

etc. (this is the usual formula), by means of a flying machine which he had invented.

I asked him if he had any intention of deriving the usual benefits of this invention by taking out a patent. He declared he would be an idiot if he did not derive some benefit from so marvellous an idea, and furthermore he had children, and that he was resolved to leave them an immense fortune.

I tried to make him understand that his invention was not patentable, for it had been described a long time previously in a number of *L'Aeronaut*, dated fifteen years back.

He cried: "What! because some clown has caused an article to appear in your paper which is more or less like mine, cannot I, a citizen, an influential elector, have an idea patented which would give power and glory to my country and fortune to myself? But in such a case as that your paper is a danger to all the world and ought to be burned in the public square at the hands of the executioner. Furthermore, I am resolved not to follow your advice. I am going direct to my patent agents, who have promised to get my invention patented. When that is accomplished, I will go to the Government, and from them I will demand three million francs and the Cross of the Legion of Honor. If the Government will not accept this proposition I will exploit my patent myself."

And he went away and never came back. But I learned afterward that he spent all his property in patents and fruitless attempts, and that he was in deep dejection.

Another instance less sad than that occurred more recently.

We know that Gabriel de la Landelle, in his treatise on aviation ("Traité d'Aviation") published the design of a projected aeroplane raised in the air by vertical screws and propelled by horizontal screws. A short time afterward a certain journal attributed the idea of a similar apparatus to an inventor of whom it had a great deal to say. A few days afterward another journal published an indignant letter from a man who claimed that he had flown, and that the invention was his.

Mr. Chanute's book will do away with cases where money is wasted in fruitless experiments, and especially in patents and taxes, which the State imposes upon people who think they have discovered something. It is very certain, if we could have all the money that has been spent in patents for aeronautical devices, we would have enough to solve the problem.

Mr. Chanute begins with the history of mechanical birds, then he touches helicopters, and finally aeroplanes. All of his descriptions are made complete by engravings, taken for the most part from *L'Aéronaute*.

This work is an instrument for important study; it is condensed into 300 pages, and is edited by a man whose competency nobody can doubt. Nevertheless, Mr. Chanute, sharing in the general opinion prevailing in England and America, shows his preference for the aeroplanes. M. du Hauvell a long time ago demonstrated this idea mathematically; but M. Veyrin, by his recent experiments, has given an impetus to the theory of aeroplanes.

We know, since Launoy and Bienvenu (1792, Académie des Sciences) that an apparatus can be raised vertically into the air by means of screws expending a force of 6 kilogrammetres per kilogram.

We know that screws on a horizontal shaft can propel an apparatus horizontally by expending a force increasing as the cube of velocity. As I have already said, Gabrielle de la Landelle desired to use horizontal and vertical screws at the same time; but a casual examination will show that vertical screws, by becoming useless after leaving the earth, would be extremely detrimental in presenting a very large surface to resist advancement. The desire has therefore been to replace the ascensional screws by a large suspending plane.

Recent calculations demonstrate that the resistance to the advancement of these planes by an enormous surface would be almost as great as that produced by elongated balloons.

M. Renoir proposed in 1872 to use oblique screws (*L'Aéronaute*, January, 1873, page 23), but never put his idea into execution. Then M. Veyrin has shown practically that by inclining a vertical screw and by a system of displacing the centre of gravity we can obtain with this oblique screw a high horizontal velocity. Then what good comes from embarrassing one's self with the immense surfaces of aeroplanes, when by simply changing the construction of the screw we can attain the same results?

I do not think that inclined screws (Vailent) are worth as much as flapping wings. I do not say more than that M. Veyrin has demonstrated that his apparatus has the same chance of success with actual motors (he does not think so himself); but it seems to me that he has demonstrated that he ought not to trouble himself any more with aeroplanes having screws on a vertical shaft.

ABEL HUREAU DE VILLENEUVE.

RECENT AERONAUTICAL PUBLICATIONS.

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON AERIAL NAVIGATION, held in Chicago, August 1, 2, 3 and 4, 1893. THE AMERICAN ENGINEER AND RAILROAD JOURNAL, 47 Cedar Street, New York. 429 pp., 5½ × 9 in. \$2.50.

This volume contains the reports of the proceedings of this Conference, which were first published in *AERONAUTICS*, and includes the following papers, with discussions of many of them:

Preliminary Address of the World's Congress Committee on an International Conference on Aerial Navigation.

Opening Address. By O. Chanute, C.E.

The Problem of Aerial Navigation. By C. W. Hastings, Civil Engineer, deceased.

The Internal Work of the Wind. By S. P. Langley, Secretary of the Smithsonian Institute, Washington, D. C.

Anemometry. By S. P. Ferguson, Blue Hill Meteorological Observatory.

The Air Propeller. By H. C. Vogt, Naval Experimenter, Copenhagen, Denmark.

The Elastic Fluid Turbine as a Motor for Aeronautical Use. By J. H. Dow, Mechanical Engineer, Cleveland, O.

Notes on Materials of Aeronautic Engineering. By Professor R. H. Thurston, Director of Sibley College, Ithaca, N. Y.

Flying Devices. By G. Crosland Taylor, F.R.G.S. and A.I.E.E., Helsby, England.

Atmospheric Gusts and their Relation to Flight. By Professor A. F. Zahm, Professor Notre Dame University, Notre Dame, Ind.

Sailing Flight. From Observations made at Constantine, Algeria. By J. Bretonnière, Engineer and Observer, Constantine, Algeria.

Theory of Sailing. By W. Kress, Vienna, Austria.

Soaring Flight. By E. C. Huffaker, C.E., Bristol, Tenn.

Theory of Soaring Flight. By Ch. de Louvrie, Engineer, Combebizon, France.

The Mechanics of Flight and "Aspiration." By A. M. Wellington, Member Am. Soc. C. E.

On the Action of Birds' Wings in Flight. By B. Baden Powell, Lieutenant Scot's Guards, England.

Notes on the Designing of Flying Machines. By J. D. Fullerton, Major Royal Engineers, England.

Aeroplanes and Flying Machines. By W. Kress, Vienna, Austria.

Note on an Elastic Screw. By W. Kress, Vienna, Austria.

The Advantage of Beating Wings. By Ch. de Louvrie, Engineer, Combebizon, France.

Stability of Aeroplanes and Flying Machines. By Professor A. F. Zahm, Notre Dame University, Notre Dame, Ind.

Flying Machines, Motors and Cellular Kites. By Lawrence Hargrave, Experimenter, Sydney, N. S. W.

Suggestions and Experiments for the Construction of Aerial Machines. By F. H. Wenham, Engineer, Goldsworth, England.

Methods of Experimentation. By A. P. Barnett, Experimenter, Kansas City, Mo.

Learning How to Fly. By C. E. Duryea, Mechanical Engineer, Peoria, Ill.

A Programme for Safe Experiments. By L. P. Mouillard, Observer, Cairo, Egypt.

Experiments with Hexagon and Tailless Kites. By W. A. Eddy, Experimenter, Bayonne, N. J.

Some Experiments with Kites. By J. Woodbridge Davis, New York City.

Manufacturing Hydrogen Gas Balloons. By C. E. Myers, Aeronautical Engineer, Frankfort, N. Y.

Natural Gas Balloon Ascensions. By C. E. Myers, Aeronautical Engineer, Frankfort, N. Y.

Flotation v. Aviation. By Professor De Volson Wood, Stevens' Institute, Hoboken, N. J.

Manœuvring of Balloons. By C. E. Myers, Aeronautical Engineer, Frankfort, N. Y.

Systematic Investigation of Upper Air. By M. W. Harrington, Chief of Weather Bureau, Washington, D. C.

Observations from Balloons. By C. C. Coe, Aeronaut, Ridge Mills, N. Y.

Balloon Meteorology. By C. E. Meyers, Aeronautical Engineer, Frankfort, N. Y.

Scientific Results Gained by Balloons. By H. A. Hazen, Weather Bureau, Washington, D. C.

Explorations of the Upper Atmosphere. By N. de Fonvielle.

Ten Miles above the Earth. Discussion by H. A. Hazen.

Appendix containing discussions of some of the papers.

The above volume is now ready for delivery.