

J. R. PANNELL, A.M.I.M.E., F.R.Aë.S.

John Robert Pannell received his technical education at the Northampton Institute, where he was awarded a diploma, after which he went through the shops of Messrs. Bruce Peebles, Edinburgh. He went to the National Physical Laboratory as a student assistant in the engineering department, in 1906, and was first employed in aiding Mr. Jakeman, who was conducting experiments on the specific heat of steam. After two years as a student, he was taken on to the Laboratory staff as a junior assistant, and helped Dr. T. E. Stanton in work on the strength and fatigue of welded joints, the results of which were published in their joint names in 1912. He then pursued a lengthy series of researches on the friction of fluid flow in pipes and the rate of heat transference from fluids flowing through pipes, and established experimentally the law of dynamic similarity for pipes by comparing the results obtained with air, water and oils. A joint Paper of Pannell's with Dr. Stanton was published in Vol. 214 of the "Philosophical Transactions of the Royal Society," at page 199, on "Similarity of Motion in Relation to the Surface Friction of Fluids." In 1914 he was transferred to the Aeronautics Department (then a branch of the Engineering Department) of the Laboratory, and since that date had been continuously employed there. His early aerodynamical work covered a wide field, among the subjects on which he was engaged being a systematic research on biplane systems; whilst he carried out tests on the model of the original Handley Page aeroplane. Later on during the war he took up the subject of resistance of bombs, and did much valuable work, in conjunction with Mr. N. R. Campbell, towards improving the technique of the measurement of resistance of stream-line bodies. This naturally led him to the subject of airships, with which he was almost exclusively concerned from 1917 onwards.

In this work on airship research Pannell was always very fully alive to the necessity of corroborating the results of his research work on models by measurements obtained in actual airships in flight, and was most emphatic in urging the importance of at least one airship being permanently detailed for this purpose, in order that research work might not be thrown back by the constant delays owing to airships being diverted to other work. He organised a very complete system of experiments from this point of view, and had made many experimental flights, notably in R33 and R36, as a result of which he collected a mass of most valuable data, often under most trying conditions. It would be impossible to overestimate the value of the work he did in this direction, which was carried out with characteristic enthusiasm and thoroughness, frequently at great personal inconvenience. At the time of his death he had practically completed a comparison of resistance of a stream-line shape in air and water, and was also engaged upon an investigation into the effect of surface roughness on airship resistance. It would be impossible to find a more enthusiastic believer in the commercial value of airships, in which he had great confidence, or a more ardent worker in the cause of airship development.

Pannell was elected an Associate Fellow of the Society on April 19th, 1917, and a Fellow on July 5th, 1918. He was a member of the Sub-Committee on Symbols of the Technical Terms Committee, 1919, and in 1917 read a Paper to members on "The Wind Channel: Its Design and Use."

LIEUTENANT C. G. LITTLE, U.S.N.R.F.

Lieutenant Charles G. Little was born at Newburyport, Massachusetts, in 1895, and entered the United States Service of Naval Aviation on May 9th, 1917, as an Ensign, being promoted Lieutenant "J.G." in 1918, and full Lieutenant later in the same year. He was one of the American Naval Aviation officers who