

Chapter TWO - Astronomy -

Development of genuine interest. College years in the 80's

The sky is my TV

Art college. The Minneapolis College of Art and Design (MCAD) in the mid-1980's. I would be forced by the icy-snowy winters to ride the bus instead of my preferred transportation mode — the bicycle. Catching the last 1 am bus often meant arriving at the bus stop early enough in case it passes by earlier than scheduled. More often the bus would be late, and I didn't mind. I was fine just looking up at the constellations, bundled in my father's long black WW2 officers coat with a wool liner, good boots, longjohns, hat, mittens and scarf, I was toasty in near zero temperatures. Walking through the crunchy snow down 24th Street to wait at Chicago avenue, a half hour wait would go by too fast . . . because I was busy studying the stars overhead, and whatever planets happened to be out!

There's the bright magnitude star Capella in the constellation Auriga. Nearby are the stars Castor and Pollux in the equatorial constellation Gemini, where planets appear to pass through. Reddish Mars is visible, or is it Aldebaran? I look it up in the newspaper almanac later. The bus comes by and I get on, pulling out my new Petersens Field Guide to the Stars, that I possibly bought at Diamond Lake Books on 54th & Nicollet [my favourite small local bookshop, run by Steve Sayles; the coolest, nicest bookstore owner, who I got to know since I'd been going there since I was 12.] Also having acquired more Astronomy books with the intention

of knowing the constellations. The maps show much more than is visible with the naked eye; nebulas, clusters and galaxies, double stars, quasars and black holes... Advanced stuff for real Astronomers. I didn't have a telescope and didn't even imagine affording a decent one.

Go West

By summer I go to California thanks to Brian, in 1984 — a major landmark year, deserving a separate essay. For now I have to emphasise how awesome that western skies can be; clear and dry, with less distortion when out in the mountains, and on my first road trip on I-90 under starfields of South Dakota, Wyoming, Yellowstone, Oregon,, and my first mind blowing visit to Yosemite! [all thanks to older brother Brian, without whom]

Tracking the planets

Back in Minneapolis between getting to Europe and back to the bay area, I get a part-time job cleaning MCAD, meeting good friend Anthony Schultz, who influences me in a few particular ways. One is his international travel enthusiasm, and another was by the fun wall hanging orrery he gave me, designed by his friend Gregory, it was an annual production made and printed on cardstock, made to hang on top of either a cork or foamcore backing. Small planets are supplied in the form of specifically coloured and sized spherical pushpins:

- **Mercury = *smaller silver***
- **Venus = *medium white***
- **Earth = *blue - green, with small white Moon attached!***

- Mars = *smaller red*
- Jupiter = *larger peach*
- Saturn = *larger peach, with cutout paper rings!*
- Neptune = *larger blue*
- Uranus = *larger green*
- Pluto = *small purple*
- and for the center, not moving, is The Sun = *large yellow*

These pins are pushed into the map along their orbiting track around the sun, as illustrated on the black cardstock. The innermost three planets you move daily, while the outer planets are moved less and less as they have much wider orbits the farther out they are moving around the sun. This daily ritual of moving the planets pins in their relative positions put me in rhythm with our solar system. I took to tracking whatever planets were visible to the naked eye (nothing beyond Saturn, requiring a telescope), going up on the roof of MCAD with Tony to catch elusive Mercury, setting rapidly, never far above the horizon; orbiting The Sun over four times per year! That resulted in the highest amount of pinholes in the wall orrery. Venus orbiting approximately one and a half times a year. Earth is one year (being all obviously based on our orbit), Mars a bit less, Jupiter and Saturn have their pins moved monthly, the rest are only nudged a few times for the entire year.

This paper orrery was sold by Gregory at his Ptolemaic tent at renaissance festivals, where stars shone naturally through the design in the fabric. It was a brilliant feature at the Minnesota Renaissance Festival, where inside were scheduled short plays, featuring a colourful debate with

(Ptolemy?) and Galileo about whether the Earth or the Sun is at the center of our planetary system! Good fun — and I have a photo of it from my mother when my parents enjoyed the faire one time.

The orrery was designed to show astrological positions in addition to more accurate sidereal positions. This widened its appeal for the public I'm sure, but also displays how outdated astrology is. Science wins again.

The graphics increased on these with each year, aided by Tony's good friend Paul from his home town of Winona. Available by mail order (and some science museums) I ordered these every year until they were no longer made. (1994?)

Europe

“the spiral light of Venus rising first and shining best”

1985. Venus was dominant from the airplane window for much of my first flight overseas. I had a wonderful visit to Europe invited by Grant who lived in Northern Germany at the time. We enjoyed recognising the summer triangle region of overhead stars while out in the countryside of the Teutoberg forest, and near Rotenburg to the north. Vega, Deneb and Altair became familiar friends. Otherwise in Sweden it was too light all night for stars. Grant and I were treated to a blazing sunset from a remote lake we canoed to [*Svårdläng*] — however, this sunset lingered colorfully for hours! A benefit of the planet having a tilted polar axis relative to the sun.

I had not just one but two full summers in a row overseas!

Northern lights in the Midwest

Around this time, Minneapolis got a freak show of the Northern lights! A strong and rare showing that was clear at MCAD near downtown. The other time I experienced them in the Midwest that brightly was in the Blue Hills area of Wisconsin. In 1982 staying at bandmate friend Jason Englehardt's German grandfather's place. Our friend and bassist Joe Ryan was there too. We climbed up to a nice cliff plateau and watched them radiating over a wooded valley for over an hour.

Jump back to 1986

The year began with the tragic explosion of the Discovery space shuttle, killing everyone on board. Later the news revealed insights on how the rubber seals around the fuel system shrank with temperature change, explained by brilliant physicist and professor Richard Feynman, who I became a lifelong fan of his charismatic way of explaining things clearly; making complex physics explanations simplified enough for someone like me to actually get it! His demonstration in the NASA conference was as simple as dipping a sample of the material in question into a glass of ice water already at the table for drinking. Mystery solved as the rubber material broke apart easily, in front of the press cameras. He is referred to as "the great explainer" of physics in the 20th century. Still influential today.

Halley's Comet

The famed returning comet is awaited to be seen again that winter! Back in Minneapolis, I track it during the week of its

peak visibility from earth, which was disappointingly dim. The reason being that unlike 76 years ago, the comets perihelion happened to peak when flying on the opposite side of the Sun from us. Still I pursued it when possible, in very limited viewing conditions. The weather was mostly cloudy, with few patches of clarity, and late in near zero temperatures. *Brrrr.*

I did my homework, finding out that it will be visible in the constellation Aquarius. Bundled up, setting out with Dad's binoculars, I ended up on frozen nearby Diamond Lake for the less light pollution. Studying the field guide for that section of the sky, I scanned the projected section of Aquarius again and again, not seeing anything looking like a comet. With a small flashlight, struggling to study the sky map out there in the frozen dark, I noticed something not on the map; a fuzzy dot. *Could this be it?* The best way to answer this is by returning the next few clear nights. So I did; trudging back out in the frigid AM hours, making the same examination as before, and was delighted to notice that tiny fuzzdot had moved slightly! *I caught Halley's Comet!!*

Visually underwhelming, but it's my first real hunt for something astronomical, aided by binoculars, so there was a triumphant feeling about this endeavour, with knowledge gained.

I think it may have been the same week? When last chance to see the comet is predicted. Dad wanted to see, so we got up around 4am, bundled up, drove his blue Buick to the edge of nearby Todd Park. Seeing conditions were not

good. I described and pointed out where it should approximately be, and what became more visible were the early morning airplanes doing their routes to MSP. Freezing in vain with binoculars in gloved hands, the verdict was in — Halley's Comet '86 was a dud.

The next day I whipped out a crudely drawn cartoon of us both out there pointing up in the winter cold with binoculars, exclaiming something like "wow! Halley's Comet sure is huge!", as an airplane fills the view.

I left it for him on the breakfast table to find early in the morning first thing. He definitely had a laugh, and hung it on his wall!

About my father

He was a chief navigator in the South Sea's for a few years during World War Two. His job was to track the location of stars in their degrees above the horizon with a sextant,, marking its data at Greenwich time, figuring the location of the ship — the USS Aquarius — out in the Pacific Ocean. He was fond of this task, being navigator must have been an interesting job, and he was good with numbers, becoming an accountant / controller after the war.

I was kind of surprised that he didn't go for Astronomy later on, I guess it was the navigation goals that drove him more than passion for the stars themselves.

Regardless, he brought home a free telescope sometime around then. I think it was a perk offered by his bank. It was a refractor, not very powerful, I think it was a Jason brand name. Difficult to use because of its small, cheap, low tripod. Okay for an interior desktop at best. Tricky to use

outdoors. I was able to get shaky glances at the Moon, but not much more. Unsatisfactory, knowing that someday I'll score a good 'scope.

Back in California

The night sky beckons more than before, loving the quality of drier western skies! I am gifted a glow-in-the-dark map of the Northern hemisphere night sky, from Mom at Christmas, with a fun volume titled "*The Cosmic Mind Boggling Book*", filled with relevant cosmic comparison facts to visualize with the mind's eye, such as:

"20,000 of our solar systems placed end to end could fill the width space of the great Orion nebula."

Mind Boggling stuff! The star map featured good representation of prominent deep sky objects; galaxies, nebulas and clusters, making it readily findable amidst the recognisable constellations.

And, Craig gave me a nice pocket sized binoculars! When we were up at Lake Tahoe for one of our first ski trips (Brian goes to the slopes while I cross country ski'd backcountry), by night I would find the Andromeda galaxy and the Orion nebula using the binoculars! Faint fuzzy patches at best, yet I was stoked to find them! An obsession to grow in years ahead begins — familiarity with deep sky phenomena.

The California skies continue to motivate interest. Family lived in a suburban rental house in Concord, near a dark hill, where I'd walk our trusty old wire haired dachshund friend Schneider. Late at night the stars looking sharp for being

near lit streets below. Mt Diablo is a huge mass of dark park system only a few miles away, which aided night vision of the cosmos. I spent hours up there familiarising with the stars and constellations, while Schneider went about sniffing bushes to his doggie senses satisfaction.

By now I know my way around the night sky regarding visible planets, and the geometric constellations with their relative proximities, with the naked eye. Occasionally using binoculars, but not much was clear enough, but for a few wide field open star clusters such as the Plaeides, Beehive and the Double cluster in Perseus. *I was into it!*

The Sierras, especially Yosemite provided natural environments of celestial astonishment. A few instances call to mind. Summer 1987, good Minneapolis friend Jamie visits with a few days of Yosemite. A late night walk through the valley witnessing the glow of moonrise slowly illuminating the towering cliffs above has us stunned. Phantom shadows slow moving, watching the edge of the moonlight shift across gigantic cliff faces. We were wiped out from hiking all day, but wonder on this night sky spectacle was too good to miss! Not much sleep resulted — worth it, easily.

Also that summer Anthony and family visit me, including going to Angels Camp in the Sierra foothills to catch the Grateful Dead. Noteworthy for being the concert under the best stars! Vividly so as the band play a stellar version of Morning Dew. A highlight of the summer's end!

Half Dome satori

Guided by my experience, I led a gang of friends on overnight backcountry camping on the way up the famous mountain known as Half Dome! My previous solo treks up there were successful. Take a few days backpacking, pitch the tent at the unpopulated Little Yosemite Valley, hiking from there to the top with a much lighter load, take time to really enjoy the top for a few hours catching sunset over the dramatic valley, hiking back to camp under moonlight! Jim, Dave, Bob and I did just that, with our first night at Illilouette Creek, under a nearly full moon on the first night. Dave brings a bottle of tequila, and I indulge in a few swigs against my own protest;

"guys, ya don't want booze out here, the beauty is intoxicating enough!"

Ha — as we howled at the Moon like a pack of crazed coyotes! Big fun beyond the shadow of Mt Starr King, running over a gravel field that we referred to as The Moonstruck Flats. The ground reflected moonlight in an extra unique glow, must be the granite in the sand.

The next day going to Half Dome at a luxurious pace, arriving at the top well before sundown. Only a few hikers were passed along the way. This was August 1989, before the half Dome day hike became so popular that permits are required. We ended up viewing the sunset just the four of us.

Then an unexpected and unique alignment occurred from our vantage point. The Sun was a gold sphere that appeared to be resting on the hills of the western horizon, as an illusion of our perspective view. Simultaneously,

looking the opposite direction, the rising Moon appears to do the identical thing — a white sphere resting on the horizon. This perspective lasted only for a few moments, but gave an extraordinary sense of being at a uniquely perfect place of alignment at the right time. And unforgettably, both the Sun and Moon looked to be identical sizes! One gold, the other white.

A successful trek, and up on the dome can seem like a lunar landscape with its barren rock surface. We hiked back to our tents energised.

Red Moon

Driving back to San Francisco the next evening (some of us needed to return to work), we pulled over somewhere in the central valley to enjoy a total lunar eclipse! Beginning at moonrise, it was a dark orange hue as it rose looking huge just above the low horizon. Driving on, KFOG was spinning Moon based songs like "*Bad Moon on the Rise*"

What a great week! We had such a fantastic trip. And I was back in time for the final run of Grateful Dead concerts held at the esteemed Greek Theater in Berkeley (but that's another story.)

Summarizing the vast cosmic

This chapter sums up the gist of Astronomy interest developing for me in the 1980's, when I was an art student, pursuing mastery of painting and drawing, with creative vision... but with no science classes taken. Just star maps, orreries, books, magnetic curiosity, occasional binoculars, an open mind, and clear dark skies.

Speaking of books, ... a new best-selling science author was in the zeitgeist, for his 1988 book titled "A Brief History of Time, by Stephen Hawking.

Discovering Sidewalk Astronomy

An important encounter happened in the late 80's San Francisco that moved me forward immeasurably, deserving honorable mention. Here is a two-page illustration ending this chapter...