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## The Journal of Adhesion

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**A review of: “MECHANICAL STRENGTH OF ADHESIVE JOINTS OF LEATHER AND SHOE MATERIALS [Russian], by V. L. Rayatskas.**

**Legkaya Industriya publ., Moscow 1976, 192 pp. (Rub. 1.43)”**

J. J. Bikerman

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## Book Review

**MECHANICAL STRENGTH OF ADHESIVE JOINTS OF LEATHER AND SHOE MATERIALS [Russian], by V. L. Rayatskas. Legkaya Industriya publ., Moscow 1976, 192 pp. (Rub. 1.43)**

Out of 199 references in this book, about 55 are to papers emanating from the Rayatskas' laboratory (and fewer than 30 to foreign authors!) so that the monograph should be considered a summary of the work of a single school rather than a review of the whole field. This work is particularly interesting because it concerns mainly highly deformable adhesives and adherends, whereas the U.S. scientists and engineers pay attention chiefly to structural adhesive joints.

The eight chapters deal with (1) general ideas on strength and rupture of adhesive joints (here atomic and molecular attractions across the interface are invoked, but they are disregarded in the following chapters), (2) determination of the strength of such joints between soft materials, (3) stresses in these joints, (4) dependence of the strength on the mechanical properties of the substrate and the adhesive, (5) effect of temperature and the regime of stressing, (6) prediction of strength and longevity by the method of reduced curves (i.e., rate—temperature superposition), (7) effect of the dimensions, and (8) aging of joints.

As is clear from the above table of contents, the emphasis is on mechanical properties of the whole joint and its constituent phases. Because the latter usually are viscoelastic, the relaxation times are as important as the tensile strength and the modulus of elasticity of the materials involved. This approach renders the experimental results very valuable; they should not be ignored by those (outside Russia) who have to glue together two non-rigid solids.

Nevertheless, an English edition of this book cannot be unreservedly recommended. The description of the experiments and the materials used in many instances is too sketchy for one intending to repeat the tests. Stress concentrations in the joints are correctly discussed but, usually, in a qualitative manner only. On the other hand, the lengthy discussions of some empirical equations seem to be too detailed.

The reviewer is glad to possess a copy of this monograph.

J. J. BIKERMAN