

areas, neurophysiology and immunology, ANU is a leader,' he said.

Professor Bishop's own interest in neurophysiology dates from his third year as a medical student at Sydney University. 'I knew quite clearly at 20 that I wanted a career in brain research'.

He became Neurological Registrar at Sydney's Royal Prince Alfred Hospital and soon after the outbreak of war he joined the Royal Australian Navy as a Surgeon Lieutenant. In London he studied clinical neurology under Sir Charles Symonds at Queens Square and later did brain research under J.Z. Young at University College. He returned to Sydney as a National Health and Medical Research Council Fellow and established a Brain Research Unit in the Department of Surgery.

He remained at Sydney University till 1967, when after 12 years there as Professor of Physiology, he came to ANU to succeed Nobel Prize winner Sir John Eccles as Professor of Physiology.

Doctor of Medicine. This will be only the fifth time the degree has been awarded. The University has also struck a medal in his honour. This is awarded annually to the top student taking the Bachelor of Science (Medical) degree.

On formal retirement Professor Bishop will become a Visiting Fellow in the Department of Behavioural Biology, RSBS, with Professor Richard Mark. Following that he will spend some time in the Department of Ophthalmology at the University of Otago in New Zealand combining research in ophthalmology with his passion for bushwalking. A longer range plan is as a visiting professor in the University of Leuven in Belgium where he will be working with Professor Orban, a former colleague at the ANU. He is also working on a book about binocular vision that combines his interest in the history and philosophy of visual science with the great advances that have been made in recent years.



Stuart Butlerworth

## Automation cuts film production time

A visiting fellow in the Anthropology Department, RSPacS, has been attached to the University's Instructional Resources Unit to work on the development of an automated, computer-operated system of sub-titling films used in research.

Dr John Haviland, formerly a senior research fellow with RSPacS, is working on the project with IRU's media services officers, Mr Tony Jurd and Mr Ian Matters, both experts in electronics.

Dr Haviland started working at the Unit two weeks ago and is expected to be located there for at least two months.

The project is being conducted jointly by IRU and the Human Ethnology and Ethnographic Film Laboratory, which is operated under the auspices of RSPacS.

Dr Haviland is involved in the project because of his interest and expertise in both ethnographic film-making and computer programming.

In the past, he has done research using film, in particular studying the natural conversation of Aborigines at Cooktown, North Queensland, and Mexican peasants.

Dr Haviland said that the system he hoped to produce should prove valuable not just in the study of linguistics but in many

other fields of research. It could also prove beneficial to commercial film-makers.

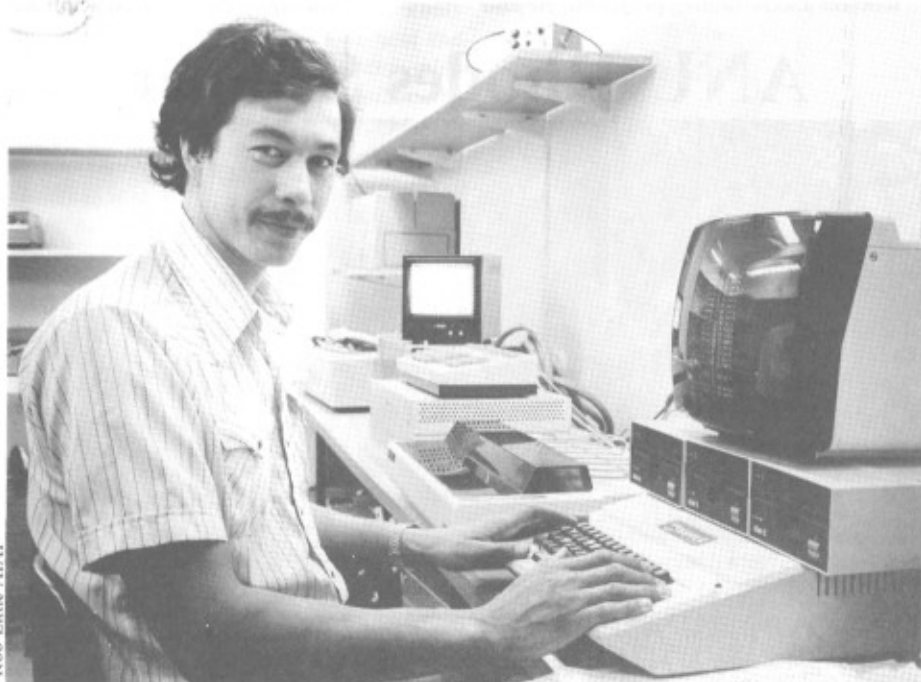
He explained to the ANU Reporter that the present system of sub-titling films was extremely inefficient, tedious and time consuming.

'It's a completely manual process whereby you screen the particular piece of film to be sub-titled, stopping and starting to superimpose onto the film the sub-titles where they appear to fit,' he said.

The proposed computerised system would enable a 10 minute film to be sub-titled in that length of time. Under the present system, a film of that length could take as long as eight hours to be sub-titled.

Mr Jurd and Mr Matters are responsible for creating the computer hardware for the system. It is envisaged that the system will incorporate the audio and visual processes involved in sub-titling.

The sub-title texts will be placed into the computer which will automatically link the sub-title to film frame to which it belongs.



Rob Little AIAP

Dr John Haviland

# ANU Reporter

Vol. 13, No. 20, Friday 10 December, 1982

## 'Solitary' waves may explain mystery of some plane crashes

ANU researchers believe they may have discovered the cause of some aircraft accidents at take off and landing. They attribute these accidents to previously unrecognised phenomena called solitary waves which buffet and divert aircraft from their planned flight path. They believe the risk to aircraft is world-wide.

The researchers Mr Doug Christie and Dr Ken Muirhead, led by Professor Kurt Lambeck, of the Research School of Earth Sciences, have been studying atmospheric solitary waves for six years.

Dr Muirhead and Mr Christie explained that low-flying aircraft encountering a solitary wave could be affected in a number of ways. For example, in a head-on encounter during landing, the aircraft could experience an increase in lift due to the sudden onset of the horizontal wind shear and the vertical up-draught. The opposite effect occurs when the aircraft encounters the trailing edge of the wave.

(Wind shear is an aviation term for any change in wind speed or wind direction over short distances, including up and down draughts, that cause an aircraft to deviate from its intended path.)

They said that if a pilot responded by reducing thrust when the wave was first encountered, a situation could develop where the aircraft is forced dangerously close to the ground. The researchers believe that the risk is as great for jet aircraft as it is for small aircraft.

lised that solitary waves are a common feature of the atmosphere.

Spectacular visible examples of solitary waves can be seen near Burketown in the south-east corner of the Gulf of Carpentaria. This solitary wave, known as the Morning Glory, is an impressive roll-cloud formation.

'Pilots in northern Queensland will not attempt a landing or takeoff when the Morning Glory is in the vicinity,' Professor Lambeck said. 'What the pilots may not recognise is that this same phenomenon also occurs without the dramatic roll-cloud. Recent experiments carried out by the Research School of Earth Sciences have shown that more frequently than not these atmospheric waves are invisible.'

'Of 17 large solitary waves recorded in a two-week period in September, 1980, only one was visible. Invisible waves, equally intense, come from directions other than the direction favoured by the Morning Glory.'

The research work of the scientists has also shown that the waves travel over long distances and that they are not restricted to the Gulf region. In the six-year observational period, over one thousand significant



*Morning Glory cloud formation near Burketown on the Gulf of Carpentaria.*

## Senate Report calls for preservation of prehistoric

John Haviland  
3312 SE Woodstock Blvd.  
Portland, OR 97202 USA.

Time 2.30 PM.  
14/October/87  
Roger Hart  
Ct Post office Hepthale  
Via Cooktown  
Queensland 4871  
Australia

Dear anggadha John.

Thank you very much for your wonderful  
letter I received from you on the 13 October 1987, and  
was very pleased to hear from you anggadha. Hepthale is still the  
same, but getting really hot, and dry. When I got your letter  
on the 13<sup>th</sup> October from the Hepthale Post office, I met  
Leahli Maya and our friend Satay, I spoken to Leahli about the  
papers you mentioned in your letter, and she is willing to  
send them over to you, when she gets back to Canberra,  
Andrew Smith came to Hepthale for one day to ~~work~~ talk  
to the Council about fishing & Dugong; for he had  
finished his booking on this project, he is now planning  
to go to Yap I hope you know the place, Well anggadha.  
Hepthale is a busy place today, for we have 7,000 Army troops  
training in the area, Uncle Jellicot is ok but still in Cooktown  
hospital, and sometimes comes out to visit his family.  
Our Anggadha Bob is staying at the old people's home, I will  
tell him, that I got a letter from you, and is planning  
for a trip to Barrow Point, when you come back  
from USA. Well anggadha I have ~~no~~ ~~not~~ no news  
to tell you, Thanking you once again for your letter  
Best Regards Always  
Yours faithfully anggadha Roger Hart.



greater than that among nondiabetic women, says Greene.

The key is frequent self-checks of blood sugar, custom-tailoring of insulin injections to meet the woman's growing need for insulin, which may double or triple during pregnancy, and adherence to diet and exercise plans. Women see their doctors weekly from the start of the pregnancy, and toward the end, undergo fetal monitoring once and ultimately twice a week.

Still, there is risk. In a diabetic pregnancy, excess sugar in the blood passes through

SENSE, Page 31

reports had overstated the risk. Today the picture is murky, the evidence inconclusive.

The alcohol/breast cancer scare is one illustration of a familiar pattern: Several times a month the media report the discovery of a health threat posed by some common substance or activity. But often the scientific evidence is qualified — even overturned — by later studies, leaving

### Unlikely things do happen

When an epidemiologist calls something "statistically significant," all he means is it's not likely to happen by chance alone. Shooting four straight sevens at the crap table is "significant" in the same way.

"And yet if somebody shoots four consecutive sevens, we don't say the dice are loaded or the casino is crooked," said Dr. Alvan Feinstein. "We recognize that sort

of thing can happen by chance."

Unlikely things do happen. That's why no one shouldn't read too much into a single "significant" association between a disease and a suspected cause, researchers say. It may be no more meaningful than a lucky toss of the dice. Only when the association shows up repeatedly does it become "significant" in the usual sense of the word.

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## LINQUISTICS

# Languages, a key to history, are dying out ever faster



GLOBE STAFF PHOTO/JUDY FOREMAN

Linguist John Haviland (right) is trying to save the dying Aboriginal language of Roger Hart, 75.

By Judy Foreman  
GLOBE STAFF

CAPE YORK, Australia — John Haviland, a lanky, linguist-anthropologist from Reed College in Oregon, is sitting at the table in the simple house he has borrowed at the Hopevale mission here, his spoon ferrying a chunk of papaya to his mouth, his eyes and ears focused intently on Roger Hart, the 75-year old Aborigine seated across from him.

Until Haviland took the trouble to learn Hart's Aboriginal tongue, Hart was the only remaining speaker of the language he learned as a child.

With no one left to talk to, Hart, like other aging Aborigines of this vast continent, had all but forgotten the knowledge of his people, including the kind of detailed knowledge of the land that is now a goldmine for ecologists.

But that knowledge, though valuable, is hardly the main thing that will die with Hart. With his death, the world will lose a quintessentially human creation: a language.

When Hart's ancestors roamed this part of Australia 40,000 years ago — a period Aborigines cele-

brate in creation myths as the Dreamtime — there were 300 to 400 Aboriginal languages, each spoken by a clan of hunter-gatherers. Since contact with Europeans began 200 years ago, all but about 50 of those ancient languages have been lost, linguists say.

This snuffing-out of small languages is not confined to Australia. It is a worldwide — and accelerating — phenomenon, as dominant Western cultures continue to spread to what were once undeveloped regions.

Each time a language dies, "it is an incalculable, staggering loss," says Haviland who, like other linguists, is as concerned about endangered languages as ecologists are about plants and animals.

Every language is not just a precious vehicle for the continuation of culture but a fascinating verbal edifice, a key to "a vast history going back into the depths of time," says linguist Wallace Chafe of the University of California at Santa Barbara.

To be sure, thousands of languages have come into being and died since humans began speaking 45,000 years ago. (Written languages came into being 3,000 years ago.) And today, the world still has

## Dying lang

There are 4,522 known languages.

### Number of speakers

More than 1 million

100,000 - 1 million

10,000 - 100,000

1,000 - 10,000

100 - 1,000

Known to be extinct

No estimate\*

\*Most of these are spoken

SOURCE: David Crystal, The

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Page 31

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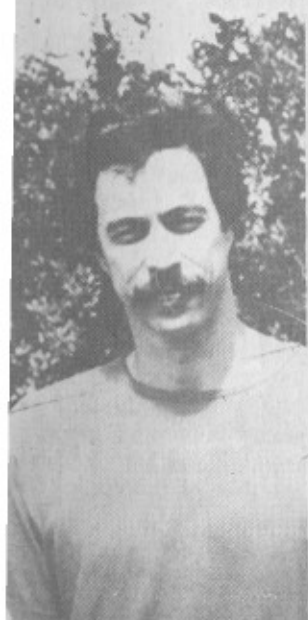
something "statistically significant" all he means is it's not likely to happen by chance alone. Shooting four straight sevens at the crap table is "significant" in the same way. "And yet if somebody shoots four consecutive sevens, we don't say the dice are loaded or the casino is crooked," said Dr. Alvan Feinstein. "We recognize that sort

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no risk to people's health, he said. The result is an "epidemic of apprehension."  
Feinstein's article is not the first attack on epidemiology.  
A decade ago one of the giants of the field, Dr. Leon Gordis of Johns  
RISKS, Page 30

# s, a key to history, are dying out ever faster

By Judy Foreman  
GLOBE STAFF



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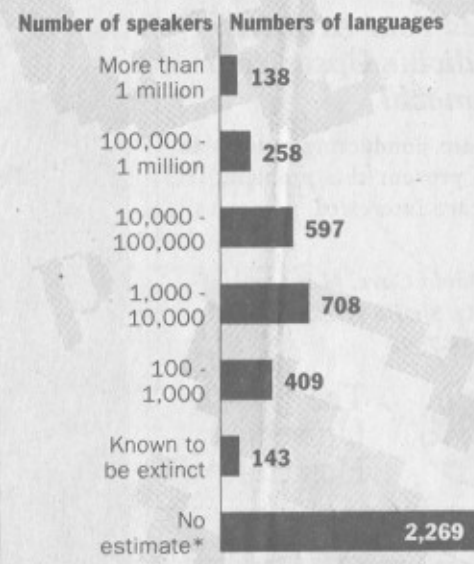
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To be sure, thousands of languages have come into being and died since humans began speaking 45,000 years ago. (Written languages came into being 3,000 years ago.) And today, the world still has

## Dying languages

There are 4,522 known living and extinct languages.



\*Most of these are spoken by very few people.  
SOURCE: David Crystal, The Cambridge Encyclopedia of Language

GLOBE STAFF GRAPHIC / NEIL C. PINCHIN



# HEALTH & SCIENCE

THE BOSTON GLOBE • MONDAY, OCTOBER 16, 1989

## Health Sense

BETSY A. LEHMAN

### No longer out of reach

SHELBY, A YOUNG LOUISIANA woman with diabetes, is advised by her doctor not to have children. Desperate for motherhood, she becomes pregnant anyway, and after the birth of her child, develops kidney failure and needs a transplant, but ultimately dies. Shelby's story is the central drama in the Robert Alton play "Steel Magnolias," currently running in Boston and soon to be released as a film with an all-star cast.

The play is funny, and at the end, moving. For diabetics and their relatives in the audience, it has an extra sting; it raises the most emotional issues of this indelible, even heartbreaking disease. "Steel Magnolias," a study of the relationships among six women, isn't meant to be a sermon on diabetes. Still, there is a lesson of medical truth: Shelby is modeled after Harling's sister, Susan, who died of diabetic kidney complications in 1985, less than a year after having a son.



Babies of diabetic mothers, even if they are formed normally, may be 10, 11 or 12 pounds, too large to deliver vaginally with safety. That's why the Caesarean section rate among diabetics is 50 percent, although that's better than the 80-90 percent rate in the past.

In the 1940s, insulin-dependent diabetic women often spent 2-3 months in the hospital during pregnancy. Now, they may be admitted only a day or two before birth.

(Nondiabetic women who develop what is called "gestational diabetes," high blood sugar during pregnancy, may also have oversized babies. Whether gestational diabetes poses a major medical risk is unclear, says Greene, but developing it indicates a greater risk of getting diabetes later in life.)

Despite decades of progress, however, the rates of stillbirth, newborn death and serious birth defects are higher than average among insulin-dependent diabetic women. Some of the risk can be



DR. PRISCILLA WHITE  
Pioneered in diabetes care

avoided through good care and self-monitoring; some apparently can't.

Before insulin was introduced in the early 1920s, a third of diabetic women who became pregnant died, as did 60 percent of the babies. With insulin, the women survived, but the babies kept dying. The "perinatal" death rate (infant deaths in the last months of pregnancy or the first month of life) was 50 percent in the 1930s.

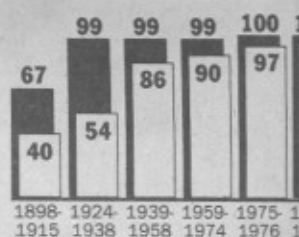
Then, in work pioneered by Dr. Priscilla White at the Joslin Center, doctors realized that deaths could

when they saw the doctor.

The results of aggressive management were dramatic. By 1960, 80 percent of the babies of diabetic women survived, by 1970, it was 90 percent. With the development of high-risk obstetrics and intensive care for newborns in the mid-1970s, the rate rose to 97-98 percent, where it remains today, says Dr. M. Donna Younger, who started at Joslin in 1959 as White's protegee.

That's more than double the death rate for nondiabetic women's babies, but still, it's an enormous accomplishment.

Nearly all the extra deaths are caused by serious malformations in the baby, Greene says. These birth defects may appear in the skeleton, heart, brain, kidneys or elsewhere. When they're not fatal to the baby, they may create a lifelong disability. With nondiabetic women, the rate of serious defects is 2-3 percent; with controlled diabetes, it is 4-5 percent. If diabetes is poorly controlled, the rate of birth defects



\*NOTE: Among pregnancies that reach 28 weeks for years up to 1974, and weeks since 1974.  
SOURCE: Joslin Diabetes Manual and M. Donna Younger

GLOBE STAFF

is staggering: 30-40 percent.

"It only takes moderately control to avoid the worst tragedies," says Younger, now vice chairman of the center. That's why it's so tragic that many don't get medical care, and die with their disease under control until they've already been pregnant for several weeks.

Younger and Greene say the biggest disappointment is that many women don't get care

# Languages, keys to a vast history, are dying

## LANGUAGES

Continued from Page 29  
5,000 living languages.

But the rate of loss is now alarming, they say.

"We have probably had a lot of dead languages, but the death of languages now is much more frequent and acute because they are not being replaced," says Kenneth Hale, a linguist at Massachusetts Institute of Technology.

"In the last 150 years, we have something we are not sure ever happened before - language death on a very large scale, especially in the Americas and Australia," adds Jane Hill, an anthropologist and linguist at the University of Arizona. "Talk about endangered! We spend more on endangered species than endangered languages. It's driving us bananas. The University of Arizona spends \$60,000 to protect the Mt. Graham red squirrel [an endangered species threatened by construction of an international observatory] and very little on languages."

"We have lost hundreds of languages in the Americas, hundreds in Australia," she says. In Alaska alone, linguists have documented the loss of 100 languages in 25 years.

Until 500 years ago, says Santa Barbara's Chafe, "the number of languages in the world was probably increasing. What has led to the decline is colonization from Europe, with European languages being imposed on people all over the world."

Indeed, says Hale, 10,000 years ago, before agriculture, the world

was full of languages spoken by nomadic groups of about 500; group size was limited by what the land could provide.

"Once a group got to be that size, a splinter group would bud off and colonize some other area. Of course, the language of the group that just budded off would be closely related, but over time, each group developed its own traditions," says Hale, who speaks several Aboriginal tongues.

Beginning with the spread of large political units about 5,000 years ago, says Arizona's Hill, smaller languages began to falter. In the United States, she says, "there were probably 1,000 languages pre-contact - before 1492. Now, we're down to a couple of hundred." The largest native American language is Navaho, with 100,000 speakers. Western Apache has maybe 10,000 speakers and [Arizona's] Tohono O'odham, 10,000 to 12,000."

Making matters worse in North America was the government practice of putting Indian children in English-speaking boarding schools. As Chafe puts it, "Kids were more or less kidnapped and forced to spend their childhood in boarding schools."

(Today, linguists worry about groups like English First and US English that seek to make English the official language of government. George Tryfiates, a spokesman for English First, which has prompted 16 states make English the legal language, says the goal is not to wipe out minority tongues but to keep taxpayers from funding such lan-

guage preservation efforts.)

Linguists say once children lose a mother tongue - as Roger Hart's children have - it is impossible to bring it back.

It is possible, though, to make sure a dying language is "not lost from the face of the Earth," says Haviland, who, aided by a grant from the Max Planck Society in Berlin, spent last summer with Hart, creating a small dictionary and writing and recording Hart's favorite Dreamtime stories.

Even with languages more robust than Hart's, survival is far from assured, says Haviland, who is also trying to save Guugu Yimidhir (pronounced Goo-goo Yee-mee-DJEER), spoken by the 900 Aborigines at this mission community.

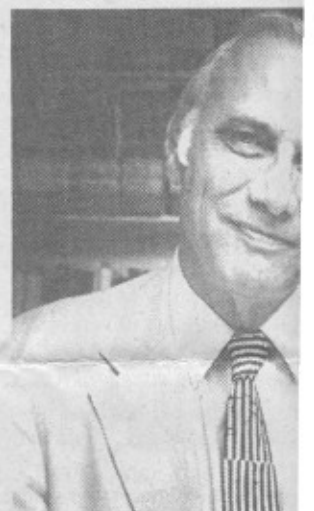
In a scenario all too familiar to linguists, some Guugu speakers want to teach Guugu to children in special school classes, but other parents fight the effort, contending that to get ahead, children must shed their heritage and learn English.

Until recently, American Indians, too, "thought it was better to speak English to get ahead," says California's Chafe. "It didn't do any good to speak their own language, it was 'low class.' That was the prevalent attitude, though the Black Power movement turned that around in the 60's; then, Indian languages became a symbol of Indianness."

Even so, Chafe is gloomy: "None of the original languages in the United States will last well into the next century."

There is no such thing as a dead language, linguists say, language is worth saving. "Languages are fully developed," says MIT's Hale. "Each has rough the same creative, expressive capacity."

Indeed, even the most primitive language is a treasure.



David and Pia Maybury-Lewis

Take Lardil, another dying Australian language.

Lardil speakers invented a auxiliary language called Dami to facilitate some communication during a period when talking imposed on young men undergoing initiation rituals.

What is lost when a language dies?

"It takes a real act of imagination" to understand the world, says Harvard anthropologist David



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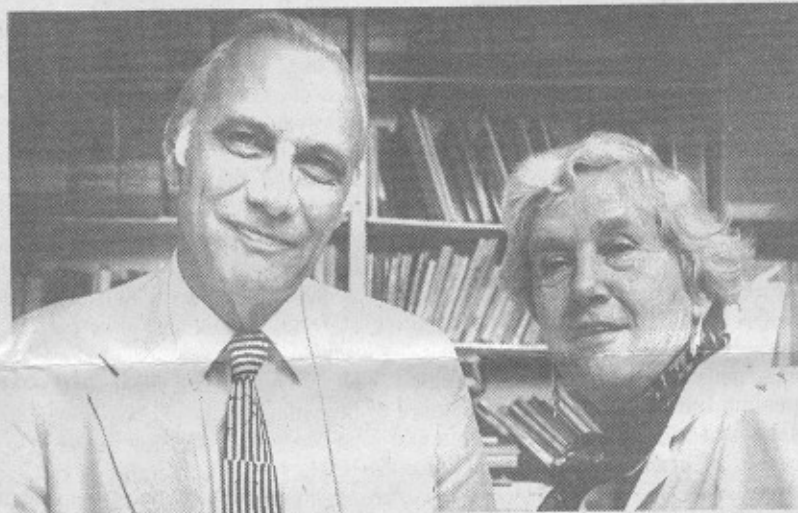
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David and Pia Maybury-Lewis at Harvard's Peabody Museum.

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"It takes a real act of the imagination" to understand that, says Harvard anthropologist David May-

bury-Lewis who, with his Danish-speaking wife Pia, founded the international group Cultural Survival to help indigenous people keep their cultural traditions and languages alive.

"Suppose you wake up one morning and realize nobody else speaks

says. Damin, a kind of abstract analysis of Lardil, has some astonishing features, including clicking sounds and consonants - found nowhere else in the world except the among the Bushmen, Hottentots and some Bantu speakers in Africa, with whom the Australian Aborigines had no contact.

Even more extraordinary, says Hale, is Damin's lexicon, which is so small and carefully constructed that initiates can learn it in one day. Yet despite the small number of Damin words, Damin speakers can express virtually any idea.

The loss of Damin, says Hale, "is, to me, like destroying not just some famous painting but a whole room that represents the entire artistic accomplishment of an entire nation, like dropping a bomb on a whole tradition, because Damin was a sophisticated semantic analysis of the Lardil language."

Similarly, Roger Hart's language and Guugu Yimidhirr have quirks that motivate Haviland to work to save them, hour after hour, day after day, before it is too late.

Trying to preserve such arcane languages, of course, is an uphill, even quixotic task, and as Arizona's Hill says, "I think you have to be nuts" to do it.

"But linguists have a 'let no sparrow fall' ethic," a belief that every language "is a rare and precious thing. Thank God," she says, "somebody is willing to pay the likes of John Haviland to go sit out in the boonies and do it."

GLOBE STAFF PHOTO/WENDY MAEDA