So, I was attracted to knots. I went to Whitehead and said, I want to do a PhD with you, please give me a problem. But not just any problem; please, give me an open problem in knot theory. And he did; he gave me a famous, very difficult problem—the "asphericity" of knots—that had been open for twenty-five years and had defied the most concerted attempts to solve.

Though I did not solve that problem, I did solve a special case. The complete statement of my result is not easy to formulate for a layman, but it does have an interesting implication that even a schoolchild can understand and that had not been known before my work: alternating knots do not "come apart," cannot be separated.

So, I had accomplished my objective—done something that

- *(i) is the answer to a "natural" question,*
- *(ii) is easy to formulate,*
- *(iii) has a deep, difficult proof,*
- *(iv) is absolutely useless, the purest of pure mathematics.*

It was in the fall of 1954 that I got the crucial idea that was the key to proving my result. The thesis was published in the Annals of Mathematics in 1956; but the proof was essentially in place in the fall of 1954. Shortly thereafter, my research interests turned from knot theory to the areas that have occupied me to this day.

That's Act I of the story. And now, the curtain rises on Act II—fifty years later, almost to the day. It's 10 p.m., and the phone rings in my home. My grandson Yakov Rosen is on the line. Yakov is in his second year of medical school. "Grandpa," he says, "can I pick your brain? We are studying knots. I don't understand the material, and think that our lecturer doesn't understand it either. For example, could you explain to me what, exactly, are 'linking numbers'?" "Why are you studying knots?" I ask; "what do knots have to do with medicine?" "Well," says Yakov, "sometimes the DNA in a cell gets knotted up. Depending on the characteristics of the knot, this may lead to cancer. So, we have to understand knots."

I was completely bowled over. Fifty years later, the "absolutely useless"—the "purest of the pure"—is taught in the second year of medical school, and my grandson is studying it. I invited Yakov to come over, and told him about knots, and linking numbers, and my thesis.

[From S. Hart, "An interview with Robert Aumann", Macroeconomics Dynamics 9 (2005), 683-740]