

There is an old New Yorker cartoon that I keep near my desk at home in a little frame that Debbie and I bought for it years ago. A middle-aged man and woman are sitting in a nice, tidy living room, the woman on a sofa, the man on an easy chair across the room. The woman is just looking up from a magazine she has been reading ; the man has a look of mild distress on his face. One of them is saying to the other — and it is decidedly unclear which one is speaking and which one is listening — one of them is saying to the other, "I'm sorry, dear. I wasn't listening. Could you repeat everything you've said to me since we were married?" [Here's a nice enlargement of the cartoon. I'll leave it up here for anyone who wants to take a closer look later on.]

The cartoon makes me laugh a little every time I look at it; it also makes me want to cry a little, as a perfect summary of what is so

difficult about our relationships, and what is so difficult and important about Yom Kippur. Sins, misdeeds, shortcomings, whatever we want to call them — these are not the things that are difficult to atone for. We did them, we acknowledge them, we apologize for them, and, particularly in this self-forgiving time of ours, we move on from them. The vast majority of us are guilty of nothing so terrible. There are no villains, thieves, or scoundrels among us, just folks who are sharp with each other sometimes, who gossip sometimes, who are arrogant sometimes. At Yom Kippur and throughout the year we acknowledge, we apologize, and we move on.

We are here in such solemn assembly this morning not because of these concrete and less than terrible misdeeds. No, we are here today because we feel like the couple in the cartoon, not

really guilty of anything in particular, but nevertheless all twisted and folded up inside, mysteriously alienated and isolated from the people to whom we should feel closest. Most likely, this alienation started innocently, though perhaps years and years ago. Just a momentary lapse of attention, or a remark that came out a more harshly than it was intended, or a compliment that remained undelivered. Which made the next compliment sound hollow and insincere; which made the next remark sound even more critical; which turned the next lapse of attention into a pattern rather than an exception. And presto! — before we know what has happened we are folded into a million tiny little pieces; we are tied into a million tiny little knots. And unfolding, untangling, feels like we would have to go back to the very, very beginning, but who has the time or energy to do that? To really, really get straight with our spouse or partner, we would have to

go all the way back to the first time we didn't listen. To really, really get straight with our children, we would have to go all the way back to the first time we grew impatient with them. To really, really get straight with our parents, we would have to go all the way back to the very first time we were dismissive of them. And let's face it — none of these things are likely to happen. Who even remembers anymore?

So — what? We are doomed to isolation and alienation? We certainly hope not. And sure enough, though somewhat strangely, it is the science of physics that comes to our rescue. It turns out — who knew — that there is an active field of scientific research into the dynamics of crumpling, as in the way a sheet of paper crumples, flattens out, and crumples again.

[demonstrate]

Understanding this dynamic is important in fields as disparate as genetics, in which DNA molecules are crumpled into a cell nucleus; to space exploration, where it is important to pack the largest possible flexible solar panel into a small satellite in such a way as to unfurl smoothly in orbital microgravity. Our intuitive understanding of how things crumple is that it is very chaotic — we don't expect there to be a way to predict from how the paper looks right now, what it would look like after even one more crumple:

[demonstrate]

But a graduate student at Harvard — a Jewish graduate student named Omer Gottesman — decided to tease out what he called “a state variable for crumpled thin sheets,” - that is, some kind of

variable, equation, or mathematical proof that predicted what would happen at the next crumple. I infer that the now Doctor Gottesman is Jewish not because of his name, but because of the named he gave to the apparatus he devised to apply consistent crumpling to thin sheets of paper. He called it his "Kvetch Machine," after the Yiddish word that commonly translated as "complain," though the root actually means to squeeze or to press. Dr. Gottesman's machine would "kvetch" pieces of paper, and he would try to figure out what they would look like after subsequent "kvetches." He noted in the article reporting his study that he kvetched certain pieces of paper up to seventy times each, though admitting that after just four or five kvetches it was awfully hard to discern the difference between one kvetch and another. If you ever been stuck in a room with a real kvetcher, you would certainly agree with that proposition.

Anyway, Dr. Gottesman sat hunched over his Kvetch Machine for many long hours, analyzing such quantities as the range of individual crease lengths, the distance between creases, the largest patches without creases, the sharpness of the creases, the amount of energy required to produce successive kvetches, all for naught. Not until he scanned his thoroughly kvetched sheets into a computer that measured the summed length of every crease line. This was the "eureka" moment. The total length of creases increased with each successive kvetch by a smoothly and predictably varying factor. All that is needed to predict the paper's state after the next kvetch is the total length of the creases it holds right now. In other words, you don't have to go all the way back to the first kvetch — or all the way back to when you were first married, first had kids, first got fed up with your parents.

It's not just me, by the way, who sees the philosophical and theological implications of this investigation into kvetching. Dr. Shmuel Rubinstein is a physicist at Harvard who supervised the work of the young Dr. Gottesman. He noted that in materials science and engineering, "we are looking at how damage and defects are accumulating ... When will something break? How will it break? These are the most uncertain statistical things in nature. We are helpless against them," he writes. But at least for crumpled paper, it seems that we can make meaningful predictions.

Now let's think about those words a bit more: "we are looking at how damage and defects are accumulating... When will something break? How will it break?" As in materials science, so,

too, in human relations; so, too, at Yom Kippur — we are looking at how damage and defects accumulate in our relationships. But in order to understand and rectify our relationships, we do not have to go back to the beginning of the world. Whether it was the husband or the wife in the cartoon who asked to replay the entire marriage, all he or she had to say is “I'm listening now.” All we have to say to our loving partners, to our children, to our parents, to ourselves, is not “let's go back to the very beginning,” but simply, “I'm listening now.”

Dr. Rubinstein the scientist actually said it better than Michael Joseph the rabbi. “We [think of ourselves as] such a strong function of our history,” he writes, “our personal history, global history, whatnot. It is [very hard] for us to accept that our future really only depends on our current state of mind, and not how it

developed, how we got to this point...Finding out that we don't need to know every detail about the evolution of a complex system is a pretty big deal."

So we are here today because we feel all folded up inside, or filled with a million tiny little knots. To really get straight, however, we don't have to unfold or untie everything since the beginning of the world. All we have to do is start listening now. Amen.