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II 1961 Stary Smokovec, CSSR
III 1962 Zakopane, Poland
IV 1963 Liblice, CSSR
V 1964 Prague, CSSR
VI 1965 Leipzig, GDR
VII 1966 Smolenice, CSSR
VIII 1967 Vienna, Austria
IX 1968 Moscow, USSR
X 1969 Jablonna, Poland
XI 1970 New York, USA
XII 1971 Brussels, Belgium
XIII 1972 Dresden, GDR
XIV 1973 Yerevan, USSR
XV 1974 Wiesbaden, FRG

Polish State Medical Publishers Warszawa, 1961
Publishing House of the Slovak Academy of Sciences, Bratislava, 1963
VEB Gustav Fischer Verlag, Jena, 1966
Georg Thieme Verlag, Stuttgart, 1968
Panstwowy Zaklad Wydawnictw Lekarskich, Warszawa, 1973
North Holland Publishing Co., Amsterdam, 1971
Presses Académiques Européennes, Brussels, 1972
VEB Gustav Fischer Verlag, Jena, 1974
S. Karger, Basel, 1976
Tribute to Ernst Simonson (1898-1974)

The members of the Organizing Committee of the First International Congress on Electrocardiology were most pleased that Dr. Ernst Simonson, the ‘Grand Old Man’ of electrocardiography, kindly accepted our invitation to come to Wiesbaden as a speaker and chairman of the session on computers in electrocardiography. His participation contributed substantially to the success of this conference. The news of Dr. Simonson’s death shortly after the Wiesbaden Congress came to us as a message of grief at the loss of a friend and a great scientist. With deep appreciation we wish to dedicate this book containing the Proceedings of the First World Congress on Electrocardiology to the memory of Dr. Ernst Simonson.

Hubert Abel, Editor

Obituary

Ernst Simonson (1898—1974)

Ernst Simonson, Professor Emeritus, University of Minnesota, and Director, Medical Electronic Research at Mt. Sinai Hospital, Minneapolis, died of viral pneumonia at the age of 76, on December 7, 1974, in Minneapolis. He is survived by his widow, Sophie, one son, Walter and three grandchildren of Washington, D.C., a sister, Mrs. Carlotta Priester, and a brother, Walter of Brazil. This brief tribute reflects thoughts and sentiments of friends, colleagues and students of Dr. Simonson, physicians, physiologists and electrocardiologists the world over.

For the newer generation of scientists, Ernst Simonson was perhaps best known as an outstanding electrocardiologist and expert in the field of exercise physiology. His scientific work, however, covered a broad spectrum of basic and applied physiological researches. Born June 26, 1898 in Tiegenhof, Germany, Dr. Simonson graduated from Greifswald Medical School in 1924. At Greifswald he early became engaged in the forefront of investigations and discoveries about muscle contraction and the physiology of work. His reminiscences about these days, ‘On Missing and Catching Boats’, was published in the Proceedings of the Ernst Simonson Conference (Measurement in Exercise Electrocardiography, Thomas, 1969). These anecdotes, as well as revelations to his close colleagues, disclosed that he had hardly finished undergraduate
studies when he came close to the fundamental discovery of the role of acetylcholine as the neurotransmitter in muscle contraction. ‘If our interest had not been diverted to other problems, this discovery might have been in our grasp.’ This was about ‘missing the boat’. But other boats he caught and these he sailed into new seas.

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The ‘other problems’ which diverted Dr. Simonson led to a Division of Industrial Physiology at the University of Frankfurt/Main in 1928, the first such academic division at any German university, and one of the first in the world. He went on to organize and head the Department of Industrial Hygiene at the Institute of Social Hygiene in Frankfurt, from 1929 to 1933 as Professor of Industrial Physiology.

In the years between the Great Wars there were active scientific exchanges between Germany and Russia and these brought Ernst Simonson to Kharkov, one of the oldest universities of Russia, where he stayed from 1930 to 1937 as the Scientific Director of the Institute of Industrial Physiology, and Professor of Physiology at the First Medical Institute. The approaching clouds of the Second World War led Dr. Simonson to leave Russia with his family and, after a brief period as Head of the Department of Industrial Physiology of the Central Psychotechnical Institute of Prague (1937-1939), he and his family left Europe for the United States.

Mt. Sinai Hospital in Milwaukee provided a temporary haven, but soon he was invited by Ancel Keys to the Laboratory of Physiological Hygiene, School of Public Health at the University of Minnesota where he joined the active physiological and epidemiological pursuits of Keys, Taylor, Henschel, Mickelsen and Brozek in the early 40s. Relatively late in his scientific career, through clinical contacts in Milwaukee and Minneapolis, Dr. Simonson became involved in electrocardiographic and vectorcardiographic research. This led to a productive period over a quarter of a century at the Laboratory of Physiological Hygiene, in the Department of Biophysics, and at the Minneapolis Mt. Sinai and Veteran’s Administration hospitals.

Dr. Simonson’s many contributions to ECG and VCG research are well known. He did more perhaps than any other electrocardiographer to promote measurement in ECG research and clinical application. In collaboration with Otto Schmitt he introduced proper use of dipole theory in electrocardiology, and established the concepts and utility of orthogonal corrected leads in spatial vector electrocardiography. He was a pioneer in providing a representative data base and incorporating
quantitative estimates of statistical variance and measurement variability into actual electrocardiographic diagnosis. His monograph, Differentiation between Normal and Abnormal in Electrocardiography (Mosby, 1961) is a milestone in ECG literature. His 1966 article comparing ECG with VCG interpretation of myocardial infarction was a classic in that

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it was the first to validate such comparisons correctly against reference data independent of the ECG itself.

To the end of his life, Ernst Simonson maintained a keen interest in broader aspects of applied physiological research. His detailed monograph on Physiology of Work Capacity and Fatigue (Thomas, 1971) was completed and edited by the author at the age of 73. The manuscript for a second major volume on Psychological Aspects and Physiological Correlates of Work and Fatigue, was completed and sent to the publishers only weeks before his death. An enthusiastic letter to Bruce Dill, published in the November 1974 issue of the Physiologist, outlined Ernst Simonson’s research plans for the next three years and is typical of his spirit and optimism.

Fortunately for Ernst Simonson and for his colleagues, the great esteem and regard held for him was manifest in a notable series of honors dating from his formal University retirement in 1967. At that time, the Ernst Simonson Conference gathered together international colleagues from his two major disciplines of work physiology and electrocardiography for rich discussion, a gala banquet, and a published monograph (see above). Subsequently, two distinguished German universities honored him, the University of Frankfurt with a reinstatement of full professorship and retirement and the Technical University of Munich with a doctorate honoris causa in 1973. In 1974 Ernst Simonson received the highest award of the American College of Sports Medicine for outstanding contributions to that field. The participants in the First International Congress on Electrocardiology in Wiesbaden in October 1974 enjoyed the last public scientific participation of Ernst Simonson with superb and vigorous contributions to the discussions and to the conviviality of the evening socials.

Finally, the peer review groups of the National Institutes of Health recognized Ernst Simonson’s originality, reliability and productivity to such an extent that he was awarded new and renewal research grants even in the last two years of his life, clearly a much leaner grant period for many of his more youthful colleagues. For a number of years he forwarded intellectual détente and scientific collaboration with the USSR
under a special National Library of Medicine grant for translating and excerpting the cardiovascular literature in Russian and he long maintained his professional contacts there. At the time of his death he was actively conducting collaborative researches with a full time graduate student in fields of ECG-VCG discrepancies in the diagnosis of myocardial in-farction,

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the ECG response to progressive exercise in women, and the diagnosis of heart failure by orthogonal mutual impedance plethysmography

Ernst Simonson’s colleagues, collaborators and students remember him affectionately as an unassuming, gentle man with a kindly sense of humor. As a researcher, he seemed to have an endless fund of energy, a dogged persistence which he single-mindedly channeled during every day of his life into scientific efforts and writing, maintaining an amazing knowledge of the literature, and into the effective coordination of his many researches and writings. Throughout his long career he never hesitated to challenge doubtful evidence or popularly accepted theories of the time. This involved him in several intriguing and well known polemics, notably with A. V. Hill in the early 1930s regarding the Nobel Prize-winning theory of the energetics of muscle contraction, and with Selig Hecht in the 1940s on the role of fusion frequency of flicker as an index of central nervous system fatigue. History has shown that in his professional arguments Dr. Simonson was usually right; more important, his involvement in debate always demonstrated the grace, tranquility and strength of his character as a real intellectual and scientist.

Hubert Abel
Henry Blackburn
Pentti Rautaharju
Hans Schaefer

Preface

The 1st International Congress on Electrocardiology, 15th annual international meeting of all electrocardiologists interested in discussion and exchange of thoughts, took place in Wiesbaden. The papers presented during this congress are published in these proceedings.

For the last 15 years all scientists, members of different faculties, actively engaged in the field of electrocardiology met for vigorous dialogue and mutual stimulation. So we are advancing step by step in every year. Until now the progress extends mainly in physiology, pathophysiology and
diagnostics (including computer diagnostics).

Corresponding to the sessions of the congress the proceedings are subdivided into six sections, all containing excellent papers.

I wish to thank all lecturers and speakers for their efforts to make this meeting successful. Many thanks to S. Karger for publishing these proceedings, to the German Pharmaceutical Industry, and to local friends for the monetary assistance in supporting this work.

sHubert Abel