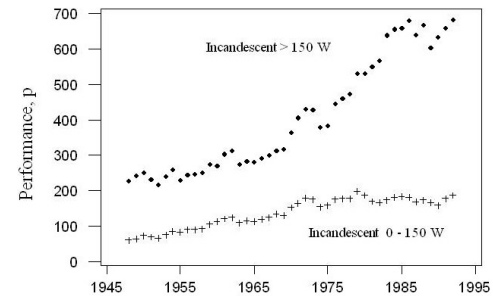
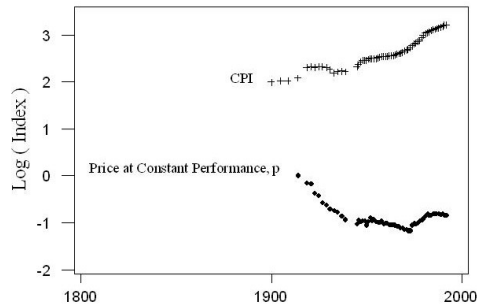
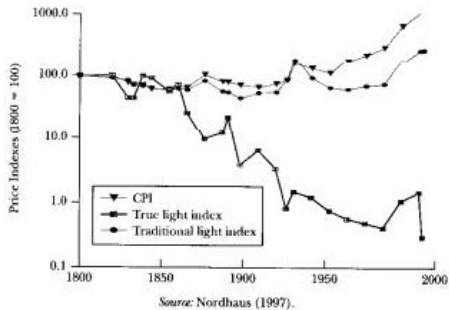


## Price of Light: Quality Measurement

Price of Light refers to two papers by William Nordhaus<sup>1, 2</sup> in which he constructs and discusses an index of price for constant utility (the lumen-hour) across centuries of devices for achieving it, while expressing ‘*astonishment*’<sup>2</sup> at how rapidly this price of light artifice dives downward while comparative price indices, such as CPI go up (below left). But if we keep the performance **p** of the incandescent lamp constant (1900 – 1992) in the MELF<sup>3</sup> equation it closely reproduces this behavior (below center). It does so because the MELF includes the previously missed and therefore unaccounted for large price reduction from competition. But, more importantly, the MELF can also enumerate improving ‘quality’ (without having to specify what attributes constitute that quality improvement) of incandescent light bulbs (below right) from DINTEC™ data, thereby updating the statement that ‘*it is of course impossible to measure utility directly*’<sup>2</sup> by showing now that it is.



<sup>1</sup> ‘Do Real-Output and Real-Wage Measures Capture Reality? The History of Lighting Suggests Not’ as referenced in <sup>2</sup> ‘Quality Change In Price Indexes’, Cowles Foundation Paper No. 961 (1998)

<sup>3</sup> The Macroscopic Economic Lens Formula MELF can be found in the Work in Progress Paper.