

NOTES ON MATHEMATICIANS

2. CHEEN SHIING-SHEN (陳省身)

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It is quite rare that a great mathematician writes his own biography, particularly one that is non-technical and accessible to the general reader. Published originally in Chinese eleven years ago, the article that follows was written when Professor Chern visited Taipei on leave from the University of California at Berkeley.

Professor Chern is perhaps the greatest living Chinese mathematician today. His work in the field of Differential Geometry, a subject that was started by Gauss more than 150 years ago*, has won him worldwide acclaim. His most important result has been in the study of 'Differential Geometry in the large', investigating the interplay between 'local properties' (i.e. neighborhood properties) and 'global properties' (e.g. topological properties) of finite or infinite dimensional manifolds endowed with geometrical properties such as differentiability. Out of these investigations came the famous 'Chern characteristic classes' which are among the most important invariants of algebraic varieties. The study of invariants has been regarded since Hilbert's time to be of fundamental importance in modern mathematics. Recent developments have shown that the 'Chern class' exerts a great influence on the study of a number of closely

related fields - (Algebraic and Differential) Topology, Algebraic Geometry, and Theory of Functions of Several Complex Variables.

A mathematical result is regarded as profound when several difficult notions are involved and ingenious techniques are invented to obtain the proof, and when the result itself has far-reaching consequences in the development of mathematics as a whole. Professor Chern's results are of such kind.

We briefly mention the latter half of Professor Chern's life, taking up where he left off in the autobiography. In 1949 he returned to the United States as Professor of Mathematics at the University of Chicago. In 1960 he joined the Mathematics Department of the University of California at Berkeley, where he has remained ever since. He has been a visiting professor at Harvard, the Massachusetts Institute of Technology, the Institute for Advanced Study at Princeton, the Institut des Hautes Études Scientifiques in Paris, and several other institutions. He was the American Mathematical Society Colloquium Speaker in 1960, an editor of the Proceedings and then of the Transactions of the American Mathematical Society (1955 - 1958). He was also an associate editor of the Annals of Mathematics and the Journal of Differential Geometry. The latter dedicated an entire issue to him on his 60th birthday in 1971. He has been an invited speaker to the International Congress of Mathematicians (most recently in Nice, France, 1970). Professor Chern was elected a member of the National

Academy of Sciences, U.S.A., in 1961, the year that he became a naturalized American citizen. He was awarded honorary doctoral degrees by the Chinese University of Hong Kong and the University of Chicago, both in 1969.

Professor Chern is known to be kind, always willing to talk to young aspiring mathematicians, and, above all, a great teacher. Recently he has visited China several times, reports of which appeared in the 1975 issues of the magazine The Seventies.

Acknowledgement

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* If, however, one considers the first applications of Calculus to Geometry as the time when the subject was born, then Differential Geometry is more than 300 years old.