

The Tool

from "Wind, Sand and Stars"

Antoine de Saint-Exupéry (1900-1944)

And now, having spoken of the men born of the pilot's craft, I shall say something about the tool with which they work—the airplane. Have you looked at a modern airplane? Have you followed from year to year the evolution of its lines? Have you ever thought, not only about the airplane but about whatever man builds, that all of man's industrial efforts, all his computations and calculations, all the nights spent over working draughts and blueprints, invariably culminate in the production of a thing whose sole and guiding principle is the ultimate principle of simplicity?

It is as if there were a natural law which ordained that to achieve this end, to refine the curve of a piece of furniture, or a ship's keel, or the fuselage of an airplane, until gradually it partakes of the elementary purity of the curve of a human breast or shoulder, there must be the experimentation of several generations of craftsmen. In anything at all, perfection is finally attained not when there is no longer anything to add, but when there is no longer anything to take away, when a body has been stripped down to its nakedness.

It results from this that perfection of invention touches hands with absence of invention, as if that line which the human eye will follow with effortless delight were a line that had not been invented but simply discovered, had in the beginning been hidden by nature and in the end been found by the engineer. There is an ancient myth about the image asleep in the block of marble until it is carefully disengaged by the sculptor. The sculptor must himself feel that he is not so much inventing or shaping the curve of breast or shoulder as delivering the image from its prison.

In this spirit do engineers, physicists concerned with thermodynamics, and the swarms of preoccupied draughtsmen tackle

their work. In appearance, but only in appearance, they seem to be polishing surfaces and refining away angles, easing this joint or stabilizing that wing, rendering these parts invisible, so that in the end there is no longer a wing hooked to a framework but a form flawless in its perfection, completely disengaged from its matrix, a sort of spontaneous whole, its parts mysteriously fused together and resembling in their unity a poem.

Meanwhile, startling as it is that all visible evidence of invention should have been refined out of this instrument and that there should be delivered to us an object as natural as a pebble polished by the waves, it is equally wonderful that he who uses this instrument should be able to forget that it is a machine.

There was a time when a flyer sat at the centre of a complicated works. Flight set us factory problems. The indicators that oscillated on the instrument panel warned us of a thousand dangers. But in the machine of today we forget that motors are whirring: the motor, finally, has come to fulfil its function, which is to whirr as a heart beats—and we give no thought to the beating of our heart. Thus, precisely because it is perfect the machine dissembles its own existence instead of forcing itself upon our notice.

And thus, also, the realities of nature resume their pride of place. It is not with metal that the pilot is in contact. Contrary to the vulgar illusion, it is thanks to the metal, and by virtue of it, that the pilot rediscovers nature. As I have already said, the machine does not isolate man from the great problems of nature but plunges him more deeply into them.