

YOU AND YOUR RESEARCH

Stealing inspiration from Great Scientists

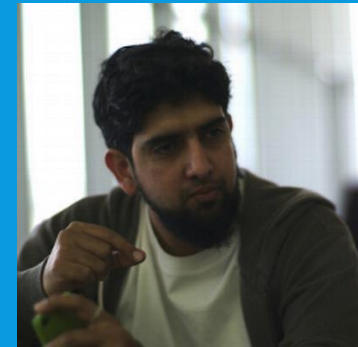
WHOAMI

- ox5A1F (@saif_sherei)
- Senior Security Software Engineer @MSRC.



WHAT IS THIS TALK ABOUT

- Haroon Meer Founder of Thinkst, huge influence on me personally and professionally.
- This talk is a debut, to some the concepts that he introduced me too.



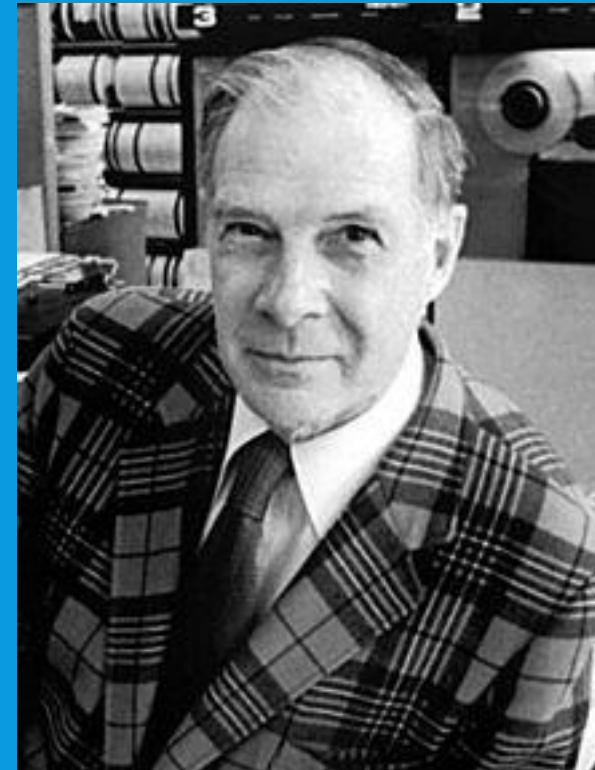
@Haroonmeer

THE BEGINNING

Richard Hamming

``You and Your Research''

Transcription of the
Bell Communications Research Colloquium Seminar
7 March 1986



WHY DR HAMMING

“I saw I was a stooge. I saw that although physically I was the same, they were different. And to put the thing bluntly, I was envious.”

WHY IS THIS TALK IMPORTANT ?

“I think it is important because, as far as I know, each of us has one life to live. Even if you believe in reincarnation it doesn't do you any good from one life to the next! Why shouldn't you do significant things in this one life”

LUCK !!

“Let me start not logically, but psychologically. I find that the major objection is that people think great science is done by luck.”

“ I claim that luck will not cover everything. ”

“Luck favors the prepared mind.”
Pasteur.

BRAINS

“Most of you in this room probably have more than enough brains to do first-class work. But great work is something else than mere brains.”

COURAGE

“They had independent thoughts and had the courage to pursue them”

“Once you get your courage up and believe that you can do important problems, then you can. If you think you can't, almost surely you are not going to. ”

ENCORE

“When you are famous it is hard to work on small problems. This is what did Shannon in. After information theory, what do you do for an encore?”

“great scientists often make this error. They fail to continue to plant the little acorns from which the mighty oak trees grow. ”

WORKING CONDITIONS

“What most people think are the best working conditions, are not. Very clearly they are not because people are often most productive when working conditions are bad.”

PERCEPTION

“What appears to be a fault, often, by a change of viewpoint, turns out to be one of the greatest assets you can have.”

DRIVE

“most great scientists have tremendous drive.”

“You would be surprised Hamming, how much you would know if you worked as hard as he did that many years.”

Bode

“Genius is 99% perspiration and 1% inspiration.”

Edison

AMBIGUITY

“Great scientists tolerate ambiguity very well. They believe the theory enough to go ahead; they doubt it enough to notice the errors and faults so they can step forward and create the new replacement theory.”

“If you believe too much you'll never notice the flaws; if you doubt too much you won't get started. It requires a lovely balance.”

COMMITMENT

“creativity comes out of your subconscious.”

“Well, we know very little about the subconscious; but one thing you are pretty well aware of is that your dreams also come out of your subconscious. And you're aware your dreams are, to a fair extent, a reworking of the experiences of the day. If you are deeply immersed and committed to a topic, day after day after day, your subconscious has nothing to do but work on your problem.”

IMPORTANT PROBLEMS

“What are the important problems of your field?”

“What important problems are you working on?”

“If what you are doing is not important, and if you don't think it is going to lead to something important, why are you working on it?”

“If you do not work on an important problem, it's unlikely you'll do important work.”

PERSONALITY TRAITS

“Most great scientists know many important problems. They have something between 10 and 20 important problems for which they are looking for an attack.”

“people who work with the door open or the door closed. I notice that if you have the door to your office closed, you get more work done today and tomorrow, and you are more productive than most. But 10 years later somehow you don't know quite know what problems are worth working on”

PERSONALITY TRAITS

“If I have seen further than others, it is because I've stood on the shoulders of giants.”

Newton

“These days we stand on each other's feet!”

“You should do your job in such a fashion that others can build on top of it, so they will indeed say, Yes, I've stood on so and so's shoulders and I saw further. The essence of science is cumulative”

IS THE EFFORT TO BE A GREAT SCIENTIST WORTH IT?

“The value is in the struggle more than it is in the result.”

“The struggle to make something of yourself seems to be worthwhile in itself. The success and fame are sort of dividends”

IN SUMMARY

Have the courage, drive, & commitment to go after important problems in your field.

“It is a poor workman who blames his tools - the good man gets on with the job, given what he's got, and gets the best answer he can.”

ENDING NOTE

Hamming claims that some of the reasons why so many people who have greatness within their grasp don't succeed are:

- they don't work on important problems,
- they don't become emotionally involved,
- they don't try and change what is difficult to some other situation which is easily done but is still important,
- and they keep giving themselves alibis why they don't. They keep saying that it is a matter of luck.

LINKS

- Richard Hamming - You And Your Research:
<http://www.cs.virginia.edu/~robins/YouAndYourResearch.html>
- Richard Hamming - You And Your Research Talk:
<https://www.youtube.com/watch?v=a1zDuOPkMSw>
- Haroon Meer - You and Your Research HITB 2012:
<https://conference.hitb.org/hitbsecconf2012kul/materials/D1T2%20-%20Haroon%20Meer%20-%20You%20and%20Your%20Research.pdf>
https://www.youtube.com/watch?v=JoVx_-bM8Tg