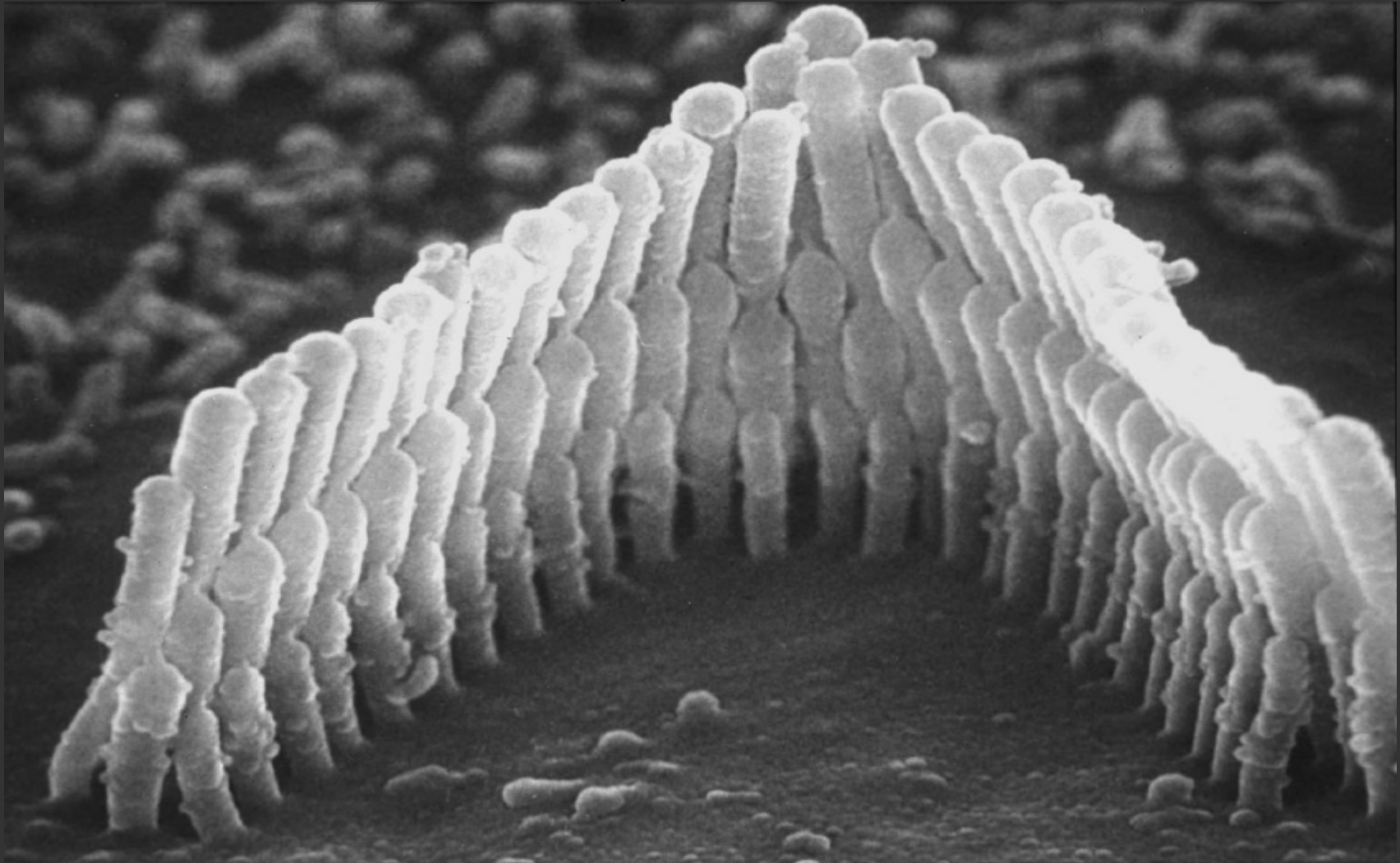


Managing Orchestral Noise

Madness, or Miracle?



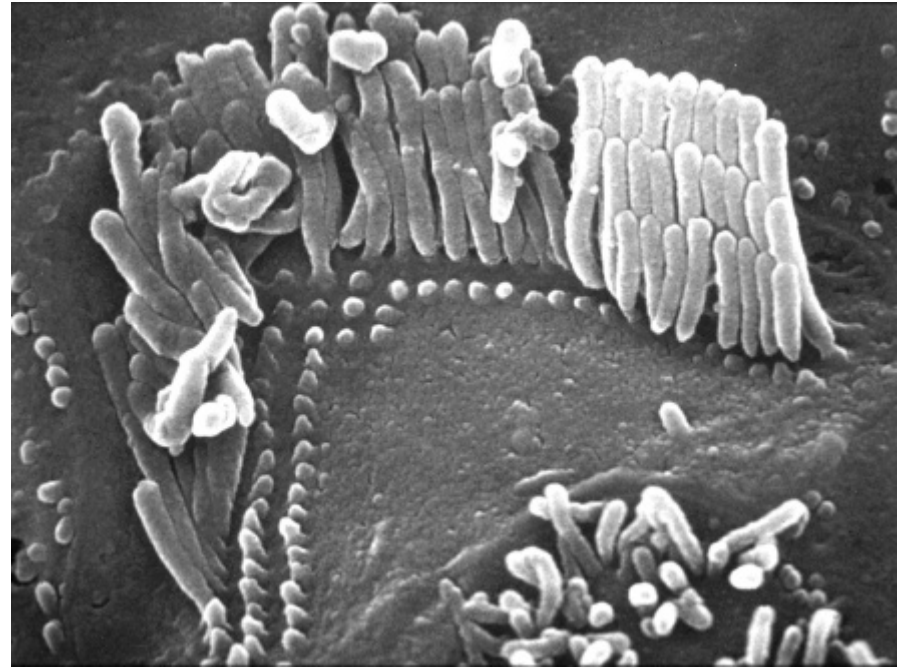
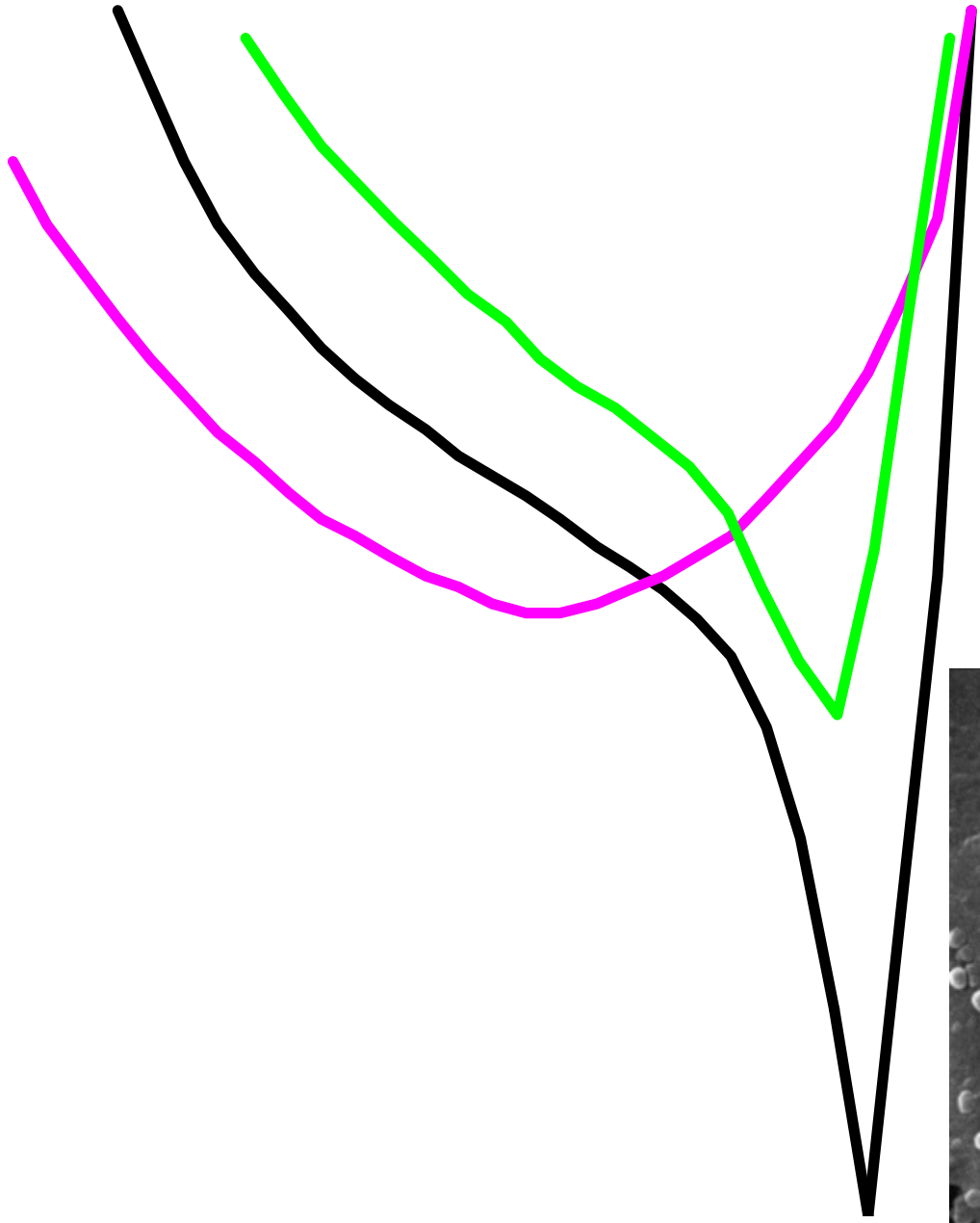
orchestral noise is not harmful

orchestral players are survivors

- loss of frequency selectivity
- recruitment
- psychological hyperacusis
- intensity : frequency confusion
- differential damage
- tinnitus
- musculoskeletal injury
- pain, anger, stress

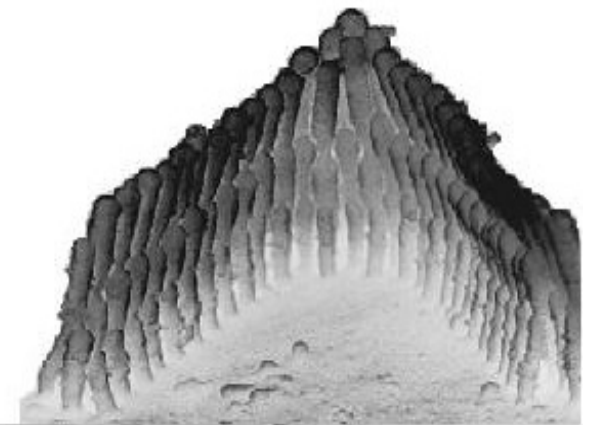
musicians are move severely affected by noise damage than are other workers





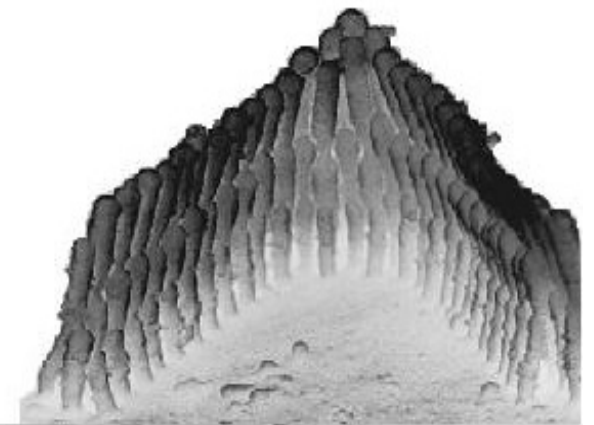
noise management challenges orchestral identity

- we make music, not noise
- any interference will damage the music
- we are a loud band
- we have first rate conductors
- players enjoy making loud music
- we do not want to believe that instruments have become louder
 - ease of playing
 - investment
- surely there are government grants



assessment of orchestral exposures is daunting

- every session differs
- every player differs
- every venue differs
- every conductor differs
- when we base assessment on measurements, we get the answer days after doing the work

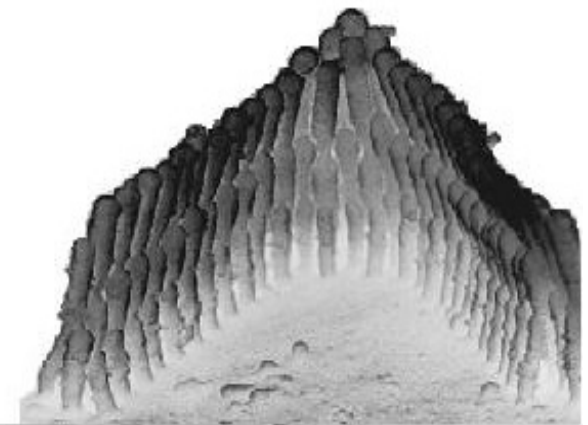


assess exposures by means of:

- observation of specific working practices
- reference to relevant information on the probable levels of noise corresponding to any equipment used in the particular working conditions
- if necessary, measurement of the level of noise to which his employees are likely to be exposed.

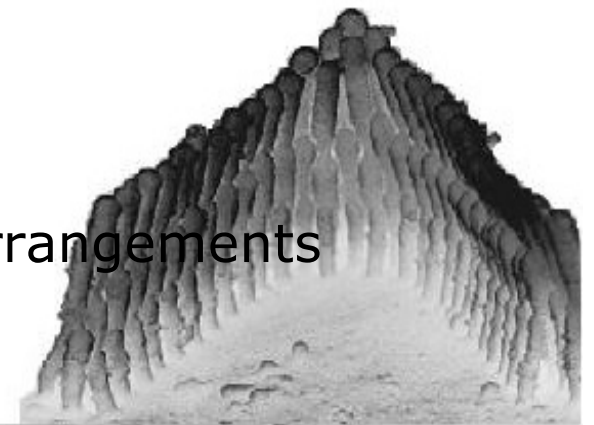
therefore:

- don't be paralysed by precision
- think it through in advance
- use whatever measurements you can get
- measure as it happens, and
- learn



co-operate and integrate

- leverage the orchestra's own expert knowledge
- add some noise competence
- create a group representing players, managers, stage staff, venue staff and others
- integrate noise considerations into the planning of each season
- interlink with other assessments – stress, musculo-skeletal risks [eg Glass], heights, emergencies, pyrotechnics, etc
- refine the detail of assessments as concerts, etc, approach
- identify what worked, or did not work
- monitor compliance and progress
- part of your health & safety policy and arrangements
- manage the process



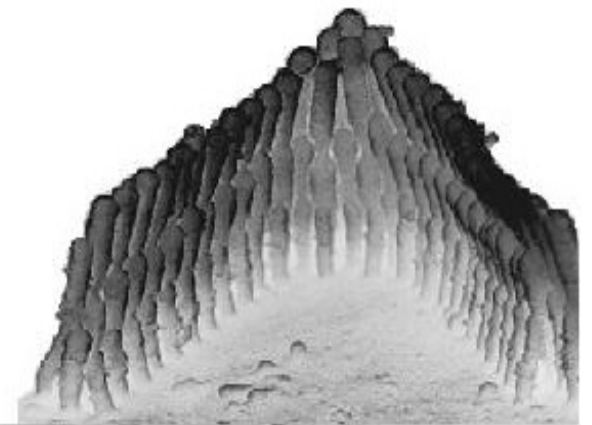
consider

- knowledge of the works to be played
 - how loud; how long; composer's style
- knowledge of the venue
 - acoustic; space; restrictions; resources
- any valid measurements
- analysis of the works
 - how energetic; extreme changes in dynamic; significant concentrations of energy; instruments that are masked
- knowledge of the individuals
 - conductor / soloists / principals
- feelings about the works
 - how painful / startling / unpleasant



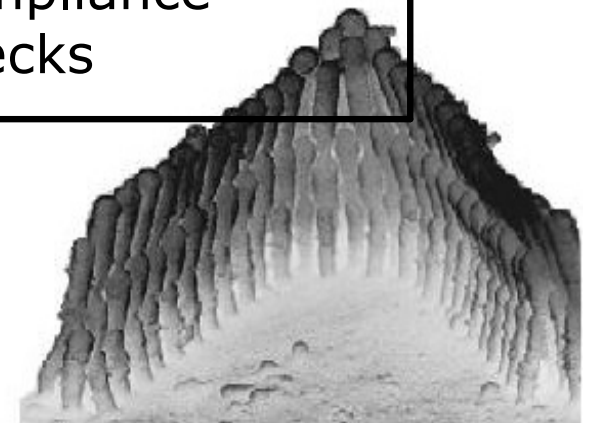
policy

- part of Health & Safety Policy
- articulate specific noise responsibilities from the MD downwards
- specify arrangements for managing assessment and control
- communicate policy
 - members; managers; board; trustees



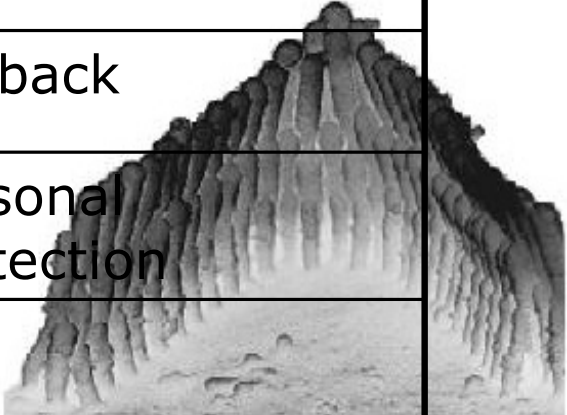
assessment content

date	venue	programme
players	conductor	soloist[s]
risk ball-park	prominent risks = target for control	valid data
what controls	mandatory PHP periods	managed by whom
measured noise levels	did the controls work?	compliance checks



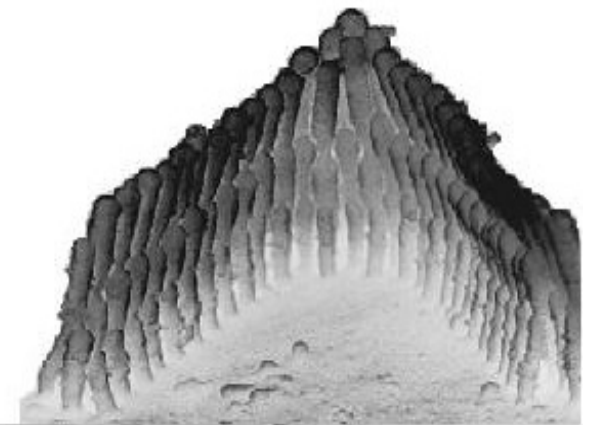
controls

co-operative conductor	programme :venue match	co-operative composers
height	soundlines	single ranking
control key individuals	quality, not quantity	screens are not personal
noisy players elsewhere	noisy players at the front	contractual conditions
mark in rehearsal	acoustic insulation	sacrifice income
play bells up	click tracks	foldback
loudspeakers	rotate seating	personal protection
not the Sydney option		



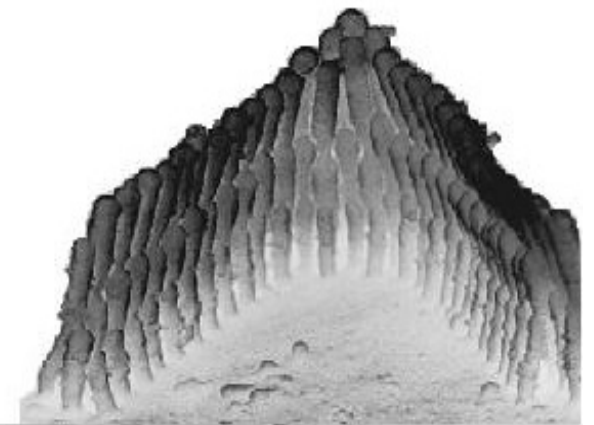
freelancers

- are their own employer and their own employee
- but are also the orchestra's employee for the duration of the session
- ? averaging periods/exposure records
- ? health surveillance
- ? training
- ? personal protective equipment

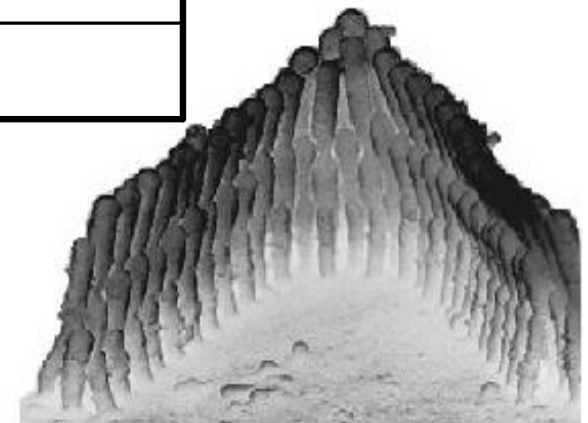


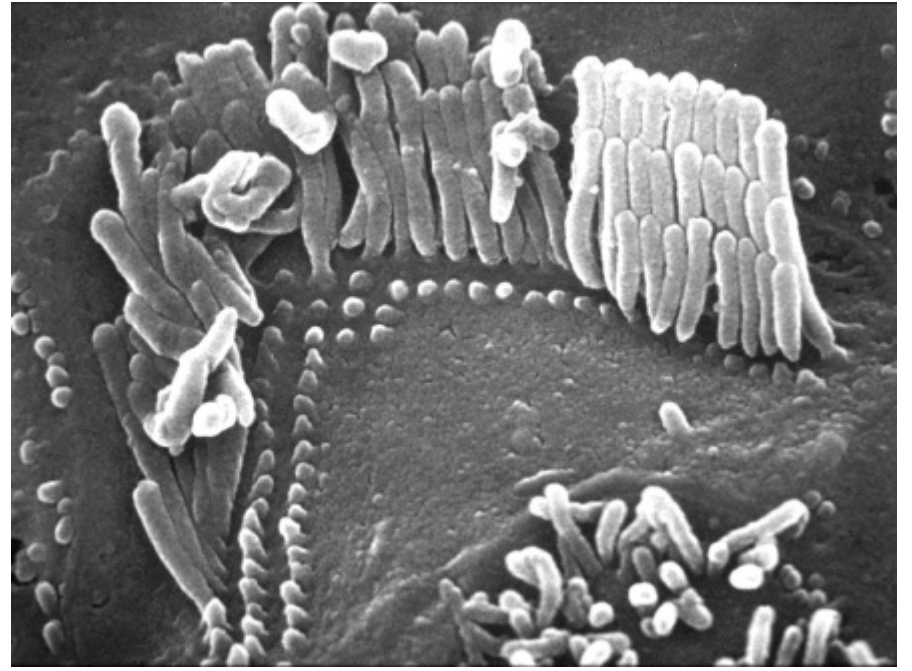
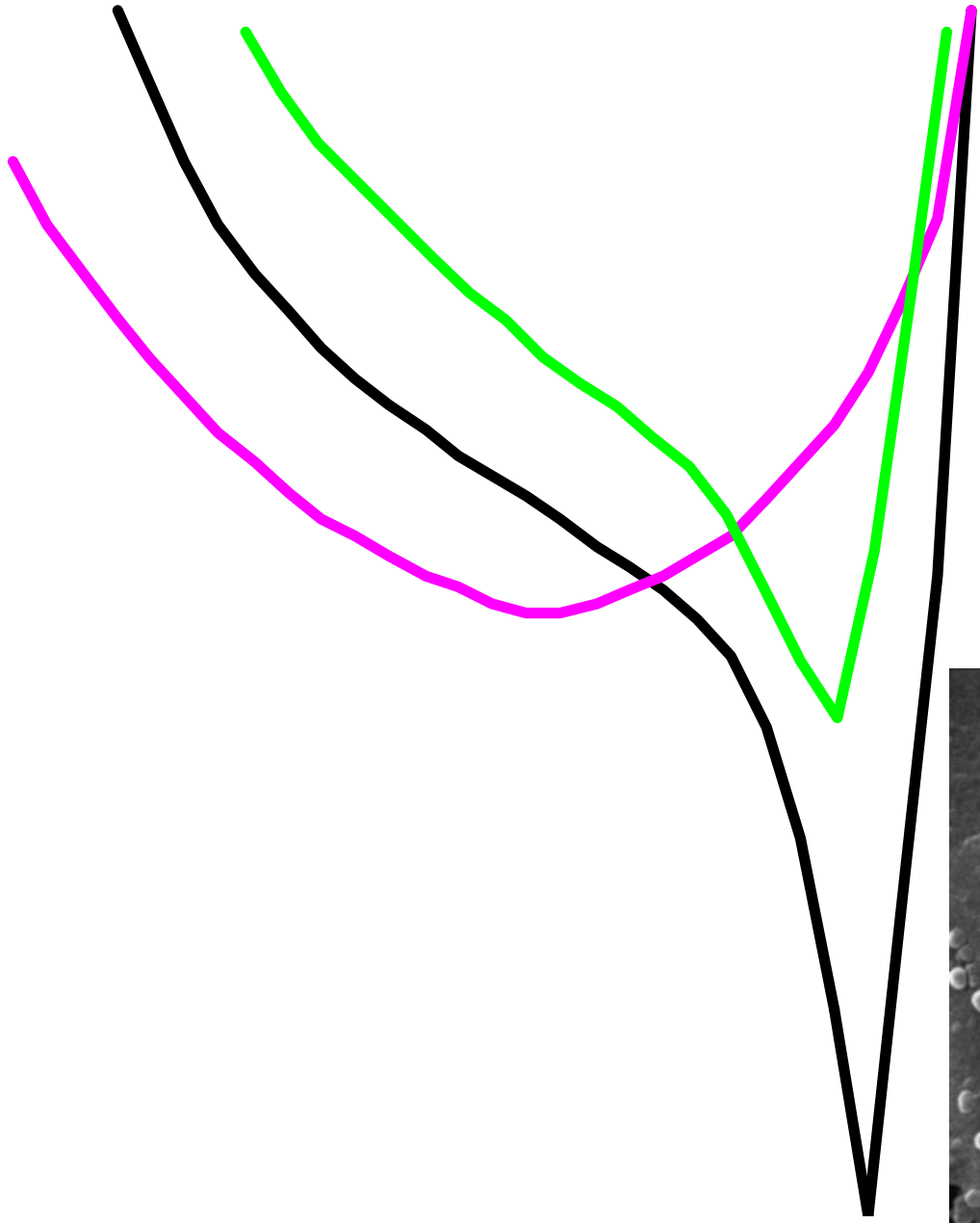
training

- scale of risk
- judging own exposure
- law
- noise & stress
- types of damage
- hearing tests
- options for control
- screen pros and cons
- personal protection options
- php acclimatisation
- leisure exposures
- noise management processes



listening test	
<81	normal voice at 4'
87	raised voice at 4'
90	loud voice at 4'
93	very loud voice at 4'
99	shouting at 4'
105	shouting at 2'
>110 [400 x 85]	shouting at ear
>120	can't hear self shouting





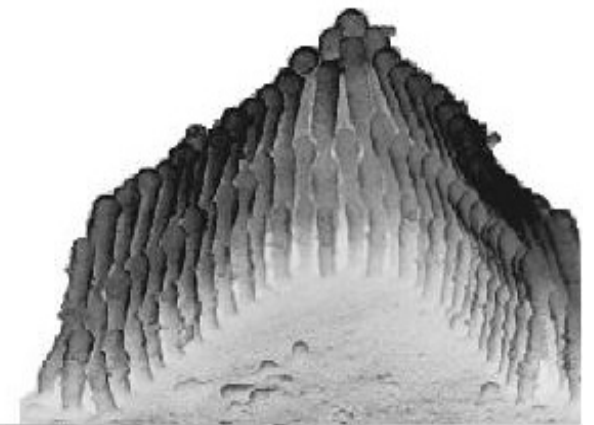
monitoring

- check controls are properly applied
- note what works and what doesn't
- sanctions for non-compliance
- data-logging sound level meter
- health surveillance [also increases use of personal protection]
- share



miracles

- employers' association determination
- co-operation between employers, trade union and charities
- and HSE
- trade union ownership of freelancers
- conservatoire involvement
- noise training improves organisational climate
- miking the conductor
- conductors happy to experiment
- noise controls that improve quality



sound.ear@virgin.net

