effectively solved the word-problem for the Engel law $[[xy]y] = 1$ as well. Although some useful facts have been brought to light about Engel groups by K. W. Gruenberg and also by the attempts on the Burnside problem, the word-problem for E_n remains unsolved for $m > 2$. Problems such as these still seem to present a formidable challenge to the ingenuity of algebraists. In spite of, or perhaps because of, their relatively concrete and particular character, they appear, to me at least, to offer an amiable alternative to the ever popular pursuit of abstractions.

MICHAEL FEKETE

W. W. ROGOSINSKI.

Michael Fekete, emeritus professor at the Hebrew University in Jerusalem, died of heart failure on 13 May, 1957, in his 71st year. With him another well-known figure from the mathematical scene of the first half of this century has departed.

Michael Fekete was born on 19 July, 1886, in Zenta, then in Hungary. He was one of four children of his parents Alexander and Emma Fekete, who owned a bookstore and edited the local newspaper at Zenta. While still at the " Gymnasium " young Michael helped to edit the paper and also contributed some short stories to it. He then studied Mathematics at the University of Budapest, where L. Fejér was his main teacher. In 1909 he obtained the degree of Dr.phil. and went for a postgraduate year to Göttingen, where he studied under E. Landau. From 1910 until 1928 he taught at various secondary schools and training colleges in Budapest. In 1914 he married Dora Lenk, herself a Mathematics teacher, and they had two sons. She died in 1922.

In 1928 he was called as Lecturer to the Hebrew University in Jerusalem and was appointed the following year professor and Director of the Einstein Institute of Mathematics there. At the university he played an important rôle in the administration, was Dean of Science, and later the Rector from 1945-1948. In 1955, the year of his retirement, he was awarded the Israel Prize for exact Sciences. His widow Erna *née* Baruch, whom he married in his late years, survives him in Jerusalem.

Fekete as a mathematician was very typically an analyst of the school of L. Fejér. From him he inherited the delight in a particular isolated problem. From him too he learned the elegant simplicity of his analytical technique and style. Very little influence of his second teacher Landau is seen in this. Fekete was a genuine and enthusiastic mathematician and a very fertile one, as can be seen from the long list of his publications. Even as an old man he had preserved his youthful enthusiasm and his capacity for work—in fact, he died over his desk doing mathematics. He travelled widely in his late years, both in Europe and in the United States of America, and loved lecturing on his problems wherever he could. The small energetic man with fiery eyes and an unruly Einstein mane of white hair on his fine large head was a well-known visitor and speaker at mathematical conferences and seminars everywhere. He was a member of both the London and American Mathematical Societies.

Fekete's work centred mainly on polynomials, both algebraic and trigonometrical, although he also contributed to the theory of Fourier series and analytic functions. Of his many elegant results I should like to mention two which are typical.

1. Let $P(z)$ be a polynomial of degree $n \geqslant 2$, and let $P(a) = \alpha$, $P(b) = \beta$. If $\alpha \neq \beta$, and if w lies on the join of α, β, then $P(z) = w$ has at least one root in the region bounded by the two circular arcs at which the join of a, b subtends the angle π/n. If $\alpha = \beta$, then $P'(z)$ has a root in a similar region with angle $\pi/(n-1)$. Both results are best possible.

2. Let E be a bounded closed infinite set in the plane, and let $V_n = \max \prod_{i<k} \overline{P_i P_k}$ where the max refers to any n points P of E. Then $d_n = V_n^{2/\{n(n-1)\}}$ decreases as $n \to \infty$. The limit $d(E)$ is called the *transfinite diameter* of E.

Again let $P(z)$ be a polynomial of degree n and leading coefficient 1. If $m_n = \min \left[\max_{z \in E} |P(z)| \right]$, where the min refers to all such polynomials, then $\sqrt[n]{m_n} \to d(E)$.

Fekete was particularly and justly proud of this beautiful result. It was soon shown by G. Szegö, a close friend of Fekete's, that also $d(E) = e^{-\gamma}$ where γ is the so-called Robin constant of the complement of E. This relationship indicates the important rôle which the notion of transfinite diameter plays in the theory of harmonic measure, potential theory, and conformal mapping. Generalizations of this notion have been given subsequently by Fekete himself and others.

Fekete's genuine love of mathematics showed also in his keen interest in the work of other, and in particular younger, mathematicians. I myself met him first in 1923 at a conference at Innsbruck when his interest in some early work of my own was so encouraging to me at the beginning of my career. My case is not isolated, and in this way he has made himself many life-long friends. We shall all miss him sadly.

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(compiled by P. Vermes).

HERMANN WEYL*

M. H. A. NEWMAN.

Hermann Weyl was born on 9 November, 1885, the son of Ludwig and Anna Weyl, in the small town of Elmshorn near Hamburg. When his schooldays in Altona ended in 1904 he entered Göttingen University and there remained (except for a year at Munich), first as student and then as Privatdozent, until his call to Zurich in 1913.

In spite of the great variety of mathematical stimulation of the Göttingen years, this was the only period of comparable length in which he devoted himself to a single branch of mathematics—analysis, and to a single theme, the problems that arose naturally out of his dissertation, on singular integral equations. Towards the end of this period two causes combined to turn his attention to wider fields. First, in the session 1911-1912 he lectured on the theory of Riemann surfaces, and was led by his sense of the inadequacy of existing treatments to plunge deep into the topological foundations. Secondly, in 1913 he accepted the offer of a chair at the Institute of Technology in Zurich, where his colleague for one year was Einstein, who was just then discovering the general theory of relativity. Weyl was soon launched on the series of papers on relativity and differential geometry which culminated in the book *Raum-Zeit-Materie*.

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