Righting the Wrong
and
What about the Future?
Frances Grundy
“Those who cannot remember the past, are condemned to repeat it.”

- Jorge Santayana 1905
Women Studying Computing at First Degree Level in UK

• 1980s: 12-15%
• 2020: 16%
• 2030: ?
The Foundations

• Science

• Engineering

• Mathematics
Thomas Vaughan
mid C17 alchemist

On men and women

“The soul of man consists chiefly of two Portions ... The superior is *Masculine* and *Eternall*, the inferior *Foeminine* and *Mortall*. ”
Francis Bacon
Philosopher (1561 – 1626) Developed scientific method

Nature - female   Her investigators - male

Science was to
“conquer”, “subdue”, “storm ... her castles and strongholds”

Men should make no scruple of
“entering and penetrating into these holes and corners, when the inquisition of truth is his whole object”.
“[W]here the Will, or Passion hath the casting voyce, the case of Truth is desperate. ... The Woman in us, still prosecutes a deceit, like that begun in the Garden: and our Understandings are wedded to an Eve, as fatal as the Mother of our miseries.”
This continues ....

• 18C  Berlin Academy of Sciences
• 20C  WWII Bletchley Park
  ‘Dilly’s fillies’
• 21C  *Brotopia*  *Breaking up the Boy’s Club of Silicon Valley*
  by Emily Chang (2019)
  About life for women working in Silicon Valley
Engineering

• Meanings and implications of: engineering and to engineer
  genetic and social engineering
  computer engineering

• Brotherhoods
  Social – bonding and humour
  Professional bodies

• But masculinist overtones are still too strong
Mathematics

• Computing owes much to mathematics post WWII
• Contributed to masculine image
• Influence on image less pervasive now
• Girls and women do *and* don’t like it
• History of reasons for teaching mathematics
• Still important and must be taught - but sensitively
What labels do we want?
Power
Michel Foucault
Philosopher (1926-1984)

“When I think of the mechanics of power I think of its capillary form of existence, of the extent to which power seeps into the very grain of individuals, reaches right into their bodies, permeates their gestures, their posture, what they say, how they learn to live and work with other people.”
Resisting Pressures

• Micro pressures
day-to-day resistance

• Macro pressures
resistance at the institutional level
Present Situation is Immoral

- Consistently low education and employment statistics for girls and women since 1950s
  - almost half population ignored
- A scandal
- Change in the bye-laws?
Dangers in Present Situation

• AI
  • ‘The Gender Gap in Computer Science Research Won’t Close for 100 Years’ NYTimes 2019
  • Systems for hiring, vetting CVs devised by self-defined groups
  • Reflect their predelictions, biases etc.
  • Amazon debacle for vetting CV’s - rejecting those including ‘women’ reported 2018

• Also facial recognition, robotics ....

• Could embed bias permanently
‘But this isn’t computing!’
Sacred Science

• Sandra Harding (1986)

“Why is it taboo to suggest that natural science ... is a social activity, a historically varying set of social practices?”

“To what other ‘community of natives’ would we give the final word about the causes, consequences, and social meanings of their own beliefs and institutions?”

She suggests that objections to studying science as a social activity make science special

• Science tends to hold itself above and beyond scrutiny
So we must scrutinise topics like AI

• Investigations into what’s happening in AI
  BCS priority
  Ethics Committee
  Strategy Board

• Goals look promising
  but will they identify past and present trends?
What is to be done?

• Be aware of image created
• Ethics committees to investigate and act
• More pressure on all education policies
  • all employment decisions
  • all projects
“Stop blaming everybody else for the problem or pretending that it is too hard for us to solve. It’s time to look in the mirror.”
FUTURE of the DISCIPLINE?

• Chang has many suggestions for employers to increase diversity

• Widening range of applications is bringing diversity to the subject matter ... could this help?

• Focus on the young

Three Bears panto getwiththeprogram.org.uk
scratch.mit.edu
girlswhocode.com .....
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