

The life and career of Dr Elsie Widdowson

1906-2000

EW testing her physical fitness in the Lake District as part of the Experimental Study of Rationing in January 1940. A decision to help the war effort led to studies to show that it was possible to be healthy and strong on home produced food, mainly bread, vegetables and potatoes.



Elsie Widdowson, CH, CBE, FRS, DSc graduated in Chemistry at Imperial College London in 1928, and obtained her PhD on the carbohydrate content of apples in 1931. The turning point in her life came in 1933 when she decided to go to Kings College Hospital to learn about large-scale cooking before starting a dietetics course.

A trip to the kitchens brought her into contact with Robert McCance who was analysing plant foods for carbohydrates in order to plan diabetic diets. This led to a scientific partnership that was to last sixty years. It helped shape war time rationing and the British loaf; paved the way for



later work on the damage that poor nutrition in childhood does to adult health and provided the core for every nutritional database in use in the world today.

Their book *The Chemical Composition of Foods* became so widely known on its

publication in 1940, that with subsequent editions, their names passed into the title, linking them for ever with the field they had made their own.



The six editions of McCance and Widdowson's The Composition of Foods.

Wheat and Flour Data	
Wheat	Flour
Moisture	14.0
Protein	12.5
Starch	70.0
Fibre	1.5
Minerals	0.5
...	...



EW receiving the Companion of Honour at Buckingham Palace November 1993.



For seven years prior to her

death on June 14th 2000, Elsie Widdowson was the most highly honoured woman scientist in Britain, having been appointed to be a Companion of Honour.

She is best known for her work in nutrition, which did not exist as a subject when she started. She has been a chemist, biochemist, a physiologist of plants and animals and medical researcher.



EW choosing the 'Elsie May Rose' to mark her 90th birthday.

“ If your results don't make sense, think and think again! You may have made a mistake or you may have made a discovery. Above all, treasure your exceptions; you will learn most from them. ”

“ I sometimes think that of all the various aspects of nutrition I have dabbled in, my first venture, on the composition of foods, will be the longest lasting. ”

A pioneer in the field of nutrition

“ We did not believe that we should use human subjects in experiments that involved any pain, hardship or danger, unless we had made the same experiment on ourselves ”



EW washing down a subject to collect sweat in the experiments on salt depletion in 1934. These studies helped the understanding of the importance of maintaining fluid and chemical balance, with practical applications in many fields including heat exhaustion, diabetic coma and infantile gastro-enteritis.



EW injecting herself with solutions of calcium, magnesium and iron in 1934. This led to an understanding of mineral metabolism including the proof that iron in the body must be regulated, not by excretion, but by controlled absorption.



EW and RMC with members of their staff in Cambridge enjoying a meal as part of the study to determine mineral metabolism of healthy adults on white and brown bread dietaries. One of the main outcomes was the mandatory fortification of bread with calcium.



RMC measuring his energy expenditure whilst cycling through Cambridge. The studies on energy balance were the first to emphasise the importance of nutritional individuality, now the basis for today's functional genomics.



RMC with the pigs that were kept at his home in Cambridgeshire. Studies on the nutrition and growth of pigs have paved the way for current hypotheses on the damage that poor early nutrition does to adult health.