholm, or Nairobi from Lagos, as Stockholm from Nairobi. And, if you weren’t particularly familiar with a lot of human ethnic groups, I could probably drop you into a location with dark-skinned residents, and you wouldn’t

be sure whether you were in Zaire or New Guinea!

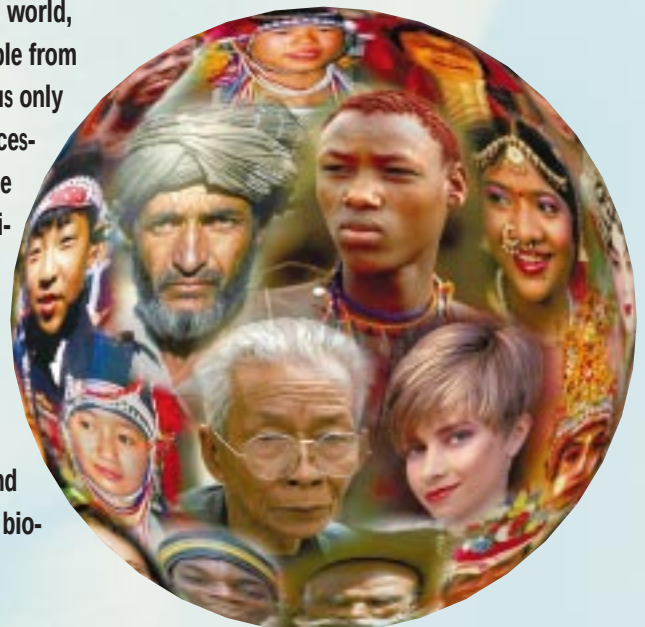
That last comment leads to another important point. Humans are visually-oriented animals, and — if some sociobiologists are correct — we may retain as part of our evolutionary heritage a tendency to quickly notice anything about other people that would allow us to identify whether or not they are our close relatives or belong to our local social group. When we evolved to become the people we now are, it was primarily as hunter-gatherers living in small groups that may have been in more-or-less stringent competition with other neighboring groups. In

**As hunter-gatherers
in small groups, we
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kin or enemies**

such an environment, we may have evolved great acuity in noticing even small visual differences that would allow us to quickly tell kin and allies from non-kin and non-allies. In the modern world, when we encounter not just people from the next village who differ from us only very subtly, but people whose ancestry could be from anywhere in the world and who exhibit more obvious external differences, this tendency to label people on the basis of superficial traits (skin color, facial characteristics, type of hair, etc.) leads us to perceive such differences as being large and significant, when in fact they are bio-

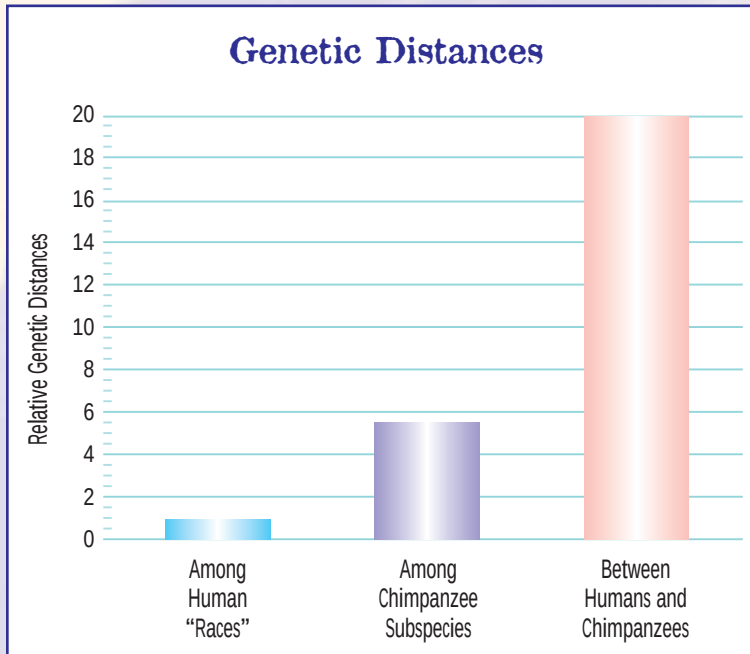
logically rather slight and insignificant.

Take skin color, for example: Dark-skinned people, of quite different genetic affiliations, are found in tropical areas of Africa, southern Asia, Southeast Asia and Pacific islands — one might label them all as “Black,” but they are no more alike genetically than a light-skinned western European is to a dark-skinned African. Furthermore, races defined on such traits as skin color, facial characteristics, and curliness of hair don’t coincide at all with other conceivable “races,” based on similarity in other genetic traits, such as blood groups or biochemical capabilities. As pointed out by Jared Diamond, evolutionary biologist and physiologist at UCLA, if, instead of by skin color, we defined races by ability of the adult to digest lactose (milk sugar), west Europeans, west Africans and Arabians would constitute one race, while east Asians, Native Americans, south Europeans, and Australian aborigines would constitute a different race. It’s easy to label people based on their outer appearance, but their genetic similarities or differences are often not very well indicated by those superficial traits. Transplant surgeons



know this: The closest tissue match between donor and recipient is often between members of different “races.”

about 60,000 years ago, Europe by 40,000 years ago, Australia also about 40,000 years ago and the Americas as recently as



The pattern of human biodiversity — surprising overall unity with abundant minor differentiation — is exactly what one would expect from the history of modern *Homo sapiens*, as worked out by anthropologists and archaeologists, studying the evidence from fossils, cultural artifacts and genes. While still disputed by some, the consensus view of our species' history (sometimes referred to as the “African Eve” hypothesis) is that all living people are the descendants of a population of modern *Homo sapiens* that arose in Africa less than 200,000 years ago, with populations spreading out of Africa perhaps 100,000 years ago, gradually occupying the rest of the world and replacing less modern human types (*Homo erectus* or “archaic *Homo sapiens*”) as they encountered them. (In Europe, these less modern humans were the famous Neanderthals.) Modern humans had arrived in eastern Asia by

cally. (For comparison, the much more clearly defined eastern and western subspecies of chimpanzees are believed to have been isolated and evolving separately for over a million years.) Nor will human populations ever diverge further in the future, because, in the modern world

Modern people simply haven't had time enough to become very different; chimps have been evolving for more than a million years

with its global human community, interaction and interbreeding is widespread among people even from areas that are 10,000 miles apart. Continuing genetic fragmentation stops when members of different populations interbreed, and humans are without question interbreed-

15,000 years ago. On the timescale of evolution, despite their gradual separation from each other as they occupied all the corners of the earth, modern people simply haven't had time enough to become very different geneti-

ers, regardless of superficial differences associated with different origins or ethnicity.

As a result of our interconnected world, “mixed marriages” between members of different ethnic groups are becoming ever more common, and the range of externally visible human variety is continually expanding. This is, of course, especially so in a country such as the United States, in which people of many different ethnic groups from all corners of the world have come together. Despite the American history of fixation on race and prejudicial behavior, interracial marriages are becoming very common in the United States today. Recently it was reported that 12% of all new marriages in 1993 involving Black Americans were with spouses from another racial group (up from 3% in 1970 and 7% in 1980). For Japanese Americans, the likelihood of marrying a member of another ethnic group is 38% for women and 18% for men. Seventy percent of Native Americans marry outside their ethnic group.

Attempts to sort individual Americans into single racial categories are becoming increasingly futile. There is currently a movement under way, involving children of interracial marriages, to have “Multiracial” added as an alternative on the census forms for the year 2000; these individuals don't want to deny either aspect of their heritage, as checking the racial box corresponding to one but not the other of their parents would seem to make them do.

However, a problem with the “Multiracial” category is that a very large number of Americans, including 75% or more of African Americans, have, in a

meaningful sense, a multiracial ancestry (estimates of overall European ancestry in the African American gene pool run from 10-30%). For example, Black Americans Booker T. Washington, Frederick Douglass, and Eugene DuBois had non-African — American parents, grandparents or great-grandparents. Nichelle Nichols, “Lieutenant Uhura” of Star Trek, the first Black woman to have a regular featured role on an American television series, had one Native American, one European American, and two African Americans as her grandparents.

Some leading African Americans are extremely wary of the movement to establish “Multiracial” as a federally-recognized classification, as well as of statements like mine that “races don’t exist.”

Itabari Njeri, who writes about interethnic relations for the *Los Angeles Times*, points out that to the extent that African Americans check themselves off as Multiracial rather than Black (the current federal form alternative), the political clout that comes from having a large constituency will be diluted among two smaller groups (Black and Multiracial). Jon Michael Spencer, writing in *The Black Scholar*, laments what he calls “the post-modern conspiracy to explode racial identity.” It is quite reasonable to ask why race was real when it worked against you, but suddenly no longer exists when it might bring some affirmative action benefits!

And that leads me to my final major point. Remember the second of my two statements that began this article. When I say that races don’t exist *biologically*, I am not saying that “race” isn’t a powerful

cultural factor. As social scientists would be quick to point out (and might be surprised to hear a biologist saying), social categories can be at least as real and powerful in people’s lives as biological ones.

Serbs, Croats and Bosnian Muslims distinguish among and kill each other despite the fact that they are all part of the same genetic population. In modern society, as long as people identify themselves, label others or interact among themselves on the basis of the cultural category “race,” then race is a real phenomenon with

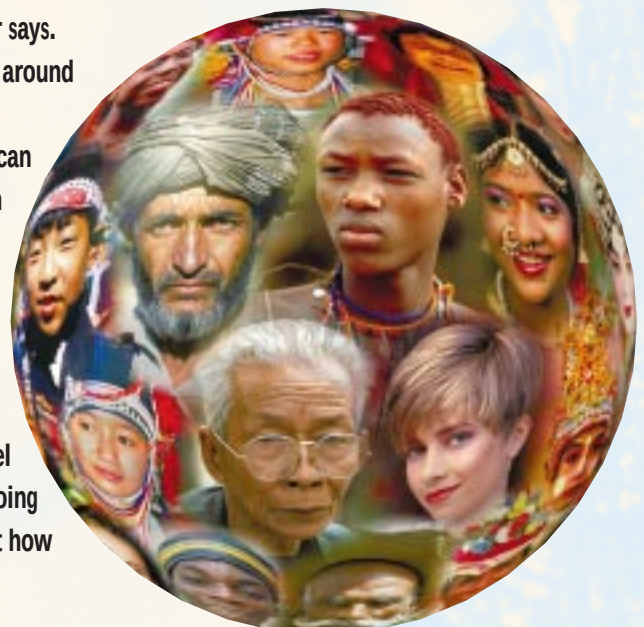
**Serbs, Croats and
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which every American has to cope. Jon Michael Spencer, I think, would agree with that statement. “To relinquish the notion of race — *even though it is a cruel hoax* (emphasis added) — at this particular time is to relinquish our fortress against the powers and principalities that still try to undermine us,” Spencer says. “..(We) need to galvanize peoples around the racial idea of black.”

Race has been the great American dilemma, the overriding American social fact, for more than 400 years. That I can say biological races don’t exist, while throughout the article talking about people of different races, and that Spencer can say that race is a cruel hoax while adamantly opposing doing away with the concept, shows just how

muddled our thinking about human diversity has become. One day, hopefully sooner rather than later, we will live in the world envisioned by Dr. Martin Luther King, when individuals are judged by their minds and characters, not their “race.” The realization that race has no biological validity may help move us more quickly toward that world. Two thoughts come to mind from the authors of the two best recent popular books on biology and race, Jonathan Marks (author of the 1995 book *Human Biodiversity*) and Marek Kohn (whose 1995 book is titled *The Race Gallery*). As Marks says, “You may group humans into a small number of races if you want to, but you are denied biology as a support for it”; as Kohn says, “‘Race’ is a social construction, not a biological concept... The only certain race is the human race.” **IV**

(Dr. Burk would be happy to send a bibliography on biology and race to any WINDOW reader who would like one. Contact Dr. Theodore Burk, Professor & Chairperson, Department of Biology, Creighton University, 2500 California Plaza, Omaha, NE 68178-0103.)



DENTISTRY FROM FOOT-PEDAL DRILL TO LASER

By Mary Heng

When Florence Nugent first came to the Creighton Dental Clinic back in 1926, the dental student who worked on her teeth used a drill operated by a foot pedal.

"I can remember the clinic was in a red brick building near the church, St. John's," said Mrs. Nugent, 86, of Omaha.

When Mrs. Nugent had cavities filled at the school five years ago, Dr. Richard Blankenau used a laser procedure that helped save two teeth with deep cavities.

Mrs. Nugent is a walking time capsule of eight decades of dental advances, and, as in other branches of medicine, breakthroughs are piling up faster in the last decade than in the seven that preceded it.

"From a research perspective, this is a tremendously exciting time in dentistry," said Dr. Mark Latta, assistant dean for research and continuing education.

Dental discoveries don't always make the papers, he said, because they lack the high visibility of, say, cancer gene research.

But dental research does have a broad impact on American health, affecting almost everybody at some time in their lives.

According to a 1993 report by the U.S. Department of Health and Human Services, in spite of huge statistical health gains that have come largely from fluoridated water, oral diseases continue to be among the most persistent health conditions afflicting Americans.

Half of all school-aged children have dental cavities at any given time. Half of all employed Americans between 18 and 64 years of age have gingivitis and adult-onset periodontitis, gum diseases that lead to tooth loss.

The psychology of our modern culture alone, he said, puts people with poor dental health on the defense. Bright, toothy smiles beam at us from every billboard, movie screen and television.

Dentures, once the panacea for people losing their teeth, have limitations in a population living longer than ever before, Dr. Latta said. People who received dentures in their 30s have trouble when, in their 70s, the gums and bones supporting the dentures have receded.

So, much of the dental research under way focuses on oral disease and preserving teeth.

"The dental profession has been more successful than any other health profession at putting ourselves out of business," Dr. Latta said.

And it's getting better at it every day.

Creighton's involvement in dental research is growing, focusing on several key areas.

A Sticky Business

The traditional silver or amalgam fillings (restorations) rely on mechanical retention, or undercuts, to hold them in place.

Dentists make the restoration slightly wider at the base so that it stays put, meaning they have to drill out a bit of healthy tooth in addition to the decay.

New dental adhesives help restorations stay in place without undercuts.

"We can be more conservative and preserve more of the tooth," Dr. Latta said.



Dr. Latta uses a special adhesive testing machine, which does assessments of physical properties of adhesives.

"You can live without your teeth, but you can't live well," said Dr. Blankenau, associate dean for academic affairs.

"People without their own teeth are at a huge disadvantage."

Adhesives offer other advantages, he said, including several uses under testing at Creighton.

They seal the restoration better, preventing secondary decay that often crops up next to traditional restorations, and they can make teeth less sensitive to hot and cold.

Restorations placed with dental adhesives also make the tooth stronger, good news for those unfortunates who've had a tooth with a large filling split in half.

"Your tooth actually flexes a bit when you chew," Dr. Latta said. "When you drill out a large section in the middle of the tooth, you've got the sides of the tooth flexing independently of one another."

Adhesives bond the restoration and the sides of the tooth together, making

The goal is to get as close to nature as possible in the use of adhesives that restore patient's "bite"

the tooth-restoration combination almost as strong as the original tooth.

Adhesives also do away with caps for some people by allowing dentists to bond porcelain veneers to the front of stained or cracked teeth. The procedure would spare patients the grinding necessary in capping, and preserve more tooth structure.

"Our goal is to get as good as nature as possible, but the further you get away from what God made, the more variables and risk you introduce," Dr. Latta said.

The preservative powers of adhesives may become the ties that bind the elderly to their teeth. Much of the current adhesive research under way centers on the nation's maturing population, Dr. Latta said.

"Geriatric dentistry has become more



Students are assured of a "closeup" look at even the tinier clinical items in Creighton's modern classrooms, equipped with multimedia teaching aids and utilizing computer technology.



Dr. Blankenau (left) and Dr. Barkmeier (right) examine and photograph patient Dr. Wilwerding, who is back for a recall as a participant in a project testing dental adhesives at the Boyne School of Dental Science.

important because people are keeping their teeth and living longer," he said. "Our older population challenges the materials currently available."

One problem is that of exposed roots, which occur as gums recede with age. Researchers are using adhesives to cover the exposed roots.

What remains is the \$64,000 question: Which adhesives work best? There are more than 25 adhesives available in the United States, and it's difficult for practicing dentists to choose, Dr. Latta said.

Next year, through a grant from the Health Future Foundation, Creighton will open the Dental Technology Assessment Center. Dr. Latta, who came to Creighton from a private manufacturer, said the center will give the dental school sneak previews of coming attractions in adhesives and other dental materials.

"What we'll have is a very sophisticated and complete system to analyze the performance of new dental materials clinically with unparalleled accuracy," Dr. Latta said. "We will be able to map changes in the tooth, restorations and adhesives in exacting fashion."

By November, the school will decide on one of two new instruments that help

measure teeth and the staying power of new materials.

One uses a laser to map the top of a tooth. The other, a profilometer, uses a tiny stylus that moves over the tooth and plots its surface.

"The real elegance comes when you take one map and put it on top of a map from the year before," Dr. Latta said. "Then we can see where the dental changes have occurred."

Whichever piece of equipment is purchased will place Creighton in an enviable position as the first academic center in the country able to do these kinds of clinical studies on innovative materials.

"This is a big plus," Dr. Latta said. "We'll get projects from fierce industrial competitors, and the reputation we already have as an independent, honest broker of dental assessments will be enhanced."

Cariology Center

The Cariology Center, opening this fall, also made possible by a Health Future Foundation award and a corporate grant from the Caulk Division of Dentsply International, will focus on restorations that release fluoride and just how well the fluoride they release is absorbed into the tooth.

"It's easy for a company to say their material releases fluoride but if the tooth doesn't take it up, it doesn't help reduce tooth decay," Dr. Latta said.

In the center, Creighton researchers will introduce cavities to extracted teeth, some with the fluoride restorations, some with regular restorations. Then, they'll study which cavities grow the fastest.

Electronic Anesthesia

Electronic anesthesia is not new, but debate continues on just how effective it is. Again, as a clinical site, Creighton is helping practicing dentists answer questions about how well the technology works as well as the cost-benefit ratio to the patient.

Electronic anaesthesia works on the same premise as Tens, transcutaneous electrical nerve stimulation. The theory is that the electric impulses distract the nerve so that pain from another source is blocked.

Whether a laser or a tiny stylus is used, mapping tools plot the teeth so that dental changes from one year to another can be seen

Some early studies suggest that electronic anesthesia makes some procedures possible without Novocain and can make injections more comfortable.

A Laser Light Show

As with many breakthroughs, lasers were not developed specifically for dentistry, but researchers such as Dr. Blankenau seized opportunity by launching some of the nation's first dental laser research. (See *WINDOW*,

Vol. 10, No. 3, Spring 1994.)

Unlike the situation in primary medical care, most dentists remain solo practitioners unable to share big purchases within a group, Dr. Blankenau said. To make lasers cost effective, they must be useful for a variety of treatments.

Now, much of that research is making its way into practical applications, and the laser is used for periodontal and soft-tissue surgery. A primary benefit of the laser is more pain-free surgery to the gums with less bleeding.

But the light show doesn't stop there. The laser is showing promise in a growing number of areas.

To save two of Mrs. Nugent's teeth that she was at risk of losing, Dr. Blankenau used a laser to induce the chemical reaction that hardens the plastic restorations.

The procedure was faster and the filling bonded better to the teeth, making them stronger, he said.

Brush daily and see your dentist regularly. The old advice is great — for folks who follow it. Laser is also shedding light on the two sides of prevention.

A new technique being developed indicates that lasers combined with fluoride make the tooth virtually immune to cavities. This procedure will be studied in the new Cariology Center.

"We haven't changed the brushing habits of children or their eating habits," he said. But the "laser may take the patient out of the loop."

The technique has application beyond unwilling brushers. Victims of stroke, brain injury or other conditions often can't brush, Dr. Blankenau said, yet retaining their own teeth is even more critical since such patients often can't use dentures.

Another preventative method in the works removes tartar, but leaves gum and tooth untouched. Because laser works by using specific light waves, researchers are trying to tune in the specific waves that only remove tartar.

"The advantage is there's no scraping," Dr. Blankenau said. "One hundred percent of the tartar can be removed without danger to the tooth."

Creighton employees and students

who use the dental clinic are often the first recipients of such advances. Researchers often place notices in Creighton's employee newsletter, the *Blue News*, asking for subjects, and dentists often approach dental clinic patients with new procedures that hold special promise for them.

Mrs. Nugent said she knew the laser application Dr. Blankenau used on her teeth wasn't being widely used, but it was

the best opportunity for saving her teeth.

"I thought the teeth had to be pulled, but Dr. Blankenau was pretty sure he could save them using the laser," she said.

He did, and Mrs. Nugent wasn't surprised.

The name of that first student who filled her childhood cavities eludes her, but she knows he did good work. She still has some of the restorations he put in her teeth.

RESEARCH FINDS SOME HOLES

The mountains of dental research under way have included a number of large-scale public health studies that have yielded disturbing results.

In spite of great gains made over the last four decades in dental health, some groups remain resistant. According to the U.S. Department of Health and Human Services:

- Cavities may be the most common disease among U.S. children, affecting more than half of children between the ages of 5 and 17 at any given time. Changes in the American diet may be to blame.
- Minority children are less likely to receive dental treatment, with the levels of care being lowest among Native American and Hispanic children. Only 11 percent of Native American or Hispanic children had sealants applied in 1989, compared with 21 percent of Caucasian children.
- Mexican Americans* had the highest number of adults who'd never seen a dentist — 13 percent — and Hispanics* the next highest at 9 percent. (*Survey distinguishes between these two groups.)

- Approximately 150 million Americans have no dental insurance coverage.

Although dental problems don't command the instant fears associated with low birth weight, cancer or cholera, they do weaken stamina and defeat ambitions.

Florence Nugent remembers the reason her father sent her to the Creighton Dental School.

"We were poor people. I used to walk from 3912 Florence Boulevard to Creighton to get my teeth fixed."

Today, the School of Dentistry still offers dental care at reduced prices, as it did 25 years ago. The mission went one step further by targeting the two groups in Omaha most at risk for poor dental health: Native Americans and Hispanics in South Omaha.

"One of the things we do as a Jesuit institution ... is provide some free dental care to people of Indian or Hispanic descent," said Dr. Dennis Higginbotham, assistant dean of clinical affairs.

Each year, Creighton faculty and student volunteers handle more than 500 patient visits for dental services to people from the Indian-Chicano Health Center, said Dr. Gary H. Westerman, chairman and professor of community and preventive dentistry.

The implications go beyond pretty smiles, Dr. Westerman said. If ignored, teeth in ill health snowball into poor nutrition, lower self-image and pain.

"Dentistry affects total patient health," Dr. Westerman said. "Dental health is part of primary health care." **W**



G U R U

SHUGRUE

T H E

M A N W I T H

T H E A N S W E R S

By Eileen Wirth, Ph.D.
*Assistant Professor of Journalism
and Mass Communication*

He's a familiar sight on Omaha television whenever there's a major political or legal development such as this day's breaking news – condemned child killer John Joubert's request for clemency.

Creighton Law Professor Dick Shugrue, stands in front of the Ahmanson School of Law explaining clemency law to veteran WOWT reporter and anchor Gary Kerr and a photographer.

That evening, Omahans receive a concise but scholarly explanation of the clemency process and a comparison of Nebraska's process with those of other states. It's been less than an hour since Kerr called, and Shugrue has spent the hour in another interview.

No matter. Shugrue, a walking encyclopedia of constitutional law, knows exactly what reporters need and how to give it to them.

"He seems to get right at the nub of issues you discuss," said Kerr. "He does this quickly and succinctly. He gives you background that will help you understand."

For the 30 years he's been at

*When they call,
Shugrue knows
what reporters
need and
how to give
it to them*

Creighton, Shugrue has been performing such services for local and national reporters, especially on election night. His astute, good-humored TV commentary has made him Nebraska's

leading political pundit.

It all began in the fall of 1966, Shugrue's first year as a C.U. political science professor.

"NBC News was looking for someone in Omaha who knew how the political system worked and who was associated with an academic institution," Shugrue said. The person also had to be able to work with statisticians in identifying key precincts to help predict election returns.

Not only did Shugrue have a doctorate in political science, he was a former journalist who had previously run campaigns. He had both the political "legs" and the academic expertise that enabled him to give NBC what it needed quickly.

"In that environment, I got to know the 'pros,'" Shugrue said. "Word spread that I was available and reliable. I could do the kind of things



reporters needed and not make a campaign speech.”

In 1980, retired WOWT News Director Steve Murphy, BS’49, asked Shugrue to spend election night commenting on the returns – and he’s been doing it ever since.

“I look at this as the responsibility of a teacher to teach more than the 40

Confessed C-Span junkie Shugrue stays informed by reading four daily newspapers as well as watching the television broadcasts in the middle of the night

to 60 students in his classes,” said Shugrue, who moved from political science to the Law School in 1971.

Shugrue works hard at being prepared to respond to potential requests from reporters. He regularly reads four daily newspapers and the Sunday *New York Times* in addition to watching C-Span and other news broadcasts.

“I’m a C-Span junkie,” said Shugrue. “I’ll wake up at 2 a.m. and watch a replay of one of the week’s most significant hearings.”

Shugrue also depends on his informal sources. He arrives at work at 6:30 a.m. during the school year and discusses current events with fellow early-arriving colleagues.

“I have friends and acquaintances who call regularly to talk about what’s going on,” he said. “Sometimes they’re thinking out loud. They may be political people or news people.”

Although Shugrue is a proudly

partisan Democrat, he’s careful not to let his partisanship interfere with his critical analysis.

“I do a lot of looking at numbers and demographics,” he said.

This, said Kerr, is part of why reporters value Shugrue so highly. “Although he’s a Democrat, he will stand aside and give you his honest feeling for what he believes is going on in a particular political race.”

C. David Kotok, political reporter for the *Omaha World-Herald*, said he especially appreciates Shugrue’s historical perspective on the evolution of Nebraska’s Democratic Party.

“He has a memory that goes back to when this was a one-party Republican state to where we have a Democratic governor and two Democratic senators,” Kotok said. “He has a knowledge of Nebraska politics that I really appreciate.”

Shugrue has learned to reserve time during election seasons for an onslaught of media calls. For example, on the day after this spring’s Nebraska primary election, he fielded 13 local, regional and national media calls.

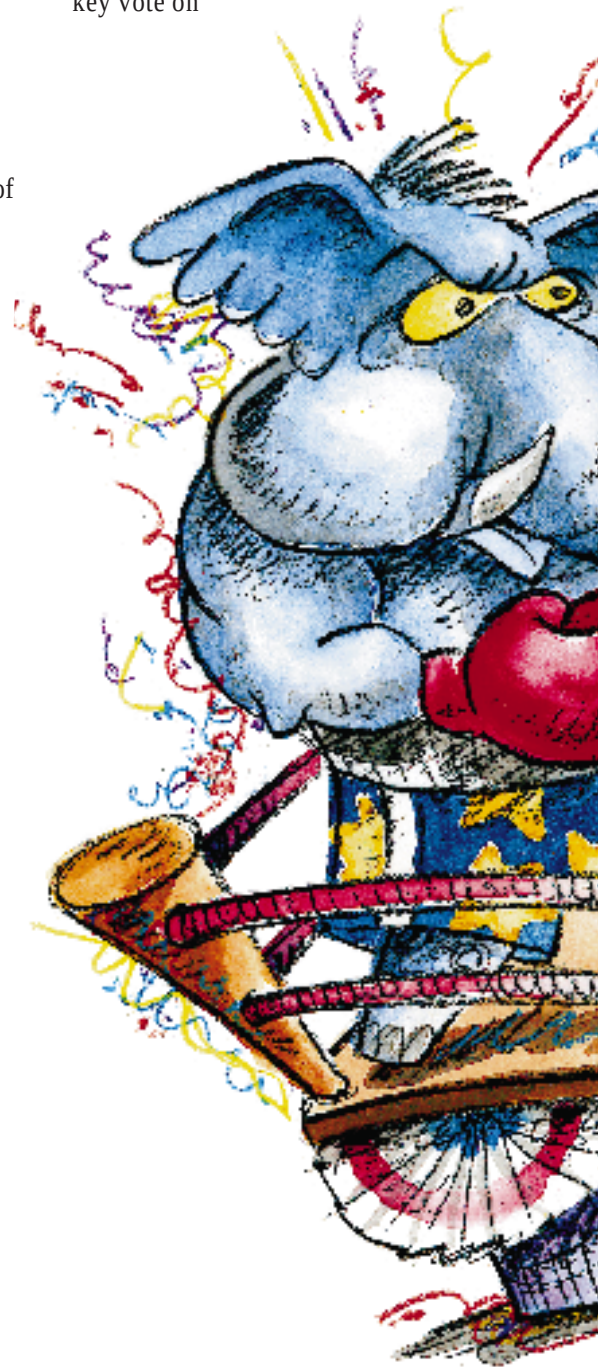
Shugrue attributes part of his popularity with the media to Cindy Workman, assistant manager of media relations in Creighton’s Public Relations Department.

Workman regularly monitors PROF-NET, a national data base which matches journalists from throughout the country with professors who have the expertise to respond to their requests.

“When people want to talk to someone with a grasp of Nebraska politics, the first person who comes to mind is Dick Shugrue,” said Workman. “He’s very accessible, fun and easy to talk to. He will answer

about any question. He has a journalistic background and a good grasp of national politics. He knows where Nebraska stands with regard to various trends.”

Workman said her favorite example of Shugrue’s willingness to help reporters was when Sen. Bob Kerrey was going to cast the key vote on



President Clinton's budget.

"ABC News called at 3:30 p.m. They wanted something shot and shipped by 7 p.m." The request involved quickly finding political people to comment on the vote – and Shugrue delivered.

Workman said

that Shugrue's accessibility is a great asset to Creighton because it builds the University's national image and showcases the quality of the faculty.

In order to preserve his credibility, there are some things Shugrue will not do.

For example, if reporters ask him to comment on a new Supreme

Court decision, he won't respond until he's had a chance to read it. Often he asks reporters to fax a copy of an opinion then calls back. He also refuses to predict elections months in advance because things can change quickly. Instead he talks about trends which seem to be having an impact on voters.



ABC News called at 3:30 p.m. and wanted something shot and shipped by 7 p.m.; Shugrue's accessibility is an asset to Creighton

GURU SHUGRUE

ON THE ISSUES

Although abortion receives a great deal of attention in the news media, it's not an issue that will have much impact on the 1996 election, according to Professor Richard Shugrue. On the other hand, stands on environmental issues might well make a difference in some local races.

These are among the observations Shugrue made about a number of major issues which may affect the fall elections.

"Abortion is an issue on which a small percentage of the electorate has passionate beliefs," said Shugrue. "If you look at the numbers, they seem to indicate that the militants are about seven percent on each side. That means that about 85 percent of the people can take or leave it as a core issue in a presidential election. It doesn't have much significance in a nationwide election."

In contrast, said Shugrue, Republicans are discovering that in the West some very economically conservative voters are "far more concerned about environmental ruin."

"Some of the militant Republican congressional representatives have been warned by their fellow Republicans that they will have to change their minds about the environment or they will be out of a job."

Shugrue said that politicians will need to change their stereotyped notions that farmers, ranchers and small business people would "favor doing away with environmental protection."

Ironically, he said, concern for the environment is nothing new in rural America. Soil and water conservationists were among the first environmentalists with a tradition which goes back to the 1930s.

Here are Shugrue's views on the impact of other major issues on next month's elections:

Reform Party – The Ross Perot/Richard Lamm movement poses more danger to Sen. Dole than to President Clinton.

- **Economy** – The economy is "driving the Republicans nuts because it is vibrant" with low unemployment, creation of new jobs and a general sense that the country is better off than it was four years ago.

- **Entitlements** – Both parties continue to duck an issue that in the long term they can't avoid because "the demographics are not there to support entitlements."

- **American Troops in Bosnia** – At the time of this writing, the public is not aroused by the issue but that could change rapidly if a lot of Americans were to be killed. "The jeopardy would be not unlike the jeopardy of the American hostages in Iran."

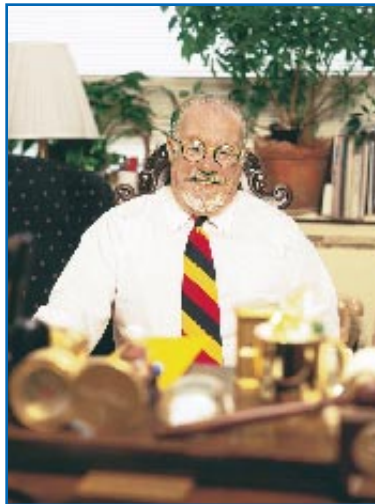
- **Crime** – Dole wants to keep the issue in the spotlight but is likely to be unsuccessful because Clinton will receive support from the National Association of Chiefs of Police for federal assistance in hiring thousands of additional officers. Clinton also will cite federal activity against drugs and illegal immigrants.

- **Immigration** – This "is clearly an issue where Dole is going to try to make some headway" but may not be successful. Hispanic voters in key states such as California and Texas may see it as a "mean spirited issue."

Shugrue said that the Republican Party faces a situation somewhat similar to that which the Democrats encountered in the 1970s and 1980s when it was torn apart by conflict over the War in Vietnam and party reforms.

The Republicans, he said, need to find a way to reconcile the views of moderate members and "the so-called core of modern Republicans" on the right.

"One of the lessons (from the Democrats) is that sometimes you have to let go of the drum bangers on the fringe. You can't let a minority take over the whole machinery and philosophy of the party."



He cited Bush's high popularity after the Persian Gulf War followed by his loss of the 1992 election as an example of how rapidly voter sentiment can change.

While declining to predict the 1996 election, Shugrue listed several trends that he's following this year:

- The failure of Whitewater to make much impact on ordinary voters, at least at mid-summer.
- The favor that Clinton's concerns for the economy, education and health care seem to be winning with "average voters."
- The favorable impact that Clinton's efforts for peace in Northern Ireland have had on bringing Irish American voters back to the Democratic Party.

Shugrue said he's seen enormous changes in American politics during the past 30 years, not all changes he approves of.

"The saddest factor is the decline in the number of people who participate in the electoral process," he said. "I'm talking about the willingness to be a player even at a marginal level in someone's campaign. Thirty years ago, the 'bean feed,' where several hundred rank and file people would show up, was a standard campaign event. Now candidates concentrate on raising money from people with no commitment but who want access."

Shugrue said this national trend can be clearly seen in Nebraska where the state's leading electoral figures including Kerrey, Gov. Ben Nelson and Republican Senatorial candidate Chuck Hagel were all political outsiders who came to prominence through media campaigns. None rose through the ranks of lower office.

Parties are becoming less important and fewer voters identify with them,

he said. In Iowa one-third of the voters are registered as independents while in Nebraska, about 15 percent of the voters are registered independents.

Shugrue said this trend probably can be traced to the election of 1968 when the nation was torn apart by the Vietnam War and many Democrats, especially, became disenchanted with their party.

Currently, candidates must appeal to special interest and single issue voters in both parties to get nominated, he said. Such candidates often have

Shugrue sees lack of participation in the electoral process as the American political problem, leading to special-interest supported candidates

limited appeal to moderate voters.

"You end up with McGovern/Jon Christianson candidates," he said as an example of such polarization. "This affects voter turnout."

Despite such trends, Shugrue said he's always optimistic about American politics, especially when he sees even one young person become interested in participating.

Shugrue has sparked that interest in no small number of Creighton students. Long before Speaker of the House Thomas "Tip" O'Neill had told the country that "all politics is local," Omaha Public Power District Chairman John Green had learned that from Dick Shugrue's classes at Creighton.

Green said he is just one of

Shugrue's many former students who have become involved in state and local government, at least partially because of his influence.

"He taught us two concepts, critical thinking and action," said Green. "We gained perspective on where they tie together. The other thing he taught us was in terms of petitioning — that it was probably important, but being on the inside and making decisions was more so."

Shugrue, who received the student body's first Robert F. Kennedy Award for Teaching Excellence in 1970, is noted for his ability to "make you think," said Douglas County District Court Judge Michael Amdor.

Amdor recalled taking a night political science class from Shugrue during the spring of 1967.

"After class it was customary to go over to the lower level of Brandeis Student Center to have coffee," Amdor said. "It was the first time I ever had coffee with a professor. We talked politics. He was just aware of every issue of the day. He just took my own level of awareness so much higher. He was so enthusiastic about politics and about participation in the political process. It was revealing, invigorating and exciting."

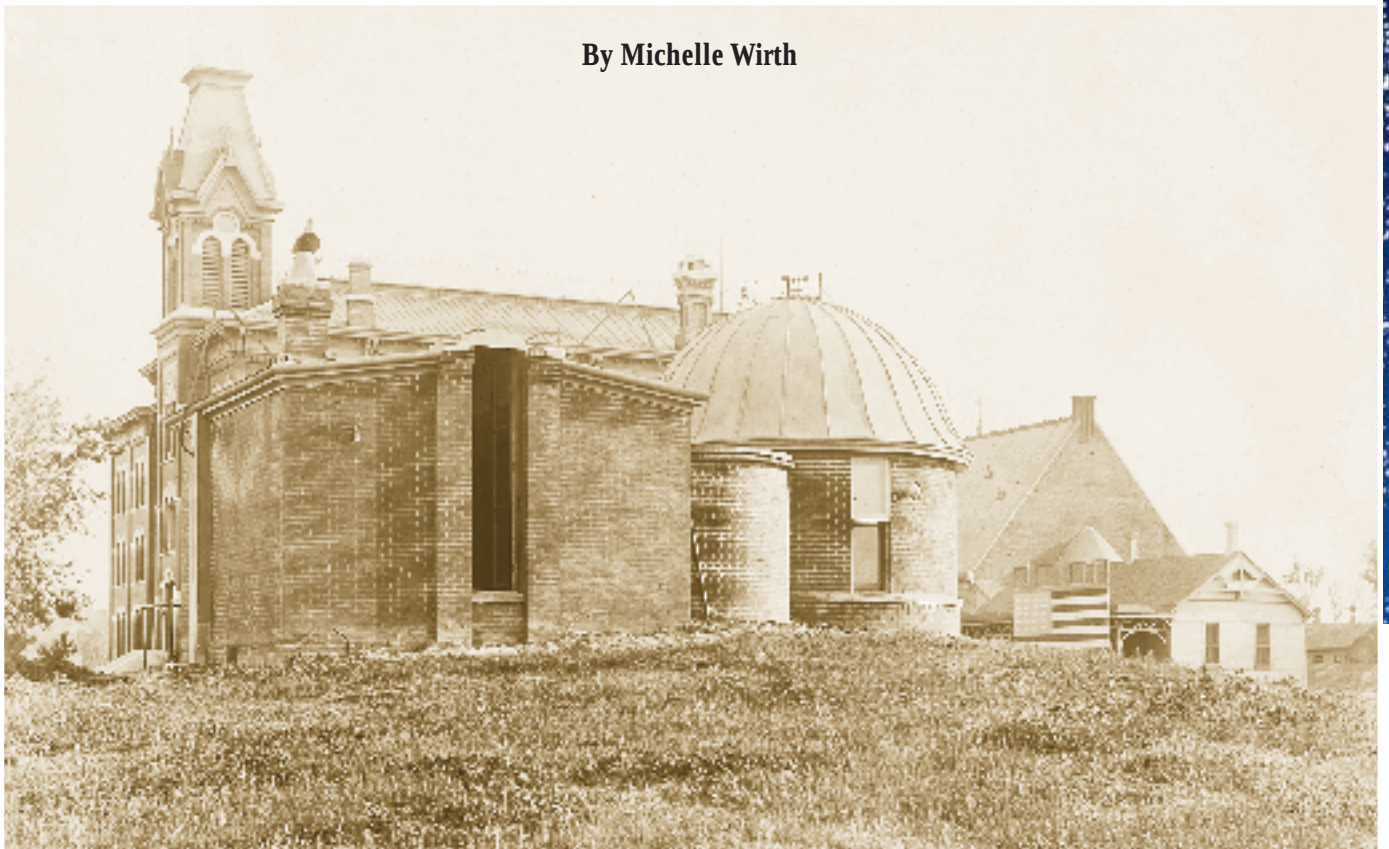
Amdor, who had always planned to be an attorney, said Shugrue forced students to examine the relationship between politics and the law.

"It was like going from a book you check out of the library to the Internet of ideas," he said. "Shugrue taught people who are lawyers and judges to understand the political process that underlies the (legal) system, to know more about the political process that generates a statute's statement of intent."

"He had enormous influence." **W**

OBSERVATIONS

By Michelle Wirth



This view of the Observatory, taken by G. A. McGovern, S.J., on May 17, 1897, records a scene that illustrates today's "troubles" with the building's purpose. At the time of this picture almost a century ago, there was little to interfere with the astronomical observations through a telescope, since few city lights were around to "wash out" viewing. The rear of St. John's Church is at right and the building that was to become today's Administration Building is behind the Observatory.

Tucked away in a corner of the Jesuit Garden — and threatening every summer to be carried away by vines — rests the Creighton Observatory, a building with a past.

The inspiration of Creighton's famous astronomer Fr. William Rigge, S.J., this former "classroom under the stars" figures in the memories of many Creighton alumni, who either struggled with a class or two under its dome or recall it more peripherally as a simple icon of campus life. Among the first observatories west of the Mississippi, the 19th cen-

tury building — with its heaven-sweeping telescope — also helped inspire the career of at least one nationally regarded astronomer, not to mention a sense of wonder at the universe for countless students.

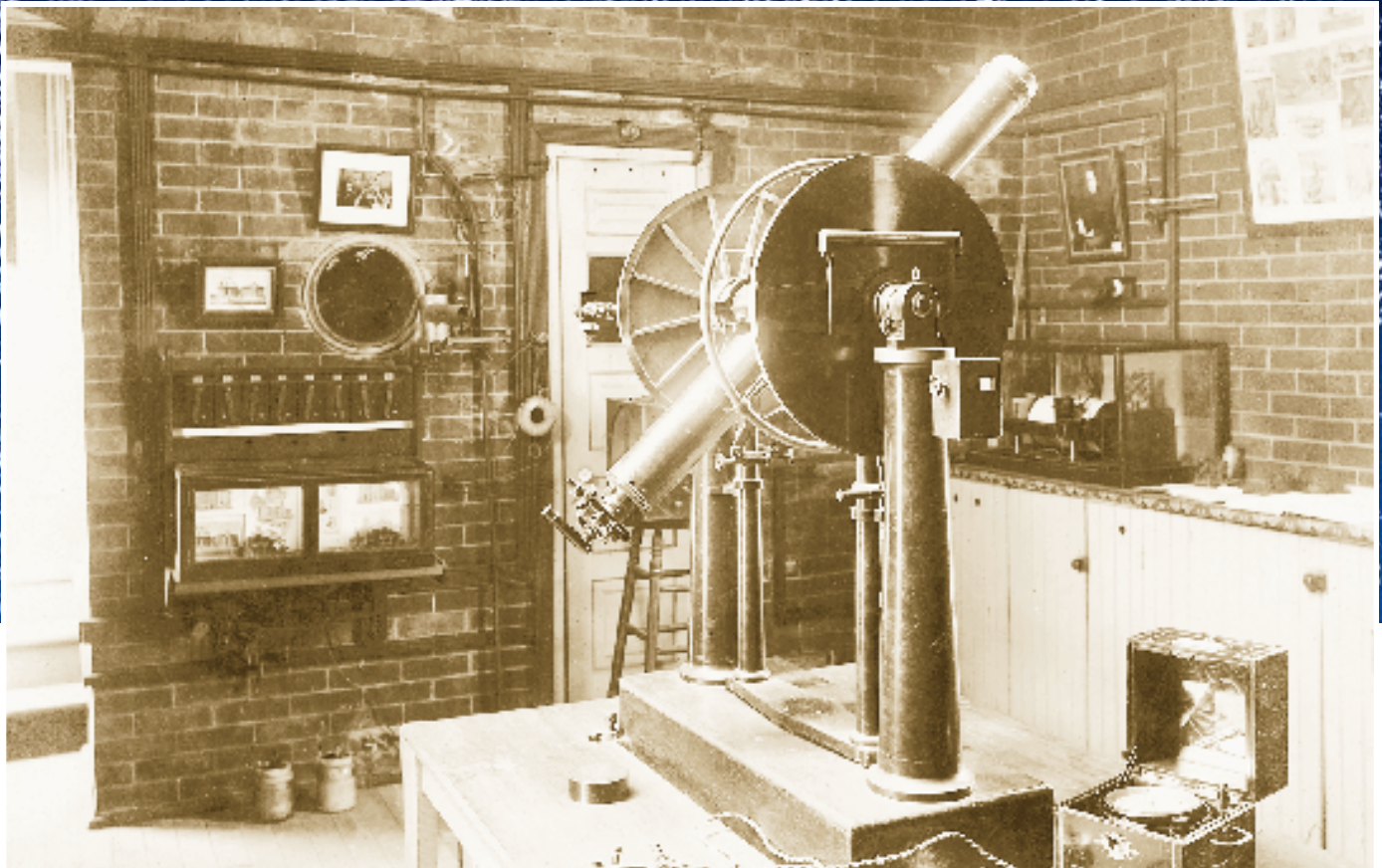
But today its fate is uncertain, this once mint-condition pride of Fr. Rigge — and gift of John A. Creighton to the University. The facility is currently closed due to structural damage. That status, plus the slow but persistent encroachment of city lights which make for poor star viewing, may condemn the

facility to the wrecking ball.

The star-studded classroom last played host to Creighton students in the winter of 1995, when instructor Bob Stoffel opted for a tour of the old building as clouds forced cancellation of an evening of star-gazing.

As students stepped inside the small, white structure overlooking 24th Street, they stepped back in time. They stood beneath the ancient telescope pointing toward the rusty dome. Entering the building's east transit room, they saw the spot where telegraph signals were

OBSERVATORY



This view of the east (rectangular) part of the astronomical Observatory, called the transit room, shows what is identified as Fr. Rigge's "smaller" telescope in the center. The picture is from Creighton's Rare Book Room in the Reinert Alumni Memorial Library, where some of Fr. Rigge's memorabilia are kept.

once exchanged to determine Omaha's time. Inside a protective vault, they observed two clocks nearly ceiling high, sitting exactly as Fr. Rigge had placed them more than a century ago.

Since that tour, the 111-year-old structure has remained virtually abandoned. Its fate really was sealed in 1988, when floodlights were erected over the ballfields to the east, finally blocking any chance for clear observations.

Though its roof and east wall are caving in, the observatory remains a strong memory in the minds of the

people associated with it.

"It's a big piece of Creighton that shouldn't be thrown away," said Stoffel, the observatory's current curator and longtime veteran of the physics department. "It's a rich part of Creighton University's history," he added. "It put Creighton on the map."

But how?

Fr. Rigge literally put Creighton on the map in the late 1880s by determining the University's precise longitude. The Jesuit made his calculations from the observatory by exchanging telegraph

signals with the U.S. Naval Academy in Washington, D.C.

When Fr. Rigge officially took over the observatory in 1896, astronomy was on the leading edge of science, and the Jesuits had long been a major influence in the field, as well as in mathematics and physics.

By the time of his death in 1927, Fr. Rigge had published nearly 500 articles — many describing his work in the observatory. One of his famous pieces outlined his method of determining time using shadows in a photograph. The

MEMORIES FROM STUDENTS

While the centennial of the Creighton University observatory passed more than a decade ago, memories of the facility and its surroundings remain fresh in the minds of former students.

Some alumni remember the observatory for its adjacent Jesuit Garden. There, many students studied, pondered the world or first kissed a future spouse.

And, for others, the observatory served as the vehicle providing them their first clear glimpse of the sky's wonders — stars, planets and constellations.

Alumni shared the following memories:

Fr. Bob Hurd, S.J., attended Creighton as a student in the 1970s and now lives in Rome. He conveyed this memory by E-mail:

"I was a student in 1974 and 1978 living in Gallagher Hall. My roommate and I would often go at nights to see whatever Fr.(Martin) Vaske had announced would be visible. I particularly remember seeing quite a few times the red spot of Jupiter. Going back to Gallagher in the crispy, new snow was always fun."

Mike Leighton, BA'70, vice president for University Relations at Creighton, remembers an experience that occurred inside the observatory when he took an astronomy class during his freshman year.

"I wasn't a regular attendee of the class," he recalled with

a chuckle. But Leighton attended one astronomy lab because the professor required it to pass the class. Once inside the observatory, Leighton and his lab partner were asked to set up the telescope and chart the constellations.

"After setting up the telescope with difficulty (we needed assistance from Fr. Vaske), I came across a red light," Leighton recalled. "I was convinced I had discovered a new star, or maybe a new comet."

Actually, what Leighton had "discovered" was the now-defunct Omaha weather tower, no doubt blinking red to forecast warmer weather.

Allan Block, MD'93, remembers enjoying peaceful study breaks outside the observatory. He recently wrote by E-mail: "I often would go for long walks around campus to take a study break, relax or just to enjoy being outside. Although I am not Catholic, I loved the peaceful, meditative atmosphere there, especially the small fountain with the statue of the Virgin Mary.

"My favorite part of the walks, however, was climbing up the stairs onto the walkway around the observatory, and resting behind it. I loved the view of downtown Omaha, and the way it overlooked the softball fields directly across the street. In spring, summer and autumn, it was pleasant to lean against the railing and allow my mind to wander to thoughts of family, friends, life."

In the book below, tables for use of the transit instrument are carefully entered. It is dated 1887.

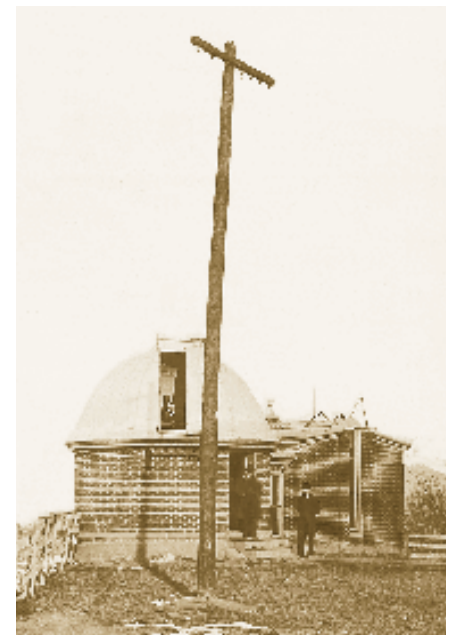


method, described in *Scientific American* in 1904, was important in legal history as one of the first instances of scientific evidence being introduced in a court of law. (See *WINDOW*, Vol. 7, No. 1, Fall 1990.)

"Fr. Rigge did a lot for promoting an interest in astronomy," said Fr. Clarence M. Wagener, S.J., of the physics department, "and he is one of the well-known people connected with the early history of Creighton."

Now only Fr. Rigge's meticulous notes and published works, as well as memories of former students, provide a glimpse of the observatory as a functioning facility.

Tom Fitzsimmons, BS'63, recalls an observation three decades ago. Even then, the equipment seemed ancient. Writing recently by E-mail, Fitzsimmons said, "I remember the refracting telescope had a



No information is available for this old photograph, but it does show the dome open to the heavens.



This rare old photo shows a Creighton campus from the turn of the century, with the long shadow at right being cast by what is now the Administration Building, the original Creighton campus building. To the left-center on the horizon is the Observatory building. Where people stand in this photo there are now trees that are part of the Jesuit Garden.



This scene, in which the Observatory is prominently featured, is actually a Mass held during the great influenza outbreak of 1918.

clock mechanism for holding the telescope on a star as the earth turned ... The dome rolled on big wheels that were pretty rusty, and it seems that it was driven by a large wheel that the two biggest boys had to turn."

Richard Keating, a 1963 physics graduate, fondly recalls Fr. Martin Vaske, S.J., and his lessons about the constellations and stars at the old observatory. "He brought science down to earth," Keating

said. "He showed students, firsthand, that when you look through the telescope, you see a whole world..."

Keating, now an astronomer at the U.S.

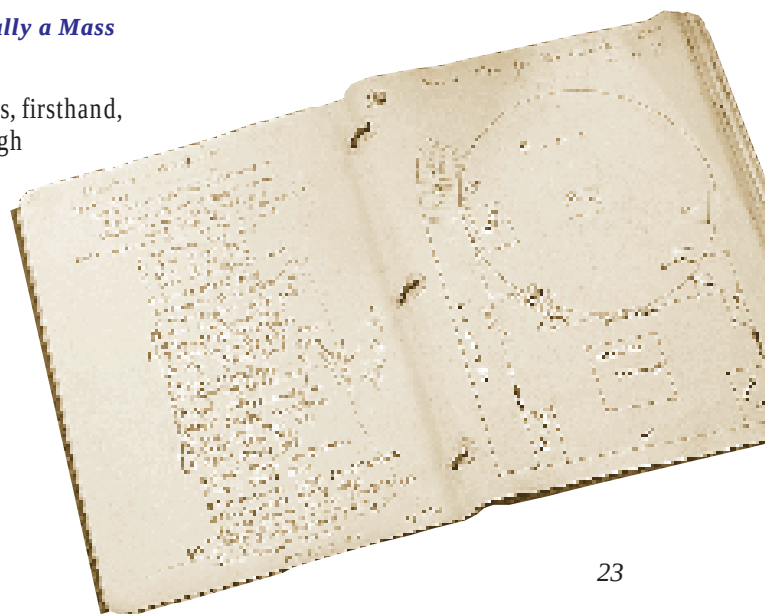
An inventory of the Observatory, showing the floor plan, is dated October 21, 1939.

Naval Observatory in Washington, D.C., feels strongly about the structure's rich history and significance as a teaching tool. "The observatory can teach many lessons," he said. "It would be a tragedy if it were demolished."

The observatory's abandoned state today stands in sharp contrast to its prime condition during Fr. Rigge's time. That Creighton pioneer and his brother, Joseph, also a Jesuit and designer of the observatory, pushed for the facility's construction, preservation and then-state-of-the-art equipment. In fact, Fr. William Rigge used the observatory throughout his lifetime, opening its doors to astronomers from around the world.

The need for the observatory grew from a single gift of Creighton founder and benefactor John Creighton, who gave a telescope to the University in 1884. That same instrument, which cost \$525 at the time of its purchase, still sits today, protected by a large, dusty cloth, in the observatory.

In 1885 Fr. Joseph Rigge decided this large, portable telescope was too cumbersome to roll outside, so he designed a permanent mounting — a brick foundation and a shed with removable roof. He took the plan to the rector, who branded the idea "unworthy for Creighton University." In fact, when the rector told John Creighton of the plan, he assumed the benefactor would reject it. Instead, Creighton contributed \$1,200 to build a 15-foot round brick building with a revolving dome, and construction of the observatory was under way.

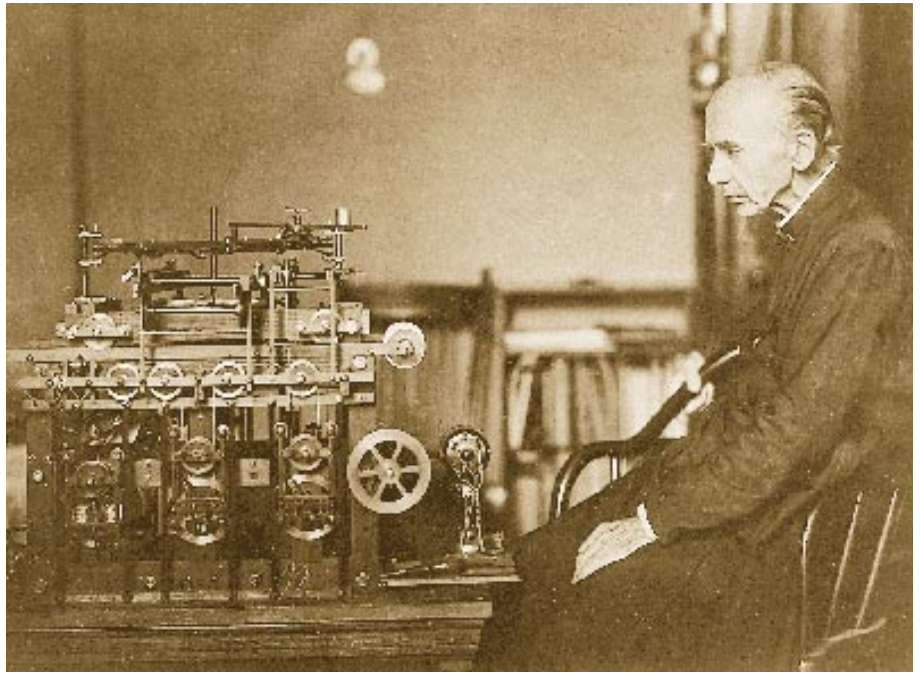


Shortly after completion of the dome in 1886, the observatory gained more equipment, including a chronograph and clocks. When Fr. William Rigge used the instruments to determine Creighton's longitude, he was unable to determine the exact position because of a malfunction in the clock. He and his brother requested a replacement clock and said they would use it to give correct time to the city. Creighton, the benefactor, contributed the funds for a sidereal clock, which tells time by the stars, and a transit instrument, if the University would construct another building to house it. The University complied, and the east room attached to the dome of the observatory took shape.

But, in 1909, another obstacle emerged: The bustling frontier city was bent on construction of 24th Street, just a stone's throw away. Fearing disturbing vibrations as cars and trucks lumbered by, Fr. Rigge sought help. He requested a protective, 10-foot-high retaining wall and a thick concrete foundation, and the University complied once more.

Fr. Rigge was pleased with the building's progress. Preserving the observatory at its original site was well worth the effort, Fr. Rigge wrote in his memoirs, and worth the \$17,500 expense. When he compared the idea to other proposals, he said: "The expense would sure not be greater ... And best of all — this was my own possible secret — the future of the observatory would be permanently secured."

In spite of Fr. Rigge's hope, the observatory faces an uncertain future.



Fr. Rigge is shown here with the harmonic curve machine he created. The instrument now is on display in the Rigge Science Building a few steps from the Rigge Lecture Hall.

Crumbling, the building now features a wood and wire brace to support the east

**COSTS OF KEEPING
THE OLD BUILDING
COULD RUN INTO
THE HUNDREDS OF
THOUSANDS OF
DOLLARS**

the observatory as a museum. Possible show pieces include the refractor telescope, the transit telescope and clocks still inside the observatory today, as well as historic globes and other astronomical time pieces that have been stored in a physics department closet.

But that proposal comes at a high price. The cost to weather-proof the building would have exceeded \$120,000 several years ago, Willett said. Demolition alone would cost \$25,000 — including the cost of keeping the fountain in the Jesuit Garden.

"We're struggling for every dollar ... " Willett said. "It's really hard to justify spending the money for the observatory."

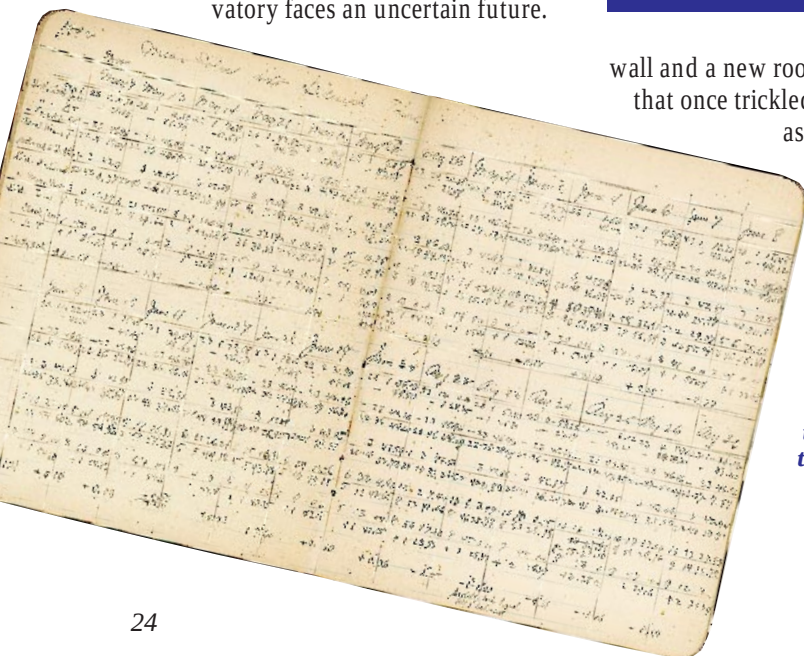
Still, the Creighton Observatory remains an important piece of history for the University and alumni like Keating. He remembers his first clear view of the moon, glimpsed through the telescope inside the old structure.

"It causes a little sense of humility," Keating said on the phone from his Washington office. "Looking through a telescope is the only chance we have to get a realistic look at our world."

wall and a new roof to stem the leaks that once trickled in, said Jim Willett, associate vice president for administration and director of facility planning/management.

Some people have suggested preserving

Conversions from mean solar to sidereal time are recorded in this notebook.



THE HEAVENS SING OF GOD

By John M. Scott, S.J.

When darkness falls from the wings of night, look up at the heavens full of stars overhead, white and topaz and misty red.

Heaped high in the bowl of night are rubies, garnets, jade, amethysts, diamonds — precious gems offered by the God of time and space to speak of His beauty, His power, His love.

Stars that sequin the evening sky glitter like jewels of Indian Princes, the diamonds from South African mines, and the scintillating products of the gem cutters of Amsterdam. From moon-touched pine cones to star-pinned infinitude, the heavens speak of God.

The Milky Way shows stars poised pale on the fringes of space, and gathering fire in frail, pink flames. Overhead swings the “drinking cup” of the heavens, the Big Dipper. Its seven stars have Arabic names that glitter with all the fascination and romance of the mystic East: Alkaid, Mizar, Alioth, Megrez, Phad, Dubhe and Mirak.

Flung in generous handfuls across the velvet black of night are gems dazzling beyond even Sinbad’s most fabulous dreams. There are bright Algal, beloved of camel drivers, and blue Denebola, and Vega, the pale sapphire. Mighty Rigel blazes with bluish-white, a jewel made for a king! Betelgeuse glows moody as an opal, while lovely Aldebaran blossoms like a pale ruby in the distant sky.

The golden blur of light shimmering just south of overhead is the Pleiades, the seven sisters of heaven, sending forth a soft, sweet radiance. Many a night you see the Pleiades rising through the mellow shade, then glittering like a swarm of fireflies caught in a silver braid.

Watching the bright stars wheeling far overhead, you hear the story of their birth. They tell of

the great God who simply said: “‘Let there be light,’ and light was made.”

In the crisp and chilly month of December when the stars that oversprinkle all the heavens sparkle like newly minted silver coins, the constellation known as Orion provides a feast for the eyes and wonderment at Mintaka, Alnilam and Alnitak. These are the three silver stars that sparkle in the sword of Orion, fabled hunter of the starry skies.

As you watch the stars march, stately and still, up the dome of heaven like a great hill, you suddenly become aware that you are honored to be witness of so much majesty.

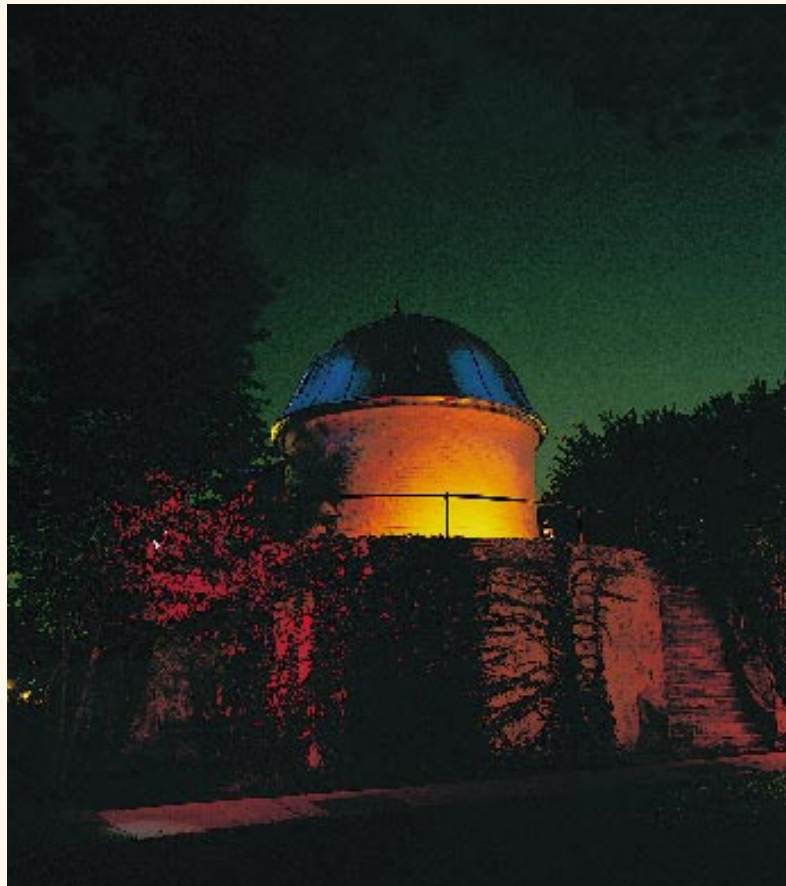
The nightly pageant of the stars has thrilled and comforted the hearts of people through many long centuries. From the plains of ancient Israel, David, king of song, looked up at the stars and sang of them on his harp.

St. Joseph, man of prayer, saw the great stars leap to their vigils the night he took Mary and the Child and fled into Egypt. That night, indeed, the words of the prophet rang true: “And the stars have given light in their watches. They were called and

they said: ‘Here we are.’ And with cheerfulness they have shined forth to Him that made them.”

How often on a mid-summer’s evening, Christ, when He was a boy, and young man, living in Nazareth, must have turned His eyes to the calm, brilliant beauty of the stars. His eyes were bright with the radiance of them.

The next time you see the stars flaming high over the tall roofs of huddled cities, or mirrored in the smooth surface of placid lakes, or glittering in tranquil splendor over the vast sweep of prairie or mountain top, remember that these are the very stars upon which Christ once gazed. What a thought there is here for our consolation. **W**



PROFILE OF ACHIEVEMENT

She Always Gets Things Done

The same spirit that sent Sharon Culhane after a good story for the *Creightonian* in the late 1960s lives in Sharon Harper today. Friends and colleagues say her energy, enthusiasm and focus make her a natural choice if you want to get things done in Arizona.

General partner of Plaza Del Rio, a management/development firm in greater Phoenix, Harper operates a multi-faceted company that includes a community of commercial, medical and retirement residential facilities. What began as an inspiration to this Creighton alumna in the early 1980s is today a 200-acre, \$52 million complex that is the area's largest private employer. And the firm is still growing: In 1997, Harper plans to open a senior housing community in northeast Phoenix/Scottsdale.

But Sharon Harper's life is more than her career. For this wife and mother of four, life also includes service to her community, down the block and around the world. A volunteer tutor, she also has worked with her husband, Dr. Oliver J. Harper, MD'70, among the Kikuyu people in Kenya, Africa, developing and implementing a much-needed immunization program.

Nearer home, Harper serves on many executive boards of state, county and city economic development organizations, and is involved in industry and community associations. In 1995, she was named Entrepreneur of the Year by the YWCA of Maricopa County and was honored with the prestigious inaugural statewide ATHENA Award.

Sharon Culhane Harper is another Creighton alumna making a difference in the world. And making a difference is the heart — and the spirit — of a Jesuit education.



Sharon Culhane Harper, BA'69

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