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PRESENTATION OF THE ROEBLING MEDAL TO FELIX MACHATSCHKI

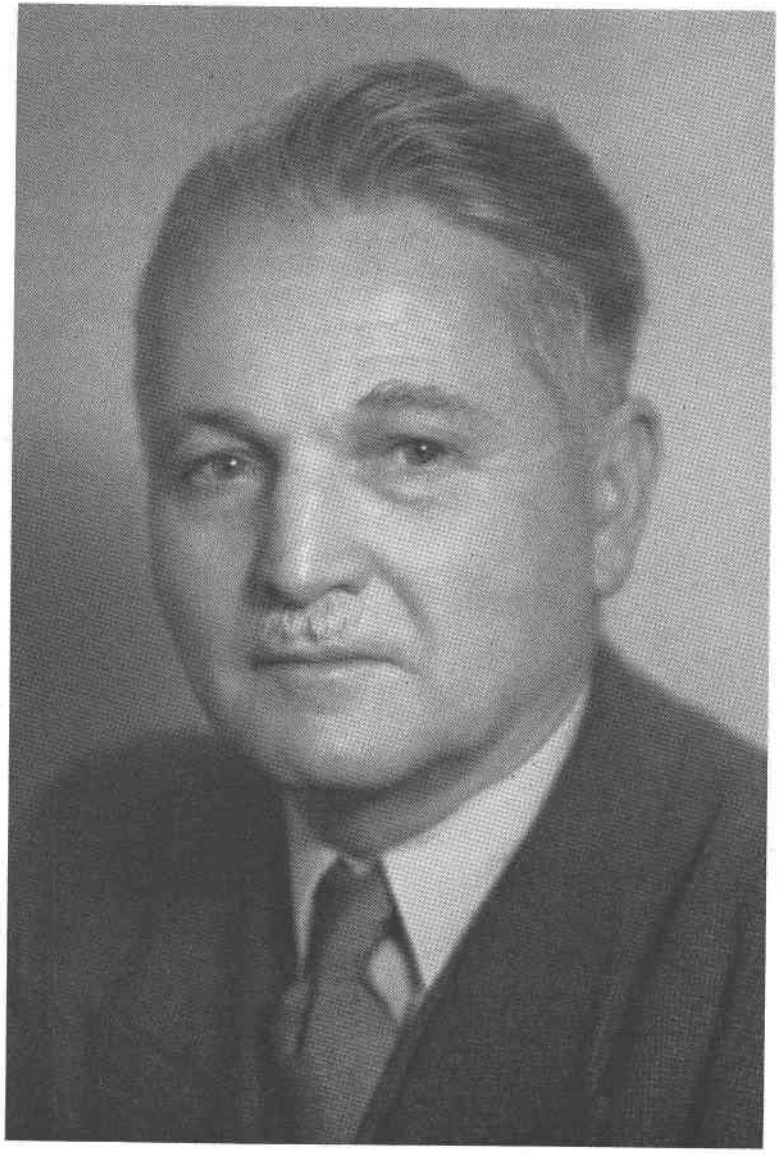
IAN CAMPBELL, *California Institute of Technology and California State Division of Mines*

President Grim, Fellows and Members of the Mineralogical Society, and Guests:

You will recall that tenet of Anglo-Saxon law which holds that a man shall not be called upon twice to place himself in jeopardy for the same crime. Old as it is, this law seems not to have been known to the presidents of the Mineralogical Society, for twice I have been appointed to serve as chairman of Roebling Medal Award committees. I do not mean to imply that—whatever jeopardy may be involved—the chairmanship of the Roebling Medal committee constitutes a crime! Quite the contrary; it is a very great privilege. I make these introductory remarks principally in order to point up the gravity of the problem faced by all Roebling Medal committees; and because this permits me to recall that a decade ago I served as chairman of a Roebling Medal committee which made no award. This was not because there were no men of Roebling Medal stature in the mineralogical world ten years ago, but rather because it seemed to our committee virtually impossible to pick out one who stood sufficiently high above the others to warrant selection. And, more importantly, we were considering a selection in the shadow, so to speak of the preceding medalist, Normal L. Bowen. To find anyone to measure up to our great—and greatly beloved—Roebling Medalist of 1950 was indeed an impossible task.

These problems did not beset the current committee, composed of C. A. Anderson, J. R. Goldsmith, C. E. Tilley and myself. Our very first survey recognized a number of distinguished mineralogists and petrologists, and succeeding discussion rapidly narrowed the field to a very few men distinctly of Roebling Medal calibre. It must be confessed that the final selection, amongst the three or four mineralogists and petrologists whom we regarded as "tops" was not easy; but it was unanimous and was accomplished with the happy thought that mineralogists and petrologists are traditionally long-lived, and that those who were not nominated in 1958 would certainly provide top material for future Roebling Medal committees to consider.

Our 1959 Roebling Medalist, Professor Felix Machatschki, was born in Arnfels, Austria, 64 years ago. He received the Ph.D. degree from the University of Graz in 1922 and until 1927 remained at Graz, first as assistant, later as docent. From 1927 to 1930, he was a visiting lecturer at Oslo, at Manchester and at Göttingen. In 1930 he was called to Tübin-



FELIX MACHATSCHKI

gen as Professor of Mineralogy and Director of the Mineralogical Institute. There he remained until after the outbreak of the war. From 1941 to 1943 he was at Munich; and in 1943 he went to Vienna, first to occupy the chair already made famous by Tchermak and Becke and later to oc-

cupy the chair formerly held by the equally famous Doelter.

We honor Professor Machatschki today for many things, but chiefly for his outstanding contribution to our knowledge of silicate structure. Thirty years ago, we did not know the phrase "scientific break-through"; but with the advantage that hindsight confers, we now recognize—what we did not fully then—that the paper Professor Machatschki published in the *Centralblatt für Mineralogie* in 1928, on "Zur Frage der Struktur und Konstitution der Feldspate," constituted a "real scientific break-through" in the field of mineralogy and crystallography. It was in this paper that we first find the important suggestion that the feldspar structures are based on frameworks of linked SiO_4 and AlO_4 tetrahedra with cations in the interstices. Professor Machatschki suggested also that the difference between the orthoclase and plagioclase feldspars might be due to the fact that the former contains large cations, and the latter small cations. Subsequent analyses have amply confirmed the correctness of these predictions, and the predictions have enabled students of silicates in general and of feldspars in particular to move forward in a way that has been greatly rewarding.

To be sure, even before this paper had been published, Professor Machatschki had communicated his ideas to other workers in the field, and had communicated them so effectively that, I am told, Professor Goldschmidt thenceforth, in his introductory lecture on silicates to his students at Oslo, invariably began with the remark. "So wie jeder Muselmann zu seiner Glückseligkeit vier Frauen braucht, wie Machatschki sagt, so braucht auch jedes Siliziumatom in seiner nächsten Umgebung vier Sauerstoffatome, wie Machatschki sagt!"

Among his many other contributions to our science, of which time permits us here to cite only a few, should be mentioned his classification of and improvements in the notation of silicate structures; his recognition of the possibility of replacement of Si by other ions, as in berzeliite; his studies of the structure of danburite, of dyscrasite, of the epidote group, of the chlorites and of the amphiboles and pyroxenes; his discussion of the problems of isomorphism and isomorphous replacement in relation to atomic radii and structure type; and his interest in relating crystal structure to paragenesis. In addition to his many papers, he is the author of three books: "Grundlagen der allgemeiner Mineralogie und Kristallchemie" (1946), "Vorrate und Verteilung der mineralische Rohstoffe" (1948); and "Spezielle Mineralogie auf geochemischer Grundlage" (1950). Two of these volumes, it deserves to be noted, were brought out in the very difficult years immediately following the war.

Not the least of Professor Machatschki's contributions to our science stem from his role as teacher. First in Tübingen and, in recent years at

Vienna, he has attracted a notable and notably cosmopolitan group of young scholars to his laboratory—from France, from Turkey, from Egypt, from the Scandinavian countries, and from America. All of them have profited from his guidance.

Professor Machatschki was in Vienna at the time of the Russian occupation and did his utmost to preserve the university laboratories and museum from pillage. The reconstruction of facilities and the restoration of this mineralogical center to its former position of world prestige must also be counted among his notable accomplishments. In this connection you must permit me to include here a parapraph from a recent letter from R. C. Evans to my committee colleague, C. E. Tilley, in which Dr. Evans recounts some of his experiences as a member of a technical mission which, immediately after the war, had been sent by the British to visit the principal centers of mineralogic and crystallographic research in central Europe. Dr. Evans remarks: "It was with genuine sorrow that we left Austria. Nowhere in our tour of laboratories from Bonn to Berlin and from Hamburg to Graz had we received such a warm welcome as in Vienna, and nowhere did we meet such a courageous, friendly, and exuberant mineralogist as Felix Machatschki."

Mr. President, it must be abundantly clear, even from this highly condensed review, why the Roebling Medal committee is so happy in their selection, and why it is now for me a high privilege to present to you and to the Society our 1959 Medalist, Dr. Felix Machatschki, scientist, scholar, rare and exuberant spirit, Professor of Mineralogy at the University of Vienna.