

sufficiently to sail a mile without difficulty, all the insuperable difficulties in the way of a pleasure aeroplane have disappeared and one is forced to the conclusion that aeroplaning as a sport, for those who can afford it, is really on the program.

The power for the "June Bug" has been found in an eight cylinder, forty horse-power, air-cooled engine, weighing only 200 pounds, acting on a six feet long by eight inches wide wooden propeller. Two horizontal curved planes 42 feet long by 6 feet wide of spruce lumber braced with wire and covered with strong cotton cloth filled to make it airtight, a horizontal cloth covered controller in front to steer it up and down, a vertical rudder behind, to steer it from side to side, with the necessary net-work of wire cables, gas pipe and sink sockets to hold the whole together, these make the "June Bug". Of course, the curves of the surfaces and the cross sections of the framework are according to carefully worked out formulae.

The difficulties of flight have been difficulties arising from our idea that the air is a gas and not a solid. But as Herring expresses it, "If you rotate a plane surface rapidly enough in the air it is held between the upper and lower air masses as rigidly as though you ran it along a crack in a brick wall". "Hit the air hard enough and it reacts like a solid", is one of Prof. Langley's statements, I believe, and as you stand behind the propeller of the "June Bug" when it is revolving at 1200 turns to the minute you