Slipping the Surly Bonds of Foolishness: Developing and Sustaining Wisdom in Military Pilots

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John Gilespee MaGee Jr., was a pilot in WWII. His mother was British, his father American. He flew Spitfires for the Royal Canadian Air Force. He was also a poet. During one sortie, McGee was so taken by the beauty and majesty of flight that he penned his now-famous sonnet "High Flight." The first stanza is: "Oh! I have slipped the surly bonds of Earth/and danced the skies on laughter-silvered wing".[1]

And indeed, he had. Presumably any pilot can relate to McGee's joyful eulogy to aviation. But to have that much fun…takes a lot of work! There's plenty to learn. Memorizing hydraulic system schematics and airspace rules—book learning—is certainly part of it, but will only get one so far. Book knowledge is for naught if not for an indispensable component known as *practical wisdom*. Or, as the Greek philosophers knew it: the virtue of *phronesis*.

This paper is about developing *phronesis*. Specifically, it's about how the United States Air Force develops phronesis in their pilots. I also briefly look at the US Navy's approach. But in the long-standing rivalry between Air Force and Naval aviators, Air Force training and the pilots it produces are unquestionably superior. I assert this premise as non-controversial. ☺

Prelude: On Phronesis

As you know, *phronesis*—or practical wisdom—is a virtue. Practical wisdom is not to be confused with "technical knowledge" (*techne*)— the aforementioned "book knowledge" that largely seeks to accumulate facts. Nor is phronesis to be confused with theoretical knowledge (*sophia*). A person might possess both *techne* and *sophia* in spades, but lack *phronesis*. Consider the absent-minded mathematics professor who can do vector calculus like a champ, but is unable to pay his utility bills on time.

By contrast, the person of practical wisdom, the *phronimos,* is someone *knows how to live life well*. We might say their life is "firing on all eight cylinders." They know how to balance priorities, use time wisely, maintain healthy relationships, weigh risks and rewards with assiduous nuance, and so on. In short, the person of practical wisdom knows not just knowledge, but how to apply it. In short: they are prudent, and as a result: they are well-positioned to live a flourishing life.

As you know, *phronesis* is a virtue. But even among all the virtues, *phronesis* reigns preeminent. The reason for this is straightforward: to become virtuous and thereby flourish, there is a necessary prerequisite. That prerequisite is that one must rightly identify the goal—what it is that one ought to become. One must aim at the right target. For example, the virtue of courage is neither cowardice nor rashness. But it takes *phronesis* to know the difference. The unwise person could erroneously think they are pursuing an action that is courageous, but in

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[1] See "High Flight" by John Gilespee McGee Jr. at https://www.afhistory.af.mil/FAQs/Fact-Sheets/Article/753695/words-to-high-flight/

actually it is irascible or cowardly; a truth their unwise state has occluded. As such, without wisdom, one has little hope of rightly identifying true virtue—and so they will aim at the wrong target. It's no surprise then, that Aristotle says, in analogizing the human life to a chariot, that it is wisdom that "drives the chariot." Indeed, *phronesis*—practical wisdom—is the preeminent virtue.

But I said this paper would address developing *phronesis* in pilots. And indeed it will. This paper has 5 parts. In Part 1, I explain how it is manifest that the USAF cares a great deal about *phronesis*. In Part 2 I underscore something you probably already know: wisdom is difficult to measure. Part 3 explains two ways by which the US Air Force develops phronesis: an "exemplarist" approach and by "contrived habituation." And finally, Part 4 is forward-looking: Aristotle rightly recognizes that society and upbringing wields considerable power on a person's virtue development—for better or worse. The USAF would do well to give due attention to a flying squadron's broader culture. A culture of wise decision-making and virtuous living is fertile ground to inculcate and galvanize pilot phronesis. The reverse is also true.

Part 1: The USAF Cares a Great Deal About *Phronesis*

The USAF cares a great deal about *phronesis*. This is manifest in two ways; I'll look at each in turn. First, the listener might be surprised to know that *phronesis* is actually evaluated on pilots' periodic checkrides. Allow me to explain: pilots take tests, "checkrides"—about twice yearly. These are akin to a medical doctor's board re-certification. They last several hours and occur in either a real aircraft or a very-realistic simulator—the latter enables the pilot to be tested on how they handle various exciting surprise emergencies. The pilot is graded on about 50 skills. One of these skills is, specifically, "judgement and decision-making." And of course, "judgement and decision-making" is tantamount to *phronesis*, or practical wisdom. So, from the fact that *phronesis* is evaluated on every pilot checkride, we can reasonably conclude that *phronesis* matters to the USAF.

But there's more. Of the 50 skills assessed, a few are considered particularly essential. You see, when grading, an evaluator has three possible verdicts: "satisfactory", "needs improvement", or "unsatisfactory." But a few items are deemed so crucial, that "needs improvement" is not an option. On these indispensable skills, anything less than satisfactory *is* failure. This "all or nothing" verdict is applicable on just three graded items. And "judgement and decision-making" is one of them. So we see that the USAF cares a great deal about *phronesis* not just because it is graded, but because it is graded with a stringency that underscores its importance.

But there's a second way that we see manifest the USAF's acclaim for pilot *phronesis*. Aircraft have manuels. These are what you'd expect: very thick books that explain all the systems of the aircraft, and how to fly it. The manuals address any ailment that could possibly befall the aircraft and pilot. They then prescribe a remedy—explicitly. There is a "right" way to handle any situation, and "right" is defined by: what the manual prescribes. The manual is to be followed precisely and rigidly, deviation from which is culturally anathema.

And yet!—in the very front of flight manuals one will find the following statement: "[This manual] is not a substitute for sound judgment."[2] You heard that right, friend: the flight manual, in all its unyielding stringency, *itself* yields to: *phronesis*.

So we find that the AF's concern for *phronesis* is manifest in two ways: 1) *phronesis* is intentionally and specifically graded—and graded in a special category of stringency—on checkrides, and 2) the sacrosanct flight manual is trumped by *phronesis*. But the Air Force's love of *phronesis* should come as no surprise, for surely one wants their pilot to be able to make "practically wise" decisions. But grading *phronesis* presents a notoriously difficult challenge. Let us turn to that challenge now:

Part 2: *Phronesis* is Difficult to Measure

Recall that *phronesis* is practical wisdom. It is sometimes translated "prudence." It's how to live life well. And given that there are many ways to live life well, the nature of *phronesis* is such that it does not lend itself to a straightforward definition. *Phronesis* varies with context…and the innumerable complexities of life make for a great many, and variegated, contexts. The upshot is that *phronesis* is hard to pin down by way of an assiduously nuanced definition.

Rather, *phronesis* is best understood when one sees it lived out. When one witnesses a life that is authentically and genuinely lived well, one recognizes it as such. In this way, *phronesis* might be akin to the famed words of US Supreme Court Justice when he described pornography: "I can't define it, but I know it when I see it."[3] And certainly, something difficult to define will be difficult to measure. Additionally, it's very hard to measure, empirically, something that is an internal disposition, known only—if at all—by the individual herself. But of course, you already know that virtue is difficult to measure—in fact, this very conference, in 2014, had this topic as its theme. I won't belabor the point.

These troublesome realities of *phronesis* present a problem to the organization that conspicuously lauds that which can be defined and measured. I venture to say that one such organization is: the United State Air Force…or at least the pilot community therein. As far as my anecdotal observations can assess, the field is STEM-focused. Ravenously so. The culture extols the empirical and eschews the non-measurable. The *quantitative* is deemed objective and trustworthy and thus in the ascendant, while the *qualitative* is deemed subjective and suspect and thus tacitly marginalized.

And this makes for an interesting tension when one notes that *phronesis* is squarely in the realm of qualitative (and, as noted earlier, defies definition and measurement)…yet the Air Force cares a great deal about identifying, inculcating, and sustaining it. How is this done? Is the tension resolved? Let us turn now to examine how the USAF develops *phronesis* in pilots.

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[2] This is from the opening pages of the C-17 flight manual, under the paragraph "scope." See T.O. (technical order) 11-2-17-1, page iii. "…This manual provides the best possible operating instructions under most circumstances, but it is not a substitute for sound judgment. Multiple emergencies, adverse weather, terrain, etc., may require modification of the procedures."

[3] Supreme Court of the United States Justice Potter Stewart, in the case of *Jacobellis v. Ohio* (1964).

Part 3: Developing *Phronesis* in Pilots

3.1 The "Exemplarist" Approach

The first way the Air Force develops *phronesis* in pilots is by something I'll call the "exemplarist approach." An "exemplar" is a person who serves as a good example in something—a hero, saint, or sage as philosopher Linda Zagzebski explains.[4] In short, one examines the life of another and learns from it. Ideally, one would find positive examples who demonstrate "what right looks like." But one could also learn from negative "anti-exemplars".

Even the nascent student of Aristotle will recognize that the "exemplarist" approach is precisely what he advocated. In his *Nicomachean Ethics*, Aristotle explains that the way to grow in the virtue of wisdom is to find a virtuous person and study them. One cannot learn *phronesis* by mere facts or formula. One just has to see it lived. Then one must study the person who is living well to discern what makes them so practically wise.

The Air Force's approach to pilot *phronesis* follows this Aristotelean template—this, despite the fact that I've yet to see a copy of *Nicomachean Ethics* lying around a flying squadron…(perhaps I have some stocking to do). The Air Force utilizes exemplars by way of the Safety Program. Among other things, the Safety Program investigates mishaps and emergencies that have happened. They determine causes and lessons learned. Then they release the findings to the mass of pilots. The pilots can learn from the good (and also bad, as the case may be) ways the mishap pilot handled the situation. This is not exactly the Aristotelian approach—after all, the pilot gets second-hand analysis rather than first-hand observation. But it's still broadly Aristotelian, and clearly in alignment with the "exemplar approach." For at the end of the day, these Safety Mishap Investigation Reports enable a pilot to study wise action to then replicate it and embody the virtue of wisdom.

Additionally, this approach is also found in a more informal, but still intentional, setting. Many flying squadrons have something called "Hanger Fly"—a time when pilots gather to share "there I was" stories….and perhaps drink something fermented. Such stories share a similar purpose—other pilots hear of how another pilot adjudicated and acted in a given situation. Of course, this too provides only second-hand information—and relies on the assumption that people will admit their mistakes. But nonetheless, Hanger Fly is a time when one can learn from the example and experiences of others, and thus *phronesis* is encouraged.

3.2: The "Contrived Habituation" Approach

The second way we see *phronesis* inculcated in pilots is by what I'll call "contrived habituation." This is the process by which a training environment is created, and the pilot put in it to then practice how to think and act. There are mainly two such "contrived" environments.

The first is the flight simulator. This is a cock-pit mock up that the pilot steps into. It is extremely realistic—from sound effects, to visuals, to the fact that—thanks to hydraulic stilts—the simulator actually moves commensurate with pilot control input. Flying these sims is so realistic in fact, that the FAA allows pilots to log actual flight time.

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[4] Linda Zabzebski, "Exemplarist Moral Theory," Oxford: University Press, 2017.

These simulators are excellent training mechanisms. The sim can be programmed to produce any number of dramatic emergencies—loss of engines, electrical failure, hydraulic failure, multiple emergencies—you name it. And the pilot can practice handling these emergencies without, say, disabling systems while *actually* airborne. This tiresome task would risk the inconvenience of actual death. No, the sim allows one to practice all sorts of emergencies—and frequently. Such sim flights occur at least twice quarterly and repetition encourages habituation. "Don't practice till you get it right: practice till you cannot get it wrong."

The second environment of "contrived habituation" is something called "Formal Stand-Up." This is where the 20 or so students of a pilot training class will be together in a room. The instructor will describe a situation and emergency. Then she calls on one student who will "stand up" and explain, in detail, his analysis and actions. The instructors all stand ready to elucidate mistakes. If found, the student is sternly told to "sit down!" He does so, now shamed in front of his peers, and forbidden from flying the rest of the day. The idea is to create an environment of stress, within which one still must think clearly, and where a poor decision has consequences. This "stand up" occurs regularly and as such, also seeks to habituate wise-decision-making amidst a stressful environment.

An exhaustive pedagogy is beyond the scope of these short remarks, but at this point the listener has likely noted a glaring drawback: "contrived habituation" is exactly that: "contrived." The pilot may be in the sim, amidst a cacophony of alarms and buttons flashing "engine fire"…but the environment is pretend. And the pilot knows this. A draw-back of "Stand-Up" is that it relies heavily on verbal communication—the pilots' ability to *communicate* their analysis and actions in a given situation. By contrast, in a real airborne emergency, visual perception, mental reasoning, and physical-button-pushing occur largely without verbal expression. So in some probably-significant way, training is misaligned with the situation for which one trains.

But there's little feasible way to improve this. After all, providing pilots the experience of handling an emergency amidst a fear of *actual* death would require incurring undue risk. Additionally, real aircraft are expensive to fly and simulators less so. Stand-Up, though artificially verbal, does, at least, impose a *real fear*: that of embarrassment before one's peers. And Stand-Up is significantly less expensive than a simulator. So we find the Air Force takes effort to develop and sustain *phronesis* in pilots. All things considered, the current methodology is effective and difficult to improve upon.

Part 4: A Way Forward

Aristotle recognized that the society within which one is positioned exerts powerful influence upon a person. A healthy, well-functioning society is one saturated by the cardinal virtues of justice, wisdom, courage and temperance. Such a society enables the individual within it to flourish, just as flourishing, virtuous individuals in aggregate make for a flourishing society. A fruitful communal life is necessary for the *zoon politicus* (political animals) that we are. Indeed: society is the water in which one swims, and those waters matter.

Moreover, Aristotle underscored the importance of a person's upbringing. Ideally, a person can be trained to take pleasure in fine, not base, things. This needs to start "right from

early youth." [5] Training, influences, and examples matter—and they matter from a young age. The virtues do not develop in isolation.

Now let us turn to a separate, though related issue. Recall that Aristotle advocates for a "unity of the virtues." To put it briefly: to have any one of the virtues genuinely and fully, really requires that one possess the other virtues as well. Much has been written on this topic; the debate is ongoing and I won't dissect it today. Suffice to say that a claim of a "unity to the virtues" aligns with common sense.

Consider the cardinal virtues: wisdom, justice, courage and temperance. For this example, let us focus on temperance. Temperance is knowing the right amount and place for appetites like food, sex, drink, etc.—having self-mastery over these passions. Suppose Bob lacks temperance with respect to sex. His mind is consumed by lustful thoughts. The impact of this is that he's going to lack the virtue of wisdom, because his mind is distracted and thus unable to reason well. But without wisdom, he won't be able to discern "what is owed to whom"—and so justice suffers. There's a good chance courage will suffer too—perhaps he won't persevere as he needs to, because he's so distracted by lust. Or, alternately, perhaps he fights a fight that he should not in an effort to impress someone sexually attractive. In short, the virtues are integrated, related, and co-dependent. A problem with one will impact the others. My point is this: to a large extent, one's environment matters, and a unity of the virtues matters.

Now let us return to the flying squadron, where we are trying to instill wisdom in aviators. Environment matters. So the culture of a flying squadron matters. Suppose that culture is one of virtue: the cardinal virtues are alive and well, and we see their fruit manifest in squadron members' personal integrity, selfless service, and excellent craft. Such ground is fertile to grow pilots with *phronesis*.

But now consider the squadron that is deficient in some virtue(s). Members are doing what they should not, and not doing what they should. Perhaps many of the aviators are financially irresponsible, or are not self-controlled with respect to alcohol—a lack of virtue(s) could manifest in innumerable ways. Culture is influential, and though a full examination of this complex statement is beyond the scope of this essay, suffice to say that "we play like whom we play with." Low-ranking squadron-members are generally influenced by the choices they see in higher-ranking members; this is presumably exacerbated by the hierarchical structure of the military and its inherent power-differentials. The sergeant who sees the captain drink to excess will possibly conclude such behavior is acceptable. One cannot expect to inculcate wise decision making (*phronesis*) in pilots amidst a culture that tolerates unwise decisions—to habituate the latter while expecting the former is nonsense.

Second, culture is relevant to a unity of the virtues. The squadron that endorses irresponsibility in some areas of life—even those areas seemingly unrelated to aviation--will find that inculcating *phronesis* an uphill battle. This is due to the nearly-axiomatic claim that phronesis is "wisdom for life"—and "life" encompasses all areas of one's personhood. By contrast, the squadron culture that encourages responsible choices in all areas of life will be more amenable to developing and sustaining pilot *phronesis.*

One's society is a powerful influence and there is a unity to the virtues—they do not develop in isolation. These two Aristotelian principles must be "kept in the cross-check" if we are to develop and sustain pilot *phronesis*

[5] Aristotle, Nicomachean Ethics, 1104b10

Conclusion:

The person of *phronesis* has "practical wisdom" and knows how to "live life well." They can, among other things, balance priorities, weigh risks, and make wise decisions. This is a great skill for pilots to have—and the USAF rightly recognizes this. *Phronesis* is graded on checkrides, and graded with a special stringency. Moreover, *phronesis* is explicitly recognized as something that can trump what the fight manual prescribes.

But frustratingly, *phronesis* is notoriously difficult to define and quantify. It doesn't lend itself to the empirical—and this presents a challenge to an organization enamored by all things empirical.

So what's an Air Force to do? The two things Aristotle recommends anyone do: 1) find a wise exemplar and study them 2) habituate, habituate, habituate. The US Air Force does this. These Aristotelian principles take form when pilots learn from mishap investigation reports, fly a simulator, and converse at Hanger Fly and Stand-up. There are drawbacks to these approaches. But all things considered, these methods develop *phronesis*. There are very few feasible ways to improve the methodology.

But I can think of one: paying attention to unit culture. There is a unity to the virtues: an insufficiency in one causes diminution to all. The pilot who is foolish with respect to, say, finances or alcohol does not magically become wise with respect to aviation when they step into the cockpit. *Phronesis* is best developed—nay, can only *truly* be developed—amidst a "culture of responsible decision-making." A unit culture that tacitly endorses irresponsibility in some areas is a unit culture that is counter-productive to the goal of developing *phronesis*.

And genuine *phronesis* is a virtue necessary to the skilled aviator. In short: one must first be free of the fetters of foolishness if one is to "slip the surly bonds of earth," in the fullest, most mission-accomplishing, and most—yes—artistically satisfying sense of the phrase. As an organization and as individuals may we endeavor to obtain this worthy goal.

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