

**24.1-14** ELECTRON MICROSCOPY OF HUANGHOITE. By Li Fang-hua, Fan Han-jie and Yang Ta-yu, Institute of Physics, Academia Sinica, Beijing, China.

Huanghoite with the chemical formula  $BaCe(CO_3)_2F$  found in China is a kind of barium-synchysite mineral. The structure of Huanghoite has been described previously in terms of different types of layers parallel to the (0001) plane (Fan Hai-fu et al., Acta Physica Sinica (1963) 19, 466). Electron diffraction, electron microscopy and energy dispersive X-ray micro-analysis techniques have been used for studying Huanghoite. The parameters of its hexagonal unit cell have been determined to be  $a=5.1\text{\AA}$  and  $c=38.6\text{\AA}$ . The value of  $c$  is twice the parameter of the pseudo unit cell in the same direction. The lattice images with spacings  $12.9\text{\AA}$  and  $6.45\text{\AA}$  have been observed and they correspond to the interplanar spacings of (0003) and (0006) respectively. The faults have been found in the lattice fringe images. The results of energy dispersive X-ray micro-analysis show that, in general, in Huanghoite there are rare earth elements other than cerium.

**24.1-15** A HIGH RATIO HYDRIDO METAL CLUSTER:  $[Pt_5H_8(PBu_2Ph)_5]$ . By David Gregson, Judith A.K. Howard, and John L. Spencer, Department of Inorganic Chemistry, The University, Bristol BS8 1TS, England.

The single crystal X-ray structure of the title complex has shown a distorted trigonal bipyramidal geometry in the solid state, whereas the solution n.m.r. gives a time-averaged  $D_{3h}$  symmetrical arrangement. 15,000 data were collected from the red-brown monoclinic crystal at ambient temperature, since cooling to 200 K unfortunately produced a phase change and crystal degradation. The molecular parameters for the "skeletal" atoms are given in Figure 1. Full details will be given in the paper.

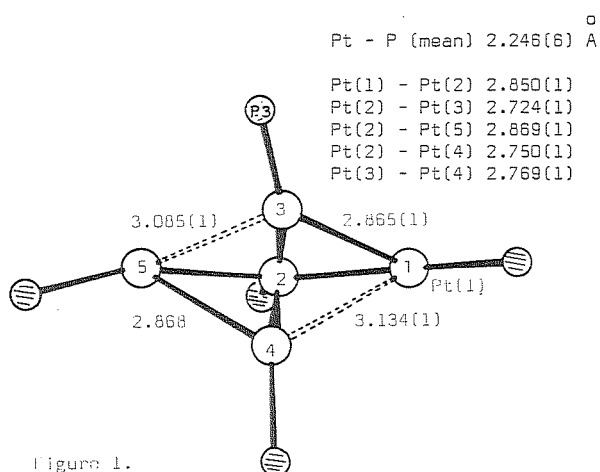


Figure 1.

**24.1-16** КРИСТАЛЛОМОРФОЛОГИЧЕСКАЯ ХАРАКТЕРИСТИКА СОСТОЯНИЯ ЛИКВОРА. Ю.Смирнов, Н.Морозова, Калининский государственный университет, г.Калинин, СССР.

В работе (Неретин, Кирьяков, Сов. медицина (1977) 7, 96) приведена методика визуальной предварительной диагностики болезней мозга. Нами выделены для исследований четыре основных группы заболеваний - злокачественные опухоли, воспалительные процессы, инсульты и травмы. В качестве реагента применен хлорид меди. На первом этапе морфология полученных осадков исследовалась визуально. В зависимости от состояния ликвора в поле преобладали различные формы кристаллов - вискеры, двойники прорастания, граничные формы, дендриты, сферолиты.

В последующем были применены методы стереометрической металлографии и статистической обработки результатов (Дрынчина, Ильина, Морозова и др., Физика кристаллизации, Калинин (1980) 87). Для выхода на клинические испытания подготовлены серии градуировочных кривых, характеризующие каждую группу заболеваний.

**24.1-17** THE CRYSTAL STRUCTURE OF A SYNTHETIC HIGH SILICA ZEOLITE - Zsm-39. By J.L. Schlenker, F.G. Dwyer, E.E. Jenkins, W.J. Rohrbaugh and G.T. Kokotailo, Mobil Research and Development Corporation, Research Department, Paulsboro, NJ 08066, and W.M. Meier, Institute of Crystallography and Petrography, ETH, Soneggstrasse 8, CH-8092 Zürich, Switzerland.

The crystal structure of a high silica zeolite Zsm-39, unit cell composition excluding residual water and occluded materials  $\sim (Na, tma^*, tea^*)_{0.4}(Al_2O_3)_{0.4}(SiO_2)_{135.6}$  was determined by X-ray powder diffraction. The framework is pseudo face-centered, pseudo cubic with  $a = 19.36 \pm 0.02 \text{\AA}$  and ideal symmetry  $Fd\bar{3}m$ . The framework consists of a space-filling arrangement of pentagonal dodecahedra and hexakaidecahedra and is isostructural with the  $17 \text{\AA}$  cubic gas hydrate.

Zsm-39 has no sorptive or exchange properties because the framework is composed entirely of 5- and 6-rings. However, the large fraction of 5-rings and the high Si/Al ratio ( $> 40$ ) impart a high thermal stability. Zsm-39 containing no aluminum constitutes the end member composition.

Although Zsm-39 is the only synthetic zeolite analog of a gas hydrate, two related hypothetical frameworks containing pentagonal dodecahedral cages are proposed.

\* tetramethylammonium and tetraethylammonium ions