



**Professor Francis R. Shanley (1904 – 1968)**

It is difficult to establish much of the life history of F.R. Shanley from the data available in the technical literature. He was professor of Engineering at the University of California at Los Angeles, and he was associated with the Rand Corporation and with at least one of the West Coast airplane companies during WWII. The writer met him shortly before his death and was very impressed by his modesty and friendliness. Among his works is a very fine text on the Weight-Strength Analysis of Aircraft Structures (1952 and 1960). He did considerable work also on the creep buckling of columns and on plate girders with corrugated webs.

Shanley will be most remembered by his brilliant work on the strength of inelastic columns. Engesser and Considere had developed the tangent modulus and the reduced modulus theory of inelastic column buckling around the turn of the 19th to the 20th Century. Both of these theories were based on the assumption that at buckling there exists an adjacent buckled configuration that has the same load as the unbuckled configuration. Both of these theories had serious internal contradictions but it took about fifty years before Shanley showed that buckling indeed starts at the Tangent Modulus load, and that further deformation can occur only with an increase of load. He showed this on hand of a very careful experiment, and then he developed a simple but ingenious model to mathematically trace the load-deflection path. Shanley broke the intellectual logjam that hampered the understanding of column behavior. – by SSRC Shanley Society Members