

The Big Idea

Q How can one get today's students to connect with historic texts?

A Let them fly over the pages of a 1,300-year-old manuscript in virtual reality.

BY ANNE BARAJAS HARP

It is almost dizzying. The camera descends and picks up speed, skimming and spinning across a magnified page, floating among whorls so rich in color and lavish in their intricacy that it seems impossible they were wrought by the hand of monks 1,300 years ago.

This otherworldly exploration of the St. Chad Gospels — a holy book written seven centuries before the printing press — is helping to bring what Bill Endres calls “our generation’s Gutenberg innovation” to University of Oklahoma students and the world.

Endres is an assistant professor of English who studies early Christian texts to learn how their images were interpreted. He is among a handful of scholars using such digital technologies as 3-D photography and virtual reality to document and share ancient manuscripts that previously had been available only to those lucky enough to stand in their presence.

“In their day, medieval manuscripts were the latest technology. The first time people saw them they were in total awe of the colors and the decoration,” he says. “These images are very dynamic in their own right, kind of like the IMAX Theatre of their day.”

Dating from between 730 and 750 A.D., the St. Chad Gospels are nearly a century older than the famed Book of Kells. Endres says the gospels’ vellum pages were created from the hides of some 175 cattle and encased by a cover of precious

metals and jewels before the book was stolen, likely by Vikings. The gospels were returned to their home at Litchfield Cathedral in the English Midlands by the year 980.

Endres relates that the St. Chad Gospels also represent a breakthrough in creative methods. “The artists used techniques that hadn’t been done previously,” he says. “It is the oldest manuscript we have that features layered pigments before the Book of Kells.”

While studying the Book of Kells, Endres realized he had to meet its predecessor. “To ask the questions that I want, I need prolonged access to study manuscripts and the ability to recover damaged text and imagery,” he says. But prolonged access to delicate manuscripts opens the door to further damage. And there was no facsimile of the Chad Gospels, only black-and-white photos shot during the previous 120 years.

That was when Endres — whose former career in the sciences took him on such adventures as working in Antarctica and remote-testing the

Mars Rover underwater — saw an opportunity to use technologies he’d learned to bring the St. Chad Gospels into the groundbreaking era of the digital humanities.

With the enthusiastic blessing and help of cathedral staff, community volunteers and a conservator from the British Museum, he spent two weeks capturing 3-D photographs, Reflectance Transformation Images and multispectral visual-





ization of the gospels' 236 folios. He since has worked hundreds of hours to edit and compile the images, which may include the first 3-D photos ever taken of an ancient manuscript.

Endres' multispectral work has provided the cathedral staff with detailed proof of areas where pigments in the St. Chad's Gospels are at risk of breaking away and even revealed faded text that had been lost to history. His Reflectance Transformation Imaging

also offered the best view of a mystery going back to the 1200s involving the names of three women etched into the manuscript's margins without ink. "It's intentional that these women placed their names there, and I think it's probably evidence that women worked in the scriptorium," he says.

Perhaps most significant, Endres' 3-D images have made it possible for people worldwide to experience the St. Chad Gospels both as they were meant to be and in ways that the manuscript's creators could never have dreamt.

"If I go see a manuscript, I'm going to pick it up, I'm going to open it, I can look at it from a number of angles," he says. "I have always found 2-D images limited because we can't engage things in the same way. They hide the fact that a page is three-dimensional; a manuscript page is rarely flat. 3-D represents a manuscript more dynamically and completely."

Endres, who is writing a book about digitizing manuscripts,

underlined his belief by creating a website featuring the soaring 3-D video of the St. Chad Gospels. He also was eager to foster a partnership with Matt Cook, emerging technology librarian for University Libraries.

Endres was intrigued by software Cook and his colleagues developed that allows students and faculty to work independently or to network by using eight virtual reality stations dotted across OU's Norman campus. Cook's staff also can help anyone learn to turn objects into 3-D computer models that can be imported into virtual reality.

"The sky is the limit," Cook says. "In the case of the St. Chad Gospels, you can blow up the scale so that students and Bill can essentially walk along the manuscript pages as if it were a landscape. Unlike reading the page of a textbook or seeing a video, you can lean in – literally – to get a closer look at an object as if it were in front of you in the physical environment."

Endres and Cook took their collaboration to an international digital humanities conference in 2016. There, Endres confirmed his conviction that OU is on the leading edge of enriching education through virtual reality.

"The mind and body operate in a much more cohesive way than we have actually paid attention to in the past. Virtual reality is a way of breaking that down," he says. "It gives the same sense of awe that people would have had in medieval times when looking at a manuscript."

"These manuscripts have always been about the human sense of wonder," Endres says. "And to bring that wonder into the classroom is literally the hallmark of education in inspiring students."

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