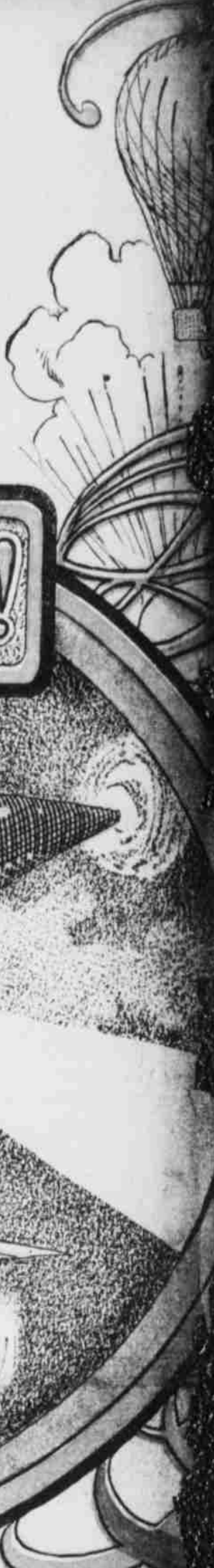


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Man Flight Next!



Will we yet fly through the air as easily as we flash across the continent by rail to-day, many times more quickly, and far more profitably and economically, too?

The wise men of the civilized portions of the world are now pretty generally agreed that we will. A few decades ago they were not. Since then, in the natural march of events, several things have happened to cause them to face about, and it would surprise none to wake up to-morrow—next week—next year, to the certain knowledge that man is flying at last.

"Impossible!" you exclaim in tones that savor of disgust at such a vision.

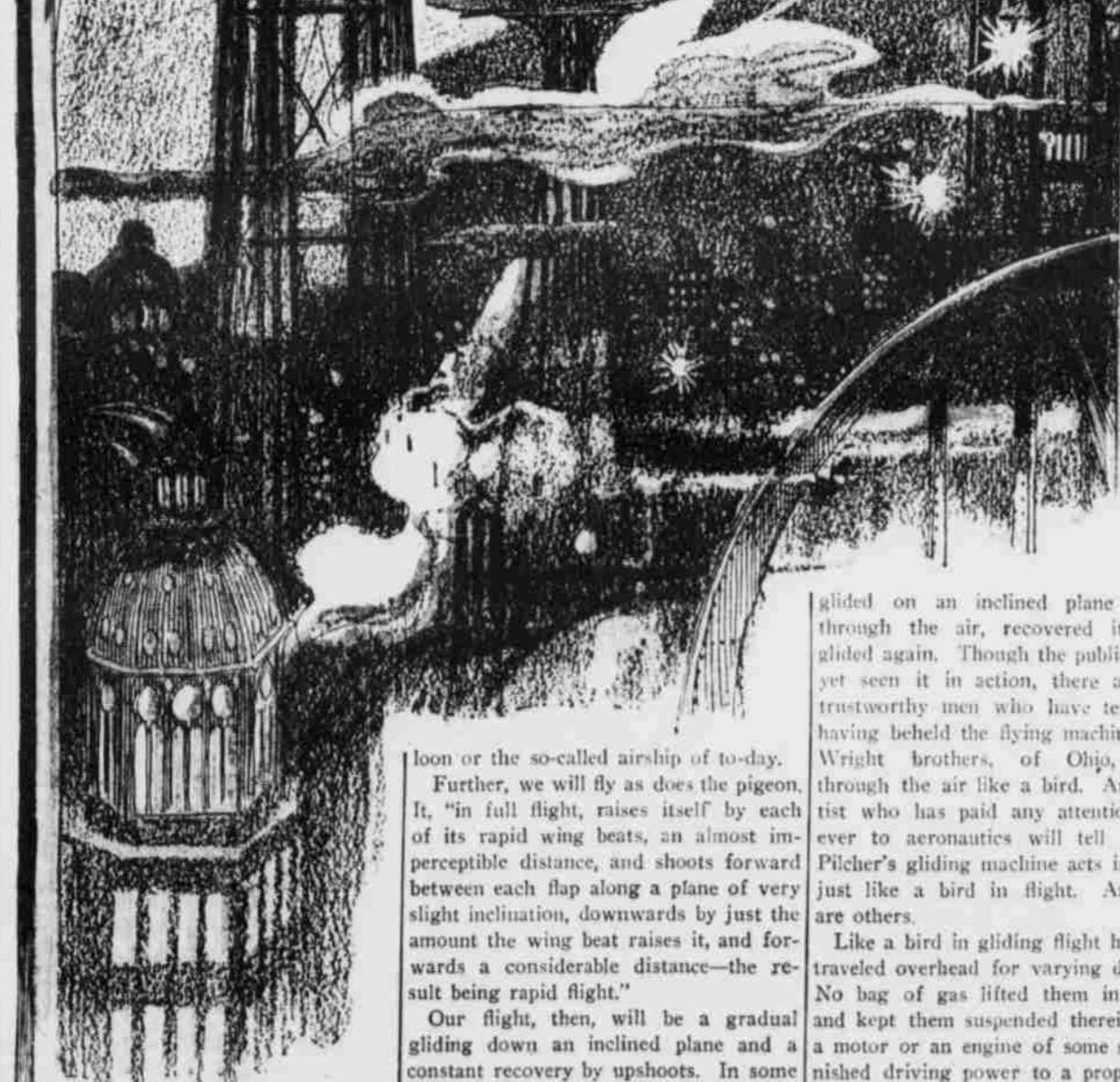
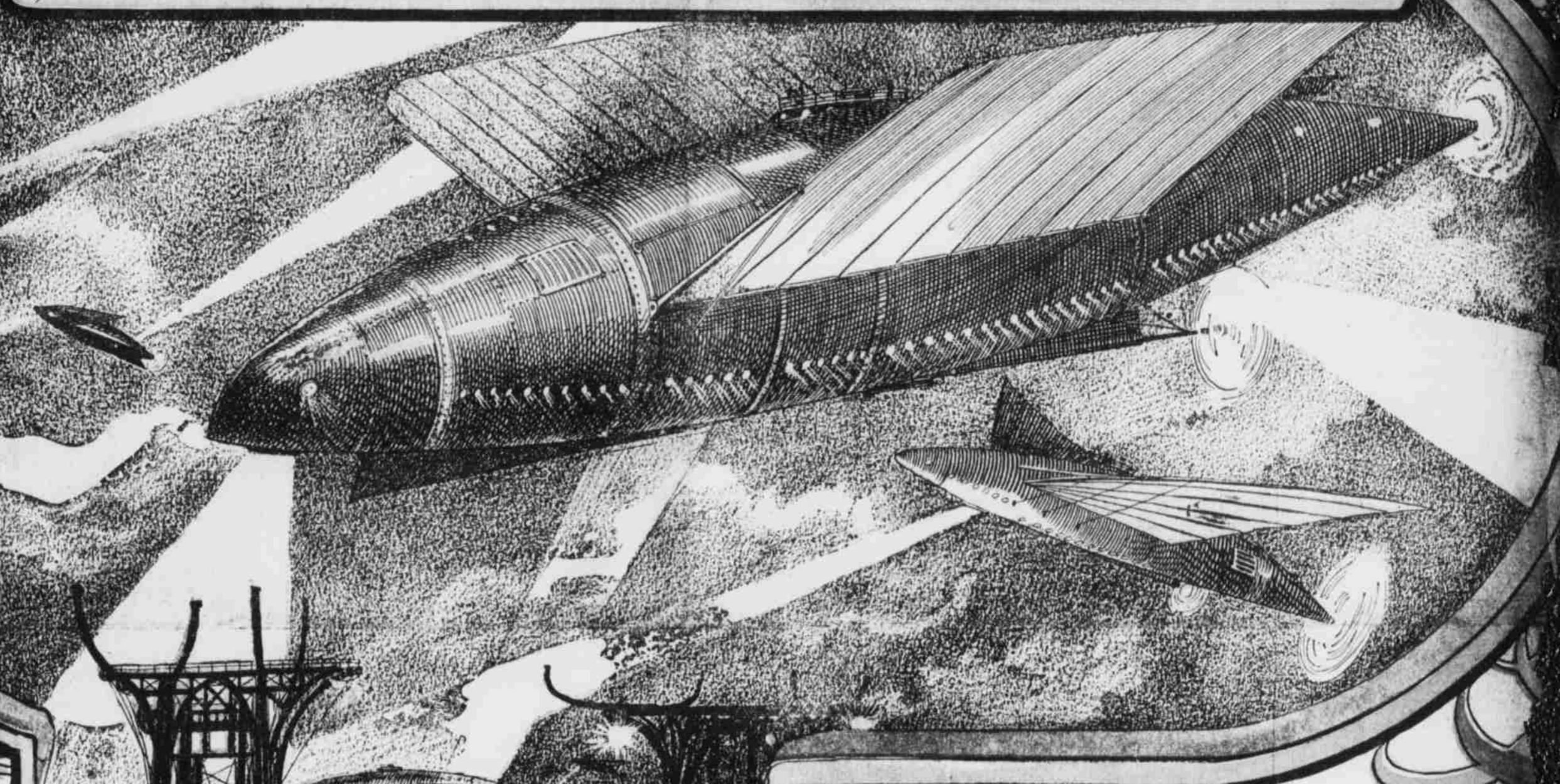
That is the very word the great body of people employed when, at one time or another, a single man, or, at least, a small body of men, were firm in the belief that we would yet sail by steam, send messages by dots over wires, actually talk over wires, ride in horseless carriages, send and receive messages over thousands of miles of space without the aid, even, of intervening wires! And this is the word that a great many of us let rise to our lips when we hear a learned man, orthodox in all things else, solemnly declare that we will yet fly.

Fly, not float, mind you. We can float in the air now. The trick is nothing. We have been floating in the air, lo! these many decades past. The balloon is a floating bag, merely.

This is true of both the dirigible and non-dirigible types. In each case the thing that gets the balloon up in the air and keeps it suspended there is gas. Gas, as every one knows, is a substance lighter than air, and so it is capable, when used in sufficient quantity, to float the silken cloth, the ropes, the woven basket, and whatever else goes into the make-up of the contraption we call a balloon.

But the invention that is to give us the mastery of the now uncharted highways of the air will travel along these very highways on its own initiative. It will be an active, not a passive, sojourner in the realm of overhead.

In this feature it will be like unto the bird, and again, like the bird, it will be heavier, many times heavier, than the air itself. A vulture's body is a thousand times heavier than the air it dis-



places; the machine in which man will prove to the world the complete practicability and utility of air travel will be—who knows how many hundred times heavier than the substance filling the unseen and boundless sea through which it will shoot with speed outrivalling the homing pigeon's, with the steadiness and docility of an old family horse? And our flight through space will be in conscious imitation of the flights of the birds. Every bird, every flying thing, flies because its flight is based upon the resistance offered to the air by its wings. In other words, we shall never attain flight by merely displacing air, as we do when floating in the straight out bal-

loon or the so-called airship of to-day.

Further, we will fly as does the pigeon. It, "in full flight, raises itself by each of its rapid wing beats, an almost imperceptible distance, and shoots forward between each flap along a plane of very slight inclination, downwards by just the amount the wing beat raises it, and forwards a considerable distance—the result being rapid flight."

Our flight, then, will be a gradual gliding down an inclined plane and a constant recovery by upshoots. In some forms of flight these two actions occur almost simultaneously. So will they in the perfected flying machine, insuring a delightful sense of safety to the passenger, nonchalantly defiant of the law of gravitation, he knowing full well the machine's ability constantly and arbitrarily to correct the position of the center of gravity, bird fashion, thus insuring permanent stability in the air.

The wisest of men declare all this; still, you say, a dream—a phantasmagoria of the brain?

Surely not when man has already flown in or flown machines as the pigeon flies!

Time after time the aerodrome—air runner—invented by the late Prof. E. P. Langley, of the Smithsonian Institution,

glided on an inclined plane forward through the air, recovered itself and glided again. Though the public has not yet seen it in action, there are many trustworthy men who have testified to having beheld the flying machine of the Wright brothers, of Ohio, gliding through the air like a bird. Any scientist who has paid any attention whatever to aeronautics will tell you that Pflüger's gliding machine acts in the air just like a bird in flight. And there are others.

Like a bird in gliding flight have they traveled overhead for varying distances. No bag of gas lifted them in the air and kept them suspended therein, while a motor or an engine of some sort furnished driving power to a propeller, as in the case of the Santos Dumont and other airships. Like a bird they have sailed, remained in the air by reason of their own initiative, the power furnished by motors or engines causing the mechanisms to offer the necessary bird-like resistance to the air, with the result of actual flight.

But, alas, because we do not yet possess the full knowledge of the principle of flight, as does the meanest of birds and flying insects, those flying machines which have justified their name, in part at least, have been wont to play queer tricks at the most inopportune moments on their inventors and an anxiously watching and waiting world. And so, though the greatest ambition of the world to-day seems to be to fly, many

of us have come to say, with a regretful shake of the head, "We will never fly."

Right here, up steps the greatest wizard of his day, Thomas A. Edison, to say that man ought to be ashamed of himself for not having solved the problem, in all its phases, long ago.

"I was down in Florida, and one day I watched a big bird—I think it was a vulture—that floated about in the air a whole hour without moving its wings perceptibly. When God made that bird He gave it a machine to fly with, but He didn't give it much else. He gave the bird a very small brain with which to direct the movements of the machine, but He gave to man a much larger brain in proportion to that of the bird."

All this is paraphrased in the one word "Shame!"

"Here," says Edison of the vulture, "is a natural flying machine which is a thousand times as heavy as the air it displaces. There is nothing but a machine and a small brain, and it is not a very remarkable machine, either." And then in self-evident disgust: "Why is it that man cannot make a flying machine as efficient as a bird?"

"A lot of people say that it was never meant that man should fly, that if nature had intended such a thing man would have been provided with the necessary machinery in his body, such as is now possessed by the bird. But you might as well say that it was never intended that man should ever have any light aside from the sun and the moon and stars which were originally provided for him, or that he should not move about faster with the aid of wheels because no wheels were supplied to him by nature."

Through further study of the bird and its method of flight man will discover how to fly, says Mr. Edison, and all others who have given the subject any serious thought agree with him fully. But, Mr. Edison adds, somewhat paradoxically, he who solves the problem of flight "will find out nothing new. Powerful motors of wonderful compactness will be applied to a framework of extreme lightness, and that will be all there is to it."

"Doubtless this framework will be something similar to the physical structure of a bird. I do not believe it will be difficult, because we have many me-

chanical devices now which are superior to the devices used by nature in human beings and animals, and I do not see why we may not put together a contrivance which will at least be equal to the machine and brain of the bird."

So, if man-flight is such an easy matter as Mr. Edison makes it out to be, why have we not been navigating the air these many years? For one thing, we have only recently, in our attempts to fly, left off trying to be original and endeavored to copy the bird, the handiwork of nature. It is a significant fact that only since we have looked to the bird for the secret of flight has there been built a machine with an indisputable record of flying ever so small a distance. Only since we have begun to imitate the bird have the wise men become convinced that we will yet fly. And some day—some day—ah, who would not like his name to go rolling down the ages as the inventor of the first machine to demonstrate beyond the shadow of a doubt the complete conquest of the air by man?

Though man, when he flies, will fly like the birds, it does not necessarily follow that the flying machine, on account of its structure, might be taken for some long surviving antedeluvian inhabitant of the air. Indeed, not a few scientists who have been busy with aeronautics declare that, once man has discovered the principle of flight, his wonderful ingenuity will enable him to construct a machine that will incorporate the principle and at the same time have nothing about it resembling wings in the slightest degree. Propellers there will be, and a rudder, doing the work of wings and tail. But it will be flight without wings—and we have been taught from childhood that even the angels need wings to fly. Other scientists, however, believe that there will be great planes, two or more, mechanically worked like wings, in conjunction with propellers and rudder.

Again, in their perfected state, propellers and rudder will do more than to give flight. Once more man will improve on nature, and the mechanisms of his ingenuity will drive the good air machine through gales that the strongest bird could not face, will keep it serenely on its course, while birds, caught in the swirling, clashing, battling currents, will be hurled miles out of

their path, to be brought in the friendly strange country.

Will the shell of the steel? Certainly of the material equally strong many times heavier than places.

The shape of the machine that of a bird's body-like structure, with one the other blunted some taking their cue from have been picturing years now.

What will drive it? A high miraculous power, lighter in weight than able of such power could just as the automobile is infinitely lighter than only a few years ago mighty engines of the greynound" are lighter of fifty odd years.

And the motors will pellers so astonishingly will be born of this motion, offering rest and flight will be sure the case of the bird, and for a short time will aerodrome.

How fast will we go? A goose, with a brain more portion than man's, in flight, of from two hundred miles an hour, not journey through this speed, we who see the universe! A million twelve seconds, the a single night, an afternoon trip between Chicago, a run of miles the metropolis to the

What will give life chinery? There is an opinion, but all are agreed will be very small, its a little will go a very flies, say the most of flies, will snatch the power from space, and veyances there will seem the giant of ocean greynounds.

When man flies fought in the air.

(Continued)