

DR. ROYAL LEE

A Thumbnail Sketch by L. Jewell c.1950

The way of the transgressor is recorded as thorny, but the path of many pioneers is even more rugged, especially those who pioneer into the by-ways of scientific research and whose findings disregard stereotyped opinion. Such has been the pathway of Royal Lee of Milwaukee, Wisconsin, whose studies and research in many fields have yielded new and disturbing concepts of the basic causes of disease and of the degeneration of the aging.

Other dividends for humanity have been an assortment of electrical devices and appliances and of concentrations of vitamins and minerals extracted from natural sources. The latter, together with the research findings that have preceded their commercial production, have had the greatest impact upon medical procedures and administration and have embroiled Dr. Lee in his most strenuous opposition and arguments. Like all pioneers in shifting medical opinion out of worn grooves, his theories and findings frequently have resulted in more cussing than in cheers for attainments.

He was born on a farm near Edmund in the southwestern part of Wisconsin, April 7, 1895, of Norwegian ancestry, his grandparents having emigrated to southern Wisconsin in the 1830's and 40's. His boyhood was spent on his father's farm and in 1913 he graduated from Dodgeville High School. After graduating from high school he engaged in various mechanical activities including the operation of a machine shop, a garage, and a school for automobile mechanics. This was terminated by army service in World War I. After returning from overseas and his discharge in 1919, he attended Marquette University in Milwaukee, graduating from the Dental College in 1924. In November of 1924 the first of his 34 patents was granted. This, a foot control device for dental office motors, together with various other equipment for the use of dentists, Dr. Lee himself manufactured under the name of the **Lee Dental Appliance Company**.

He also patented and began manufacturing a centrifugal switch for controlling the speed of small motors. The engineers of one of the largest electrical firms in the country had been trying for years to devise a satisfactory governor of this type but without success. This patent, applied for in September, 1923, was granted May 31, 1927, and was the basis for the incorporation of the Lee Engineering Company to manufacture and sell this governor. The firm manufactured governors for various motor devices, but progress was slow with no big concerns interested in its application. Finally, Dr. Lee succeeded in selling the Air Reduction Sales Company of New York on the idea of using a governor motor on their flame-cutting apparatus. It was so successful that they adopted it for all of their machines, and before long other companies followed suit. **The Lee customer list now embraces all of the major electrical manufacturers and a partial list of products in which the Lee Governor is found includes kitchen food mixers, electric adding machines, electric typewriters, sound movie cameras and projectors, fusion welding equipment, flamecutting machinery, drill presses, bearing superfinishers and various overspeed protective devices.**

Lee Engineering Company products were used in many war instruments where close time intervals or constant speeds were essential. Every plane on every fighting front (except trainers) carried at least one Lee Governor, and on large planes such as the Boeing Super Fortress there was as many as a dozen. Some of these aircraft uses of the governor were in automatic pilots, automatic gunsights, radio and radar applications, propeller pitch control, and explosives release devices, such as the famous Sperry and Norden bombsights. -Most of the ships and naval craft built in the past 10 years were made with steel plates cut by pantograph cutting machines, equipped with Lee Engineering motors, and nearly all battleships, as well as submarines, carried Lee devices among their equipment.

[These are needed wherever precise time intervals or constant speeds must be maintained for such equipment as radar, calculating machines, food mixers, flame-cutting machinery, fusion welding equipment, drill presses, telephone equipment and motion picture sound equipment. When talking pictures came out, Bell Telephone Laboratories had a speed governor selling for \$1,200—Dr. Lee sold his to them for \$3.50.]

When Dr. Lee was attending Marquette University, problems of nutrition were even then among his major interests. During his senior year, a paper he prepared for a Seminar in December, 1923, on "The Systemic Causes of Dental Caries", outlined the relationship of vitamin deficiency to tooth decay, and showed the necessity of vitamins in the diet for the normal functioning of the endocrine glands. Through the intervening years his research led him to the conclusion that there are marked differences in clinical effectiveness between vitamins from different sources.

A vitamin concentrate derived from natural sources was made by Dr. Lee in 1929. At the outset, this product was provided solely for the health and welfare of his mother and intimate friends and was given away. However, because of the remarkable results achieved, many in cases previously regarded as beyond help, the fame of the concentrate spread rapidly. By April of 1932, volume of demand had reached such proportions that a separate organization had to be formed to manufacture and distribute the product.

The Vitamin Products Company was organized and the one original product became the nucleus of a complete line of nutritional vitamin and mineral supplements. The business continued to grow and within a year had distributors in nearly every state. From 1932 to 1946 more than 250 million vitamin tablets, not including large amounts of mineral and other nutritional supplements, have been produced by the Vitamin Products Company. From a small two-room space, the office, manufacturing and research departments have grown to more than 25,000 square feet. Thousands of doctors prescribe these products **and** the list is constantly growing.

For nearly 20 years Dr. Lee has contended that most functional heart trouble and many chronic degenerative diseases could be traced to a lack of vitamins in the diet. Because of his outspoken stand he has been bitterly criticized by many "experts" both in medical societies and government bureaus. However, many statements which his critics called "reckless" 15 years ago are now being confirmed in the scientific literature. Not all of the scientific fraternity, however, have been on the side of the critics. Dr. Lee has been invited to speak before many meetings of physicians and scientists, and is known throughout the country as a fearless speaker on nutrition. **In 1942 he was elected to fellowship in the American Association for the Advancement of Science.**

In 1941 Dr. Lee organized the Lee Foundation for Nutritional Research under a state charter as a non-profit corporation. The purpose of the Foundation is to engage in research on problems leading to an improved national nutrition and to make available to the public the newer knowledge on the subject. The production equipment and trade marks of the Vitamin Products Company were turned over to this Foundation, which as a consequence collects a royalty on all sales of the Vitamin Products Company.

To date the financial support of the Lee Foundation has come largely from the Vitamin Products Company and the Lee Engineering Company, but several substantial grants have been made by an Eastern philanthropist and it is probable that gifts will be made by others from time to time. In addition, Dr. Lee has assigned several of his other patents to the Foundation. The income from these, also, is to go for research purposes.

Research by the Foundation has included as major projects-

1. The development of processes and equipment for manufacturing a natural sugar containing all the vitamins and minerals of fresh cane juice.
2. The development of processes and equipment for dehydrating citrus juices to conserve the original flavor, vitamins, and other food values.
3. The development of a baking powder which will have a less destructive action on the vitamins (a defect of present baking powders), with the additional advantage of being composed only of material of nutritional value.
4. Investigation of biological growth factors and a survey of the problems of aging. This product has been under way for over three years, but because of its comprehensive nature, several years more will be required before publication of results.

In addition to the above, more than 30 minor projects have engaged the attention of the research staff ' and a large list is on the agenda for future consideration. The publications of the Lee Foundation include four reports on nutrition, numerous reprints and the following books:

"The National Malnutrition" by D. T. Quigley, MD

"Nutrition and Glands in Relation to Cancer" by F. E. Chidester, Ph.D.

American editions of: (Originally printed in England)

"The Wheel of Health" by G. T. Wrench, M. D.

"Studies in Deficiency Disease" by Sir Robert McCarrison, M. D.

In addition to the organizations already listed, Dr. Lee is also president of the Franklin Corporation of Elm Grove, Wisconsin. This company, founded in 1940, specializes in permanent mold castings and small motor parts. The Therapeutic Foods Company, a subsidiary of the Vitamin Products Company; and the Endocardiograph Company, manufacturing machines for Amplifying and recording heart sounds, are also controlled by Dr. Lee.

A LIST OF U.S. PATENTS ISSUED TO ROYAL LEE

<u>Patent</u>	<u>Number</u>	<u>Date Granted</u>	<u>Title</u>
(1)	1,514,546	November 4, 1924	Motor Controllers
(2)	1, 630, 394	May 31, 1927	Speed Governors for Electric Motors
(3)	1,644,840	October 11, 19-27	Valve-Tappet Compensators
(4)	1,648,000	November 8, 1927	Variable Speed Transmissions
(5)	1,660,201	February 21, 1928	Rock Drills
(6)	1,695,289	December 18, 1928	Hydraulic Transmissions
(7)	1,725,533	August 20, 1929	Communication Systems
(8)	1,767,146	June 24, 1930	Variable -Speed Electric Motor Switches
(9)	1,776,441	September 23, 1930	Internal-Combustion Engines
(10)	1,801,674	April 21, 1931	Electric Motors
(11)	1,816,050	July 28, 1931	Attrition Mill
(12)	1,829,565	October 27, 1931	Ore Concentration Method
(13)	1,843,426	February 2, 1932	Variable Speed Transmissions
(14)	1,845,298	February 16, 1932	Exercising Machines
(15)	1,857,202	May 10, 1932	Electric Motors
(14)	1,876,506	September 6, 1932	Engines
(17)	1,876,507	September 6, 1932	Internal Combustion Engines
(18)	1,979,890	November 6, 1934	Motor Controlling Apparatus
(19)	2,067,453	January 12, 1937	Heat Engines
(20)	2,103,589	December 28, 1937	Motor Speed Regulators
(21)	2,113,234	April 5, 1938	Electrical Regulators
(22)	2,143,920	January 17, 1939	Protective Means for Motor Speed Regulators
(23)	2,151,477	March 21, 1939	Shaft Couplings
(24)	2,192, 709	March 5, 1940	Electric Current Converters
(25)	2,246,803	June 24, 1941	Motor Switch Protective Means
(26)	2,291,639	August 4, 1942	Centrifugal Switches
(27)	2,304,185	December 8, 1942	Broaches
(28)	2,305,626	December 22, 1942	Electroacoustic Apparatus
(29)	2, 353,314	July 11, 1944	Speed Regulating Apparatus

(30)	2 , 356 166	August 22, 1944	Protective Means for Electrical Contacts
(31)	2,374,219	April 24, 1945	Preservation of Liquid Foods
(32)	2,392,487	January 8, 1946	Recording Instrument
(33)	2,403,447	July 9, 1946	Alternating Current- Motors
(34)	2,406,389	August 27, 1946	Electric Motors

(In addition to the above, Dr. Lee has fifteen patents pending.)