
A Guide to Fighting Thread

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Thread fighting is the entire purpose to which dragons were bred. They are genetically engineered and improved to make them superbly suited to that function. Dragons themselves possess all the necessary tools and abilities to allow them to destroy Thread high in the air, with no danger to land. They just lack the ability to replenish their flame in the air, and some of them are not capable of flying through the entire Fall, otherwise, a superb Thread fighting machine.

Humans were not engineered to fight Thread, but possess some necessary skills to battle this menace. Humans possess the highly developed tactical skills, an ability to replenish firestone in flight, and a memory system that theoretically saves these skills from Pass to Pass.

Paired together, man and dragon form a formidable fighting team. But limitations exist that prevent the optimal means of destroying Thread. The optimal means of destruction would have been destroying Thread before it entered the atmosphere. This is theoretically possible with dragons, who are able to survive conditions in space. But unprotected humans could never survive in that environment. So the fight is confined to the air above Pern.

The human half of the dragon pair also places some limitations on what altitude can safely be used to fight Thread. High altitude conditions would be intolerable to humans for anything but very brief periods without pressure suits and supplemental oxygen. So, the aerial combat above Pern was confined to a low-level arena, easily within the range of normal vision.

Dragon limitations also became evident as Thread was destroyed. The greens could not fly a continuous Fall, at altitude flaming Thread. Their stamina was just not such as to allow them to expend that amount of energy. The greens and blues were better for having breaks from the strain of rising to Thread, and injury rates and deaths could be reduced.

These basic physical limitations were taken into account as strategies and tactics for fighting Thread were developed. The reality of not having supermen astride super machines had to be overcome with ingenuity and doctrine. The premise put into place in response to these basic limitations was to create small teams that would change out during Fall, to minimize

the effects of these physical limitations. This is where Wing formations and Wing tactics were born.

Over time, it was discovered that three Wings together could combat a Fall, nearly self sufficiently. These modified teams could rotate from the most strenuous portion of flying a Fall, through less demanding duties, conserving the strength of dragons and humans. These self sufficient units, called Flights, were able to handle most Falls from start to finish, allowing the Weyrleader to divide up the Falls and keep his air force rested and capable throughout a Pass.

Having answered the basic question of how the Weyr stays in the air and maintains a healthy reservoir of dragon pairs through an entire Pass, we have to dig a little deeper. To get a real feel for what Thread fighting is like, you have to focus on the Flight's preparation for and actions during Fall.

We have talked about the physical realities of actual flight, and the limits of dragons and humans. These discussions were premised on healthy humans and dragons, completely concentrated on fighting Thread. The Flight Leader knows that he is not going into battle with three Wings of healthy humans and dragons completely focused on fighting Thread.

The dragon pairs will be in various stages of disrepair. Injuries suffered during Fall, or during a previous Fall, will impact a pair's abilities. Human riders could be suffering from a cold, or from concern about injured or ailing friends and relatives. These factors and other limitations are very real concerns for the Flight Leader as he develops his battle plan for each Fall.

Our club says that a Flight will be assigned to combat a specific Fall. They will rise and combat the Fall until it concludes or until it becomes beyond their abilities to control. In which case, the Flight up next in rotation is held in ready reserve at the Weyr to provide any needed assistance. In some cases, the Flight will take over a Fall from Eastern Weyr, along the boundaries of the two Weyr, and conclude combating it. That is the help and support the Flightleader knows is waiting for him.

The Flightleader also knows that the Queen's Wing will send a portion of their dragons, for rescue and extreme low level support. Also the senior weyring classes attend Fall on a rotating schedule, so

that they are exposed to all the Wings. These backups are available at the scene of every Fall.

However, each Fall is planned so that a single Flight is capable of combating it. The Flightleader considers all his variables and prepares an overall outline for how the Fall will be handled. There are thousands of variables in specific details, but a quick sketch of general tactics is in order.

From accepted norms in AM's books and in our club, we know that at least a portion of Queen's Wing attends each Fall. We also know that the senior classes of the Weyrling Wing attend each Fall, in various capacities. This provides continuity in support and logistics that is important to the Weyr. Every Flight can count on the same support, and the same method of support. Without that, if a reserve Flight was called in from the Weyr, serious injury could result if standard ground cover and resupply practices were not in place.

The Weyrleader is also normally present at each Fall, though it is common sense to assume that he does not actively fight each Fall. He provides the overall tactical continuity for the Weyr, and a broad leadership position. The Weyrleader is in effect the field general, overseeing the broad picture and providing a critical eye for details that the Flightleader may miss. This is a heavy responsibility and the reason why recent Weyrleaders have made the sensible decision to not attempt to fill the role of Flightleader at the same time, otherwise there is no backup there for the Weyrleader on those Falls.

Inside those outlines, the Flightleader develops his specific plan. He considers the relative health of each of his three Wings and he determines the relative difficulties during each portion of the Fall. Once he has that background work done, he matches Wings to that Fall.

The Wings will be aligned on three levels, High, Middle and Low. Due to conditions, the High Wing is solely devoted to Thread fighting. The high wind, colder temperatures and thin air make this the most physically demanding part of the Fall. The Middle Wing does a good bit of strenuous flying, adjusting to wind blown Thread, but the more stable conditions make this a less physically challenging time. The Low Wing flies in the most stable winds, and therefore is where all resupply occurs. Resupply is terribly important to the performance of the Wings, and before we go further, let's just clear that area up a bit.

Fandom has long treasured the idea of the "dragon toss" -- of firestone resupply being performed by senior weyrlings, who toss firestone sacks a dragonlength or two in distance to a combat

rider, during Threadfall itself, possibly on the fringe of a Wing's formation.

Taken into consideration, however, this fantasy quickly grows problematic. In short -- the possibility of consequences of a missed throw are simply too high. Consider the damage dealt by a 20+ pound bag of rock, falling from well over a thousand feet in the air. Such an object could go right through a slate roof.

In our Pern, where the Weyrs have enough of a PR problem, they don't need to be taking the risk of killing holders' livestock, or the holders themselves, or damaging property, or simply dropping rocks into fields that need to be plowed. Additionally, consider the worst-case scenario of a firestone sack falling onto someone in the Queens' Wing below! Dragons and riders would be surely crippled, if not killed, by such accidents.

Since the people doing the throwing are weyrlings, who are the least experienced people out there, the odds of missing have to be fairly high. If we assume that there are about 120 dragons in a Flight, and each needs to replenish once per 'Fall, and there are 125 'Falls per Turn, that's over 15,000 Dragon Toss throws a Turn. Even if we optimistically estimate that weyrlings will miss only one in 30 throws, that's still 500 bags of rocks falling from the sky every Turn, and it only takes one or two of those hitting someone's cow (or their child) to get the holders severely pissed off. (Not to mention the consequences of hitting your wingmates or your Weyrwoman.)

Of course, this depends to a large extent on how many times per 'Fall a dragon needs more stone. Even if many of them can go without replenishment at all or can do it during the breaks we have built into about a third of the 'Falls on the chart, I would still assume that the Weyrs just would not want to take the chance. For standardization, resupply of firestone during Threadfall for the Kadanzer Weyr happens in the following way. There are four standard places on the tops of mountains widely spaced about the continent; before a 'Fall, the one with the best lighting and weather is chosen, and the approach angle is chosen according to the current wind direction. When riders need more stone, they simply signal their Wingleader, pop between to the designated spot, dive down close to the mountainside, and catch a sack thrown by one of the weyrlings stationed there. If the throw misses or the rider bobbles the catch, the only consequence is the time lost while circling back around to try again; the missed sack falls harmlessly on the mountainside. Since there are probably certain times in Threadfall when many riders run dry at once, multiple throwing

lanes can be set up, with several weyrings carrying sacks to each thrower.

For sake of standardization, we will say that most bronzes and some browns can actually fly a whole 'Fall without needing more firestone. The rest of the Weyr will need at least one replenishment to actually get through an entire 'Fall. Of course, that all depends on conditions. In extremely harsh weather, or extremely dense 'Fall, even the largest bronze may need to replenish in the course of the 'Fall. That is why all weyrings learn the procedures. It is not considered weak or remarkable for any dragon to replenish, and should not be portrayed as such.

Now that standard Flight formation is clear, and we have decided how we maintain flaming dragons, lets finish dissecting preparations for a 'Fall. The Flightleader now has to determine the likelihood of bad weather, strong winds, and poor visibility. These conditions will place increased difficulty on the Wings during Fall. So, the Flightleader would hope to have his most rested, healthy and capable Wing at the High Wing position during those difficult periods of a Fall. The next most able Wing is placed in the Middle Wing position, and the least ready Wing will be at the Low Wing position.

Each Wing will spend approximately 30 minutes in each position before rotating to the next position. This allows for a dragon to spend almost 30 minutes at full flame, and another 30 minutes of intermittent flame, supplemented by the sacks carried on straps, before real replenishment of firestone needs to take place. Then, the Low Wing would see significantly less Thread, allowing time to chew and replenish firestone.

So, the Flightleader has to determine, based on this 30 minute rotation system, which Wing starts at High Wing, so that his preferred Wing is in position for the most strenuous part of Fall. After doing that, and communicating that to each Wingleader, the Flight is prepared.

So, we are going to consider a Flight's day, for a hypothetical Fall. The Fall starts over the coast, progresses over a flat plain to the mountains of a populated Hold, where bad weather is expected, back over a plain and out to sea. So, the most critical part of the Fall is over the mountain Hold

Flightleader X'mple has three Wings, A Wing, B Wing and C Wing for the Fall. C Wing was heavy hit on the last Fall and lost two greenriders and a bluerider to injury. A Wing had a green that rose in Mating Flight yesterday and most of the blues and browns in that Wing chased her. B Wing is the healthiest and most ready Wing, and C Wing is the next most capable.

X'mple calculates that the worst conditions will occur two hours into the Fall, and assigns his most capable Wing to that time spot. So the Fall starts with A Wing at High Wing, C Wing at Middle Wing and B Wing at Low Wing. At about a half hour, B moves to High Wing, A to Middle Wing, C to Low Wing. So the rotation goes, ACB, BAC, CBA, ACB, BAC, CBA, ACB, BAC, CBA, ACB, BAC, CBA. This puts B Wing at the High Wing position from 2 hours until 2 ½ hours after the Fall starts, right where X'mple wants them.

X'mple will arrange the Wings, based on weather and visibility, at arranged ceiling and basement altitudes. Fighting Thread is kind of like an aerial dogfight. The higher you start, the more maneuvering room you can put between the Wings and the more atmosphere you have to burn the Thread up in. Assuming a ceiling of 10,000 feet for any kind of sustained altitude, that would range the High Wing between 10,000 and about 6,000 feet. The Middle Wing would own from 5,000 to about 2,000 feet. That leaves 2,000 feet and down for the Low Wing.

My best analogy for Thread fall is to imagine that a giant dump truck is orbiting the planet and pouring a stream of Thread out into the air. It would appear to be a line raining down on the planet, moving as the planet rotates. So, you would see this as a line running from one compass point to the opposite point 180 degrees across, lets assume northeast to southwest for convention's sake. The dragons of the High Wing would start on one side and fly across the line of Thread to the other side, flaming as much Thread as they can, then turning and moving back across the line again.

They would start at 6,000 feet and move progressively up in altitude as they sweep across the line of Thread. The Middle and Low Wings would cross against the direction of the Wing above them, catching the stray Thread that passes through the Wing above. The Wings would start low in their assigned altitudes and move up, as the only safe way to char Thread is to soar up at it. Except for Low Wing. The Flightleader would establish an altitude that Low Wing cruises at, so that resupply and Queen's Wing can coordinate support.

The High Wing has it pretty easy in terms of tactics, the sky is full of Thread and you burn as many clumps as you can as you fly across. The Middle Wing has a little tougher job, as the clumps are much more widely spaced, requiring a greater amount of course correction. The Low Wing has it miserable. You have to keep an eye out for the very sporadic clumps of Thread, and for the weyrings and golds flying underneath you.

So, that is the basic tactic, in my common sense view. But, X'mple did not conceive his flight plan and then expect to be able to stick to it throughout the Fall. If any Wing loses three or four dragons in the course of a Fall, X'mple has to be ready to adjust on the fly, pardon the pun. That could mean melding the Wing into his other two and calling a reserve Wing in from the Weyr. Or it could mean getting really creative and reserving that Wing to Middle and Low Wing positions only.

That is why weyrling training is so long and Flight and Wing Drills are held so regularly. Each dragonpair in a Wing must be able to adjust tactics and respond to the situations that occur in a 'Fall. When called upon by the Flightleader, they must be ready to abandon the briefed plan and go directly by orders given in flight. This is one reason that Wingleaders are so concerned when dragons are injured, beyond worry for their wingmates. They need to know if that dragon can continue to fight, or if adjustments must be made. And, this is one reason why dragonpairs that are injured are under pressure to be honest about the extent of the injury. No Wingleader wants to shift to the High Wing position with a sky full of Thread and have a dragon incapable of performing as expected. That could be catastrophic to the Wing.

So, there is the basic premise of Thread fighting. There would be hundreds of variants of this basic scheme, each tailored to a specific kind of Fall. We all know that Falls differ drastically, some are clumpy, some are sparse. Those changes have to be implemented when Fall starts. But, X'mple, being a very good Flightleader, has already addressed the variations for the most likely types of Fall. Everyone is briefed the day before, including the reserve Wing. X'mple is the man on the spot, and except for the Weyrleader himself, no one has the authority to countermand his orders.

This could lead to some seriously tense moments, between Wingleaders and Flightleaders, if a disagreement arose. Most likely that explains why the Weyrleader attends every fall. But a smart Weyrleader would be very hesitant to get too deeply into any of his Flightleader's plans. Those guys have earned those positions and can be relied upon to be the man in charge.

This brief overview is the result of my reading of AM's books, which are skimpy on details. [Dragon Lover's Guide](#) and [Moreta](#) are the most helpful source of detail that I found compiling this article. I also picked the brains of the fighter pilots I have access to in the Navy. The rotation of Wings and the overall tactical command picture is courtesy of them, along with some inside knowledge of what

unprotected flight, and human threshold altitudes are. If anyone can give me more places to look for details, please email me so I can update and keep this article accurate.

By the Egg, it is a lot to consider.