

By Sharon Callahan

Robert H. Rines

Pierce Law Founder: A True Renaissance Man

At Commencement ceremonies held in May, Pierce Law founder Robert H. Rines advised the graduates to, "Dream, and make your dreams happen. Work for what you believe in. Don't let your children grow up without a parent because you are so busy being a lawyer. Be happy."

This is sage advice from Rines, age 82, an individual who has taken his ideas and his visions, and literally run with them. A prolific inventor, musical composer, accomplished international patent attorney and professor of law, Rines is a true Renaissance man.

Rines' daily schedule would be considered frantic for someone half his age. He teaches classes at MIT, speaks at conferences throughout the United States, meets with inventors and entrepreneurs worldwide, writes musical compositions and practices law out of his office on Concord's North State Street.

Over the past 50 years, Rines has assisted hundreds of inventors. His patents on his own inventions now number more than 100, many for electronic apparatus to improve the resolution of radar and sonar scanning. The scanning systems used to locate the wrecks of the *Titanic* and the *Bismarck* were dependent on Rines' prototypes, as were medical ultrasound imaging systems.

In March of 2004, Rines received the Boston Patent Law Association's first "Lifetime Achievement Award" for the many contributions he has made during his over fifty-year career in the field of intellectual property law.

Born in Boston, MA in 1922, Rines has spent a lifetime inventing. He attempted to file his first patent at the age of six. While visiting his sister at summer camp in Maine, he saw his first pocketknife. He asked his father why he had to carry a pocketknife, a fork, spoon and scissors when they could all be included in the pocketknife. His father, a patent attorney, was very impressed with his son's idea, and showed him how to research patents in Washington, DC. Together, they discovered that similar ideas had already been patented by others.

Rines studied and played the violin at the age of four and began his musical performance career at age eleven, playing a violin duet with Albert Einstein at summer camp in Maine. During high school, Rines created musical arrangements for his band, *The Six Aces of Rhythm*, and was later invited to attend composition classes at Harvard University.

While attending MIT, where he earned a BS in physics early in 1942, he composed a musical suite, entitled *Life at MIT*. It was much later performed as a ballet in 1999 at New York's Lincoln Center. Rines has composed scores for more

than ten Broadway and off-Broadway shows, including *Blasts and Bravos*, a play on the life of H.E. Menkin, *O'Casey's Drums Under the Windows*, *O'Neill's Long Voyage Home* and *Strindberg's Creditors*. Rines' music for the television and later Broadway play, *Hiz Honor the Mayor*, earned him the sharing of an Emmy with playwright Paul Shyre in 1987. Earlier this year, an Irish ballad written by Rines, entitled "Joanne's Theme," in honor of his wife of eight years, was featured in a new film *Irish Eyes*. Rines has recently been approached by producers in Hollywood to write inter-act music for a new play.

He joined the U.S. Army Signal Corps during World War II as a radar officer, serving in both Europe and the Pacific, and invented the microwave modulation and scanning technique essential in building the Army's then top-secret Microwave Early Warning System. After the War, Rines worked as an examiner for the U.S. Patent Office while earning his law degree from Georgetown University in 1947, and later joined his father's law practice in Boston. He completed his Ph.D thesis at Chiao Tung University in Taiwan in 1972 while consulting in the development of the patent systems in Taiwan and, a decade later, in Mainland China.

In 1963, he founded the Academy of Applied Science, a Massachusetts and New Hampshire-based, private, nonprofit organization dedicated to the promotion of science and technology education and the encouragement of invention. He later founded Franklin Pierce Law Center in 1973 to help save the patent system in the United States and more generally to modernize legal education in a technological era. In 1994, Rines was inducted into the National Inventors Hall of Fame and became the first inductee into the U.S. Army Signal Corps Wall of Fame. Over the years, he has used his advanced scanning technology to search for Nessie in Scotland's Loch Ness, first in the early 1970s and again, re-starting with his son, Justice, in 1997.



Aboard the fishing vessel Boy David in August 2003, Rines displays a recovered bottom glacial clay sample from Loch Ness. His 2001 and 2002 expeditions recovered similar samples, and ancient marine shells and organisms, confirming the sea (pre- and post-glacial) incursions into Loch Ness.

In addition to his teaching duties at MIT, Rines continues to invent. He discovered his latest invention while visiting his eye doctor recently for a consultation for cataract surgery.

"While measuring my eyes with very high-frequency but very low power, sound reflections, the doctor's assistants were unable to get consistent results. I asked them to try something else. Instead of just touching the sound transducer to the eyeball, looking for an echo, I asked them to scan all over the eyeball, three dimensions of the lens, and average the results. It took a great deal more time then the usual fifteen seconds, and it was quite a substantial exposure to low power ultra sound radiation. It took a total of five to seven minutes."

"Well, when I came home, I looked over the harbor at the lights of Logan Airport. I couldn't believe it. 'Where are the halos?' I asked my wife Joanne. 'Why is everything so crystal clear?' I called up the surgeon and said, 'I think that the long term radiation I received in your office has shaken up the occlusions in my eyes.'" The next day Rines went to the doctor's office, and the assistants again measured his eyes. Looking at the results, the doctor agreed with Rines, and told him he was definitely "on to something."

"This process is actually based on a concept that I worked on as an undergraduate student at MIT over fifty years ago," says Rines. "I was sending ten megahertz ultra sound into small glass blocks, and I was visualizing through polarized light how the sound waves were making compressions and dilations." Rines has since filed a patent application

and has contacted alumna Katherine McGuire '89, a patent attorney at Bausch & Lomb, where they are continuing to do additional research on this project.

"Tomorrow's technology is nanotechnology," says Rines. "We are now able to make things so small that they are almost invisible. So small, and sophisticated and multi-purposed, they can control and even replace organ functions in the human body. So small, they take brand new technologies to know how to manufacture them. Since our laws have been created for things that are large, things that we see and manufacture by conventional ways, I am not so sure they are suited for what's needed for the developing nanotechnology."

"Take it from one who has worked on some pretty fundamental patents in this field of software-driven nanotechnology, these are such sophisticated concepts that even the inventors don't always know how to tell the attorney how it works, what it is that might be novel, what might be protectable, and certainly not what else has been done before," says Rines.

"We have one of the finest legal systems in the world," says Rines, who often consults on the nation's patent laws. "Unlike any other, our Constitution recognizes the rights of individuals, inventors and novelists, to their creative endeavors," says Rines. "We have gone on to try and tailor our laws to match that recognition, that an inventor has as a 'right.'"

"In the U.S., inventors are not encouraged to hurry into the patent office with their first idea," explains Rines. "Test it in the marketplace. Perfect it first. Then file with the patent office," explains Rines. "We demand under oath, that you prove your acts of conception, what you did to try to build it, and the diligence you had up until you filed an application. This is not done anywhere else in the world. It's a more cumbersome system, but democracy is cumbersome," says Rines. "It's tough. It's hard."

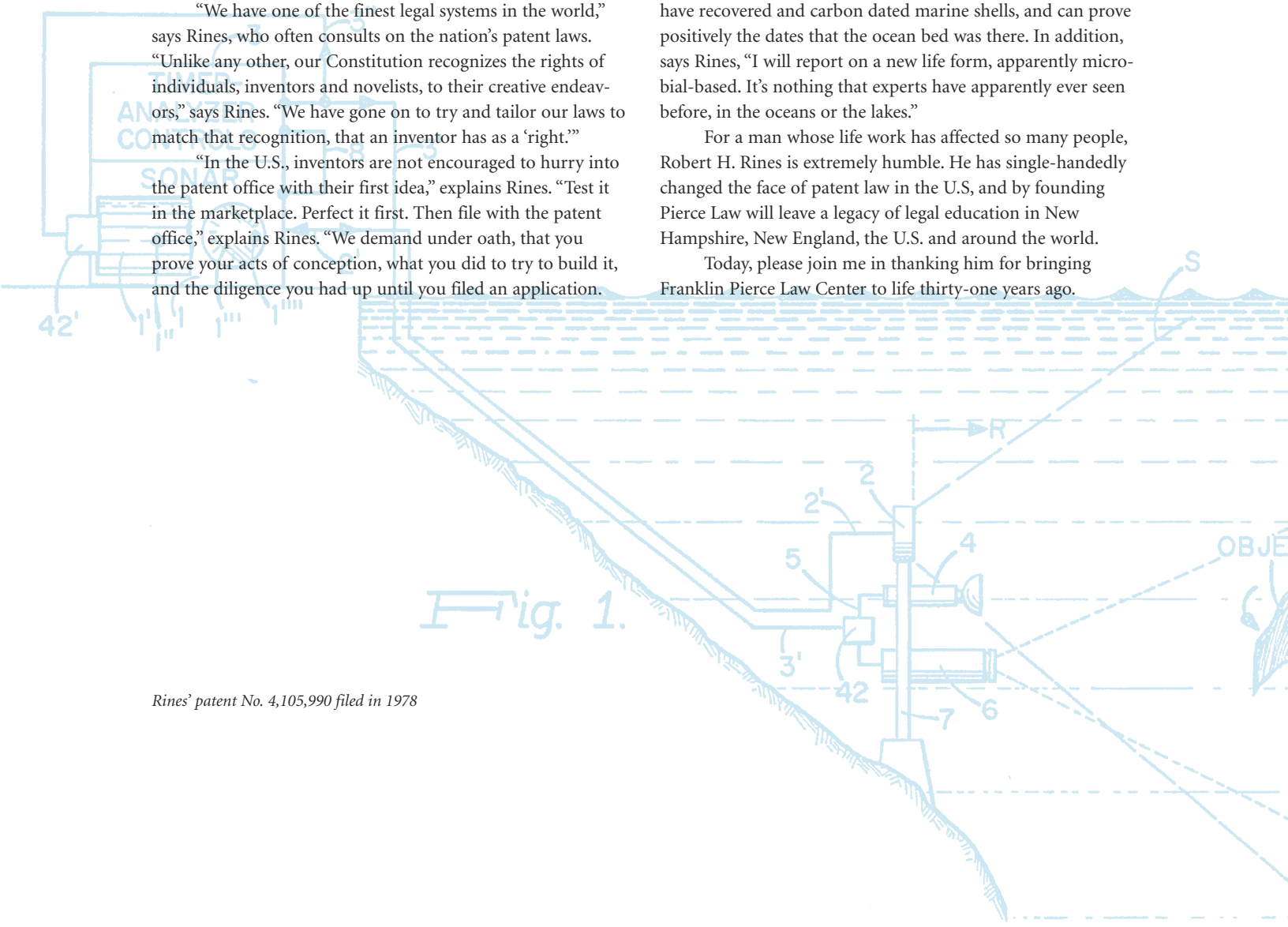
"While we have championed creativity and updated our legal system, our patent system may still, however, be outmoded," believes Rines. "But the legal system is slow to change. At some point, someone will stand back and say, 'Can we invent another way of balancing incentive, balancing risk taking of innovation, and teaching the art so that others can use and improve on it too?'"

Rines' desire to invent, to improve life for others, and to give back to society remains unchanged, despite his many accomplishments. After accepting his honorary degree at Pierce Law's commencement, Rines traveled to Las Vegas to deliver a paper to the Scientific Exploration Society of America on his most recent discovery, a new life form.

"We have now found proof positive that there was an ocean bed below Loch Ness in Scotland," says Rines, "and we have recovered and carbon dated marine shells, and can prove positively the dates that the ocean bed was there. In addition, says Rines, "I will report on a new life form, apparently microbial-based. It's nothing that experts have apparently ever seen before, in the oceans or the lakes."

For a man whose life work has affected so many people, Robert H. Rines is extremely humble. He has single-handedly changed the face of patent law in the U.S, and by founding Pierce Law will leave a legacy of legal education in New Hampshire, New England, the U.S. and around the world.

Today, please join me in thanking him for bringing Franklin Pierce Law Center to life thirty-one years ago.



Rines' patent No. 4,105,990 filed in 1978