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The Heart Is the Fuel, the Mind Is the Wings: A Propulsion Theory of a Human Life

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Abstract

This essay defends a functional model of human motivation drawn from the physics of powered flight: the heart supplies propulsion, the mind converts that motion into direction and altitude, and the body is the airframe that carries both. The model is offered as a working decomposition rather than as metaphysics, the way an engineer decomposes the forces acting on an aircraft without claiming the aircraft is made of four parts. I trace the claim through the Western argument that reason cannot originate action, from Aristotle and Hume through Damasio's patients;

through the older traditions that never separated heart from mind in the first place, from the Katha Upanishad's chariot to the Chinese *xin*; and through the current evidence on emotion, motivation, and interoception, with an explicit accounting of where that evidence has been oversold. What follows from the model is a set of ten operating rules for a life, each one a direct translation of an aerodynamic fact.

I - THE CLAIM

The Claim

I make my living at a piano. Most of what I know about being alive I learned sitting on a bench with my hands on a keyboard, in front of people, at eleven at night, trying to make something happen in a room. Some nights the thing happens and some nights it does not, and for years I could not say what the difference was. It was not preparation. I have played badly after excellent practice and beautifully after none. It was not knowledge. There were nights when I knew exactly what I was doing and the music sat on the floor.

The sentence that finally organized it came to me in one piece:

*The heart is the fuel, is the propellant, and the mind is the wings.
The mind guides us and the heart is the fire that moves us. And
you could say the body is the vessel.*

That is three functional roles in one machine, and the first of them is the engine. The heart supplies energy. Wanting supplies energy, and so do love, grief, rage, devotion, envy, hunger, and the specific ache of having heard something once and needing to hear it again. Those states are the creature's only source of motive power, whatever else they also are. Everything you have ever done was paid for out of that tank, including the things you did out of pure discipline, since discipline runs on caring about the person you intend to become.

The mind converts. It takes energy that is already moving and turns it into height, heading, and arrival. Analysis, planning, memory, theory, self-knowledge, the ability to run a scenario and see how it ends. A mind is an extraordinary converter and a useless engine. It will shape any amount of motion into something intelligent and it will not produce one unit of motion on its own.

The body carries. It sets the load limits, the service ceiling, the endurance, and the failure modes. It is the only aircraft you will ever be issued, it cannot be swapped, and its condition bounds everything the other two can do. A pianist learns this earlier than most people, because the instrument returns a verdict on your sleep within about eight bars.

The model earns its keep by predicting failure. A brilliant person who does nothing is not lazy or blocked in some mysterious way; the wings are excellent and the tank is empty or the line is clogged. A passionate person who wrecks their life is not a fool; there is plenty of thrust and no lift surface to convert it. A person who did great work for a decade and now cannot get off the ground has usually not lost their talent; they are gliding, spending altitude they earned years ago, and the ground is arriving on schedule. Each of these has a different fix, and the fixes are not

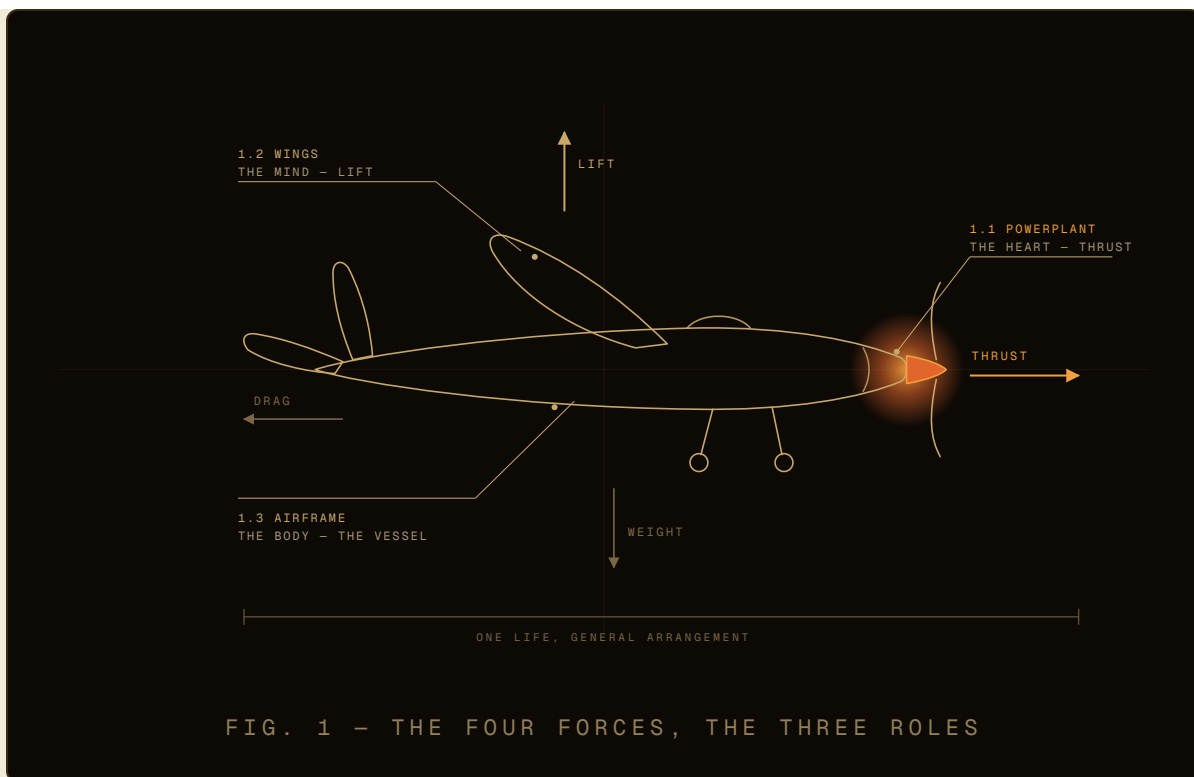
interchangeable. That is the whole reason to bother with the model instead of the poetry.

I want to be exact about the status of the claim before going further. It is a claim about function rather than substance. When you watch a human being try to move through a life, the forces at work sort cleanly into propulsion, conversion, and structure, and sorting them that way tells you what to do when the flight goes wrong. Nobody is made of three materials, and section VI takes that objection seriously rather than waving at it.

II – THE PHYSICS OF THE METAPHOR

The Physics of the Metaphor

An aircraft in flight has four forces acting on it. Thrust, produced by the powerplant, drives it forward. Drag, produced by the air, opposes that motion. Lift, produced by the wing, acts perpendicular to the oncoming airflow and holds the aircraft up. Weight pulls it down. Every fact about flying is a statement about the relationship between those four.



The first thing to understand is that the wing is a converter, not a source. Lift depends on the density of the air, the area of the wing, the shape of the airfoil, the angle at which it meets the oncoming air, and the square of the airspeed. Airspeed is the term that matters here. Double the speed and you quadruple the available lift; take the speed to zero and the wing produces nothing at all. A wing bolted to a wall is furniture. It becomes a wing the instant air moves across it, and something other than the wing has to make that happen. In powered flight, that something is the engine.

Thrust with no wing gives you ballistics. Fire something hard enough in the right direction and it will travel a long way and it will make an impressive arc, and the arc is fully determined at the moment of launch by the velocity you gave it and the gravity that acts on it. Nothing about a ballistic trajectory can be revised in the air. It goes where the initial push sent it and it arrives at the ground. People run this way. I have watched musicians

launch with enormous force, cover an astonishing distance in about four years, and impact, and the whole time everyone around them mistook the arc for flight.

Then there is the glider, which does fly, without an engine, by spending altitude. A sailplane converts stored height into forward motion, trading potential energy for the airspeed the wing needs, and it descends the entire time it is doing so. A modern sailplane might manage a glide ratio around 40 to 1, covering forty kilometers for each kilometer of height it gives up, with a minimum sink rate in the neighborhood of half a meter per second. It is beautiful and it is finite. To stay up, the pilot has to find air that is rising faster than the aircraft is sinking: a thermal, a ridge, a mountain wave, all of them lift that someone else's sun made. Absent that, every glide ends at the ground, and the only variable is how gracefully.

The stall is the most misunderstood event in aviation and the most useful one here. A wing does not stall because it is going too slowly. A wing stalls when it exceeds its critical angle of attack, the angle between the wing and the oncoming air, at which the airflow separates from the upper surface and the lift collapses. For typical light-aircraft airfoils that angle is somewhere around sixteen to twenty degrees. It does not move. It is the same angle at any weight, any airspeed, any bank, any attitude, at sea level and at altitude. You can stall a wing at cruise speed, in a dive, pointed straight down, by demanding more from it than the air can give.

Which means the recovery is the thing nobody wants to do. You reduce the angle of attack. You point the nose down, toward the ground, on purpose, and you let the aircraft accelerate until the wing is flying again, and then, and only then, you climb. Every instinct says pull up. Pulling up deepens the

stall. I have never met a burned-out person whose instinct was to lower their aim, and I have never seen a recovery that did not start there.

Lift also costs. The wing that generates lift throws air downward and sheds vortices off its tips, and the resulting force tilts backward into a component called induced drag, or drag due to lift. It is the price of being held up. Induced drag varies inversely with the square of airspeed, so it is worst exactly where the margins are thinnest: slow, heavy, high angle of attack, close to the ground. You cannot design it away. You can only manage it, which is why the low, slow, dirty part of every flight is where the accidents cluster.

Last, the distinction that made me trust the whole metaphor. When an engine quits for lack of fuel, investigators separate two causes. Fuel exhaustion means the fuel is gone. Fuel starvation means there is usable fuel on board and it is not reaching the engine, because a selector is on the wrong tank, a line is blocked, a vent is iced, water got in. In a review of general aviation accidents from 2011 through 2015 cited by the National Transportation Safety Board, exhaustion accounted for about 56 percent of fuel-related accidents and starvation about 35 percent, with personnel factors implicated in an overwhelming majority of both. The engines sound identical when they stop. The fixes have nothing in common. One requires fuel and the other requires opening a valve, and a pilot who diagnoses the wrong one does not get a second attempt.

The Western Lineage

Western philosophy's most famous image of the soul is Plato's, in the *Phaedrus*. The soul is a winged team and a charioteer: one horse noble, one horse unruly, and a driver trying to hold the pair together on the ascent toward the beautiful. Twenty-four centuries of readers have taken this as an endorsement of reason over appetite, and taken the charioteer as the hero of the picture.

Read the image again as a mechanic would. The charioteer does not move the chariot. He has never moved the chariot. He holds reins attached to the animals that supply every ounce of motive power in the scene, and his entire art consists of shaping a motion he did not create. Plato knew this; the drama of the passage is the driver's struggle with a strength greater than his own. What the tradition did was to promote the driver from steersman to source, and that promotion is the error the propulsion model is built to correct. Notice too what carries the soul upward in Plato's telling. Wings. They are nourished, he says, by beauty and wisdom, and when the nourishment fails they molt and the soul falls. Even in the founding text of Western rationalism, the lifting surface has to be fed by something that is not argument.

Aristotle stated the mechanical fact plainly. In *De Anima* III, working out what actually initiates animal movement, he concludes that thought alone does not do it:

Mind is never found producing movement without appetite.
Aristotle, De Anima III.10, 433a (trans. J. A. Smith)

He is precise about why. Contemplative thought never issues a command to pursue or avoid; and even when the intellect does identify something as to be pursued, it does not thereby produce pursuit. What moves an animal is desire, with practical reasoning calculating the means. Twenty-three centuries later, nobody has improved on the analysis.

Hume made the point unignorable, and made it a norm rather than a description:

Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them.

David Hume, A Treatise of Human Nature, 2.3.3

The sentence is usually read as provocation. It is closer to an engineering statement. Reason takes a passion as given and works out how to satisfy it; nothing in reason can supply the wanting in the first place. Hume drove it home a few lines earlier with the observation that it is not contrary to reason to prefer the destruction of the whole world to the scratching of his finger. Logic ranks nothing on its own. Something has to care first.

Pascal, from the opposite temperament and the opposite century, arrived at the same border from the other side. *Le cœur a ses raisons que la raison ne connaît point*, the heart has its reasons that reason does not know, in the fragment numbered 277 by Brunschvicg and 423 by Lafuma. Pascal was a mathematician making a claim about where first principles come from, and his answer was that the deepest ones are apprehended rather than deduced. Sentiment against argument was never the quarrel; the quarrel was about what argument stands on.

Spinoza supplied the propellant itself. In the *Ethics*, Part III, Proposition 6, each thing, so far as it can by its own power, strives to persevere in its being; and by the next proposition, that striving is nothing other than the actual essence of the thing. The *conatus* sits underneath the particular appetites rather than beside them: a living thing is a thing that pushes, and every desire it has is that push taking a shape.

William James, opening the modern era, put the body at the center of the mechanism. In the *Principles of Psychology* he argued that bodily changes follow directly on the perception of an exciting fact, and that our feeling of those changes as they occur is the emotion; hence the famous inversion, that we feel sorry because we cry, angry because we strike, afraid because we tremble. The specific causal ordering has been argued about ever since. What survived is the part that matters here: emotion is not a cloud over cognition, it is a bodily event with consequences, and the body is in the loop.

The evidence caught up with the philosophy in 1994, when Antonio Damasio published *Descartes' Error*. His central patient, called Elliot, had a meningioma removed from the ventromedial region of his prefrontal cortex. Afterward his intelligence tested normal. Language, memory, perception, IQ, all intact. His life fell apart anyway. He lost jobs, made ruinous business decisions, went through divorces, and could spend half an hour weighing Tuesday against Thursday for an appointment without arriving at a choice, laying out the considerations on both sides with perfect competence and no sense that one was better. Damasio reported never seeing a flicker of feeling in him across many hours of conversation, no sadness or frustration about a life that had come apart.

Damasio's account was the somatic marker hypothesis: that bodily states become attached to the anticipated outcomes of options, and that those markers narrow the field before deliberation begins. Take them away and deliberation has nothing to prune it. The reasoning survives, and the ability to choose does not. That is a lawn ornament with perfect aerodynamics, described clinically.

Jonathan Haidt gave the picture its most portable form. In *The Happiness Hypothesis*, the automatic, emotional mind is an elephant and the reasoning mind is a rider on its back; the rider holds the reins and gives directions, and when the elephant wants to go somewhere else the rider loses. Haidt had already made the harder empirical case in 2001, arguing that moral reasoning is usually a post-hoc construction generated after the judgment has already been made. Daniel Kahneman's *Thinking, Fast and Slow*, working from a different literature and borrowing the System 1 and System 2 labels from Stanovich and West, described the same asymmetry from the cognitive side: the fast system runs constantly and supplies the impressions, and the slow system is lazy, expensive, and mostly employed to endorse what has already arrived.

IV – THE TRADITIONS THAT NEVER SPLIT THE HEART FROM THE MIND

The Traditions That Never Split the Heart from the Mind

Everything above is a Western argument about how to repair a Western wound. Most of the world never made the cut.

The chariot image itself is older than Plato and better built. The Katha Upanishad, usually dated to the middle of the first millennium BCE, sets out the analogy with a precision that reads like a schematic:

Know the Self as the lord of the chariot, the body as the chariot itself, the intellect as the charioteer, and the mind as the reins. The senses, they say, are the horses; the objects of the senses are the roads.

Katha Upanishad 1.3.3–4

Look at what has been distinguished. *Buddhi*, the discerning intellect, drives. *Manas*, the sensory-emotional mind, is the reins, the transmission between the driver and the animals. The senses are the motive power, and the body is the vehicle carrying all of it. The rider is the Self, who is not any of the machinery. Whether Plato knew this text is unresolvable and has been argued for a century. What is not in doubt is that the older version assigns the roles more carefully than the famous one, and never confuses the driver with the source of motion.

Classical Chinese did not need to reunify heart and mind because it never had two words. *Xin* (心) names one organ that feels, thinks, judges, and wills, and English translators have been reduced to the hyphenated compromise "heart-mind" for a century. Mencius builds his entire moral psychology on it. In the passage at 2A6, he argues that anyone who suddenly saw a child about to fall into a well would feel alarm and compassion, not from calculation, not to win the parents' favor or a

reputation in the village, but immediately. That reaction is the first of four sprouts, along with shame, deference, and the sense of right and wrong, which cultivation grows into the virtues. The moral life starts as a felt response and reason farms it. It does not start as a proof.

Buddhist psychology makes the distinction that the Western objection most needs. *Citta*, usually rendered mind or heart-mind, covers both; *bodhicitta*, the aspiration that defines the bodhisattva path, is a mind and a heart at once, which is why translators keep producing "awakening mind" and "awakened heart" for the same word. More useful still is the division of desire itself. *Tanha* is craving, the compulsive thirst that the second noble truth identifies as the engine of suffering. *Chanda*, in its wholesome form, is desire for what is good and skillful, and the tradition holds that it arises from careful attention rather than from habit, that it is a choice rather than a reflex, and that it grows as wisdom grows. This is fuel chemistry. The tradition with the fiercest reputation for renouncing desire turns out to have spent two millennia distinguishing the grades.

In Islamic thought the *qalb* is an organ of knowing. Al-Ghazali, in the *Marvels of the Heart*, the twenty-first book of the *Ihya' 'Ulum al-Din*, separates two senses of the word: the physical organ that pumps blood, which corpses and animals also have, and a subtle substance connected to it which is the actual seat of knowledge and the essence of the person. In the *Kimiya-yi Sa'adat* the heart is the king and reason and the senses are its troops. Knowledge, in this account, is something the heart does.

A note on Rumi, because the temptation is obvious and the ground is bad. The lines about the heart that circulate in English under his name are mostly from Coleman Barks, who does not read Persian, works from earlier English translations, and has said in print that his versions have no

standing in the scholarly world. Scholars have documented how much Islamic and Qur'anic context those versions drop. Rumi belongs in this lineage. He does not belong in it via a quotation I cannot verify, so I am leaving the quotation out.

Hebrew *lev* covers the same territory as *xin*: thought, will, memory, intention, and feeling in one word. Proverbs 4:23 makes it the source of everything downstream. The King James has "Keep thy heart with all diligence; for out of it are the issues of life"; the ESV, "Keep your heart with all vigilance, for from it flow the springs of life." The Hebrew verb is *natsar*, to watch over or guard, the word used for keeping a vineyard or a commandment, and the phrase rendered "springs" carries the sense of outgoings, the place a thing issues from. The instruction is fuel management, written three thousand years before there was an engine to apply it to.

Japanese *kokoro* (心) fuses heart, mind, and spirit so completely that translators warn you the English word "and" between those three already falsifies it. New Testament Greek *kardia* is the center of thought, will, and understanding as much as of feeling; when Mark 12:30 stacks heart, soul, mind, and strength, it is piling up overlapping terms for the whole person rather than assigning separate departments.

The pattern is hard to miss. The strict partition of a cold reasoning faculty from a hot feeling one is a local artifact of one intellectual tradition at one stage of its development, and it did not survive contact with the evidence. The propulsion model is a way of undoing that partition without giving up what the partition bought us. I am not asking anyone to stop analyzing. The wing is the most sophisticated thing on the aircraft. I am asking us to stop calling it the engine.

The Evidence

Start with the strongest case and its limits. Damasio's patients with ventromedial prefrontal damage are the closest thing there is to an experiment on a mind with the fuel line cut. On the Iowa Gambling Task, developed by Antoine Bechara and colleagues, participants draw from four decks, two of which yield large immediate rewards and larger eventual losses. Healthy participants begin avoiding the bad decks before they can explain why, and their skin conductance rises in anticipation of a bad choice before they report knowing which decks are bad. Patients with vmPFC damage keep drawing from the losing decks even after they can state that those decks are bad, a pattern Damasio called myopia for the future. Knowing the right answer turns out to be insufficient for doing it, in the clinic, under measurement.

The honest caveat: the somatic marker hypothesis has taken serious criticism, notably in a detailed review by Dunn, Dalgleish, and Lawrence in 2006, over the interpretation of the anticipatory skin conductance findings, the design of the gambling task, and whether the causal story is established or merely consistent with the data. The clinical phenomenon is not in dispute; the mechanism is still argued. That is where the field is, and the model does not need more than the phenomenon.

On fuel quality, the strongest body of work is Deci and Ryan's self-determination theory. Their core finding, developed over four decades, is that motivation is not one quantity but several kinds arranged along a

continuum of how thoroughly the reason for acting belongs to you, from external compulsion through introjected pressure to fully internalized and intrinsic. Three conditions feed the intrinsic end: autonomy, competence, and relatedness. The most striking result is the undermining effect. In the meta-analysis by Deci, Koestner, and Ryan in 1999, expected tangible rewards made contingent on performance reliably reduced intrinsic motivation for tasks people already found interesting. Paying someone to do what they loved made them love it less. Fuel grade is a real variable, and contamination is a real event.

On the propulsion system itself, Jaak Panksepp's work is the most direct. In *Affective Neuroscience* he identified a set of primary emotional systems conserved across mammals, the first of which he named SEEKING, running on mesolimbic dopamine circuitry from the ventral tegmental area. SEEKING is not the pleasure of getting; it is the energized, forward-leaning state of going after, the foraging and investigating and expecting. Stimulate it and an animal explores with enthusiasm. Suppress it and you get the flat, unmotivated condition that looks like depression from the outside and feels like nothing from the inside. There is a literal appetitive engine, and it can be running or not.

Csikszentmihalyi's research on flow describes the condition when propulsion and conversion are matched. The state arrives when challenge and skill are both high and roughly balanced, with clear goals and immediate feedback, and it brings the loss of self-consciousness and the distortion of time that musicians recognize immediately. He called such activities autotelic, containing their purpose in themselves. Too much challenge for the available skill produces anxiety, which is the stall. Too little produces boredom, which is the descent.

On the body's contribution, the relevant science is interoception, the sense of the internal physiological condition of the body. A. D. Craig's 2002 paper in *Nature Reviews Neuroscience*, "How do you feel? Interoception: the sense of the physiological condition of the body," described an afferent pathway in primates and humans representing the state of all the tissues, terminating in the insular cortex, and argued that its representation in the anterior insula supplies the material basis for subjective feeling. Feelings are, in part, readings of the vessel. The instrument panel is not metaphorical.

Heart rate variability belongs here, carefully. The interval between heartbeats varies, and the vagally mediated component of that variability is a real physiological index. Under Thayer and Lane's neurovisceral integration model, it reflects the functional integrity of a network linking prefrontal cortex, anterior cingulate, insula, amygdala, and brainstem that regulates vagal outflow to the heart, and higher resting values are associated with better performance on tasks demanding inhibitory control and emotion regulation. The heart is genuinely wired into the machinery of self-regulation, and you can measure it.

The heart also has a nervous system of its own. J. Andrew Armour's work established the intrinsic cardiac nervous system, a network of ganglia embedded in the epicardial fat pads containing sensory neurons, local circuit neurons, and both sympathetic and parasympathetic efferents, capable of processing information locally and continuing to regulate the heart independently of the brain, which is why a transplanted heart beats at all. Armour called it the little brain on the heart. A figure of roughly 40,000 neurons is attributed to him and repeated everywhere; quantitative studies of human hearts report ganglion counts in the range of several hundred to

fifteen hundred or more, with substantial variation between individuals and between species. The durable finding is the architecture, not the number.

Which brings me to the paragraph this essay needs most. The neurocardiology above has been strip-mined by the HeartMath Institute and its imitators to support claims that do not follow from it: that the heart's electromagnetic field transmits emotional information between people, that a state called coherence produces measurable global effects, that the heart has memory, intuition, or access to information outside space and time. Those claims rest largely on studies produced in-house, published in venues that do not test them adversarially, and framed so that no result could disconfirm them. Skeptical reviewers have gone through them; the criticism is fair and the science is bad. I am naming this because the poetic truth of the heart as the source of motion does not need junk science and is damaged by association with it. A wing works whether or not anyone believes in it. If the claim in this essay is worth anything, it has to survive on the evidence that exists: the patients who cannot choose, the rewards that poison the motive, the dopamine circuit that drives the going-after, the insula that reads the body. That evidence carries the argument on its own, and it has never needed help.

VI — THREE OBJECTIONS ANSWERED

Three Objections Answered

Emotions mislead

They do, constantly and expensively. Anger delivers spectacular thrust in the exact wrong direction. Infatuation is high-octane and burns dirty. Fear will fly you into terrain. Anyone who has spent time in a band, a marriage, or a startup can supply the accident reports. The objection is correct, and it is the reason the machine has wings.

Nothing in this model recommends following your heart, and I want that understood plainly. Fuel does not decide the heading. It has no capacity to decide the heading. The mind reads instruments, checks the fuel against the distance, refuses the departure when the weather says no, and takes what the heart supplies and turns it into a route. A pilot who feels strongly about reaching a destination and launches into ice on that basis is a statistic. What the model rules out is the opposite fantasy, that the mind could dispense with the fuel and reason its way to a destination on rigor alone. Damasio's patients had exceptional wings and could not get off the ramp.

Analysis kills passion

This one comes at me from musicians every year: study the theory and you will lose the feel. It mistakes conversion for consumption. A wing does not reduce thrust. A wing takes motion the engine already produced and turns it into altitude, which is the only reason the thrust amounts to anything. Removing the wing does not leave you with more energy; it leaves you with the same energy going nowhere useful, which is to say heat and noise.

Induced drag is the honest part of the objection. Lift does cost something, and analysis does have a price. Learning what you are doing takes energy that could have gone into doing it, and there is a real, temporary awkwardness on the far side of new knowledge, familiar to anyone who has learned a new harmonic language and briefly played worse. The answer is

drag management rather than drag elimination, and the cost is paid back in altitude. What players call losing the feel is nearly always a fuel problem misattributed to the wings. The study was compulsory, or the reward was made contingent, or the joy got paid for and stopped being free, and Deci and Ryan have the measurements on all three. Knowing more about music has never once been the thing that made someone stop loving it. Being graded on it has.

The self is not three parts

That objection is correct as stated. There is no organ of thrust and no compartment where the mind is kept, the systems that produce feeling and the systems that produce reasoning are extensively the same tissue, and the traditions in section IV would say the partition was an error from the beginning.

This is a functional decomposition, and the aviation analogy is exact in a way that answers the objection. Thrust, lift, weight, and drag are not four parts of an aircraft. You cannot point to the drag. They are four ways of accounting for the forces acting on one object, and the accounting is what lets an engineer say why the aircraft will not climb today. The three roles here work the same way. A person is one machine. When that machine will not climb, asking whether the problem is propulsion, conversion, or airframe gets you to a repair, and asking what a person really is does not.

The Doctrine

Wings make nothing move. The mind converts motion into direction and altitude and originates none of it. This is Aristotle's finding, Hume's norm, and Damasio's clinic, and it means that a plan is not a reason to act and clarity is not motivation. When you cannot start, the diagnosis is never that you have not thought about it enough. More analysis applied to an empty tank produces a more articulate stillness.

Thrust without wings is ballistics. Passion with nothing to convert it is a trajectory: fixed at launch, unrevisable in the air, ending on impact. It looks like flight from the ground and it cannot turn. If you have ever known someone with enormous drive and no capacity to change course, you have watched the arc. The mind is what makes the difference between an arc and a route.

The glide is real and it is finite. A life can run for years on stored altitude: old passion, past success, borrowed momentum, a love that has become a habit. It is genuine flight and it is a descent the entire time. Sailplanes stay up by finding air that rises faster than they sink, and that air is made by something other than the pilot. Grace, luck, other people's warmth. Look for it deliberately, because the alternative to finding lift you did not make is arriving at the ground.

The stall comes from the angle, not the speed. A wing gives up when you exceed its critical angle of attack, at any airspeed, in any attitude. In a life, that is ambition demanding more lift than the available heart-energy can produce, which is why burnout hits people who are working hard on things they used to love. The recovery is the thing you least want to do. Lower the

aim, on purpose, toward the ground, let energy rebuild, and climb after the wing is flying again. Pulling up in a stall makes it worse every single time.

Lift costs. Induced drag is the price of being held up, it is worst when you are slow and heavy and close to the ground, and it cannot be designed away. Every commitment that lifts you takes energy to sustain: the marriage, the record, the institution, the practice. Wisdom is managing the drag, choosing which lift is worth its price, and not treating the price as evidence you chose wrong.

Starvation and exhaustion are different failures. Exhaustion means the tank is empty and the fix is fuel: rest, food, sleep, sex, music, the people who make you want things. Starvation means there is fuel aboard that is not reaching the engine, blocked by numbness, armor, unmourned grief, or the long habit of not letting yourself want anything. The engines sound the same when they quit. Refueling a starved engine accomplishes nothing, and the reverse error puts people in therapy when what they needed was a week of sleep.

Weight and balance decide whether flight is possible. An aircraft has a maximum load and a permissible range for where that load sits, and violating either one makes it unflyable regardless of engine or wing. What you carry matters and where you carry it matters more. Grief held well is ballast that steadies the aircraft; the same grief in the wrong place makes it uncontrollable. Before adding anything, run the numbers on what is already aboard.

Airworthiness is the precondition, not the luxury. No sane pilot treats maintenance as vanity, and no flight begins without an inspection. The body is the only airframe you will be issued: it sets the endurance, the ceiling, and the failure modes for everything the heart and mind intend.

Sleep, food, motion, medicine, hands. I have watched more careers end from an unmaintained vessel than from any failure of talent or desire.

Nothing flies standing still. Control surfaces need air moving across them; a parked aircraft cannot be steered by any amount of input. The mind's guidance only becomes available once there is motion to guide, which is why action precedes clarity and not the other way around. Waiting to feel certain before you begin is waiting for a wing to work in still air. Start badly, then steer.

Know which regime you are flying in. In cloud, the felt sense lies. Spatial disorientation is a physiological fact, and pilots who trust their inner ear instead of the attitude indicator die in the classic graveyard spiral. There you fly the instruments and discount the feeling. Other times the instruments are wrong or absent, the situation is unmeasurable, and the only available data is what your body already knows about the room, the person, the take. There you fly by feel. Mastery is the ability to identify, right now, which of the two regimes you are actually in, and a settled lifelong preference for either one will eventually kill you in the other.

VIII — CODA

Coda

Antoine de Saint-Exupéry flew the mail. He joined the Latécoère line in 1926 — the company that became Aéropostale — and worked the routes that ran at night, over the Andes and the Sahara and the South Atlantic, when

navigation meant a compass, a chart, dead reckoning, and whatever the dark would tell you. He wrote *Vol de nuit* out of that work in 1931 and it won the Prix Femina. On the morning of 31 July 1944 he took off from Bastia-Borgo, in Corsica, in a P-38 Lightning stripped for photographic reconnaissance ahead of the Allied landings in Provence, and did not come back.

The line everyone knows is the fox's, in Katherine Woods's 1943 translation:

And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye.

Antoine de Saint-Exupéry, The Little Prince, trans. Katherine Woods, 1943

He wrote it as a working pilot who had spent his professional life in the one situation where the eye gives you nothing and the airplane still has to be flown.

I do this at a piano. The theory I have studied for thirty years is the wing, and it converts. The technique is the airframe, and on a bad night it is the limit. The thing that actually moves the music into the room comes from somewhere I cannot notate, and I have never once produced it by deciding to. All three arrive at the same place, which is ten fingers on a set of weighted keys, at eleven at night, in front of people who will know within about four bars whether anything is burning.



Sources

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"It is only with the heart that one can see rightly."

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