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Smithsonian

SPECIAL ANNIVERSARY ISSUE

WHO MADE A DIFFERENCE

MAYA ANGELOU BY RICHARD LONG ♡ DAVID ATTENBOROUGH BY FRANS LANTING
♡ ED BEARSS BY ADAM GOODHEART ♡ TIM BERNERS-LEE BY TOM STANDAGE ♡
WENDELL BERRY BY PAUL TRACHTMAN ♡ MARGARET BURBIDGE BY MARCIA
BARTUSIAK ♡ JANIS CARTER BY DOUGLAS FOSTER ♡ CHUCK CLOSE BY ARTHUR C.
DANTO ♡ JOHN DOBSON BY DON MOSER ♡ RENÉE FLEMING BY STEPHEN HASTINGS
♡ BILL GATES BY JIMMY CARTER ♡ FRANK GEHRY BY ROBERT DUFFY ♡ ANDY
GOLDSWORTHY BY ARTHUR LUBOW ♡ D.A. HENDERSON BY ROBIN MARANTZ HENIG
♡ WES JACKSON BY CRAIG CANINE ♡ DANIEL H. JANZEN BY JERRY ADLER ♡ ROBERT
LANGRIDGE BY TERENCE MONMONEY ♡ RICHARD LEAKEY BY VIRGINIA MORELL ♡
MARK LEHNER BY ALEXANDER STILLE ♡ ANNIE LEIBOVITZ BY SARAH BOXER ♡ MAYA
LIN BY MICHAEL PARFIT ♡ YO-YO MA BY JOSHUA KOSMAN ♡ WYNTON MARSALIS BY
TOM PIAZZA ♡ ROBERT MOSES BY NEIL HENRY ♡ JANE MT. PLEASANT BY GARY PAUL
NABHAN ♡ DOUGLAS OWSLEY BY AARON ELKINS ♡ GORDON PARKS BY ROY ROWAN
♡ MARK PLOTKIN BY ELIZABETH ROYTE ♡ SALLY RIDE BY K.C. COLE ♡ CLYDE
ROPER BY RICHARD ELLIS ♡ DAPHNE SHELDRIK BY DOUGLAS CHADWICK ♡ STEVEN
SPIELBERG BY KENNETH TURAN ♡ JULIE TAYMOR BY EDWARD ROTHSTEIN ♡ JAMES
WATSON BY HORACE FREELAND JUDSON ♡ EDWARD O. WILSON BY ROBERT WRIGHT

INNOVATORS OF OUR TIME

We mark SMITHSONIAN's 35th anniversary by revisiting scientists, artists and scholars who've enriched the magazine—and our lives

EVERY GENIUS, said the Danish writer Isak Dinesen, is doomed. She meant that geniuses, or those touched with a spark of it, had very little choice in life. Each one, she said, was powerless “in the face of his own powers,” compelled to follow a certain path and to do a particular thing with instinctive flair and originality, whether that meant being a master chef, an inspired writer of poetry or an astronomer unraveling the secrets of the stars.

Genius is an overused word these days, but it may not be too strong a label for many of the figures marching through our pages this month. All have been chosen for inclusion because what they do—or what they have done—has made a difference. And a contribution. Each has been here before to enliven SMITHSONIAN; most continue to enrich our lives by their work; all will doubtless inspire future generations by their example.

They are a varied lot, reflecting the diversity of America and the wide-ranging interests of SMITHSONIAN. They come to us from Civil War battlefields and the African bush, from the ravaged streets of New Orleans and the mountain observatories of California, from the Broadway stage and the Amazonian forest, from the corporate boardroom and the forensic laboratory. They sing arias. They scrutinize ants. They create memorable movies and singular buildings. They work magic with the instruments of their choosing—trumpets, cellos, cameras, paintbrushes, laptops and imagination. One sits awake writing poetry in the wee hours; another sorts through old bones to shed light on the advent of humans in North America; another has spent his professional life deep in the ocean, pursuing an elusive monster he has yet to find alive.

At least Captain Ahab had *seen* Moby-Dick.

Like that famously obsessive captain, the men and women we celebrate here have set out on bold missions of their own, forging ahead in the face of conventional wisdom—and often the advice of friends or colleagues—to pursue the work they love. They are all rebels of a sort. Some, like the noted scientist Edward O. Wilson and the natural historian David Attenborough, have simply extended the interests they pursued as children, seemingly without a moment's doubt about what they were meant to do. Others have piled one distinguished career atop another, as Richard Leakey has done, morphing from paleontologist to conservationist, politician, civil servant and popular lecturer with hardly a pause for breath. One of our writers, whose byline will be familiar to every reader, has run through enough careers—nuclear engineer, peanut farmer, governor, president of the United States, cabinetmaker, Nobel laureate, author—for several lifetimes.

From either side of the byline, we take inspiration from such people—explorers of the spirit, rebels with a cause, each doomed by his or her particular genius to show us the high road into new territory.

—The Editors

Wes Jackson

In Kansas, a plant geneticist sows the seeds of sustainable agriculture / **BY CRAIG CANINE**

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WES JACKSON is a large man with the metabolism of a hummingbird. This is a good thing, because a commanding physical presence and oodles of restless, probing energy are likely prerequisites for the job Jackson has carved out for himself: nothing less than the overthrow of agriculture as we know it.

Farming, in Jackson's view, is humanity's original sin. This fall from grace occurred around 10,000 years ago, when people first started gathering and planting the seeds of annual grasses, such as wild wheat and barley. "That was probably the first moment when we began to erode the ecological capital of the soil," he says. "It's when humans first started withdrawing the earth's non-renewable resources." As he sees it, fossil-fuel dependency, environmental pollution, overpopulation and global warming are all extensions of the path humans took when they first started tilling the soil. "It wasn't intentional. It didn't require a chamber of commerce or the devil to make us do it—we just did it."

Jackson, 69, has spent the past 29 years blazing a path to redemption. After earning a PhD in genetics from North Carolina State University, he abandoned a tenured faculty position at California State University at Sacramento in 1976 to return to his native Kansas. There, near Salina, he co-founded the Land Institute, a nonprofit educational and research organization. "The Land," as its many devotees call it, is equal parts plant-breeding station, teaching hub and intellectual center for what Jackson terms "natural systems agriculture." The first commandment of his creed is to mimic nature, rather than dominating or ignoring it. "Our beginning point is to look at nature's ecosystems and how they worked for millions of years," he says with a resonant Kansas drawl. "Where they're still in existence, natural ecosystems recycle soil nutrients and run on sunlight. They almost always feature perennial plants in mixtures: agriculture reversed that."

To reconcile agriculture with nature's perennial example, researchers at the Land Institute have toiled since 1978 to create a kind of botanical chimera: plants that look, above ground, much like annual crops, such as sorghum and sunflowers. Below ground, however,

CRAIG CANINE is the author of Dream Reaper, an account of the development of a revolutionary new high-tech harvester.

they have deep, perennial root systems, like those of the mixed wild grasses and legumes that carpeted the Midwest and Great Plains before the plow came and turned the prairie upside down. This is no small feat of gene-jockeying. In mainstream plant-breeding, developing a routine new wheat variety (a minor genetic variant that has, say, higher yields than similar varieties under drought conditions) takes about 10 to 15 years. What the Land Institute's breeders are trying to accomplish is a good deal more ambitious than that. They began by taking wild prairie species, such as a legume known as Illinois bundleflower, and trying to make them more like domestic crops, with large, abundant seeds that remain on the plant until harvested. About five years ago, the breeders also began pursuing a parallel strategy—crossing annual crops like wheat and sunflowers with wild relatives to create perennial hybrids.

“We have sort of a crash program to develop these crops—if you can have a crash program that’s going to take decades,” says Stan Cox, the Land Institute’s director of research. “The timeline we’re working on shows us having a set of perennial grain-producing crops that would be usable in agriculture somewhere between 25 and 50 years from now.” These next-generation crops would recycle soil nutrients, sharply reducing the need for fertilizer. More important, the perennials’ deep roots would remain, anchoring topsoil; only crop-bearing stalks would be harvested.

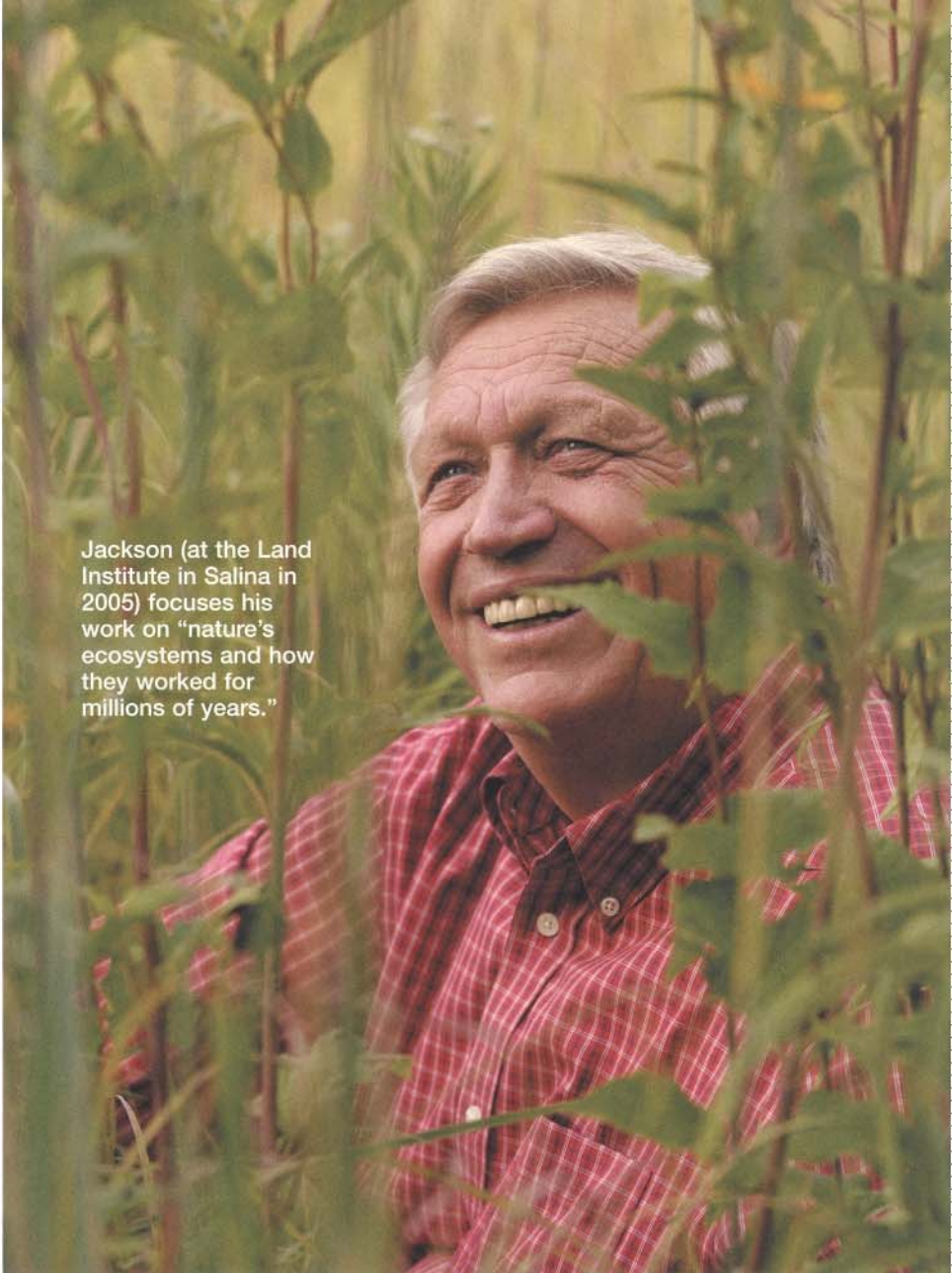
Can they do it? “From a plant-breeding standpoint, it’s likely that what they’re trying to do is indeed possible,” says Charlie Brummer, a plant geneticist at Iowa State University. “But it will take a long time. The question is, can they keep it up for that long?”

In Jackson’s vision, future cultivated fields would build and hold topsoil rather than losing it to wind and runoff.

—SMITHSONIAN, APRIL 1990

Jackson is doing his best to see that they can. Since he last appeared in these pages 15 years ago, his role has shifted from hands-on researcher to globe-trotting visionary. “The difference between 1990 and now,” he says, “is that then, we were focused on identifying the necessity” for fundamental change in agriculture. “We’ve done that. Now, an increasing number of people are acknowledging that necessity.”

And acknowledging his tireless evangelism. In 1990, he was named a Pew Scholar in Conservation and the Environ-



Jackson (at the Land Institute in Salina in 2005) focuses his work on “nature’s ecosystems and how they worked for millions of years.”

ment. He received a MacArthur “genius” award in 1992, and in 2000, a Right Livelihood Award—the so-called “alternative Nobel Prize” presented annually in Sweden.

Broader recognition has allowed the institute to establish what may be its best survival insurance: a graduate fellowship program that attracts young academics from universities across the country. Each year, the program receives around 40 proposals, typically projects on ecology or plant breeding that involve diverse perennial crop species, of which the Land Institute funds eight or nine. “By providing seed funding,” Jackson says, no pun intended, “we leverage the research funding of institutions with larger budgets. So far, we have 18 or 20 graduate fellows out there spreading the Land Institute virus, in hopes that they can overcome the agricultural establishment’s immune system.” He erupts with deep belly laughter that reveals, as plainly as anything else, the good-humored iconoclasm that has struck so deeply at the roots of our most basic need—to eat.