

# 80+ Unexpected *DIO* Scientific History Inductions

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- Great Pyramid north-oriented to  $3'$  (www.dioi.org/dr.pdf) by meaning azimuths of hitherto ignored star 10iDra (*Nature* 412:699, 2001; *NYTimes* 2001/8/28; *Astronomy* 2001 Dec p.34; www.dioi.org/g835.pdf, *GriffithObserver* 2019).
- Greeks knew 2300<sup>y</sup> ago human eye limit = 1/10000 rads: www.dioi.org/g841.pdf, p.16; vs www.dioi.org/jhya5.pdf.
- Central cuneiform procedure text BM55555's date revealed (j116.pdf, eq.9) as very late Babylonian: 100 BC±35<sup>y</sup>.
- Vs the pump-primed myth (www.dioi.org/jb.pdf) that Babylonian astronomy inspired Greek, same cuneiform text BM 55555's yearlength was unexpectedly found in 1982 to be based upon 2 famous Greek solstices 432 BC & 135 BC (*Queen's Quarterly* 91.4:984&985, 1984; *Vistas in Astronomy* 28:256 & n.3, 1985; www.dioi.org/j116.pdf, §A, 1991), so text is displayed at British Museum with tag (photo of it&text: www.dioi.org/cot.htm#btex) agreeing with *DIO* —
- & adopting *DIO*'s 2002 finding that BM55555's central "Babylonian month" =  $29^d 31' 50'' 08''' 20''''$ , good to  $1^s$ —, was derived (www.dioi.org/jb11.pdf, §A) c.280 BC by Aristarchos, Babylon later incorporating his value, c.200 BC.
- Trig-solved Pliny's circuli after snuffing ancient misread of "cv" (105 ft) as "c vnciae" = 100 inches (*Vistas* n.15).
- Vs History-of-science (Hist.sci) herd-diss of Greek empiricism (www.dioi.org/jL09.pdf, §A1): 1<sup>st</sup> to show Greeks' latitude  $L$  errors = ordmag  $1'$  (*ibid* §D; *Isis* 73:263 n.17); later confirmed: *Centaurus* 27:280 & *JAHH* 17:326.
- Fraction-endings reveal assumed  $L$ : Timocharis, Aristyllos, Hipparchos, Ptolemy anon (www.dioi.org/j413.pdf, §F).
- Alexandria's Pharos Lighthouse flame set precisely 300 feet high to streamline equation for Pharos's alternate use as Earth-size-measurer (www.dioi.org/je01.pdf, eqs.2&21; *Griffith Observer* 2018: www.dioi.org/g828.pdf, pp.13-14).
- Outta-leftfield finis to best-known ancient science dispute: Eratosthenes' gauging of Earth-circumference  $C$ , 256000 stades, AND Poseidonios' 180000 stades, AND standard 185m Greek stade, **ALL THREE FIT TO 1%** by surprise new Pharos-lighthouse solutions: **air-bending of light** (*idem*; *AmerJPhysics* 47.2:127; www.dioi.org/je01.pdf, eq.28).
- That fit works so triple-neatly only by using the 185-meter stade, a dispute-ending confirmation that it was standard.
- In 1982 got Eratosthenes'  $C = 256000$  stades; 16<sup>y</sup> later: his radius  $40800$  stades· $2\pi =$  same (www.dioi.org/je01.pdf).
- Parallaxic explanation of common 252000-stade rendition of Eratosthenes' Earth- $C$  (www.dioi.org/jm01.pdf, p.3).
- Stade defined sexagesimally c.300 BC via Earth-circumference:  $40000000\text{m}/60^3 \doteq 185\text{m}$  (www.dioi.org/cot#kchg).
- That equation won't equal  $185\text{m} \pm 2\text{m}$  unless surveyor Timocharis **found Earth's size to 1%** (www.dioi.org/tm.pdf).
- Vs Ptolemaists' myth of inept Greek copyists: original Greek accuracies-aplenty catalog www.dioi.org/jm01.pdf §B.
- Lunisolar calendar epoch-hr Summer-Solstice of Alexander the Great's astronomer Kallippos, 330 BC June 28 1/4 (dawn), chosen as epoch since nearer New Moon than occurs in hundreds of solstices (*Bulletin AAS* 17.2:583, 1985).
- Kallippos' calendar 1<sup>st</sup> to adopt  $365^d 1/4$  year, from dividing  $102^y$  into  $37255^d 1/2$  between his own observed S.Solst & Meton's Peloponnesian War-memorial epoch-S.Solst 432 BC June 27 3/4 (evening): www.dioi.org/jk02.pdf, §C1.
- Reconstructed the 4 outdoor solstices of Kallippos, Aristarchos, & Hipparchos (two): rms error <  $2^h$  (*ibid* Table 3).
- Designed 1<sup>st</sup> equation (www.dioi.org/jk02.pdf, eq.10) quantifying an Equal-Altitudes-fixed solstice's error  $q$  arcmin, as a function of ere&ft-interval  $S$  degrees, eccentricity  $e$ , & apogee  $A$ :  $q = -(\pi e \cos A/3)S^2$ . (Error ordmag  $1^h$ .)
- J.Evans' 1987 attack on R.Newton & etc, pushed *JHA*'s **BAD**-Greek-empiricism mass-slander, backed by Evans' 1981 cross-staff use of eclipsed Moon to show **BAD** star-longitude  $\lambda$  from ancient approach. Yet the resulting  $\lambda$  was **BAD** not from flaws of old method&instrument **but from mis-signing +21' of lunar parallax**, causing  $-42'$  error, accounting for nearly all **BADness** (www.dioi.org/jg01.pdf, §A). Evans, *JHA* 1987 p.275: "my notes from that evening" got  $\lambda$  "too small by about  $40'$ ". Despite queries to Evans, the notes hide:  $30^y$  since muff announced (*DIO* 1.3 fn 288).
- Hipparchos' 2 like Spica placings: same mistake; same parallax-wrong-sign-undo nulls impossible  $33'$  errors (*idem*).
- Found why Regulus, most crucial of his fundamental stars, had the largest error:  $-35'$  (www.dioi.org/je01.pdf §E).
- He faked  $-381/12/12$  mid-eclipse  $179^\circ$  true-lunar-elongation to smooth finding lunar  $e$ : www.dioi.org/jk03.pdf §G.
- Yet *DIO* defended his purely mechanical calculations as reliably  $1''$ -flawless: www.dioi.org/jm03.pdf §§C14&D6.
- *DIO* Hipparchos orbits match (www.dioi.org/j116.pdf §D9-10; www.dioi.org/j139.pdf §§N14-15) all attested data.
- Pioneer 1991 analysis of early-Hipparchos eclipse-trio math proved hitherto-unknown Hipparchan use of: [a] 158 BC solstice, & [b] Kallippic  $365^d 1/4$  calendar (www.dioi.org/j139.pdf, §§K8-9&M4); 14<sup>y</sup> later, **both** [a]&[b] **explicitly** (A.Tihon *Archimedes* 23:1-10) shock-confirmed — **as Hist.sci never cites** — by newly-recovered papyrus: 1900<sup>y</sup> old!
- Recovered the papyrus (*P.Fouad* 267A) calculation's missing hour as = sunset: www.dioi.org/jk02.pdf, §§K4-K5.
- Origin of *P.Fouad*267A yearlength  $365^d 1/4 - 1^d/309$ , Hipparchos' 1<sup>st</sup> empirical value: www.dioi.org/jk02.pdf eq.25.
- His Sun-dist  $1000^r$  (Earth- $r$ ) times  $\cot 87^\circ = 52^r 24'(3144')$  miswrit  $52^r 1/24$  ( $3122' 1/2$ ): www.dioi.org/j139.pdf §O.
- This & Eratosthenes'  $100^r$  & Archimedes'  $10000^r$ : Greek unsurety re Sun-dist led to ordmag (www.dioi.org/jk03 §D).
- www.dioi.org/jm03.pdf p.54 verified-by-tabulation leading philologist A.Diller's 1934 discovery of Hipparchos' use of sphtrig & accurate obliquity, an achievement Princetitute-damned for decades as "absurd" & not to be "taken seriously" (*idem*) **though fitting 14-of-14 data** (*ibid* Table 1), while neither Princetitute-pushed theory fits even half.
- Solved ms Vat. gr. 191 fol. 170<sup>v</sup>'s Aristarchos yearlength:  $365^d 1/4 - 15^d/4868$  (www.dioi.org/j913.pdf, Table 2).
- Babylonian month multiplied times 235/19 (Meton's iconic Easter ratio) produces a yearlength 4868 of which equal  $1778022^d$  (www.dioi.org/jb11.pdf, §B1),  $15^d$  short of 4868 Kallippic  $365^d 1/4$  years ( $1778037^d$ ), verifying the year-remainder's  $15^d$  numerator deduced (1 bullet up) from Vat. gr. 191 fol. 170<sup>v</sup>. (*Enjoy checking these multiplications.*)
- Solved Vat. gr. 381 fol. 163<sup>v</sup> to find Aristarchos' sidereal yearlength =  $365^d 1/4 + 1^d/152$  (www.dioi.org/j913.pdf, eq.3), accurate to ordmag  $10^s$ ,  $152^y$  being the interval between the solstices of Meton 432 BC & Aristarchos 280 BC.
- Vat-mss-based remainders' difference: Aristarchos (not Hipparchos) discovered precession (www.dioi.org/au.pdf).
- Hitherto-unsolved Archimedes equation, Earthsize/SunDistance = SunDistance/StarsDistance  $\approx 1/10000$ , was just (*idem*; *Griffith Observer* 2020: www.dioi.org/d841.pdf, pp.15-16) heliocentrist & vision-specialist Aristarchos' eyeball-based conclusion that the mutual invisibility of diurnal solar parallax & annual stellar parallax proves each is no more than vision's bound: 1/10000 radians (6000angstroms/6mm); same by Dawes' Limit, foveal-cones-sep, or direct test.
- Thus the volume of Aristarchos' universe was a trillion times the geocentrists': *Griffith Observer* 84.1:11-18, 2020.
- Paralleled by his large temporal vision (*idem*): quadruply tracing his 4868<sup>y</sup> cycle verifies Tannery's discovery of it.
- Aristarchos halfMoon  $87^\circ$  elongation not exact but lower limit: www.dioi.org/j117.pdf §C1; www.dioi.org/je02.pdf §B.
- **All 3** of his astronomical measures from visual limit 1/10000 rad: halfMoon, solar distance, stellar distance (*idem*).

- Vatican mss listings are unexceptionally chronological (*idem*), further evidence against Babylonian-priority myth.
- Archimedes'  $\text{rt.ang}/200 < \text{Sun} < \text{rt.ang}/164$ : Greekspeak for sexagesimal  $27' < \text{Sun} < 33'$  (www.dioi.org/jk01.pdf).
- Aristarchos' "On the Sizes" implies the Moon **retrogrades daily** (!) so it's not by him (www.dioi.org/cot.htm#mmlt).
- "Sizes"  $2^\circ$  wide Sun is 4 times too big from (www.dioi.org/jl17.pdf, fn 6) setting "part" ( $7^\circ 1/2$ ) = zodiac-sign ( $30^\circ$ ).
- 800-sidereal-yr eclipse-period-relations nest → 8523 tropical yrs = 105416 mos: www.dioi.org/j601.pdf, eqs.21-31.
- Match-success of *ibid* eqs.26-31 confirms ancient use of transformations of period relations from sidereal to tropical.
- System A relation 6247 synodic (civil) months = 6695 anomalistic (vs apse) mos: 1/2 observed eclipse-pair intervals 1292 BC Nov 23 vs 281 BC Jan 16, & 1274 BC Dec 5 vs 263 BC Jan 26: www.dioi.org/jb12.pdf, §§B4&C1 (2002).
- Hipparchos' hyper-accurate (ordmag  $0^s.1$ ) equation 5458 synodic months = 5923 draconitic (eclipse) months: from dividing 5/2 into the months 'twixt lunar eclipses of 1245 BC Nov 13 & 141 BC Jan 27 (www.dioi.org/jL09.pdf, §B4).
- Final Ptolemy lunisolar equation, 3277 syn months = 3512 anom mos: from dividing 5 into observed eclipse-pair intervals 1201 BC Jul 11 vs 125 AD Apr 5, & 1190 BC Jun 12 vs 136 AD Mar 6: www.dioi.org/jd12.pdf, §C1 (2003).
- Independent evidence of Greek access to 13<sup>th</sup> century BC Babylonian eclipse records: www.dioi.org/thr.htm#csqv. Above **surprise** 2002-2003 sources of last 3 unsolved Greek period-relations: 18<sup>y</sup>-**UNCITED** by historians **who've still never solved them**, since **STILL** rejecting Greek use of pre-721 BC Babylonian data. *DIO* in 2018 offered 'til 2020/1/1 \$100000 in prizes (www.dioi.org/jm03.pdf, §I38) for post-721 BC eclipse-pairs solving the 3 relations. No successes.
- Saros-series' periodic gaps delimit eclipse-pairs beneath attested ancient period-relations www.dioi.org/jd12.pdf §F.
- Delicate eclipse cycles each (see *idem*) possess similar precessing saros-series-bound anomalistic triangle (PBT).
- Discerned (www.dioi.org/jg03.pdf, §B5) Strabo 2.5.38 refers to klimata not cities, thus Meroë latitude 11600 stades.
- Ptolemy star Catalog mean  $-1^\circ.1$   $\lambda$  error entails nonexistent  $1^\circ/2$  errors in  $\beta$  & northern  $\lambda$  (*PASP* 94:359, 1982).
- Catalog stars'  $1^\circ/4$  endings not Hipparchan; placed by appulses with Venus or eclipsed Moon: *DIO* 6 †1 fn 108.
- Ptolemy fraud-fumble gives varying dates, places, sizes to same 136 Venus max-elongation: www.dioi.org/jb36/pdf.
- Ptolemy *Geography* (*GD*) sole eclipse 500<sup>y</sup> old: Arbela time misassigned (www.dioi.org/jm02.pdf §G) to Carthage!
- Astronmrs'  $1'$  acc vs *GD* mean error  $1^\circ!$ : latd random (klimata), lngtd systemtc (scaleshift) www.dioi.org/jm01.pdf §R.
- Found why (www.dioi.org/jg03.pdf §F4) Ptolemy *GD* 4.3.7 Carthage mislatitude distorted N.Africa maps for 1000<sup>y</sup>.
- Established Ptolemy's  $0^\circ$  longitude as Cape Verde Islands, previously misidentified as Canaries: *DIO* 5 fn 64.
- By analysing klimata, identified (*idem*) Columbus' goal (Kattigara) as Saigon — presently Ho Chi Minh City.
- Ptolemy's patently-indoor computation of Mercury's mean motion (& all four Sun-data): *AmerJPhysics* 55.3:236.
- Farnese Globe CygSegLeg = Galactic Circle fragment confused Roman copyist kept: www.dioi.org/fff.htm#ggbg.
- *DIO* 3's 1993 world-standard 1<sup>st</sup> critical ed. of Tycho's 1598 star catalog (pointedly uncited by *JHA*-Editor's 1998 book) found mean errors ordmag  $1'$  (www.dioi.org/j300.pdf), better than hitherto known: *Annals of Science* 1996 July.
- Tycho knew (*OmnOp* 3:337) Ptolemy "usurped" Hipparchos' stars. Badly, *fouling astronomy 1400<sup>y</sup>, a crime Hist.sci never condemns*. Dropped Ptolemy & got, since Hipparchos,  $51''/\text{yr}$  precession (1<sup>st</sup> good value: just 2% high), thus dared publish 100 star places for 100<sup>y</sup> hence, 1701.03, median accuracy ordmag  $1'$  (www.dioi.org/j301.pdf, Table 23).
- Sole living recoverer of prediscovary observation of giant planet (*PASP* 80:217-219, 1968; *Science News* 95:96, 1969), 1<sup>st</sup> in 100<sup>y</sup>, Uranus (only such near quadrature): AstrRoy J.Flamsteed or asst. J.Crosthwaite, 1714/12/3 Julian.
- Herschel discovered Uranus' moon Umbriel 1801/4/17: www.dioi.org/AS3.pdf, *Astronomy&Space* 3:26-40, 1973.
- Brit Neptune "discoverer" J.C.Adams' claim rests on an 1845 **elliptical**-orbit prediction he'd actually, by 1846 June, dumped for a **circle** (www.dioi.org/j911.pdf, §E2 & Table 1; *ScientAmer* 2004 Dec p.98) 'til he finally switched to —
- Adams' final 1846/9/2 prediction,  $12^\circ$  off, vs. Urbain Leverrier's  $1^\circ$  hit 2<sup>d</sup> prior, 1846/8/31 (www.dioi.org/np.pdf). Dispute-ender *DIO*'s experts uninvented (www.dioi.org/nap.htm) to AAS-HAD 2011/1/9 Neptune-discovery session.
- Adams' ultimate longitude  $315^\circ 20'$  & distance ratio 0.57: from 14:11 extrapolation (www.dioi.org/cot.htm#hpfp).
- Ere 1846/9/23 discovery, Neptune was on widely-held Berlin Starchart Hour XXII: *BullaAS* 16.3.1:734 (1984).
- Revealed British astronomer J.Hind 1846/11/12 letter to RAS condemning Cambridge Neptune secrecy (*idem*).
- Predicted 1992 www.dioi.org/j239.pdf, fn 12: long-secret AstrRoyal 1846/12/8 letter gutted Adams' claim, as verified when the letter surfaced in 1999 (www.dioi.org/j911.pdf, §H8), thanks to the intercession of Nick Kollerstrom.
- APS-AAAS-backed I.Hayes claimed **coastal** farthest-north at **inland**  $81^\circ 35'N$ ,  $70^\circ 30'W$ , really  $80^\circ 05'N$ ,  $70^\circ 30'W$ .
- He faked  $1^\circ 1/2$  extra latitude by noon double-altitude degrees-place-inverting "9" → "6": www.dioi.org/hay.htm#btfz.
- Mirror image of still-wet ink reveals his rewrite of scissored-out farthest journal entry: www.dioi.org/js02.pdf §B10.
- Rescued Peary's 1906 Farthest North, hitherto suspect from his padding of it (www.dioi.org/jo00.pdf §§B10-B12&J1).
- *Peary at the North Pole: Fact or Fiction* Wash DC 1973 pp.72-73 induced that Robt Peary's alleged 1906/6/24 sighting-discovery of Crocker Land from Cape Colgate was fake: his 1907 discovery-report was not from his diary. Sure enough, when the diary was de-classified years later: for the date&place of his claim of discovering Crocker Land, the diary page reads "No land visible" (*Washington Post* 1989/4/20). Photo of diary-page: www.dioi.org/cot.htm#pdrn.
- Non-conspiratorial take (*Fiction* pp.150&153&158) on actions, R.Bryce 1997 book, www.dioi.org/jo00.pdf: ended the most durable science hoax of the 20<sup>th</sup> century, Peary's Bunyanesque North Pole 1909 tale: *New York Times Science* 2009/9/8 = www.dioi.org/jl116.pdf, http://tierneylab.blogs.nytimes.com/2009/09/07/who-was-first-at-the-north-pole.
- Computed Amundsen 1911-1912 South Pole expedition allegedly-nonexistent longitude data: www.dioi.org/j225.pdf.
- R.Byrd took 100 flags north 1926/5/9 dropping none at alleged N.Pole, knowing *Norge* about to go same path: any flag seen at wrong latitude would kill hoax (www.dioi.org/ja01.pdf, pp.82-83; copublished 2000 with UnivCambridge).
- Byrd's 1926/5/9 diary sextant sunsights place him 100+ miles south of where his official report puts him at their times, ending the 2<sup>nd</sup> most durable 20<sup>th</sup> century science fraud — his North Pole imposition (www.dioi.org/ja01.pdf; *New York Times* 1996/5/9 p.1 = www.nytimes.com/1996/05/09/did-byrd-reach-pole-his-diary-hints-no.html).
- Revealed Byrd cut giveaway FAR-overprecise raw sextant data from his 1926/6/22 report to SecNavy&NGS, sending revision 1926/11/24 to AGS' chief, bookburner (www.dioi.org/by.pdf, fn 8) Isaiah Bowman, successfully asking that his 1926/5/9 data be secreted (*ibid* §F7), so N.Pole hoax was establishment-protected for 70<sup>y</sup>: www.dioi.org/jo00.pdf.
- Urges unqualified recognition at last for Norseman Roald Amundsen, whose records exceed that of all other polar explorers combined incl. 1<sup>st</sup> at South Pole & 1<sup>st</sup> at North Pole, as 1<sup>st</sup> announced at the conclusion of 1973's *Fiction*.