

A Nerd's Garden of Verses

copyright © 2019
By Prof. H. Paul Shuch

(in press)

About the Author

H. Paul Shuch is an aging technocrat whose checkered career has taken him to the field of battle, where sabers rattle. He's experienced academia's halls, cubicle walls, the concert stage, Wikipedia's page, the skies above, the throes of love, the fond embrace, and the edge of space. In 2001 he published a memoir, *Tune In The Universe*. In this collection, he engages the right side of his brain, to expand upon and retell those true stories, in verse.

Critical Praise for *A Nerd's Garden of Verses*:

"The good doctor was an early master of iambic heptameter. Like myself, he never bothered to advance beyond it." R. Kipling

"Professor Shuch refuses to be hampered by good taste."
Martha Stewart

"He never lets the facts get in the way of a good story."
Robert Forward

"But verilee, he doth create fyne rymes."
Will Shakespeare

"Scansion has never been Shuch's fortissimo."
Leonard Cohen

"A life well lived should not be exploited for commercial gain."
Dali Lama

"Know thy reader. Turn his weaknesses against him."
Sun Tzu

Boy Scouts Off Chair (it truly started with Morse Code)

I was in the Scouts. My dad was teaching me Morse Code.
I could not anticipate, a few years down the road,
That I'd become a radio ham, and use this every day.
At thirteen years of age, this seemed to me like simple play
In mastering the alphabet, a letter at a time,
Pretending we're detectives, using code to solve a crime.

In my father's studio, in an office chair with wheels,
I was scooting all around. You know the way it feels
Almost like you're flying? I was really ADD.
Although there wasn't such a diagnosis then, that's me.
Being hyperactive wasn't really such a sin.
Today, I'm sure they'd have to dose me up with ritalin.

Dad would send Morse Code to me, a letter at a time,
My Boy Scout book in front of him. I'd copy every line,
And then read back the message. It was adolescent's play
To practice Morse Code with my dad, an hour every day.
And, if I missed a letter, that was fine with me, because
It wasn't hard to guess from context what the message was.

Dad was sending steadily, when I decoded "BOY".
Then a pause, then "S_C_O..." I'm starting to enjoy
Where he's going. All at once, he sent another "O".
This is not exactly where I thought that he would go.
Then he sent "T_S". I smiled, because I knew full well
That my dad, an immigrant, had never learned to spell.

When he sent "O_F" I was delighted to discover
"Boy Scouts of America" right there on my book's cover.
Then Dad sent another "F" and caught me by surprise!
I expect he lost his place, is what I did surmise.
So I scooted 'round the office floor, from here to there,
Copying the last word. I was stunned, for it was "CHAIR"!

I read back the message to my Dad. "Boy Scoots Off Chair!"
I guess he'd been noticing what I'd been doing there.
Rolling all around, I knew his spelling was exact,
Giggling so much then that I had a laugh attack.
Laughing so, I lost control, me being just a kid --
Because my father's message is exactly what I did.

Half a century has passed. The memories never fade.
I had learned the code at last, and really made the grade.
That's my fondest memory of time spent with my dad.
When he died, the image made me smile, though I was sad.
He gave me something lasting, though back then no one could say.
That I'd become a radio ham, and use code every day --
And doing so, think back about my father, every day.

Draft Dodger

I knew it was a crazy time to be away from school,
But winds of change were blowing, and the breeze was fresh and cool.
From Selma to Montgomery we marched to change the world,
With Dr. King our leader, and with freedom's flag unfurled.
I knew when I got back to campus, student life would end,
But there are some decisions one should not have to defend.
It's times like these upon which social progress must depend.

With academic draft deferment permanently lost,
The military beckoned me. But I had known the cost.
Defecting's not an option. Besides, Canada's too cold,
And prison's even worse than being drafted, I am told.
But they will not be taking me against my will. It's clear
There has to be another way. I know – I volunteer!

By signing up, I get to pick the branch that pleases me,
Say, Air Force – so much pleasanter than front line infantry.
Because I'm educated, I possess a bargaining tool,
And talk the Master Sergeant into sending me to school.
I pick the longest training that they have. It lasts a year.
By then, the war will all be over, nothing left to fear.

I march into their classroom, and I simply bide my time.
It doesn't take me very long to realize that I'm
The best MF-ing student in the whole MF-ing school,
But don't want to be noticed. Keep my head down. Play it cool.
I'm glad the tech instructors simply do not comprehend
My mission: sit here waiting for the freakin' war to end.

The year has gone by quickly, but the war is dragging on.
There's troop ships heading overseas, and soon I will be gone.
But I have graduated as the top man in my class,
And so they keep me Stateside. Maybe that will save my ass!
Another year of training is in store for me. By then
There's just no way this senseless war will not come to an end.

Again, I have miscalculated. Things are heating up.
It seems as though the Generals will never get enough.
And now, with all this training that they've crammed into my head,
I'm overqualified to go where people end up dead.
But I had chosen conscience, knowing fully well the score,
And now would face the consequences, marching off to war.

But luck, or maybe just a guardian angel, intervenes.
I pull command post duty. A battalion of Marines
Is standing guard around my duty station. They're outside,
While in the bunker, I've found me a cozy place to hide.
With bayonets and guns, the troops are guarding every door.
I'll wait in here until they finally end this freakin' war.

A noncombatant never has to stare death in the face.
He earns no decorations, but that is no disgrace.
It's not that I am risk averse. I play it safe because
I'm here by chance, not somebody believing in their cause.
I won't take risks like I did when I marched with Dr. King.
That was a cause worth dying for. This here's another thing.

The most important task I can perform now is survive,
And hope to see a better world, where everyone alive
Can hold their heads up high, and exercise their given rights
To bright, productive days, and ever calm and restful nights.
So I go home, and lick my wounds, and look around, and then
Create a world where nobody need ever fight again.

Wild Weasel Wannabe

I was a shit-hot fighter jock who flew a hundred missions.
Just in my dreams. Awake, I held much more mundane positions,
Ensnared in a command post, being guarded by marines –
But none of this deterred me from my hunter-killer dreams.
My thick coke-bottle glasses had me grounded from the start.
A non-combatant, I still made my mark and did my part.
The guards were there protecting documents so classified
That they must not be lost. And so, I never left their side.

The Weasels came to Osan, January, sixty-eight,
The day we lost the Pueblo, but a dozen hours too late.
They soon became my heroes, with their tales of derring-do,
And even on the ground they had that swagger. It is true,
They wanted to launch Northward, keen to settle up a score,
But Generals decided that we would not go to war.
The politicians stopped them with their bureaucrat's traditions;
One patch declared "Wild Weasels – North Korea – Zero Missions."

We hung out at the A-Frame Bar, the Weasels and the geeks,
And soon became fast friends as all the hours turned to weeks.
While I yearned for adventure, the Wild Weasels dreamed of home.
As time dragged on, they had to know that they were not alone.
And back in the command post, I was figuring a way
That they might see some action – 'til they headed South one day.
At last, the Pueblo's crew was freed, at a horrendous cost:
Eleven months incarcerated, and one crewman lost.

Those men went home, and I transitioned to civilian life,
Returned to California, got a job, and took a wife.
My whole Air Force experience was valuable, so I
Became an engineer at some place known as ATI.
A microwave designer with receiver expertise,
I was allowed to work on nearly anything I pleased.
The task I chose? Develop military ECM,
Equipping the Wild Weasels. I was finally one of them!

I learned, and saw myself advance from cubicles and stalls
To academic ivy covered towers and hallowed halls.
A tenured full professorship would finally come my way.
In engineering physics, I had ample chance to play,
Built aeronautics laboratories – flight instructed, too.
I did my best to teach my students everything I knew.
In time, they'd leave to find the sky. So I have my suspicions
That some were shit-hot fighter jocks, who flew a hundred missions.

Captain of Industry **(The true story behind the founding of Microcomm)**

The war was running hot when I arrived at ATI.
Don't get me wrong; I'm normally a peaceful kind of guy.
But war is kinda good when your employment is defense.
It pays for cars and groceries, for furniture and rents.
So I was *glad* the war was hot. Does that make any sense?

ATI had hired me as a circuit engineer.
Their product line was weaponry. They made it very clear
That my inherent pacifism wouldn't stop the war:
"We'll hire another guy and boot your sad ass out the door."
So silently, I did my job there on their factory floor.

At night, when not designing stuff to blow the world to bits
In order just to save it from the godless communists,
I had a peaceful hobby, and I liked it very much
To dabble in ham radio, and satellites and such,
And bouncing signals off the Moon, with microwaves and such.

The day came that the dreaded war was finally winding down
And everyone at work was wearing neckties and a frown,
And adding to their resumes, what they've done and where they've been.
Soon contracts would be cancelled, and the layoffs would begin.
And no one had to wait long for the layoffs to begin.

My best friend at the company, a QC tech named Jack
Ran up and down the hallways patting colleagues on the back
And smiling when the pink slips sent our buddies out the door.
"Cheer up," he'd tell the terminated. "There'll be other wars,
"Of that you can be certain. There are always other wars."

They closed my lab, but kept me on the payroll to take stock
Of all the test equipment destined for the auction block.
Those Hewlett Packard spectrum analyzers, Dumont scopes,
And lovely Fluke multimeters, now little more than jokes,
All soon to be dispatched with just a dozen pencil strokes.

And so, I hatched a plan to squeeze a quart of lemonade
From all the lethal lemons that my friends and I had made.
I knew what worked, what didn't, where the bargain bits were hid,
What was the best of all the stuff that's going out for bid.
I stole my old lab's treasures for a thousand dollar bid.

When my own pink slip finally came, I didn't shed a tear.
The test equipment I'd been storing up for half a year
Was everything I needed to begin a new pursuit.
I built a lab and looked around for colleagues to recruit,
So I might end up solvent, instead of destitute.

That thousand buck investment cost me everything I had,
But set me up with California's finest circuit lab
For building and designing any microwave device
The nerdy radio amateurs were thinking would be nice.
What fun it was to make that stuff! (The cash was also nice.)

Whoever could imagine that a geeky guy like me
Could go from laid off engineer to Captain of Industry?
My Silicon Valley startup seemed like adolescent's play.
Of course, old Jack was right; there would be other wars some day.
But that's another story, for another song and day.

Phone Phreak (Making Hacking Pay)

There was a time when there was only one phone company
To serve the entire continent: Ma Bell (AT&T).
They regulated how long you could talk, where you could call,
And charged a buck a minute for long distance. That's not all.
They owned the phones within your house. You paid a monthly fee.
That's easy to do when you hold a clear monopoly.
But, there were those who would not simply take it with a frown.
You've heard of them as phone phreaks, and they brought the system down.

Back then, Ma Bell used sine waves for her crude security,
And two point six oh kilocycles was the frequency
That opened their long distance lines. In fact, that was the key
That early hackers seized upon to make phone calls for free.
The legend is, a radio ham who was completely blind
Had perfect pitch, and (maybe accidentally) did find
That if he whistled carefully a clear and perfect tone,
Then he could call to anywhere, for free, from any phone.

A bunch of electronics junkies jumped upon this find,
And built tone generators. You did not have to be blind
To see the opportunity. A clever underground
Community made boxes to produce that secret sound.
A Berkeley engineering student sold them from his dorm,
And Blue Box phone call parties very soon became the norm.
You'd go to one and get to make a free long distance call.
The guy would then take orders, build a batch, and sell them all.

A phreaker named John Draper, eating cereal one day,
Discovered in the box a plastic whistle, meant for play,
He tooted on it tentatively, recognized the tone
As two point six oh kilohertz, then ran to grab his phone.
The damned thing worked! That whistle was sufficient to unlock
The circuits that Ma Bell tried unsuccessfully to block.
And that is how a radio ham just sitting down to brunch
Became known to the masses as the phone phreak Cap'n Crunch.

His reputation growing with each larcenous phone call,
John was a modern Robin Hood, beloved by one and all
For publishing the secret of his whistle and his pranks.
The Quaker Oats firm, most of all, were sure to give him thanks
For doubling their market for the brand called Cap'n Crunch,
Which every techie bought (but for the whistle, not for lunch).
But, by telco employees, John was very much detested.
AT&T called FBI, and had the guy arrested.

I speculate it must have been a most amazing sight:
A score or more of special agents, creeping through the night,
Surrounding Draper's phone booth just to catch him in the act
Of blowing on his plastic whistle. I know it's a fact
They caught him, and they cuffed him, and they read him all his rights,
And dragged him to the station house where, much to his delight,
Said "You may make one phone call," and to everyone's surprise,
Saw draper smiling broadly, with a twinkle in his eyes.

The lawyer that John rang up was a fellow ham, Greg Knapp.
(It's funny how activities and interests overlap.)
A recent law school graduate, Greg had just passed the bar,
Hung out his shingle, though not yet a legal superstar.
But Greg declined to represent John, fearing that this case
Might soil his reputation, maybe even bring disgrace.
Knapp missed an opportunity, for if he had agreed,
It might have brought him fame and fortune; might have got John freed.

Before the court date, AT&T offered John a deal,
To stop him once and all from teaching everyone to steal
Their services. They'd drop the charges, let the guy to free,
If he'd agree to help to bolster their security.
Both freedom and a paying job? However could they lose?
Had they read Draper better, they'd have known he would refuse.
For Robin Hoods don't sell out to The Man. The plan would fail,
And Draper spent a year residing in the county jail.

The timing was impeccable! For entering the clink
Gave Draper time to contemplate, and cogitate, and think
About a fellow phone phreak, and what Wozniak had done
To build a kit computer that was known as Apple One,
Now entering production as the Apple Two machine.
John simply had to have one! So, he hatched a clever scheme.
The judge was quite agreeable, allowed one in his cell;
He sought to rehabilitate, and educate as well.

A year in prison's ample time to rehabilitate.
In Draper's case, the leisure and resources to create
A revolutionary software product everyone would want
For writing on computers in a rather simple font.
So, *Easy Writer's* birth occurred under lock and key,
A task that John could not accomplish if he had been free.
The first PC word processor emerged from Draper's cell,
And, once released, he had himself a product he could sell.

When he got out, and looked about, John came to realize
That personal computers promised him a bigger prize
Than any phone phreak ever dreamed. The valley paved with sand
Would cultivate new products that the public would demand.
So, John retired his whistle, and his blue box, and the rest,
And kept on writing code. His goal: be first, if not the best.
He managed too to capitalize on his former fame.
A company was formed, and Cap'n Software was its name.

The Cap'n and his company at first were riding high.
But any software product will eventually die.
For *Easy Writer* (still the first, though maybe not the best)
Was soon eclipsed by *WordStar*, *Apple Writer*, and the rest.
The PC revolution still continues to this day,
Though phone phreaks and AT&T have all but gone away.
Judge Greene's decision broke up telco's long monopoly.
There's no long distance any more. Today, those calls are free.

The Halted Surplus Store

When I was young and learning the electronic builder's arts
A surplus store named Halted was my favorite source for parts.
They offered stacks of circuit boards that I would gladly strip
To mine their gems of silicon. It was always worth the trip.

The owner was Hal Elzig, and his partner's name was Ted.
Assisted by Hal's father-in-law Merle. Now all are dead.
But this was forty years ago. The Valley still had farms,
And not one budding techie could resist their surplus charms.

The local electronics junkies frequently would meet
At the Linear Accelerator halfway down the street
From Hal's and Ted's old surplus store, so it was no surprise
To find them swapping parts there with the builder/hacker guys.

The first Homebrew Computer Club met once a month at SLAC.
I attended their first meeting but I never did go back.
Because I noticed down the hall, much to my delight,
The Microwave Society met each month on that night.

The microwavers helped me to steal satellite TV,
While next door were the geeks who thought computers should be free.
I built a minor fortune from my microwave ham rig,
But it was those computer nerds who really hit it big.

A local kid named Wozniak was introduced to me
Not by name, but as WA6BSV.
On Friday nights he'd go to SLAC, some circuit parts to score.
And so, I introduced him to the Halted Surplus Store.

At SLAC one evening, Woz displayed a printed circuit board
With ones and zeroes, i and o, and ram and rom and more.
His prototype contained a Motorola CPU,
There's nothing that his single-board computer couldn't do.

Steve showed it off at HCC, he called it Apple One.
It was bigger than a breadbox, but outshined the brightest Sun.
The dollars that his kit cost were six hundred sixty six.
You'd sell your soul to get one, for it did such nifty tricks.

And in the corner of the box, a switching power supply
Put out five volts at twenty amps. I could not figure why
He needed so much current for a sixty five oh two.
Why so much smoke to power a computer that's homebrew?

Woz pointed out the edge connectors on the motherboard.
He said, "You need expansion slots, but who can guess what for?
To make the box more useful you need plug-ins, it is true,
But without a low-noise switcher there's not much they can do."

The very first computer store, the Byte Shop it was called,
Had ordered fifty Apples. Wozniak was just enthralled.
But he required components and he didn't have the cash,
Yet he was not about to let his nascent empire crash.

So Steve went up to Elzig at the Halted Surplus Store,
Said "I have built a prototype, but need so many more!
If you'll extend me credit for the parts that I require
I'll give you a percentage of my budding new empire."

Now Hal he was all business and he dealt in strictly cash,
For many were the companies that he'd seen grow and crash.
"I'm sorry," he told Wozniak, "but I am not your man.
I'm thinking you and Jobs should sell that old Volkswagen van."

So Stephen and his partner sold the van, and got to work.
I often heard him telling Jobs that Hal was such a jerk.
They paid the price and built another fifty Apple kits,
And when they took it public, Merle and Ted and Hal had fits.

The moral of this story should be plain for all to see.
The way to fame and fortune is not a Ph.D.
If a kid with an idea wants some parts, and cannot pay,
Just give him his components, or you'll live to rue the day.

The Satellite Rebellion

The shows you watch on PrimeStar and DirecTV as well
May seem to fall from heaven, but they rose up out of hell.
The tale of how they got here is a story worth the telling,
As long as you don't take off points for scansion, rhyme or spelling.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

Who was it who developed home satellite TV?
Libertarians and hackers thinking programs should be free.
"If photons from your satellite are falling on my head,
You can't stop me from intercepting them," is what they said.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

The early program vendors, HBO and MTV,
Sold signals at a flat rate to the cable industry.
The cable downlink stations cost a hundred thousand bucks,
But hams could do it cheaper with some cunning and some luck.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

Though amateurs, these microwavers, military-bred,
Had come to see that off-the air and cable were both dead.
If networks could use satellites to beam their shows around,
Then why not intercept the parts that chance to run aground?
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

They met in Oklahoma, vendors, hackers, and the suits,
Attempting to legitimize their technical pursuits.
They formed a trade association, acronym of SPACE,
And even hired a lawyer in attempting to save face.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

The first to pull in video and synch it on the screen
Was a double-E from Stanford. We were envious and green.
Though others were attempting it, Tay Howard won the race,
And that's how he became elected President of SPACE.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

Soon ten and twelve foot dishes came to dot the countryside.
When they saw their profits tumble, the cable vendors cried.
Their only recourse seemed to be a brave and costly gamble:
To save themselves from piracy, they had to learn to scramble.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

Our best response was standard military ECM.
If they scramble to defeat us, we can just unscramble them.
So what if it's illegal? You think we give a damn?
It's much easier and safer than the shit we pulled in 'Nam.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

Just open up the classifieds. A hundred ads you'll see,
All selling tricks to help you pull in programming for free.
The backyard dish phenomenon had spread across the land,
A challenge just as blatant as a line drawn in the sand.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

The amateurs and hackers appeared to win the day,
Until the final battle, won by Hughes and RCA.
Our analog decryption skills were better from the start,
So DSS went digital, and shot us through the heart.
 Ship ahoy, all ye lads. May the photons fall free.
 'Twas a crew of crypto pirates brought you satellite TV.

Extraterrestrial Relays

Sir Arthur C. Clarke was the first to embark on a plan to encircle our planet
With radio moons. It would not happen soon. One must not take the challenge for granted.
Arthur Clarke did derive in nineteen forty five, for a *Wireless World* article famous,
A satellite orbit in synch with the Earth. Now the Clarke Orbit Belt we have named it.

At twenty two thousand and three hundred miles, directly above the equator,
The orbital period's twenty-four hours. Earth's spin is no less and no greater.
If stations were placed in a rocket to space, and could orbit in synchronous motion,
They'd transmit to Earth information of worth. At least, that was Sir Arthur Clarke's notion.

But radio relays in Arthur Clarke's youth were incredibly bulky and massive,
With transformers, valves, and great power supplies, so Clarke's role in the task would be passive.
The boosters to orbit a transmitter would require rocket advancement persistent.
Clarke figured that might take a century more, so to launch he was not too insistent.

When just two years later at AT&T Bardeen, Shockley and Brattain developed
The first solid state amplifying device, oh, the promise transistors enveloped!
Receivers and transmitters now could be built at a scale not before contemplated,
And placed into space. So we started a race to build Arthur Clarke's dream, unabated.

Now Domsats and Comsats and Intelsats all are competing for orbital parking
On Arthur Clarke's belt. I imagine he felt very proud just to see them embarking.
For satellite messages now could be sent so much faster and cheaper and safer
Than writing them down and then driving around to deliver those pieces of paper.

From Colombo, Sir Arthur was just on the line with his agents in New York and London.
His world is made smaller by his own design, without which he'd have a conundrum.
We can't sing together through satellite links, due to long propagational de-lays.
So sing with me now of Sir Arthur C. Clarke, and his Extraterrestrial Relays!

Computer Chanty

When mainframes were the only game, and stretched from wall to wall,
Computer centers took up half of Engineering Hall.
We punched our cards of Hollerith, and sometimes had to laugh
That error statement printouts took an hour and a half.

They finally put a terminal in each laborat'ry,
A clunky, clanky KSR, a Model 33.
We timeshared over data lines, so who could ask for more?
We stored our code on paper tape and kept it in a drawer.

The dedicated mini was a most amazing sight,
The boot routine was so obscene it kept you up all night.
Initializing toggle switches; pain in all our necks.
At least it made us learn to count in octal and in hex.

In time, I built my own machine. You should have heard me cuss.
I tried to catch a ride upon the S-100 Bus.
Though grateful for the storage, There's one thing I'll never get:
Attempting random access on an audio cassette.

I still remember feeling like the luckiest man alive;
My supervisor brought me my first eight inch floppy drive.
We learned to work in CP/M. It wasn't such a loss
With 2k for the system files. And then along came DOS.

The five-and-a-quarter floppy hardly took my breath away,
One sided, single density, a hundred sixty k.
The old dog microprocessor began to learn new tricks;
The PC, XT, AT used a something-eighty-six.

Now floating point arithmetic is something of a scam,
But thanks to Windows, I can see how fortunate I am...
That memory is cheap and I no longer have to beg:
What used to take 640k now eats a thousand meg.

The operating system for the Macintosh is built
Around a Unix kernel, so the users feel no guilt.
The system never crashes. So just what did Apple do?
Abandon the G4, and use an Intel CPU!

My latest network server has a Terabyte hard drive.
Along it clips, a thousand MIPS, it's practically alive.
It's WiMax to the Internet, but life is not all smiles;
A user I have never met has just erased my files.

And now that there's a PC for each person's desk and home
I marvel at how rapidly and far it all has grown.
As I think back to systems past, you know it really hurts;
My students pack more power in the pockets of their shirts.

A week ago last Saturday I got a pleasant call,
They just installed the Super Cray in Engineering Hall.
They ran my simulation, and I really had a laugh --
The error statement printout took an hour and a half.

Entering Academia **(The true story of winding down Microcomm)**

Establishing a startup must be every techie's dream.
With new ideas to exploit, it quickly comes to seem
As though you're at your industry's advanced and cutting edge.
But soon that starts to stale, and so your options you must hedge.
An entrepreneur tests the waters, finding them just fine,
Until his balance sheets direct him to the bottom line.

The truth is that invention, which had called you from the start
Is not the bulk of business. In fact, it's the smallest part.
It's great to be the first to harness new technology,
But, going into production, you will quickly come to see
The vultures circling overhead, just waiting to swoop down,
And soon you know you're really not the only game in town.

A certain kind of person loves to stay, and run the show.
But, if you are like most of us, you'll very quickly know
That daily corporate drudgery is not why you signed on,
And that's why, after just three years, most businesses are gone.
Their founders fast return to being normal working stiffs,
But certainly they're happier. No buts, or ands, or ifs.

And, so it was with Microcomm. We started with a roar,
Developing the first home satellite TV, and more.
But soon the imitators hit the market with their clones,
And they could do it cheaper – you just knew it in your bones.
Without a new design, your creativity would peak,
And this would soon become a boring forty hour week.

Perhaps I was more fortunate than most. Without much reach
Outside the box, I knew that I could always go and teach.
For any engineer who can communicate quite clearly
Is wanted by the colleges, and they pay rather dearly.
Within just a few years, I went from Captain of Industry
To tenured Full Professor (which was good enough for me).

A techie in the classroom has a very special role,
For if he does it right, he can quite easily control
Not only student's prospects for employment and advancement,
But industry's near future technological enhancement.
Your function starts to change, and if you're lucky, you may enter
The classroom as a teacher, but you soon become a mentor.

If you should have the knack for it, you very quickly find
That you've become a sensei in the dojo of the mind.
And will you miss the rat race of the business world? Perhaps.
So wait and see what happens when you let some time elapse.
But that's just my experience. Readers should be wary
When charting their own course. Remember, your mileage may vary.

Microwave Lab **(true adventures in teaching)**

City College offered Electronics Tech degrees.
They hired me to teach classes there, allowing me to seize
The opportunity to carve myself a special niche
Developing curriculum that only I could teach.
What I orchestrated there was not unique to me.
It's common, and we tend to call it Job Security.

Business in the Valley had just started to expand
To software and computers, and I came to understand
Our courses would evolve that way. But this was not for me,
My training was in analog and RF circuitry.
So very soon, I shared a vision only I could see:
"Have you considered offering a microwave degree?"

Support from local industry confirmed there was a need
For microwave technicians, so my colleagues soon agreed
That I could write and offer classes just to fill that void --
A move that I believed would keep me gainfully employed
Until Social Security made all that obsolete.
So I was bound for victory. Or, maybe, for defeat?

I built a lab, and started teaching courses in RF
To students who were, fortunately, neither blind nor deaf
To all the possibilities there are in microwave.
Not one of them desired becoming just another slave.
My students would advance to senior supervisor's ranks,
And when they did, both they and their employers gave me thanks.

At first with nothing there to lose, and everything to gain,
I nonetheless knew industry was bound to wax and wane.
Demand for my technicians would eventually run dry,
And my department sought out other specialties to try.
Quite soon, I knew, would come the proper time for moving on --
Itinerant professors are so quickly come and gone.

But, I had built a reputation industry could see,
And I had, to fall back upon, my startup company.
Already I had hired the best technicians I could train,
So there was not a need to seek a teaching job again.
The fact is, I could just relax, and take a restful nap,
Until interest and opportunity would overlap.
So, I took a vacation, trying not to overlook ...
But that's another story, for the next poem in this book.

Nontraditional Student **(or, how ham radio sent me back to graduate school)**

July of '84, I flew my plane around the bend
To Cedar Rapids, Iowa, in order to attend
A conference of the Central VHF Society.
I planned to give a paper, for they had invited me,
Rick Campbell, Allen Katz, and Thomas Clark to come and speak
To something like a hundred twenty fellow radio geeks.

At their convention banquet, I discover soon that I've
Been seated next to Campbell, Katz, and Clark, and all our wives.
The dinner table conversation very quickly turned
To grad school reminiscence – where we'd gone, and what we'd learned.
And there was I, the only member of that august crowd
Without a Ph.D., and I informed them so, out loud.

A message was conveyed by gazes penetrating, steely,
For everybody stared directly at me, thinking, "Really?"
But, where I taught, a graduate degree was not required,
Although it had been something that I very much desired.
I broke the awkward silence when I finally dared to say
"Although I plan on going back to graduate school some day."

Returning home from Central States, a thought stuck in my craw.
I mused about that dinner. It began to really gnaw.
"Since I am equal to them all, intellectually.
Just why am I the only one without a Ph.D.?
I wish that 'some day' would arrive." And so it was to be
Amazing opportunities would soon appear for me.

My friend Tom Leonard was the Aerospace Department chair
At the local university. He rang me up from there,
A week before the academic term was due to start,
In need of a professor. Would I come and do my part?
He offered me a job, and I accepted on the spot,
With no idea this would lead to trouble. Quite a lot.

A week into the term, I had to go to Personnel
To fill out lots of papers. They were worried, I could tell,
When asking, "Just where was it that you got your Ph.D.?"
"I do not have one," I replied. "You'll very clearly see
From my CV, that I am just a Bachelor Engineer."
"We have a problem," Houston said. And I replied, "Oh, dear."

For they'd already hired me! And I had begun to teach.
A doctorate, although required, was not within my reach,
And still they had to pay me, though I was not qualified.
I hadn't claimed credentials, and I surely never lied.
The compromise that Tom suggested sounded rather cool --
They'd keep me on the payroll, if I just went back to school.

So: teaching, research, coursework meant my time was running short,
Though fortunately I secured additional support.
At first, a Goddard Scholarship fulfilled a fiscal need.
The Hertz Foundation fellowship ensured I would succeed.
And that's how a ham radio convention set the stage
For me to earn a Doctorate, past forty years of age.

I Once Got a B

When I enrolled at Berkeley, I had taught for 15 years
So academic rigor held for me no special fears.
Returning for a Doctorate past forty years of age
Was little more than adding to life's book another page.
I set my standards high, for I was really quite demanding
Of others, and myself as well (though also understanding).

Professor Gordon Newell was assigned as my advisor.
Fortunate for me, because I knew nobody wiser.
He was widely published, internationally known
As Queuing Theory's father, when the field's first seeds were sewn.
So, when they scheduled him to teach a Queuing Theory class,
I signed up on the spot, although I knew he'd bust my ass.

Up 'til now, my work had earned me nothing but straight A's,
Because I worked hard every night, and studied all my days,
And Newell's class was no exception. Difficult at best,
Though I expected to excel, and mastered every test.
But when the grades were posted on the board for all to see,
I was exasperated to find I had earned a B.

I rushed to Newell's office, for I was not pleased one bit.
Slamming down my grade report, I asked, "What is this shit?"
Professor Newell leveled then a steady gaze at me,
Sighed deeply, and replied quite calmly, "I once got a B."
I learned a lesson I now share with all who should inquire:
Perfection is a standard to which no one should aspire.

The Other Path (the truth about moving East)

"Two paths diverged in the wood, and I..." But, hell, you know the rest,
How most folks followed Greeley down the path that headed West.
They built their high-tech empires, valleys lined with silicon,
And wrought from them the fortunes that their futures rested on
While I, the aging technocrat, had wrestled with the Beast
Of Industry quite long enough, and headed for the East.

Ten years before the bubble burst, I left them in the dust,
And hitched my wagon to the belt of low-tech ruin and rust.
And here, from these less traveled climes, I watched their fortunes grow,
While singing out a different song, the music soft and slow.

I'll never know the massive wealth they gained and lost in turn.
Instead I have returned to health, and here begun to learn
That what most people value, what I too had long held dear
Is motivated not by love or passion, but by fear.

The fear of having less is just depriving them of more,
And those who build the castles each day close another door.
While I, who chose the other path, have nothing much to lose,
And everything to gain, from simply knowing how to choose.

Doomed to Fail (why Williamsport?)

Chance and circumstances fueled my move to Williamsport.
Never my first choice, it was in fact a last resort.
Living for three decades by the San Francisco Bay,
I had grown to love the climate; thought that I would stay.
After my divorce, I had to find another way.

Sold the house. Dividing up community property
Provided for the family, with little left for me.
Two kids starting college. I put some aside for each
And although I had a job, could always stay and teach,
Real estate in San Jose was priced beyond my reach.

At an avionics conference in Daytona Beach,
Met a dean from what could be another place to teach.
I had been in Pennsylvania many years before,
As an undergraduate. Now I could explore
Rural culture, education, scenery, and more.

His small vo-tech campus sounded interesting to me:
Recently acquired by Penn State University.
Most existing faculty had no advanced degrees;
They were adding four-year programs. Needed PhDs
To develop Bachelor's courses. I was one of these.

When I got to Williamsport - well, speak of culture shock!
Why was there no Starbucks on the corner of each block?
Worse, I hoped to innovate, but quickly came to fear
Progress would be slow. As my new colleagues made it clear,
"Sorry, but that's not the way we do things around here."

Seems our college president had set up a no-win:
Forty Full Professors foiled before we could begin.
The fact we had been hired in at the salary schedule's top.
Made the entrenched faculty determined now to stop
Innovation before we could even set up shop.

The president was confident that this was no mistake.
"You have to break some eggs," he said, "if you intend to bake."
However, the enrollment figures that he had desired
Were failing to produce the revenue the Board required
To keep the college solvent. So, the president was fired.

All this brings me, sadly, to the moral of this tale:
Any two-tiered faculty is surely doomed to fail.
Four-year programs changed the very nature of the school,
Drawing, as they had to, from a different student pool.
After seven years, I left. You think that I'm a fool?

The Son You Have Borne Today **(a love poem)**

We've loved one another deeply
For longer than I can say --
And the finest expression of love I've known
Is the son you have borne today.

I'm awed by your strength and effort
All night, into early morn.
And the greatest reward we ever will know
Is the son who has just been born.

Your job is to love and nurture
And guide him along the way.
Fully half of your life you'll sacrifice
For the son you have borne today.

He'll grow into strong adulthood
Inspired by your strength of will
Then turn from your side to confront his life
And yet be your baby still.

May he be your life's fulfillment
In ever so many ways.
For the very best part of your beauty, my love,
Continues beyond our days.

No Water in the Pot (the education of Andrew)

My young son Andrew's great at doing chores around the house --
Some day he'll make some lucky girl an admirable spouse.
I'm very often proud of him, but one time I was not
Was the day he turned the stove on with no water in the pot.

The burners on my stove are indecipherably marked,
And so it came to pass one day that Andrew deftly parked
A kettle full of water down on burner number four,
Then lighted burner number three, and headed out the door.

Upon the lighted burner sat my favorite stewing pot --
It's often filled with chili beans, but this time it was not.
The kettle never whistled, so I'm sure that Andrew felt
His water hadn't boiled yet. Who could know my pot would melt?

The smell of burning metal is not easily forgot --
I ran into the kitchen and I tried to lift my pot.
But somehow it was welded to the burner for all time,
Its bottom surface glowing red, and thinner than a dime.

It took about an hour for the pot to finally cool
Enough to lift it from the stove. Did Andrew feel the fool?
Of course not. Quite the contrary! My son observed with joy
The pot was truly bottomless, a marvelous new toy.

If he had burned the house down, Andrew would have known disgrace.
But fortunately, stewing pots are easily replaced.
And there is just one lesson which remains for him to learn:
A watched pot may never boil, but neither will it burn.

Stealing the Key (truly standing up to Mother)

"You're making an awful mistake," Mother warned me, as only a Jewish Mom could,
"And so I am trying to save you. I tell you, this marriage can lead to no good.
I wish I could be more supportive, bestow on you happiness, nachas and luck.
Instead it's as though you were standing there helpless, in front of an oncoming truck.
I feel obligated to stop you from making a terrible, awful mistake.
If you go ahead with this marriage, I'm certain my heart and your spirit will break."

Remember that section in Robert Bly's *Iron John*, the part about stealing the key?
The Prince had to search for it in the Queen's bedchamber, right where Freud said it would be.
There comes a day each man, Bly tells us, must steal the key. Often in anger or rage.
Maybe it happens in youth, adolescence, or later -- perhaps middle age.
But never until he has stolen the key can a boy hope to grow to a man.
That made little sense when I first read the book. I'm beginning to now understand.

My Muriel isn't the love of my youth, or my first wife, or even my second.
Consider remarrying this late in life? It's insanity, my mother reckoned.
Why burden myself with a house full of children, a woman so many years younger?
But Mother can never have any idea of what I desire, how I hunger.
"An awful mistake? Absolutely! Undoubtedly! But don't you think it is time,
At fifty years old, for my awful mistakes to be not yours, dear Mother, but mine?"

Forever the matriarch, Mother still fancies protecting me from my own life,
A life that's made richer and full by the wisdom and beauty of my loving wife.
Asserting myself, better late than not ever, has brought me incredible luck,
For now I have earned both respect of my mother, and love from my dear speeding truck.
I've weathered a storm I could never anticipate when this adventure began:
Perhaps for the first time since I was a fountain pen, now I am truly a man.

Leaving Academia **(The true story of the founding of The SETI League)**

Richard was a ham friend. Since he didn't live so near,
He'd call me on the telephone, maybe once a year,
So we could catch up on our lives. Early one December,
Richard rang me up. It was a call I'd long remember.
My wife had gone out Christmas shopping. I was home alone,
With lots of time to talk to my friend Richard on the phone.

“So, what's new with you?” he asked. He kept his questions short,
To give me lots of time to file as detailed a report
As I was wont to give. This time, I tried to make it clear
That I had had a busy and most interesting year
Teaching some, and flying some, and getting on the air
Not so very often, just to talk to here and there.

“And you?” I reciprocated. “Tell me, how's your life?
Are you still a bachelor? Did you ever take a wife?”
“I may be deluded,” Richard said, “but I'm no dunce.
Marriage is the same mistake I never did make once.”
Richard then went on, of matters serious and petty,
Until he asked me, “Do you know what's going on with SETI?”

I was well aware that NASA's funding had been cut,
And the search for life was in its final phases. But...
Maybe private funding would appear to save the day.
We can carry on, I said. There has to be a way.
Richard and I talked on for an hour and a half
About this situation that could make you cry, or laugh.

(It's no more a secret, so now I'm free to tell
His callsign. Richard's WA2IKL.)
Then he dropped his bombshell, and at last I came to see
This wasn't idle chit-chat – he was interviewing me!
“I'm impressed there's so much about SETI that you know.
I've founded a non-profit. Would you like to run the show?”

I was being asked to turn my back on something great:
A job for life, backed by the taxing power of the state,
With pension and full tenure, for a chance to tackle real
Fringe science with uncertain funding. I began to feel
There's just no way that I could pass up such a cushy deal!
So, I told Richard that his offer had a strange appeal.

I first took a sabbatical from teaching, just to find
I liked the change. And so, the next semester, I resigned.
Those twenty years of teaching quickly slipped into the past.
Two decades now I've run The SETI League. It's been a blast!
The classroom was another life that I can scarce remember,
And all because my ham friend, Richard, called me that December.

War Zone 2000: Colombo

Guerrillas on the north side of the island
Seldom leave the safety of the mountains
Except for the occasional foray
To the capital, such as the one last week,
An effort to assassinate the President,
Or blow up some colonial hotel.
Who am I that I dare to flirt with danger?
I knew the situation when I came here.
Said nothing, lest I might alarm my mates,
Did nothing, so as not to let fear rule me,
Changed nothing that could even tempt the fates.

Arriving, I have found myself transported
Back in time to quite a different war zone
In which I was the one all clad in khaki
Who had to make the life and death decisions.
The armed militia guarding every corner,
Machine gun bunkers scattered through the city,
And checkpoints on the road at frequent intervals
Remind me this is not at all the carefree
Tourist destination of my choice.
I knew this when applying for my visa,
Yet still refused to heed the inner voice.

Upon the highway leading from the airport,
My car is stopped by soldiers at a roadblock.
They scrutinize with care my driver's papers,
But never even ask to see my passport.
A few miles down the road, another roadblock,
And this time the militia bid the driver
Step outside the vehicle, as they search him.
Should I step out too, I ask the driver?
No, he says, stay seated. They have got
Little interest in you; you are white.
Only then I realize he is not.

And here, I undergo a transformation!
No longer am I middle aged and cautious,
But find myself renewed to youthful vigor
I feel myself invincible, immortal,
More fully in this world, far more awake
Than I've been for at least a quarter century.
Have I been in a slumber half my life?
When I return to peace and wealth and safety
I know that I must put an end to fleeing
All danger and uncertainty before me.
If not, there's very little point in being.

Academician

When I was in Berkeley, at the University,
Just around the time that I had earned my PhD,
NASA had a mission, not exploring distant stars,
Just the outer planets in their orbits beyond Mars.
Voyager was managed by a team at JPL,
Led by a professor, Edward Stone. He came to tell
All the engineers about his mission's great success.
I went there to meet him, and impress him, I confess.

After Edward Stone had given his amazing talk,
Straight up to the podium I quickly took a walk,
Boldly introduced myself, and gave him my CV,
Told him I had just completed my own PhD,
That I was a Space Communications Engineer,
And that JPL could use my skills. I made it clear
I had much to offer to the Pasadena team,
That they ought to hire me and fulfill my lifelong dream.

Pocketing my resume, both patient and polite,
Stone explained he couldn't hire me on the spot that night,
Promised that when he got home, he'd very surely tell
All about my interest to his Chief of Personnel.
Forcefully and confidently, I pressed my attack,
Realizing odds were I would not be hearing back,
Feeling lucky intercepting such a busy guy,
Not too disappointed at receiving no reply.

Let's fast forward to two thousand one. For by that year,
I'd seen recognition and success in my career.
Now a Full Professor, I was very recently
Nominated to the International Academy
Of Astronautics. As it happens, their Vice-President
Was Professor Edward Stone. And so it was I went
To an Astronautical Convention in Toulouse,
Hoping to meet colleagues, do some networking, and schmooze.

Walking to the conference center one September day,
I saw Ed Stone walking down the path the other way.
When we passed, his eyes betrayed a glint of recognition.
"Say," he asked me, "did you ever garner that position
Down at JPL?" I said no. Edward shrugged, "Oh, well.
Rest assured I gave your resume to Personnel."
I was quite impressed by Stone's amazing memory.
He became, and still remains, an honored friend to me.

Six years passed. The Academy met in Hyderabad.
I was being honored, and so I was very glad
Ed Stone was now President, for he presented me
With my Senior Membership in the Academy.
Stone and I are both retired now. We meet every year
At astronautics meetings run by younger engineers.
For decades, I've continued to enjoy Stone's company,
Glad he spoke in Berkeley, at the University.

Rocket Scientist (becoming a NASA Principal Investigator)

I suppose I've always known that all good things must end.
Starting up The SETI League with Richard, my ham friend,
Never did I doubt his dedication to the cause,
Knew he would provide support and funding without pause.
I guess I began to think of him as Santa Claus.

For a while, the resources all fell into our lap.
Richard had a company whose profits he could tap
For the cool components and equipment we desired,
Building radio telescopes. We had all we required
To realize my new designs (which really were inspired).

Richard's patent lawyer, Orville, lent us his support,
Moral and financial, so we needed not resort
To extensive fundraising. We really were in luck,
Knowing he would lend a hand whenever we got stuck.
When he passed away, he left us half a million bucks.

That sum was enough to fund us half a dozen years.
Though we were abstemious, you can guess our fears
That Orville's endowment would be running dry some day.
"Find another benefactor," Richard had to say.
"I don't know how long I can keep covering your pay."

My consulting company was my ace in the hole,
Because I knew The SETI League could not long be my sole
Source of income. And so I began to look around
For a high-tech startup breaking new and fertile ground,
And a NASA contractor I ultimately found.

QorTek had a contract to design and fabricate
A space-borne radar system, and it promised to be great.
To implement it, they required an aerial design.
With a Penn State EE prof, they hatched a plan to sign
Up one of his grad students to build them one on time.

QorTek's NASA contract was intended for three years.
One year in, their CEO was starting to have fears
That the Penn State student was not holding up his end
Of the project. He decided maybe he should send
Me to campus, to see what assistance I could lend.

What I saw was disappointing, at the very least.
Very quickly I perceived that not if we increased
Penn State's budget tenfold, would their circuits ever fly.
Just re-engineer the thing, my client begged me try.
Sadly, I said "better just to let the damned thing die."

Megabucks in contract funding clearly were at stake.
I insisted PSU had not made a mistake.
NASA's goals and PSU's objectives don't agree.
NASA needed space-flight hardware, anyone could see.
Penn State wanted just to fund another PhD.

Were they to abandon this design, my client feared,
There'd be insufficient funding for the coming year.
With renewal deadline looming, I took to my lab,
Did some testing, built some circuit boards, and took a stab
At a fresh design. I gave it everything I had.

Three weeks later, I'd produced the crudest prototype,
Thinking to buy time from NASA, tried my best to hype
My alternate design approach to QorTek's CEO.
He said he'd consider it, but that I'd have to go
Down to Goddard and put on a dog and pony show.

"Our initial concept," I told NASA's engineers
"We thought showed great promise, but we've all along had fears
That it wouldn't be all that it was cracked up to be.
So, along the way, we funded as IR&D,
This design alternative I want you now to see."

I then showed my prototype. Although it seemed quite crude
All the NASA managers quite quickly understood
It would clearly outperform the PSU design.
(Little did they know I was just trying to buy time.)
The antenna ultimately voted for was mine.

But, there was a catch. The Program Manager chimed in,
“We sincerely want your Phase Two contract to begin.
Just one minor detail,” she continued with a sigh.
“We will fund it, but you must take over as PI.
Run the program, and you’re in.” “OK,” was my reply.

Principal Investigators under contract can’t
Simply be consultants. A condition of the grant
Is that the PI must be a full-time employee.
I had my consulting client, I began to see,
Over quite a barrel. For I would not work for free.

“What is it you want from us?” the CEO inquired.
It was obvious I was expecting to be hired
At substantial salary, and title, and the best
Benefits they could afford. He sounded quite distressed,
But I knew that somehow we’d negotiate the rest.

Thus did I become Vice President and CTO,
And for two years I was most content to run the show.
NASA got their radar system. I got decent pay.
I resigned the SETI League. And, when I went away,
They made me Emeritus. I still am, to this day.

Touching the Sky **(The true story of the formation of AvSport)**

That flight in the Aeronca Champ in 1961
Was not supposed to change my life, was only meant for fun.
Who knew it would propel me toward a new, uncharted course?
It's almost as if I were guided by an unseen force
That's leading me along a certain path for my own good...
But that sounds superstitious, and I'm never that (knock wood).

When military service was inevitable, I
Rejected Army, Navy, and Marines, to seek the sky.
The Air Force trained me in electronic combat from the ground,
And, though I never earned my wings, I very quickly found
Affinity with those who flew the transports and the jets.
I knew I would return to flying some day, just not yet.

But when I left the service, "some day" didn't come around
For better than a decade, and by that time I had found
The resources to earn my ratings up through CFI,
So I could introduce a host of others to the sky.
It seems that flight instructing was as natural to me
As physics or as engineering. They all set me free.

Now, flight instruction in the USA had hardly changed
Since way before Pearl Harbor. I considered it quite strange
Curriculum development was failing to keep pace
With changes in technology. I may not be an ace,
But as an educator, I could see a better way.
I knew I'd have to try to change the status quo, some day.

Whenever you are working for somebody's FBO,
Upsetting their whole apple cart is not the way to go.
You teach the class exactly as the management decreed,
And do not rock the boat. It is as though you have agreed
That any innovation you are wishing to pursue
Will have to wait until the flying school belongs to you.

When that chance you've anticipated finally presents
Itself, you have to go with it, can't let it make you tense.
The new Sport Pilot rating was an opportunity
To change the flight school paradigm to what it ought to be.
The timing was ideal, as I had recently retired,
And, as for the curriculum, I really was inspired.

It took me seven months to plan my business in detail,
From airport lease, to planes, to what to do if I should fail.
The normal aviation business plan requires some grit:
Decide up front how much to lose. Achieving that, you quit.
I traded in my Beechcraft on a Czech primary trainer.
No mortgages. No creditors. It couldn't get much plainer.

This whole new training model, and the lesson plans I made,
I shan't be sharing with you – they are secrets of the trade.
The bottom line: I crank out licensed pilots in ten weeks,
Good stick-and-rudder men and women learning my techniques.
And what's it cost me? Every extra minute of my life --
I thank the Goddess I have such a great, supportive wife.

The Susquehanna Valley is the perfect place to fly;
The scenic hills and rolling river complement the sky.
Lock Haven is an ideal strip for training, it is clear,
With weather that's acceptable for forty weeks a year.
So if the blue sky beckons, and adventure you've been cravin',
Come out today and fly with me, at AvSport of Lock Haven.

The cost? Not insubstantial, because nothing good comes cheap.
I'm marginally profitable. Mostly, though, I reap
Inordinate returns when each new pilot earns his wings.
The income isn't much, but there are more important things.
When my accountant checks the books, and dares to ask me why
I do this, I say it's because I get to touch the sky.

Droning On

Drones are not a new idea. I became aware
Of UAVs at Lockheed, back when I was working there
As a junior engineer. A contract they had won
To build an RC model carrying camera and gun.
But that was not my project, so I paid it little heed.
Besides, who but the military would have such a need?

Fast forward about forty years. Suddenly, a drone
Would show up underneath the Christmas tree in every home.
They carried no munitions. Just a camera perhaps,
Could navigate by GPS and ones-and-zeroes maps.
A flying photo platform that the masses could afford
Was spawning a new industry that could not be ignored.

And I, by now a technocrat of global reputation,
Was running my own flying school, the finest in the nation.
I sensed an opportunity, and challenges as well.
What future did these drones hold? Frankly, none of us could tell.
But it was fairly obvious, did not take half a brain
To see how many pilots I could get a chance to train.

A million hobby drones were quickly flying off the shelf.
Though automated, not a one could fly all by itself.
The FAA did not take long to get into the act.
They started writing rules and regulations, and in fact
Would soon want registration of all drones, you understand,
As well as those who wished to act as Pilot In Command.

The first certification path for drones' commercial use
Was simple, leaving those who wished to fly them no excuse
But to comply. A pilot's license FAA required
(And students for my flying school were something I desired).
A horde of future aviators flocked into my class.
My goal for them was mastery, not just a test to pass.

The skill set to fly drones, and that for aircraft that are manned,
Have very little overlap, I came to understand.
But both share the same airspace, and environment as well
As the same laws of physics. I could very quickly tell
A UAS curriculum was very much in need.
The FAA, who writes the regulations, quite agreed.

I spent almost a year in study, planning, and research,
And so it was, along the way, I was among the first
Drone pilots to be licensed on the day the rules went green.
My own certificate is time-stamped zero dark eighteen.
I advertised, and instantly five students I attracted.
My course went live the week the regulations were enacted.

I spruced up my old classroom and renewed my hangar lease.
My first successful graduate works for the State Police.
Could drones be used for more than just citations to increase?
Now, accident investigation is his specialty,
And drones provide a view no other vantage point can see
Of wreckage and of damages to other property.

My second graduate had more conventional desires.
His field is videography. It seems he now aspires
To branch out into aerial photography. So, he
Immersed himself in reading after studying with me.
He had no prior training, but was motivated, and
Soon aced his test. He now is Remote Pilot In Command.

Now every academic quarter sees my classes fill
With folks who feel that Unmanned Aircraft Systems fit the bill.
A few are pilots. Some flew model aircraft all their lives.
But most are flying novices. For me, the big surprise
Is seeing those with no aircraft experience at all
Becoming experts, droning on, and having quite a ball.

Pleiades **(Remembering Robin)**

My father and my mother had a daughter and a son,
And so I had a sister. But she's not the only one,
Because when Dad remarried to a woman with three kids,
He adopted all of them. And when my father did,
They became my sisters too. So, I had sisters four,
Both adopted and biological. But wait, there's more!
For my Mom remarried too. And by his former spouse,
Her husband had two daughters. They did not live in our house,
Still they were my sisters too. But, no, we are not done.
Dad had another late in life, half-sister to his son.
Between step, and adopted, and natural, and half,
That totals seven sisters - quite enough to make me laugh.
Six of all those sisters are still very much alive.
The eldest, sadly, left us at the age of sixty five.
So, of all my seven sisters, six are burning bright.
The seventh is no longer here to grace the sky at night.
Like the Seven Sisters constellation in December,
Only six are visible. The seventh, I remember.

The Band Played The Star Spangled Banner (why peace is patriotic)

As I watch the parade pass the river
I remember the day that I marched off to war.
I was one of the lucky, I shiver,
Who never once stopped to ask "What's it all for?"
The walking unscathed. But the scars they run deep,
And they come back to haunt you whenever you sleep
Or the band plays the Star Spangled Banner.

And the band played the Star Spangled Banner
While the citizens watched with their heads held up high.
And they sang in a dignified manner,
Not a tear for the boys they were sending to die.
For the President said we'd stand up to aggression,
And keep the world free for democracy --
And the band played the Star Spangled Banner.

It was forty nine years this September
I came home a hero, a villain, a fool.
I could neither forget nor remember,
Not even a weapon, but only a tool.
Too wakeful to watch and too weary to weep,
Too troubled to talk and no counsel to keep --
As the band played the Star Spangled Banner.

We all were so young and so eager:
Untroubled, immortal, impervious to pain,
Never hearing the voice that runs deeper,
Never knowing we've done this again and again.
And they still march to battle, a promise to keep,
And their faces still haunt me whenever I sleep,
Or the band plays the Star Spangled Banner.

And the band played the Star Spangled Banner
While the citizens watched with their heads held up high.
And they sang in a dignified manner,
Not a tear for the boys they were sending to die.
For the President said we'd stand up to aggression,
And keep the world free for democracy --
And the band played the Star Spangled Banner.

Skysonnet
(on the true beauty of flight)

When first I ventured high above the clouds
On wings of fabric o'er a wooden frame,
I thought the whistling wind and engine sound
Distracting, and my pounding heart the same.
The effort of controlled and powered flight,
Propeller ever flailing at the air,
Suggest that soaring skyward is not right.
Man has, in fact, no call to venture there.

A decade and a thousand flights had passed
Since my first vain attempt to tame the sky
Before I could gain mastery at last
And confidence, though talent is not why.
The engine's throaty roar reminding still
That this is not a habitat for man,
But wilderness explored by strength of will,
Submitting to a firm and steady hand.

And now, with half a century behind
My efforts to be master of the air,
I realize that I may never find
An answer to the secrets hidden there.
For it is not some skill with a machine
That ever will define a pilot's role,
But sounds unheard, and sights yet to be seen,
Sensations that will touch the very soul.

Too soon, when I have logged my final flight
And nothing but fond memories remain,
I'll cling to every sound and smell and sight
Regretting they are not to be again.
Yet, mindful of the life I've lived aloft,
I'll all the more appreciate the worth
Of velvet skies and clouds so very soft,
Forever grateful for my time on Earth.

Competition **(Did Woz Really Win?)**

When Santa Clara Valley was just walnuts, grapes, and prunes,
Before we dreamed of microchips and flying to the moon,
Some children of the Sixties tuned in, turned on, and dropped out,
While others felt that this was not what life was all about.
I called my self a technocrat (like Woz, of whom you've heard).
Today you'd see it differently, and call us each a nerd.

This shouldn't be a competition. We are much the same,
For what we sought was excellence, not fortune and not fame.
The Woz and I built startups. Both knew moderate success
(Though his was more than moderate, I readily confess).
Yet, all these decades later, I can't help but keeping score.
I wonder, in the end, who really ended up with more?

We dabbled in ham radio, and flying, just for fun,
And in those early hobbies, I'd say Woz and I both won.
Today, after some false starts, Woz has found the perfect wife,
As have I. One to cherish for the balance of my life.
So, in the things that really matter, I think you'll agree
The score is even. Woz is running neck in neck with me.

In matters somewhat trivial: Woz drives a Tesla now,
And I a Porshe. There really is no difference, I avow.
He rides a Segway just for grins, and I a Can-Am Spyder.
Which toy is better? I don't know, so you be the decider.
I've owned some airplanes. Still have one, for flying sets me free.
Steve gave up flying years ago, so that's one point to me.

Yes, he's a multi-millionaire, so Woz should be my hero.
I'm just a multi-thousandaire, but what's another zero?
We both have traveled widely, I in coach, he in first class.
So I admit that gives Woz one point over me, at last.
His "Big Bang Theory" cameos might have me turning green,
But science documentaries keep me too on the screen.

We both went back to Berkeley, where I earned my PhD,
And he a BS double-E. That's good enough for me.
A street in San Jose is named Woz Way for all to see,
While I have seven kids to carry on my legacy.
Steve taught Computer Science in the public middle schools,
While I taught college Physics. It is hard to say which rules.

We both spoke at a CubeSat conference out at Utah State,
The year the iPhone hit the market. He thought it was great.
But, in the intervening years, he'd gained a lot of weight,
His fingers fat. The touch screen he could scarcely navigate.
I handed him my Blackberry, and said, "Here Steve, try this."
His eyes shot daggers, and I feared that he was going to hiss.

Where does this competition stand? I think that I've lost count.
We've both found joy in life, in an unlimited amount.
So, even though I must admit I can't help keeping score,
I never wished Woz less, and I can never want for more.
We've found the best and friendliest conclusion to the game:
I wish Woz health and happiness. He wishes me the same.