Selected Abstracts from *Yogyo-Kyokai-Shi*

As a service to readers and with the agreement of The Ceramic Society of Japan, selected English language Abstracts of the papers appearing in the *Journal of the Ceramic Society of Japan* (*Yogyo-Kyokai-Shi*) are reproduced here. The selection was made by Drs R. Stevens and P. Popper.

Yogyo-Kyokai-Shi **94** (1986)

Flaw-Size Distribution of Structural Ceramics

Yohtaro MATSUO, Kōichi KITAKAMI and Shiushichi KIMURA

(Department of Inorganic Materials, Faculty of Engineering, Tokyo Institute of Technology
12-1, Ookayama 2-chome, Meguro-ku, Tokyo 152)

In this report, we analysed quantitatively the effects of stress distribution, Weibull's shape parameter and volume of a specimen on the flaw-size distribution. We also analysed the effect of grain-size dependence of the fracture toughness on the flaw-size distribution. Furthermore, we presented a new method for estimating Weibull's shape and scale parameters by linear regression using only flaw-size data and the fracture toughness in the uniaxial tensile test. [*Received February 18, 1986*]

Microstructure of High Toughened Y-TZP

Takaki MASAKI and Yukio MURATA*

(Toray Industries, Inc.
2-2, Sonoyama 3-chome, Otsu-shi, 520
* Toray Research Center, Inc.)

TZP's containing from 1.5 to 3.0 mol% Y_2O_3 were prepared by hot-pressing and their microstructure was analyzed by TEM and electron diffraction.

Y-TZP containing 3.0 mol% Y_2O_3 showed a microstructure of about 0.5 μm grains. Two mol% Y-TZP showed microstructures of grains, plate-shaped crystals and repeated twins, or their mixtures. Y-TZP containing 1.5 mol% Y_2O_3 showed the completely plate-typed structure with many cracks in the radial direction.

Twin structure was found on the (100) plane and the orientational relation between tetragonal (t) and monoclinic (m) crystals was determined to be $(010)_m // (010)_t$ and $[001]_m // [001]_t$. [*Received January 27th, 1986*]