



Highlights and Margin Notes in  
Wolfgang Langewieshe's

***Stick and Rudder: An Explanation of the Art of Flying***  
**Chapter 15 Notes**

Perhaps my notes and observations will inspire you to buy your own copy and learn from this classic...or to take the copy you already own off the shelf and revisit its great lessons, just as I am doing again now.

FLYING LESSONS is an independent product of MASTERY FLIGHT TRAINING, INC. [www.mastery-flight-training.com](http://www.mastery-flight-training.com)

Pursue ***Mastery of Flight™***

Continuing my notes on Wolfgang Langewieshe's essential classic, ***Stick and Rudder***.

**Part V: Getting Down**

**Chapter 15: "The Approach"**

Page No.	Highlighted Text (Langewiesche's words)	My margin notes
261	When it comes to the practical application of flying, every...pilot knows certain examples: S turns across a road are a simple one, the pylon 8 is a complicated one. But those are artificial, especially thought up applications; their only purpose is to afford student pilots a chance to apply their art.	"Checkride circus tricks"—or are they?
	There are really only two situation in which this business of the glide, the turn, and so forth, suddenly becomes real and earnest; and it suddenly really matters just how he flies. Those situations are the takeoff and the landing.... But the landing is to most pilots the most difficult problem in the whole art of flying.	Landing: hardest to learn because they combine all maneuvers and pilot skills.
262	An accurate spot landing is exceedingly hard to do. It requires so much practice that most pilots try to make every approach and landing without help of power, thus making every landing a practice forced landing.	The Power Off 180 maneuver from the Commercial PTS
	See hoe many pilots need a last-minute blast of power...and how many need a last-minute slip...usually on a familiar field.... The same pilot will do much worse at the end of a 3-hour cross-country flight, coming in to a strange field.	Attention to the basics; the power of fatigue
	The same pilot will probably do dismally indeed if his engine really does quit during a cross-country flight.	
263	The modern airplane has a very shallow glide angle	3 degrees, maybe a bit more at most
	It is as if you had to shoot at a target, with the target not facing you but set almost edgewise to you; the slightest error would make you miss not only the bullseye but the whole target.	
	If equipped with flaps, a modern airplane can perform the steep glide that makes the whole approach problem much easier.	Except that we tend to use power to keep the angle shallow even with flaps
	All this emphasis on the power-off approach is probably a bit overdone. Engine quit very rarely nowadays. The student pilot is extremely unlikely ever to have a forced landing. Moreover, engines almost never quit without warning. If an engine does quit without warning, it is most likely to be on the take-off, because the strains on it are greatest then, and any faulty mechanical work will then have its first chance to show. And in that situation the pilot has no choice anyway but to go straight ahead and crash-land as best he can.	This was written in the 1940s!

264	The pilot...ought to know how to make an extremely accurate approach and landing <i>with</i> power.	
	The accident record shows that pilots, as a group, are not good enough at making an ordinary turn.	Not much has changed since the 1940s
	It cannot be denied that engine failure, though very unlikely, is very serious if it does happen.... The same skill that goes into the judging of the power-off approach is also needed—in a lesser degree—in making an approach with power on.	
	To make it go down more steeply is to hold the stick farther back, the way to make it go down less steeply is to hold the stick farther forward—contrary to common sense.	
	Break the art of flying down into small details that are teachable and learnable. We practice details...practice them and combine them.	Building-block theory
267	The horizon is (practically) always as high as your eye. The line from your eye to the horizon is always horizontal. The edge of the world, instead of curving down away from you, seems to curl up. Instead of appearing as a globe under you, convex, the earth appears as a bowl under you, concave. You seem to be suspended above the middle of this bowl....	i.e., the level horizon is above the ground visible in the windscreen. The earth curves downward from the level horizon.
268-269	That which appears to you below the horizon is lower than you are. The which appears “on” the horizon is at your altitude. This knowledge helps avoid collisions.	
269	If you can see the horizon above a mountaintop, then that mountaintop is lower than you are.	
	On a take-off from an obstructed field, the moment the distant horizon rises above the tops of the tress and other objects...you know that you have cleared them, at least your eye has.	
	The inexperienced pilot is likely to focus his vision too anxiously on the obstruction alone, without regard to the horizon.	Landing: judge flare by looking at the far end of the runway and the horizon.
	That an object which appears above your horizon is higher than you is true, incidentally, only of fairly near-by obstructions.	
273	A “glide line”—a line parallel to the horizon, but sat 10 degrees...below the horizon. On the glide line are all those points on the ground which can just barely be reached in a glide....	Visualizing options for an engine-out landing.
	One of the first things to know about your airplane: how far below the horizon is the glide line	Within an arc described by the wingtips: in the circle, within glide
276	As an airplane is gliding toward a certain spot on the ground, that spot, as seen by the pilot, remains always in the same relationship to the horizon, as seen by the pilot. It is stationary throughout the approach.	Landing aim spot
278	The less skillful pilot thinks: "...seems that my present glide would get me down about two miles from here, down near that farmhouse with the red barn. Therefore, if I turned left now, I would also glide about two miles...." The more efficient pilot would think, "seems I am moving right toward the point on the ground where the farmhouse...."	Glide angle changes in a turn; winds affect glide angle and range.
282	If there is appreciable wind, the pilot must also gauge its velocity and make allowance for its effect.	
286	Objects that move downward, however slightly, are going to be overshot; all objects that move upward, toward the horizon...undershot. Objects that remain stationary...you will hit.	
	Fast ships are easier to land...the more lively its relative motion...	Also less affected by a given wind

Secure your own copy of *Stick and Rudder* and make your own notes and observations. Beyond simply reading its words, analyze, criticize, mark up and understand Langewiesche’s teachings to, as Adler suggests, **make this book your own.**

I look forward to your comments on these notes and the larger work. Please send your thoughts to me at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net). Thank you.

---



**Pursue *Mastery of Flight*.**

Thomas P. Turner, M.S. Aviation Safety  
Flight Instructor Hall of Fame  
2010 National FAA Safety Team Representative of the Year  
2008 FAA Central Region CFI of the Year

---

©2020 Mastery Flight Training, Inc. For more information see [www.mastery-flight-training.com](http://www.mastery-flight-training.com), or contact [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).