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

came over to Europe as airship pilots during the war, being stationed at Paimbœuf Air Station in France, and held the French airship pilot's brevet, No. 97. He was awarded the U.S. Navy Cross for his services. Lieutenant Little joined the Society as a Foreign Member on October 19th, 1920.

LIEUTENANT-GENERAL SIR DAVID HENDERSON, K.C.B., K.C.V.O., D.S.O., Hon.F.R.Aë.S.

"David" has gone, and the world of aviation laments the departure of one of its most interesting and greatest figures.

David Henderson started life as an engineer, but opportunity offered and he transferred his activities to the more honourable and less lucrative profession of arms. His career as a soldier was conspicuously successful, and when aviation first appeared on the military horizon, he had a long and distinguished record of active service to his credit. His greatest successes had been won in the Intelligence Branch of the General Staff—and it was this experience which qualified him particularly to grasp the vast possibilities of aircraft as a means of reconnaissance when his military and naval contemporaries were both sceptical and inert in their attitude towards this new weapon of war.

In 1912 he stepped into the aeronautical world by "taking his ticket" at Brooklands at the age of 50, to the furtive annoyance of some of his equals and to the amazement and admiration of his juniors; at the time he must have been the oldest man in the world who had attained this qualification. General Henderson was then Director of Military Training in the War Office, and it was probably the fact that he was the only senior officer in the Army who could fly, which led to military aviation being placed under a branch of his particular directorate.

From that moment his whole life was devoted to the new cause. No one who did not actually work under him can realise the vast amount of time and energy he gave to aviation during 1912 and 1913. The onerous duties of Director of the Training of the Army already more than fully occupied his time, but he spent untold hours both by day and night in tackling the endless and difficult questions which arose during the birth and development of the Royal Flying Corps and the Military Aeronautics Directorate. His foresight and judgment at this time were remarkable; if the archives of the War Office dealing with aviation at this period are ever seriously studied, they will be a revelation of his sound judgment combined with imagination and enthusiasm. Every step taken was considered fully and thoroughly, and the fruits of almost every decision of importance have endured to the present day through all the changes of control and of headquarter organisation which have occurred since. To him must be given the credit of the first conception of a flying service common to both Army and Navy, divided into Military and Naval Wings and controlled by an Air Committee, consisting of the leading officials in the Government and in the two great warlike departments concerned with aviation. This Committee had operated with great success for two years when the war started; if it could only have been continued with increased powers, much useless and pernicious overlapping and competition between the Admiralty and War Office could have been avoided. But David Henderson and some of the other members went off to the war, and the Committee was allowed to lapse, until the two Air Boards and eventually the Air Ministry restored the policy of central control over all matters concerned with aviation. For the first year of the war General Henderson commanded the Royal Flying Corps in the field with conspicuous distinction; Lord French, the Commander-in-Chief, was lavish in his praise of the good work he did, and it was under him that the Royal Flying Corps created a reputation for dash, courage, good discipline and reliability in battle, which was maintained in face of all difficulties until the last day of the war.