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WIMPERIS, Harry Egerton

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TABLE OF CONTENTS

/i

	<u>Pages</u>
Copy of Inventory entry	ii
Introduction	iii-viii
Diaries	1

INVENTORY ENTRY

WIMPERIS, Harry Egerton, 1876-1960. Engineer and Scientist.

Microfilm, 1907-41. 8 reels (A-843 to A-850).

Inventor of the Wimperis accelerometer, Gyroturn indicator and course setting light for aircraft. He was Experimental Officer in the Royal Navy Air Service, Royal Air Force and Air Ministry Laboratories, 1915-25. Director of Scientific Research Air Ministry 1925-37. Aeronautical Advisor to Council for Scientific and Industrial Research of the Commonwealth of Australia, 1938. President of the Royal Aeronautical Society, 1936-38. President of the Engineering Section of the British Association 1939. A member of the Atomic Energy Study Group, Chatham House 1946-50. He was married to Grace d'Avray, daughter of Sir George Parkin.

The papers consist of personal diaries 1907-41 which deal with family affairs, H.E. Wimperis' inventions, books, aeronautical work and travels, including travels in Canada. Copied from originals in the possession of Mrs. John Watson of Edinburgh, Scotland, 1972.

INTRODUCTION

Born on August 27, 1876, Harry Egerton Wimperis' early years were affected by the death of his father (when he was a year old), and his mother's efforts to bring him up and educate him in straitened financial circumstances. At the age of fifteen he was apprenticed to an engineering firm but a deep interest in astronomy influenced him to write to the Astronomer Royal who showed him the Royal Observatory and advised him to attend the Royal College of Science and Cambridge University. Wimperis followed his advice and, after attending the Royal College, he won, in 1898, a Whitworth Scholarship and a scholarship at Gonville and Caius College where he obtained Firsts in Mathematics and Mechanical Engineering.

Because of the necessity of providing a home for this mother, Wimperis led a somewhat restricted social life at Cambridge and refused a fellowship of his College which would have enabled him to pursue a life-time career in astronomy, and went to work to gain practical experience with the London, Brighton and South Coast Railway, and with Armstrong, Whitworth and Company. In 1901 he joined the engineering staff of the Crown Agents for the Colonies. He served as an Experimental Officer with the Royal Naval Air Service (with the rank of Lieutenant-Commander, Royal Naval Volunteer Reserve) and the Royal Air Force (with the rank of Major) from 1915 to 1924. During this period he became superintendent of the Air Ministry Laboratory in the Imperial College of Science. In 1925 he became the first Director of Scientific Research at the Air Ministry until his retirement in 1937. He visited Australia in 1937-1938 to advise the Commonwealth Government on aeronautical research and continued to act as consultant until 1942.

In 1907, Wimperis married Grace d'Avray Parkin, one of the four daughters of Sir George Parkin, Canadian educationist, writer and Organizing Secretary of the Rhodes Scholarship Trust, and became part of the Parkin family circle which included his Canadian brothers-in-law, Vincent Massey, William L. Grant and James M. Macdonnell.

During the years he spent with the Crown Agents for the Colonies, Wimperis became a leading authority on the internal combustion engine and wrote a book and many articles and notes for technical journals and newspapers such as Engineering and the Times Engineering Supplement. Not only was he able to write clearly and well, he also possessed a quick, incisive grasp of scientific and technical matters, and an inventive turn of mind. He took out approximately twenty-seven patents during his life-time and in 1909 invented the Wimperis Accelerometer, a device to measure the acceleration of a moving vehicle, and in 1910 the Gyro-Turn Indicator. His most important invention was to be the Course-Setting Bombsight (C.S.B.S.) in 1917.

On November 13, 1912 he wrote in his diary:

"Interview with Elphinstone at 10 to tell him of my proposition arising out of Atkyns saying last ~~Saturday~~ that an instrument for aiding bomb dropping by air craft was needed. Described to him my "aerial optical wheel" I hope to get out some device really useful in our national power of defence."

He worked steadily at improving his invention and by March of 1917 he predicted that the drift method of sighting employed in the device would become widely used.¹

The Original Mark I CSBS was the first really efficiently designed bombsight, and was intended for attack on submarines. It was virtually a mechanical vector triangle, whose three elements were air speed, wind speed and direction. The first two were calculated and set on the bombsight by the bomb aimer, and the third was the result of their combination. Thus the ground speed could be measured. The height bar, which carried a movable open back sight, was calibrated in aircraft height and was angularly adjusted (tilted) to allow for bomb ballistics. The instrument could also be used for navigation. It became, with its various modifications, the standard bombsight of the Royal Air Force for twenty-two years. By 1930 the rate of accuracy of the bombsight reached a level that has not since been generally surpassed.²

Although Wimperis was reluctant to lose the personal work in the Air Ministry laboratory and thought that the prospect of becoming the first Director of Scientific Research for the Air Ministry would bring him "a gain only in power, prestige and weariness",³ he considered the position the most interesting scientific work in the government and in June of 1925 was appointed to the position which he occupied until his retirement in 1937.⁴ In a letter to H.C.T. Dowding F.W. Lanchester wrote of him:

"In my opinion the outstanding technical man who is a 'white man' in the Air Ministry is Wimperis, his is a first-class brain with a first-class training."⁵

Wimperis had to deal with the jealousy of senior R.A.F. officers, and the feeling among some civil servants that a scientist should not occupy a senior government post. But his imagination and foresight, his interest in new ideas, and his ability to accurately assess bogus devices gradually enabled him to build up respect for science within the Air Ministry, and make a significant contribution to aeronautical research.⁶

While he was at the Air Ministry he protested against the flight of the airship R101 although he was not responsible for the research in this area. He encouraged the Cierva autogyro, the forerunner of the helicopter and played a highly important, although anonymous to the general public, role in the development of radar.

/v

In a typical diary entry for October 15, 1934, Wimperis wrote:

"A busy morning. Lunch at Ath[ena]eum⁷ where I had A.V. Hill as my guest - as I wanted a good talk with him on radiant energy as a means of A.A. defence. I think I must put up a proposition to Air Council."

He did so on November 12, 1934 in a long memorandum to the Secretary of State for Air, Lord Londonderry, in which he recommended that a Committee "to consider how far recent advances in scientific and technical knowledge can be used to strengthen the present methods of defence against hostile aircraft. The Committee should be at liberty to consult other experts (for example, in radio technology) when they deem this to be necessary."⁷ He suggested that the Chairman should be his close friend, H.T. Tizard, with Professor A.V. Hill, Professor Blackett, himself and A.P. Rowe as Secretary.

The new Committee on Air Defence, or the Tizard Committee as it became known, held its first meeting on January 28, 1935 to discuss balloon barrages, and certain information supplied by Robert Watson-Watt, Superintendent of the Radio Department of the National Physical Laboratory, who soon produced a detailed paper on detection and location of aircraft by radio methods. Shortly after the Committee's second meeting technical tests were carried out at Slough and Wimperis noted in his diary on February 27, 1935 that he was "glad indeed to have a letter from Rowe before leaving Folkstone saying that y[ester]days radio tests had been successful! Good Watson Watt!" The next day he recorded jubilantly that "Dowding was delighted with the success of y[ester]days experiments - I can now have all the money I want within reason!" Thus, the basis for the development of radar was laid. Wimperis' role was that of the able and experienced civil servant who did his part by recognizing the need for the Committee, recommending its formation, and its terms of reference, and selecting the right members for the Committee.

Although his early life was hampered by lack of money for recreation and travel, his entry into the Parkin family circle, membership in the Athenaeum Club, and participation in a society of Sunday Walkers called "The Tramps,"⁸ brought him into contact with many prominent figures in London circles. Among his close friends in scientific circles were Lord Rutherford, Sir Henry Tizard, Sir Richard Southwell, Sir David Pye and Robert Bourdillon. He also enjoyed his friendships with men prominent in the arts and humanities such as Lord Reith, G.M. Trevelyan, Sir Arthur Steel-Maitland, Hilary Jenkinson, Basil Williams and many others.

During his trip to Australia in 1937-1938, Wimperis contracted sprue, a tropical disease which affected his health adversely, until his death in Edinburgh in 1960. His wife died soon after, and he was survived by three daughters.

Footnotes

1. Diary, March 19, 1917.
2. Information on the Mark I CSBS supplied by Group Captain E.B. Haslam (Retd), British Ministry of Defence in a letter to Mr. G.R. Parkin, Montreal, April 25, 1975.
3. Diary, February 9, 1924.
4. Diary, June 11, 1925.
5. Diary, March 9, 1936.
6. A.P. Rowe, "Dr. H.E. Wimperis," Nature, vol. 188 (November 19, 1960), p.622-623.
7. R.W. Clark, Tizard (London; Methuen, 1965), p.111.
8. First formed by Leslie Stephen in 1879 among his literary friends.

Honours

His honours include the following:

C.B.E., 1928

C.B., 1935

Honorary Doctor of Engineering degree, University of Melbourne, 1937

Honorary Fellow of the American Institute of Aeronautical Sciences.

Honorary Member, German Academy of Aeronautical Research.

Fellow of the Royal Aeronautical Society and President, 1936-1938.

Member, Council of the Institution of Electrical Engineers.

Honorary Fellow and Governor, Imperial College of Science and Technology.

Member, Council of the British Association and President, Section G, 1939.

Member, Executive Committee of National Physical Laboratory, 1931-1937.

Member, Aeronautical Research Committee.

Member, Atomic Energy Study Group, Chatham House, 1946-1950.

Wilbur Wright Lecturer, 1932.

Thomas Hawksley Lecturer, 1944.

Publications

In addition to his books, Wimperis wrote technical papers mainly for the Aeronautical Research Committee, and many articles, book reviews and technical notes for Engineering, Times Engineering Supplement, Nature, and other scientific and engineering publications. For a number of years he edited the Bell Technical Series for George Bell and Sons, publishers.

Wimperis, H.E. Aviation. (Home University Library of Modern Knowledge, no. 195.) London: Oxford University Press, 1945.

Wimperis, H.E. Defeating the Bomber. (Liberty Handbooks, no. 4.) London: J.M. Dent, 1941.

. "The future of flying," in Smithsonian Institution Annual Report, 1940, 489-500. (Reprinted from the Advancement of Science, new quarterly series, no. 1, October 1939.)

. The Internal Combustion Engine. London: Constable, 1908.

. "The natural limits to human flight," in Smithsonian Institution Annual Report, 1938. (Presidential address delivered before the Royal Aeronautical Society, April 26, 1937. Reprinted from the Journal of the Royal Aeronautical Society, vol. 41, No. 324, December, 1939.)

. The Reform in Mathematical Education. London; Waterlow, 1903. (Reprinted from the columns of Engineering.)

. A Primer of Air Navigation. London: Constable, 1920.

. The Principles of the Application of Power to Road Transport. London: Constable, 1913.

. The Relationship of Physics to Aeronautical Science. (Physics in Industry. Lecture 10.) London, 1927.

. World Power and Atomic Energy, the Impact on International Relations. London: Constable, 1946.

DIARIES

Wimperis kept a meticulous, concise account of his daily activities for thirty-four years, and recorded details of his personal affairs, meetings with friends, the books he read, the articles he wrote, and the speeches he made. The Diaries are of interest to researchers on the subjects of aeronautical research, the development of radar, and the British scientific community in the 1920's and 1930's. In a secondary sense, the Diaries complement the Sir George R. Parkin Papers, the William L. Grant Papers, and the Massey Family Papers in the Public Archives of Canada.

The Diaries (P.A.C. Microfilm Nos. A-843 to A-850) were filmed for the Public Archives at the suggestion of Mr. G.R. Parkin, Montreal, and with the kind permission of the owner, Mrs. John Watson, Edinburgh, the eldest daughter of H.E. Wimperis.

The Diaries are contained on the following microfilm reels:

A-843	1907-1911
A-844	1912-1916
A-845	1917-1920
A-846	1921-1925
A-847	1926-1930
A-848	1931-1935
A-849	1936-1941
A-850	Trips to America 1918-1919, and Egypt 1921.