THE AMERICAN MINERALOGIST, VOL. 43, MARCH–APRIL, 1958

MEMORIAL OF SAMUEL JAMES SHAND

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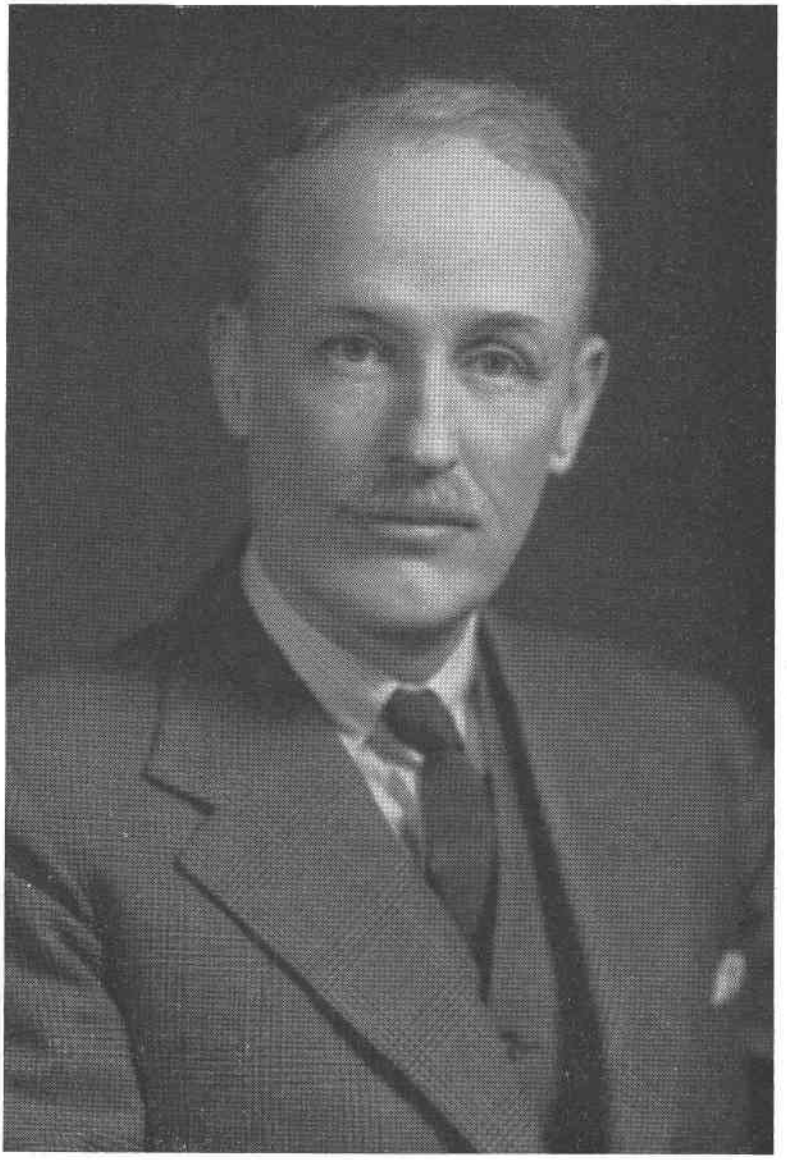
Samuel James Shand was born in Edinburgh in 1882 and died at Broughty Ferry, near Dundee, in April of 1957. It was at the Dundee branch of St. Andrews that his geological education began, and it was to the same institution that he returned, in a more or less unofficial capacity, a few years before his death. At college his first interest was chemistry, which he studied under James Walker. To this he soon added an avid curiosity about geology, a curiosity so strong that it prompted him, in concert with a number of fellow students, to petition the school for instruction in that subject. Graduating in 1905, he went from St. Andrews to Münster, where he studied under Karl Busz during 1905–06, doing a Ph.D. dissertation on the alkaline rocks of Assynt, with particular emphasis on the curious pseudo-leucite or quasi-pseudo-leucite called borolanite. In 1910 he received the D.Sc. from St. Andrews.

On leaving Münster he served briefly as lecturer in geology at Dundee and St. Andrews, and in 1907 became an assistant keeper in the Royal Scottish Museum. In 1911 he left the Museum, his last employment in his native land, to take the chair of geology at Stellenbosch, South Africa. Here for the first few years he was the whole department, and for a quarter of a century he was its mainstay and chief inspiration. He was always proud of the department he built at Stellenbosch, and of his influence on the study of geology in South Africa. During the first world war he served as a water supply officer in Mesopotamia and at the close of the war he worked briefly on the petrography of the reservoir limestones of the Iranian oil field. This was his only extended absence from Stellenbosch until he came to Columbia as Professor of Petrology in the spring of 1937. At Columbia he had just about reorganized things to his taste and was ready for serious scientific and educational activity when the war pretty well terminated the possibility that he could concentrate on either. Both the war itself and his own sense of helplessness in relation to it disturbed him immensely. He was further and irretrievably depressed by the death of his wife in 1947, and in 1950, against the wishes and advice of some of his colleagues, he retired from Columbia to spend the rest of his life in Scotland.

As soon as he could find quarters he took up residence in Edinburgh, where he spent considerable time assisting in the reorganization of some of the same Museum collections he had worked on during his tenure as assistant keeper, more than 40 years before. He later moved back to his childhood home, Broughty Ferry, and prior to his final illness engaged



SAMUEL JAMES SHAND
1882–1957

himself in a continuation of the same campaign which had given him such pleasure as a student, viz. the struggle—and to him it did seen a struggle—to broaden and improve the geological curriculum at the Dundee branch of St. Andrews.

A Fellow of our Society, the Mineralogical Society of London, the Royal Society of Edinburgh, the Geological Societies of London, America and South Africa, he was president of the Geological Society of South Africa in 1923 and a Councillor of our Society in 1944–47. An honorary member of the Geological Society of Belgium, he was awarded the Draper Memorial Medal of the Geological Society of South Africa and the Lydell Medal of the Geological Society of London.

The interests and attitudes which characterize most of his professional work are already clearly apparent in his first papers on Assynt. He had a sure touch for descriptive petrography, an almost devout love of minerals and rocks, particularly of the alkaline rocks and the minerals of which they are composed, an acute sense of the importance of good chemical analyses of rocks and minerals, a remarkable ability to organize and systematize, a graceful and penetrating skill at polemic, an immediate, charming, and sometimes disarming, willingness to confess the limits of his own knowledge.

His papers on Assynt were followed by a succession of field studies of the alkaline massifs of South Africa. He corresponded widely with other students of the alkaline rocks, built up an extensive collection of analyzed and type-locality specimens from all over the world, and developed a truly remarkable erudition on the subject. His concentration on these relatively rare rocks was one of his own favorite examples of the horrors of overspecialization; he often wondered what was to become of petrology, let alone geology, when a man working as diligently as he was unable to keep abreast of publications concerning only this one small area of inquiry. He was an early and outspoken supporter of Daly's limestone-assimilation hypothesis, and his doughty arguments in support of it are among his best known essays.

His interest in chemistry, chemical analysis and rock classification, so strongly foreshadowed in the Assynt papers, soon found expression in journal articles devoted to principles upon which a sound chemical-mineralogical classification might be constructed. The system he finally developed formed the backbone of his major work, *Eruptive Rocks*, an invaluable text which can be read with as much pleasure as profit. Appearing first in 1927, it went through four editions, the last appearing in 1951, and continues to exert a powerful and salutary influence on the study and teaching of petrology.

Most of Shand's professional effort was devoted to his text and his

studies of alkaline rocks, but he also made notable contributions in other fields. It was he who first discovered and named pseudotachylyte. He also developed the first practical instrument for modal analysis, for the modern line integrators are all lineal descendants of the Shand stage. He improved and publicized staining techniques for the feldspathoids. His *Earthlore; Geology without Jargon*, though now rather dated, is a model of the clarity, simplicity and integrity essential to the successful popularization of science. *Useful Aspects of Geology* and *Rocks for Chemists*, the latter of which was written in retirement, attempt to do for a professional audience what *Geology without Jargon* attempted to do for the alert non-scientist.

In personal life Shand was retiring to the point of withdrawal. He read widely, and one of the few things he appreciated about life in New York was the opportunity it afforded for theater-going. Though he may never have managed to complete his collection of reprints on alkaline rocks, there was hardly a foreign movie he failed to see. He studied Gaelic for a number of years and was a convinced Scottish Nationalist. In religious matters he was a conscientious and forthright skeptic; he always considered it desirable to combat fundamentalism and orthodoxy wherever and whenever he came in contact with them. But he was not without his own prejudices, and though he never allowed these to interfere with his teaching, his attitude toward them was curiously ambivalent; perhaps the best way to characterize it is to say that he tended to be apologetic about his acknowledged self-righteousness.

Although during my years in his laboratory I was continually aware of receiving expert and masterful instruction, I know nothing of his teaching methods. I think he would have denied there was such a thing as a method of teaching separable from subject matter. Staring out of the laboratory window at the great pile of Teacher's College one day, he remarked rather fiercely to me that, since teaching was the second oldest profession, the demonstration of a need for more than rudimentary instruction in it would raise serious doubts about the educability of the race. He never doubted the educability of the race.

By standards current at that time his pedagogy was, to say the least, unusual. His lectures conveyed the same sense of easy but acute organization one finds in his publications, but he regarded attendance at them as a matter of little or no consequence for the student. There was no assigned text for any course he gave, and although he suggested much supplementary reading, his own book rarely appeared on the reserve shelf in the reading room. In some semesters, in fact, a student could go right through the course without learning that the lecturer was the author of one of the best books on the subject. I do not think he placed much weight on the result of any formal examination. He considered laboratory

sessions of the utmost importance and always conducted them himself. His judgements of students were evidently based largely on casual conversation and observation during the long afternoons over the microscope.

His own interest in rocks was intense and complete but he never made any overt move to attract—or even to hold—students. For casual or disinterested students I think he was in fact a rather indifferent instructor. As a university teacher he simply had no interest in those who were not interested in his subject. But he always more than matched any genuine interest whatever the status or training of the student who displayed it. And if he discovered that you wanted to "do" petrology, or even had reason to suppose you were somewhat "on the petrologic side," you became a member of a small club upon whose members he lavished an amount of personal attention and instruction rare in any school.

Anyone familiar with the uneven character of American undergraduate instruction in geology at that time would have had serious reservations about the effectiveness of such an attitude. How could students, most of whom had barely heard of his subject, take in it the kind of interest he demanded as a prerequisite for his interest in them? It was useless for those of us who worked under him to remonstrate with him on this score, and I imagine his fellow faculty members had much the same experience. A thoughtful educator of long experience, he felt that a university should be a community of scholars, that scholars knew what they wanted to study, that those who wished to study together would do so, and that his principal, if not quite his only responsibility, was to those who knew they wanted to study with him. This responsibility he always met, at whatever cost in time and effort.

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