


National Treasures

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Old Paradigm

- The 100-inch was built and the least expensive item was the photographic plate (guided by an inexpensive astronomer)
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QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.





Paradigm Shift


- Over time the cost of the instrument has slowly risen (e.g. DEIMOS on Keck)
 - The cost of the telescope is negligible in highly multiplexed projects (e.g. SDSS)
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Highly Multiplexed & Highly Focused & Highly Expensive Projects

- Massive Spectroscopy
 - ◎ 2dF, 6dF, RAVE, LAMOST, HETDEX, Marvels, BOSS, Apogee,
 - Focused Experiments (Great Purpose)
 - ◎ CMB Experiments (many)
 - ◎ HETDEX, BOSS
 - ◎ GPI, SPHERE, GRAVITY
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National Treasures

- Fizeau Camera on LBT (K, L, M, N)
 - ⊙ Astrometry & Imaging
 - GLAO Wide Field Camera on Magellan
 - ⊙ Astrometry
 - Wide field AO on Gemini (MCAO)
 - Next Generation AO system on Keck
 - ⊙ Astrometry, Imaging, Spectroscopy
 - WFMOS, BigBoss
 - ⊙ Large Scale Structure, Galactic Archeology
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Imaging Surveys

- The Sky is at your Fingertips
 - ◎ Infrared (2MASS, DENIS, UKIDSS, VISTA...)
 - ◎ Radio (NVSS, FIRST, eVLA, ...)
 - ◎ Space (IRAS, AKARI, GALEX, WISE, ...)
 - ◎ Space (ROSAT, FERMI, SPECTRUMRG, ...)
 - ◎ Optical (POSS, SDSS, PS1, SKYMAPPER..)
 - New powerful surveys are being planned (radio, optical)
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New Imaging Surveys

- Will go deeper
 - Will focus on Moving & New Objects
 - ⊙ Proper Motion
 - ⊙ Solar System Objects
 - ⊙ Transients
 - Huge Imbalance between follow up and Imaging surveys
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Conclusion

- Retaining US leadership would require more than running a motley group of telescopes
- Need to have a National Treasure Program (\$50M projects)
- Full exploitation of New Imaging surveys will require
 - Spectroscopic & Light-curve Followup
 - A vertical integration of facilities and data management (NOAO is the right organization)