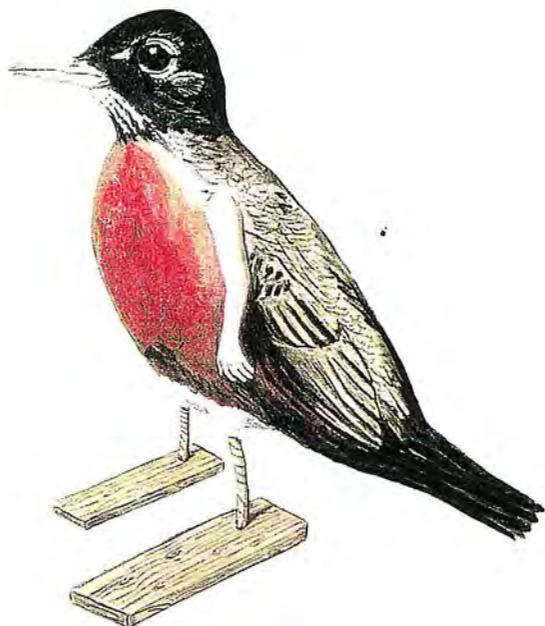


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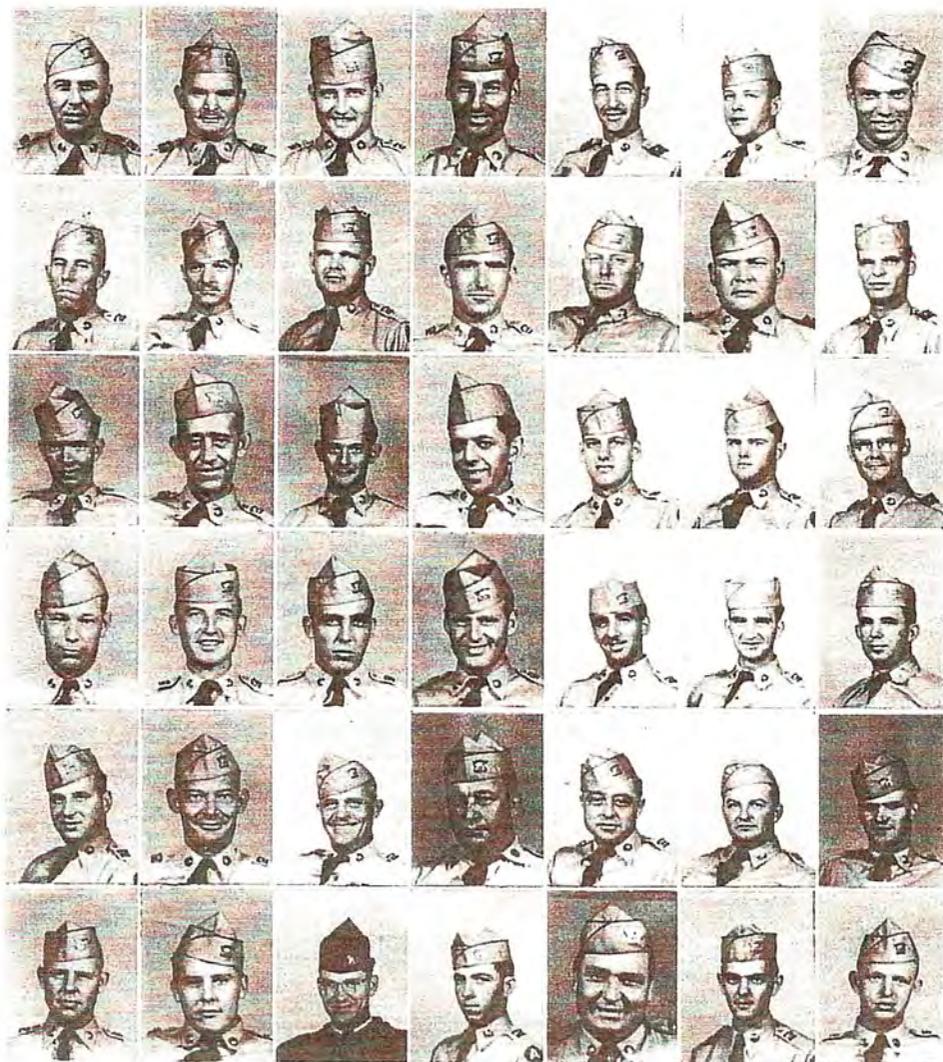


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SHORTER STORIES

BY VARIOUS AUTHORS



IN A LITTLE VALLEY IN WEST JERUSALEM

by JOSHUAH BEARMAN



In a little valley in West Jerusalem, flanked by sporadic hills and pockets of Mediterranean cypress, not far from the Knesset and other Israeli civic buildings, sits a giant cement Hershey's Kiss—the Shrine of the Book, whose side entrance leads down to a climate-controlled facility that houses the largest of the fragile fragments of animal skin and dried ink that comprise the Dead Sea Scrolls. The dome is symbolic—it represents the lids of the clay jars in which the Dead Sea Scrolls were stored for nearly two thousand years until a Bedouin shepherd happened upon their dusty hiding place in 1948—but it also serves as a defensive structure, to protect the oldest extant biblical manuscripts in case of an air attack.

In one of the facility's many small, partially underground rooms, a group of people is huddled around a set of computers that are attached with dozens of cables to electro-optical devices, filters, and digital cameras. A slovenly photographer with meandering eyebrows fiddles with equipment, several biblical scholars peer over each others' shoulders to get a glimpse of the screen, and a physicist sits at the terminal, banging the mouse on the desk when things don't move fast enough. A cable falls out and the screen goes blank—"Jesus Christ on a crutch!" The physicist shakes the monitor. "Let's get it back up," he grumbles.

A few months earlier, the physicist assembled a similar setup in Los Angeles to test his equipment on a tiny fragment from the Scrolls that had been blackened by either age, air, fire, or moisture. Its digital image was about ten times its actual size, but still illegible: it looked like a strangely shaped burnt crust of bread. At that point, no one was sure if the piece ever contained text. The physicist pulled up some menus with different digital filters and imaging adjustments. A few attempts yielded no change; then he came upon the right filter—the fragment turned white and several streaks of black ink stood out boldly across the vellum: K'tav M'Lay Noah, or as an attending scholar quickly translated, He wrote the words of Noah.

In Jerusalem, a larger piece of the Scroll fills the screen—column 12 of the Genesis Apocryphon—and as the physicist filters the image and brings an entire page of long-observed text into view, the biblical scholars eagerly begin scribbling in their books, correcting decades of speculative transcription.

continued...

MUCH LATER:
A CONVERSATION BETWEEN FATHER AND SON,
PHYSICIST AND STUDENT

ME: Hello?

DAD: Joshua?

ME: Yes.

DAD: You need to change your answering machine. Immediately.

ME: Why? What's—

DAD: I called you last night and left a message. It is childish and unprofessional.

ME: But it's my home number.

DAD: It doesn't matter. It's absurd. What if some diplomat or whatever returns your call for an interview and gets the machine?

ME: Honestly, I don't even remember what it says. And I can't figure out how to change it. Something happened to the manual for the phone, and—

DAD: There's no defense. Find the manual and change it.

ME: Listen, I'll change it, but can we get to the interview?

DAD: Don't forget to change that thing.

ME: Okay. Since you're a nuclear physicist—

DAD: I'm not a nuclear physicist. Jesus, my own family doesn't know what I do.

ME: You're not?

DAD: No.

ME: Well, that's what I've always told people. And this is the first time I've heard otherwise. So what type of physicist are you then?

DAD: Is this a question?

ME: Yes.

DAD: Then here's my answer. My graduate thesis was a combination of nuclear and atomic physics, but I never worked in that field again. All my work and publications thereafter were in what we call atomic and molecular physics. And for the past five or six years, I have been doing spectroscopy, imaging and instrumentation development. So I was at one time a nuclear physicist, but not anymore, and I never did particles and accelerators or any of that kind of stuff.

ME: Then I have been spreading misinformation about you, I guess.

DAD: Yes you have.

ME: Well, I want to ask you about your imaging work with the Dead Sea Scrolls, so first tell me about the technology incubator program.

DAD: In the early nineties the Cold War was over and many of the federal research laboratories had to find something to do. That was more for Los Alamos than it was for us, but there was a big push in all federally funded science programs to find dual use and commercial applications for the hundreds of gazillions of dollars we had spent in military research since the '40s. And now all the national laboratories have programs, with varying degrees of success, for commercializing and licensing the technologies they develop. I work in that office as well as on my own projects.

ME: So your imaging work with the Dead Sea Scrolls, that was a dual use technology, applying research originating at NASA to commercial applications?

DAD: That's right. Most technologies are dual use—that is, you can always find something else to do with it. In this case, there was a technology developed for use in spacecraft, and we found a very interesting academic use for it.

ME: You used imaging spectroscopy to read parts of the Scrolls that were illegible for various reasons?

DAD: That's correct. Imaging spectroscopy is a form of remote sensing. There are all different types of remote sensing, a Landsat Satellite, for example, does remote sensing, and—

ME: Hold on. You have to describe remote sensing.

DAD: Remote sensing means getting information about something without touching it. You are investigating something with radar, bouncing photons or other particles off it. As opposed to in situ, where you are physically manipulating the thing you want to know more about. You can scoop something up, heat it, expose it to

chemicals, and this can tell you something about it. Imaging spectroscopy, in particular has a lot of uses, because it combines imaging—as in cameras, film, and two-dimensional maps—with spectroscopy, which gives you extra information about what is going on in the images.

ME: And what's that extra information—the spectral element?

DAD: Every element, that is periodic element, has a unique spectrum, and if you measure the spectrum you can tell them apart. And this is also true for chemicals, compounds, and the little bits of ink that take on great meaning when they are letters or words in an ancient manuscript. So you can use the spectra to look at those bits of ink and distinguish them from plain old blackened parchment, even if they can not be discerned with the naked eye.

ME: So then what distinguishes your work with the Dead Sea Scrolls from infrared photography?

DAD: A couple of things. People have always known, since the development of infrared film in the 1930s, that it's a good idea to use it on old documents and manuscripts. Sometimes it worked, and sometimes it didn't. We investigated the underlying physics, and asked why infrared photography had mixed results. Earlier attempts were always on film. With digital imaging and spectroscopy we discovered why infrared film sometimes shows you nothing. It's because different inks, or different types of vellum, or different exposure to sun causes the ink to reflect light at different wavelengths. That's why infrared photography only works sometimes, because it looks only at one wavelength, and if its not the right one, you don't see anything. And it turned out that digital imaging is easier to apply, the images are better, and it is much cheaper.

ME: So the spectrometer reads the image at different wavelengths?

DAD: Right. Instead of taking one image like a film camera, it takes maybe a hundred images, each at different wavelengths. Each pixel is then represented as a function of wavelength—with its spectrum. You get what we call an image cube. It is a three-dimensional compilation of the spectrometer's multiple images.

ME: So you stack all the images on top of each other and by looking at the spectrum of each pixel, the same spot on the images through a hundred different wavelengths, you are able to see something that would not be discernible in any one image?

DAD: That's correct. You get a picture that is not there at any single wavelength.

The individual frames alone are kind of content-less.

ME: And so what were the first words to come out of the spectrometer?

DAD: He wrote the words of Noah. That was what we found on the proof test with a small fragment that was here in the United States, and then we went to Jerusalem the following summer to work on the rest of the Dead Sea Scrolls. Uh-oh. I have another call. Can you call me back, later, actually tomorrow, at home, since I realized I have to be somewhere in a half hour?

ME: Sure.

[The next day]

DAD: Hello?

ME: Hi.

DAD: I can't hear you; I have soil in my ears.

ME: Then why did you answer the phone?

DAD: Call me back in five minutes.

[A few minutes later]

DAD: Sorry. I was gardening; I had my gloves on, and the dog was jumping.

ME: Ok, we left off where you went to Jerusalem. Which scrolls did you examine?

DAD: Primarily the Genesis Apocryphon. Before we looked at it, there were about a thousand words, when we were done, you could see maybe twelve hundred. This was a substantial improvement. It's a small scroll, twenty-two columns. And it's also regarded as one of the worst, if not the worst scroll for legibility. It is in real sad shape.

ME: What is the Genesis Apocryphon about?

DAD: Well, the Apocrypha are the non-canonical books—in other words, the books that are not regarded as being part of the Scripture. So they're really extra details about various biblical characters and stories.

ME: Like Jeroboam likes a nice “Tall and Foamy” after a day of pressing olives?

DAD: Wrong book, schlemiel. Jeroboam shows up much later. The Bible is very sparse. You don't get much information on a lot of the characters. It's like listening to one end of a very slow phone conversation. So the Genesis Apocryphon offers apocryphal information about the things that go on in Genesis. You have stories about Noah, his father, Noah's wife, Noah's third cousin, etc.

ME: And were there any striking revelations about the texts?

DAD: No. There's nothing in any of the Dead Sea Scrolls that will affect anyone's current religious beliefs.

ME: But what about Jonas Greenfield, one of the biblical scholars working on this document with you—didn't he die in his sleep shortly after deciphering the extra words your spectroscopy uncovered?

DAD: No, no, no. He didn't die in his sleep—well, he died of a heart attack, but I don't think it was in his sleep.

ME: Well, asleep or awake, maybe you found a curse in there.

DAD: No, it wasn't a curse. Don't be a moron.

ME: The Curse of the Genesis Apocryphon.

DAD: Come on.

ME: You're not worried about the Curse?

DAD: There is no curse.

ME: Another question occurs to me. Capitalizing on your development of dual usage for infrared technology, have you ever thought about working up some x-ray Specs? It could be pretty lucrative.

DAD: You mean, like the Amazing Mr. Peepers or something?

ME: Exactly.

DAD: You can't make x-ray goggles. X-rays look through things, not beneath things, and besides you need an x-ray source, so the whole notion of x-ray goggles, however titillating it is—and I suppose I do agree it's titillating—is unfortunately a fallacy.

ME: So it's fanciful.

DAD: Beyond fanciful.

ME: Since your work with the Dead Sea Scrolls, you have been asked to image other documents, like the Magna Carta.

DAD: Yes. You can find all sorts of things in the margins of pre-Gutenberg documents. The British Museum contacted us, but we could not do it because of scheduling conflicts. But we might do some Buddhist documents this summer.

ME: Besides old documents, you have also been developing bio-medical applications of this technology?

DAD: If you can get text of old manuscripts, you can also use imaging to differentiate dangerous melanomas, or any type of cancer for that matter, from healthy tissue. So people are very interested in this, and the research actually pays, as opposed to poking around manuscripts.

ME: So that's the next frontier.

DAD: Yes. We are doing some work with the researchers at Cedars Sinai. Since early detection is the most important means of treating cancer, spectroscopy could be very helpful. By the time you can see tumors with the naked eye or feel them manually they might have already metastasized, at which point treatment becomes more complicated and survival rates drop. So just like you can see black ink on black parchment, you can use imaging to see tiny malignant cells. And in the case of looking for cancerous polyps on your prostate, a thin fiber optic device might be more comfortable than groping fingers up your ass.

ME: I see. I want to get back to artifacts for my last question. Which is, what about imaging the Shroud of Turin?

DAD: Actually, I did get a call from them, or some TV station that wanted to do a special on it. I declined.

ME: You didn't want to reveal the Secrets of the Shroud?

DAD: No. First off, it doesn't matter what we find. The true believers will believe the Shroud bears the likeness of Jesus no matter what, even if our imaging revealed a note on the bottom that says, "Made in Singapore."

ME: Fair enough. And what about the Shroud of Tustin, have you had any invitations to image that?

DAD: The what?

ME: The shroud of Tustin.

DAD: In Tustin?

ME: Right.

DAD: Where the air force base used to be?

ME: That's the place.

DAD: No.

ME: Have you heard about the Shroud of Tustin?

DAD: No.

ME: Do you want to hear about it?

DAD: No.

ME: An image of Jesus appeared on the Miracle Shammy at the Tustin Junction car wash.

DAD: ...

ME: Hello?

DAD: Next question.

ME: I guess that's it.

DAD: All right. See you in December.

