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2010 Research at Andrews

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their differences modify the point of the story. “These differences illustrate for us how, over time, modifications slipped in to the New Testament, changing subtly the meaning of the story,” he explains. “Our greatest interest is in getting at the original text the Apostles wrote, but it is also quite interesting to see how story modifications illustrate for us the theological development of the church through revised manuscripts.”

Shepherd’s study of the ending of Mark looked at two very different manuscripts. Codex Vaticanus has a text that ends at Mark 16:8 with the women fleeing from the tomb and telling no one because of fear. Analyzing this story, Shepherd found that its point was a call to mission: “The story can’t end like that! What are you going to do to spread the word?” Codex Washingtonianus on the other hand, has a much longer ending, including a paragraph not found in any other existing manuscript. It seems to emphasize both the power of the risen and ascended Lord and the role of church leaders as His emissaries in spreading the Gospel.

The conference in Belgium addressed the topic of resurrection from the dead in a variety of texts including the Gospels, the writings of Paul, the General Epistles, the Hebrew Bible, and Jewish and Christian apocalyptic literature. Jacques Doukhann, professor of Hebrew and Old Testament Exegesis in the Seminary, also presented a paper at the conference. His paper dealt with the resurrection in the book of Daniel. According to Shepherd, the feedback from other scholars provides invaluable help in strengthening the paper.

Shepherd’s research interest in the Gospel of Mark began during his PhD studies at the Theological Seminary in a class taught by Robert Johnston. In the class, Johnston described a storytelling technique in the Gospel of Mark known as intercalation or “sandwich stories” where one story interrupts the telling of another story. Shepherd was intrigued and when it came time to choose a dissertation topic he decided to study these stories and try to explain their function. He found they utilized dramatic irony to teach truths about Christology and discipleship.

Several years later, he noticed that the national meetings of the Society of Biblical Literature did not have a study group focusing attention on the Gospel of Mark, although there were study groups for Matthew, Luke and John. “I’m a guy who likes to organize things,” he says, “and I saw a chance to get involved.” He gathered a group of well-known Biblical scholars who agreed to study the book of Mark. They eventually became the Mark Group in the Society of Biblical Literature. Shepherd has been involved with this study group for about 13 years. This process of continually finding new opportunities has taught him the vital importance of networking.

Shepherd believes that more experienced scholars should mentor younger scholars in research projects. “Out of the networking and collaboration come more opportunities for research,” he says. Andrews students have assisted him in his preliminary research and he encourages them to submit papers for review and publication in scholarly journals.

Shepherd is currently working on a popular book tentatively titled “Inside Out Upside Down: Surprising Lessons from 1st and 2nd Peter.” The inspiration for the book stems from a class on these two Epistles that he teaches at the Seminary. He hopes to have the book finished this fall and released next year.

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**Biosensor Technology**

*Detecting viruses and genetic disorders*

“Engineers are the people who connect science and society,” says Hyun Kwon, assistant professor of engineering and technology, as she describes the philosophy of her current research. The discoveries biologists make have practical and beneficial applications in human life, but how does that knowledge become tangible and helpful? One application in this interdisciplinary approach is the field of biosensor technology. Biosensors use living organisms or organic molecules to detect the presence of any given substance. Kwon and her team of students are currently working on a biosensor that will detect viruses and genetic disorders from a small sample of human fluids.

Currently, this process often requires many complicated and time-consuming lab tests. A biosensor of the type Kwon’s team is developing could make testing for viruses or disorders as simple as a tool touched to a small sample from the patient. The team is currently running tests on consistently smaller concentrations, in order to see accurate results in the smallest possible samples. The science behind this technology relies on the properties of the protein calmodulin, which controls many biological functions by binding to hundreds of other proteins. Calmodulin “changes its configuration depending on the presence of Ca²⁺,” as a recent research presentation states. In Kwon’s research, calmodulin molecules are placed on a quartz crystal disk and can indicate abnormalities in the bloodstream or genes.

Together with researchers at the University of Maryland-Baltimore and the University of Notre Dame, she hopes to make an already-tiny device even smaller. Utilizing Notre Dame’s nanotechnology laboratory, she envisions biosensor technology being developed at the ultra-microscopic level. In addition to shrinking the size of the device, she intends to reduce the amount of sample needed to obtain accurate results.

Kwon’s student assistants are primarily senior undergraduate students, with one notable exception: Michael Hernandez, an incoming freshman from Andrews Academy, who recently began working on the project. He believes that the project will give him “a headstart into the next year,” when he plans to enter the mechanical engineering program. “I plan on learning a lot,” he says. Sandra Prieto, a graduate engineering student, is currently working as a lab assistant on the project. She “helps with the solutions and experiments,” but will also learn “how to read and interpret the data,” she says.