

- CARTER, N. L.: Basal quartz deformation lamellae, a criterion for recognition of impactites. *Am. J. Sci.* **263**, 786—806 (1965).
- J. M. CHRISTIE, and D. T. GRIGGS: Experimental deformation and recrystallization of quartz. *J. Geol.* **72**, 687—733 (1964).
- Dynamic deformation of quartz. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- , and M. FRIEDMAN: Dynamic analysis of deformed quartz and calcite from the Dry Creek Ridge anticline, Montana. *Am. J. Sci.* **263**, 747—785 (1965).
- CHAO, E. T. C.: Shock effects in certain rock forming minerals. *Science* **156**, 192—202 (1967).
- Pressure and temperature histories of impact metamorphosed rocks — Based on petrographic observations. *Neues Jahrb. Mineral., Abhandl.* **108**, 209—246 (1968).
- Some aspects of progressive impact metamorphism. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- CHRISTIE, J. M., and H. W. GREEN: Several new slip mechanisms in quartz. *Trans. Am. Geophys. Union* **45**, 103 (1964).
- , D. T. GRIGGS, and N. L. CARTER: Experimental evidence of basal slip in quartz. *J. Geol.* **72**, 734—756 (1964).
- H. C. HEARD, and P. N. LA MORI: Experimental deformation of quartz single crystals at 27 to 30 kilobars confining pressure and 24° C. *Am. J. Sci.* **262**, 26—55 (1964).
- , and C. B. RALEIGH: The origin of deformation lamellae in quartz. *Am. J. Sci.* **257**, 385—407 (1959).
- DE, A.: Observations on the deformation lamellae in quartz of four Indian tectonites (abs.). *Trans. Am. Geophys. Union* **39**, 512 (1958).
- DENCE, M. R.: A comparative structural and petrographic study of probable Canadian meteorite craters. *Meteoritics* **2**, 249—270 (1964).
- The extraterrestrial origin of Canadian craters. *Annals N.Y. Acad. Sci.* **123**, 941—969 (1965).
- ENGELHARDT, W. v.: Neue Beobachtungen im Nördlinger Ries. *Geol. Rundschau* **57**, 165—188 (1967).
- J. ARNDT, D. STÖFFLER, W. F. MÜLLER, H. JEZIORKOWSKI u. R. A. GUBSER: Diaplectische Gläser in den Breccien des Ries von Nördlingen als Anzeichen von Stoßwellenmetamorphose. *Contr. Mineral. and Petrol.* **15**, 93—102 (1967).
- W. BERTSCH, D. STÖFFLER, P. GROSCHOPF u. W. REIFF: Anzeichen für den meteoritischen Ursprung des Beckens von Steinheim. *Naturwissenschaften* **54**, 198—199 (1967).
- F. HÖRZ, D. STÖFFLER, and W. BERTSCH: Observations of quartz deformation in breccias of Clearwater Lake (Canada) and the Ries Basin (Germany). Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- , and D. STÖFFLER: Spaltflächen in Quarz als Anzeichen für Einschläge großer Meteoriten. *Naturwissenschaften* **52**, 489 (1965).
- , — Stages of shock metamorphism in crystalline rocks of the Ries basin (Germany). Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- FAIRBAIRN, H. W.: Deformation lamellae in quartz from the Ajibik formation, Michigan. *Bull. Geol. Soc. Am.* **52**, 1265—1278 (1941).
- FISCHER, G.: Mechanisch bedingte Streifungen an Quarz. *Zentr. Mineral., Geol., Paläontol. A* **1925**, 210—213.
- FRENCH, B. M.: Sudbury structure, Ontario: Some petrographic evidence for an origin by Meteoritic Impact. *Science* **156**, 1094—1098 (1967).
- FRYER, C. C.: Shock deformation of quartz sand. *Int. J. Rock Mechanics and Mining Sci.* **3**, 81—88 (1966).
- HANSEN, E., and I. Y. BORG: The dynamic significance of deformation lamellae in quartz of a calcite cemented sandstone. *Am. J. Sci.* **260**, 321—336 (1962).
- HIETANEN, A.: On the petrology of the Finnish quartzites. *Bull. comm. géol. Finlande* Nr. **122**, 1—118 (1938).
- HÖRZ, F.: Statistical measurements of deformation structures and refractive indices in experimentally shock loaded quartz. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.

- INGERSON, E., and O. F. TUTTLE: Relations of lamellae and crystallography of quartz and fabric directions in some deformed rocks. *Trans. Am. Geophys. Union* **26**, 95—105 (1945).
- MCINTYRE, D. B.: Impact metamorphism at Clearwater Lakes, Quebec (Abstract). *J. Geophys. Research* **67**, 1647 (1962).
- MCLAREN, A. C., J. A. RETCHFORD, D. T. GRIGGS, and J. M. CHRISTIE: Transmission electron microscope study of brazil twins and dislocations experimentally produced in natural quartz. *Phys. Stat. Sol.* **19**, 631—644 (1967).
- MCQUEEN, R. G., J. N. FRITZ, and S. P. MARSH: On the equation of state of stishovite. *J. Geophys. Research* **68**, 2319—2322 (1963).
- MILTON, D. J., J. LITTLER, J. J. FAHEY, and E. M. SHOEMAKER: Petrography of glassy ejecta from scooter 0,5-kiloton high explosive cratering experiment, Nevada. *Astrogeol. Studies Progr. Rept. U.S. Geol. Surv.* 88—92 (1961).
- MÜLLER, W. F., and M. DEFOURNEAUX: Deformationstrukturen in Quarz als Indikator für Stoßwellen: eine experimentelle Untersuchung an Quarzeinkristallen. *Z. Geophysik* **34**, 483—504 (1968).
- , and U. HORNEMANN: Experimentelle Untersuchungen zur Wirkung von Stoßwellen auf Quarz und Feldspäte. 45. Jahrestag. der Dtsch. Mineralog. Ges., Berlin, 9. 10. 1967.
- — Personal communication 1968.
- NAHA, K.: Time of formation and kinematic significance of deformation lamellae in quartz. *J. Geol.* **67**, 120—124 (1959).
- PREUSS, E.: Das Ries und die Meteoritentheorie. *Fortschr. Mineral.* **41**, 271—312 (1964).
- RINEHART, J. S.: Intense destructive stresses resulting from stress wave interactions. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- ROBERTSON, P. B., M. R. DENCE, and M. A. VOS: Deformation in rockforming minerals from Canadian craters. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- SAHA, A. K.: Deformation lamellae in quartz from granophytic granite and diorite of Butgora-Sarjori area, eastern Singhbhum (abs.): Indian Sci. Congr. **42** nd, Calcutta, Proc. part 3, 184 (1955).
- SANDER, B.: Gefügekunde der Gesteine. Wien 1930.
- SCOTT, W. H., E. HANSEN, and R. J. TWISS: Stress analysis of quartz deformation lamellae in a minor fold. *Am. J. Sci.* **263**, 729—746 (1965).
- SHORT, N. M.: (a) Effect of shock pressures from a nuclear explosion on mechanical and optical properties of granodiorites. *J. Geophys. Research* **71**, 1195—1215 (1966).
 — (b) Nuclear explosion induced microdeformation of rocks: an aid to the recognition of meteorite impact structures. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
 — (c) Experimental microdeformation of rock materials by shock pressures from laboratory-scale impacts and explosions. Conference on shock metamorphism of natural materials, Greenbelt (April 14—16, 1966). In press 1968.
- STÖFFLER, D.: Zones of impact metamorphism in the crystalline rocks of the Nördlinger Ries Crater. *Contr. Mineral. and Petrol.* **12**, 15—24 (1966).
- Deformation und Umwandlung von Plagioklas durch Stoßwellen in den Gesteinen des Nördlinger Ries. *Contr. Mineral. and Petrol.* **16**, 51—83 (1967).
- , and J. ARNDT: Coesit und Stishovit, die Höchstdruckmodifikationen des Siliciumdioxids. *Naturwissenschaften* (1969) (im Druck).
- WACKERLE, J.: Shock compression of quartz. *J. Appl. Phys.* **33**, 922—937 (1962).
- ZIRKEL, F.: Lehrbuch der Petrographie, 2. Aufl., S. 196. Leipzig 1893.

Prof. Dr. W. VON ENGELHARDT
 Mineralogisches Institut
 7400 Tübingen, Wilhelmstr. 56