

REFERENCES

- Abel, J.F. and Jowis, J.E. (1979) Concrete shaft lining design. *Concrete Shaft Lining Design, 20th U.S. Symposium on Rock Mechanics*, Austin, Texas, pp. 627-640.
- Abraham, T.J. (1970) Selection and Design of a Compacted Rock Fill Dam with a Sloping Earth Core on Foundation Rock with Weak Horizontal Bedding Planes. *Dixieme Congres des Grands Barrages*, Montreal, pp. 339-359.
- Abrahams, A.D. and Parsons, A.J. (1987) Identification of strength equilibrium rock slopes: further statistical considerations. *Earth Surface Processes and Landforms*, 12 (6), pp. 631-635.
- Adachi, T., Ogawa, T. and Hatashi, M. (1981) Mechanical properties of soft rock and rock mass. *Proceedings of the Tenth International Conference on Soil Mechanics and Foundation Engineering*, Stockholm, Balkema. Vol. 1 pp. 527-530.
- Akai, K., Yamamoto, K. and Arioka, M. (1970) Experimental research on the structural anisotropy of crystalline schists. *2nd International Congress on Rock Mechanics, ISRM*, Belgrade, Vol. 2 pp. 181-186.
- Aldrich, M.J. (1969) Pore pressure effects on Berea Sandstone subjected to experimental deformation. *Geological Society of America Bulletin*, 80 pp. 1577-1586.
- Alheid, H.J. (1982) Friction processes on shear surfaces in granite at high pressure and temperature. *High Pressure Researches in Geoscience, Behaviour and Properties of Earth Materials at High Pressures and Temperatures*, (Schreyer ed.) Stuttgart, E. Schweizerbart'sche Verlagsbuchhandlung. pp. 95-102.
- Al-Hussaini, M. (1981) Tensile properties of compacted soils, *Laboratory Shear Strength of Soils*, ASTM STP 740, pp. 207-255.
- Al-Hussaini, M. (1983) Effect of particle size and strain conditions on the strength of crushed basalt. *Canadian Geotechnical Journal*, 20 pp. 706-717.
- Alva-Hurtado, J.E., McMahon, D.R. and Stewart, H.E. (1980) Apparatus and techniques for static triaxial testing of ballast. *Laboratory Shear Strength of Soil*, ASTM STP 740, Chicago, American Society for Testing Materials. pp. 94-113.
- Anagnosti, P. and Popovic, M. (1982) Evaluation of shear strength for coarse-grained granular materials. *Fourteenth Congress on Large Dams*, Rio de Janeiro, ICOLD. Vol. Q55 pp. 753-767.
- ANCOLD (1991) *Guidelines on Design Criteria for Concrete Gravity Dams*. Australian National Committee on Large Dams, November, pp. 34.
- Anderson, J.G.C. and Trigg, C.F. (1976) Dams and reservoirs. In *Case-histories in Engineering Geology* Elek Science, London, pp. 20-45.

- Andreev, G.E. (1995) *Brittle Failure of Rock Materials Test Results and Constitutive Models*. Balkema, Brookfield, pp. 446.
- Araujo, R.G.S., Sousa, J.L.A.O. and Bloch, M. (1997) Experimental investigation on the influence of temperature on the mechanical properties of reservoir rocks. *International Journal of Rock Mechanics and Mining Sciences*, 34 (3-4), pp. 298.
- ASCE (1929) Essential facts concerning the failure of the St. Francis Dam - Report of committee of board of direction. *A.S.C.E. Proceedings*, 55 (Oct.), pp. 2147-2163.
- Attewell, P.B. and Sandford, M.R. (1974) Intrinsic shear strength of a brittle anisotropic rock - I: Experimental and mechanical interpretation. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 11 (11), pp. 423-430.
- Aversa, S. and Evangelista, A. (1998) The mechanical behaviour of a pyroclastic rock: Yield strength and "destruction" effects. *Rock Mechanics Rock Engineering*, 31 (1), pp. 25-42.
- Ayers, M.E., Thompson, M.R. and Uzarski, D.R. (1989) Rapid shear strength evaluation of in situ granular materials. *Transportation Research Record*, 1227 pp. 134-146.
- Babb, A.O. and Mermel, T.W. (1968) *Catalog of Dam Disasters, Failures and Accidents*. USBR, Washington D.C.
- Baker, E.A.. (1897) Failure of the Bouzey dam (Discussion) *Proceedures of the Institution of Civil Engineers* pp. 68-79.
- Baladi, G.Y. and Wu, T.T.H. (1986) Interpretation of triaxial test results of cohesionless soils: a new model. *Advanced Triaxial Testing of Soil and Rock*, ASTM STP 977, Louisville, Kentucky, American Society for Testing and Materials. pp. 567-581.
- Balmer, G. (1952) A general analytical solution for Mohr's envelope. *Proceedings American Society for Testing Materials*, 52 pp. 1260-1271.
- Bandis, C.S. (1993) Engineering properties and characterization of rock discontinuities. In *Comprehensive Rock Engineering* (E. T. Brown ed.), Pergamon Press, pp. 155-183.
- Bandis, C.S., Lumsden, A.C. and Barton, N.R. (1981) Experimental studies of scale effects on the shear behaviour of rock joints. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 18 pp. 1-21.
- Banks, D.C. and Maciver, B.N. (1971) Discussion of: Leps (1970) Review of shearing strength of rockfill. *Journal of the Soil Mechanics and Foundations Division Proceedings of the American Society of Civil Engineers*, 97 (SM5), pp. 791-794.
- Barla, G., Sharp, J.C. and Rabagliati, U. (1991) Excavation and support optimisation for a large underground storage facility in weak jointed chalk. *7th ISRM International Congress on Rock Mechanics*, (Herausgeber ed.) Aachen, ISRM. Vol. 2 pp. 1067-1072.
- Bartholomew, C.L. (1989) Failure of concrete dams. In *6th ASDSO Annual Conference*, Albuquerque, New Mexico, pp. 428-445.

- Barton, N.R. (1971a) Estimation of in situ shear strength from back analysis of failed rock slopes. *Rock Fracture: Proceedings International Symposium Rock Mechanics*, Nancy, France, Vol. 1 pp. II-27.
- Barton, N.R. (1971b) *A Model Study of the Behaviour of Steep Excavated Rock Slopes*. PhD, University of London (Imperial College of Science and Technology).
- Barton, N.R. (1971c) A relationship between joint roughness and joint shear strength. *Rock Fracture: Proceedings International Symposium Rock Mechanics*, Nancy, France.
- Barton, N.R. (1973) Review of a new shear strength criterion for rock joints. *Engineering Geology*, 7 pp. 287-332.
- Barton, N.R. (1976) The shear strength of rock and rock joints. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 13 pp. 255-279.
- Barton, N.R. and Bandis, S. (1982) Effects of block size on the shear behaviour of jointed rock. *Proceedings of the 23rd U.S. Symposium on Rock Mechanics*, Berkeley, California, USA.
- Barton, N.R. and Bandis, S. (1990) Review of predictive capabilities of JRC-JCS model in engineering practice. *Rock Joints*, (B. & Stephansson ed.) Leon, Norway, Balkema, Rotterdam. pp. 603-610.
- Barton, N.R. and Choubey, V. (1977) The shear strength of rock joints in theory and practice. *Rock Mechanics*, 10 pp. 1-54.
- Barton, N. and Kjaernsli, B. (1981) Shear strength of rock fill. *Journal of Geotechnical Engineering Division*, pp. 373.
- Barton, N., Lien, R. and Lunde, J. (1974) "Engineering classification of rock masses for the design of tunnel support. *Rock Mechanics*", Vol. 6 pp. 189-236.
- Becker, E., Chan, C.K. and Bolton Seed, H. (1972) *Strength & Deformation Characteristics of Rockfill Materials in Plane Strain and Triaxial Compression Tests*. Geotechnical Engineering TE 72-3, University of California, Berkeley.
- Behrestaghi, M.H.N., Seshagiri Rao, K. and Ramamurthy, T. (1996) Engineering geological and geotechnical responses of schistose rocks from dam project areas in India. *Engineering Geology*, 44 pp. 183-201.
- Bell, F.G. and Jermy, C.A. (2000) The geotechnical character of some South African dolerites, especially their strength and durability. *Quarterly Journal of Engineering Geology and Hydrogeology*, 33 pp. 59-76.
- Bellier, J., Londe, P. and Langbein, J. (1976) The Malpasset Dam. In *The Evaluation of Dam Safety*, California, A.S.C.E. pp. 72-137.
- Benassini, A. and Barona, F. (1962) Foundation treatment for the Benito Juarez dam. *Journal of the American Concrete Institution*, 59 (October), pp. 1439-1488.
- Berga, L. (1997) Failures and hydrological incidents of dams in Spain. In *Dix-neuvième Congrès des Grands Barrages*, Florence, ICOLD. Vol. Q75 pp. 417-430.

- Bernabe, Y. and Brace, W.F. (1990) Deformation and fracture of Berea Sandstone. *The Brittle-Ductile Transition in Rocks, The Heard Volume*, American Geophysical Union. pp. 91-101.
- Berry, P., Manfredini, G. and Ribacchi, R. (1977) The mechanical properties of the rocks of the Laga formation in the Camposto area. *Capri '77, International Symposium The Geotechnics of Structurally Complex Formations*, Capri, Vol. 2 pp. 41-50.
- Bertacchi, P. and Bellotti, R. (1970) Experimental research on materials for rockfill dams. *Tenth Congress on Large Dams*, Montreal, ICOLD. Vol. Q36 pp. 511-529.
- Betournay, M.C., Gorski, B., Labrie, D., Jackson, R. and Gyenge, M. (1991) New considerations in the determination of Hoek and Brown material constants. *7th International Congress on Rock Mechanics*, ISRM, (Wittke ed.) Aachen, Vol. 1 pp. 195-200.
- Bieniawski, Z.T. (1967) *Mechanism of Brittle Fracture of Rock*. MEG 580, National Mechanical Engineering Research Institute, Council for Scientific and Industrial Research (CSIR), Pretoria, South Africa.
- Bieniawski, Z.T. (1973) Engineering classification of jointed rock masses. *Transactions of the South African Institution of Civil Engineers*, Vol 15, pp. 335-43.
- Bieniawski, Z.T. (1974) Estimating the strength of rock materials. *Journal of the South African Institute of Mining and Metallurgy*, 74 (8), pp. 312-320.
- Bieniawski, Z.T. (1975) Case studies: Prediction of rock mass behaviour by the geomechanics classification. *Proceedings of the 2nd Australia New Zealand Conference on Geomechanics*, Brisbane, Australia, IEAust. pp. 36-41.
- Bieniawski, Z.T. (1976) "Rock mass classifications in rock engineering". *Proceedings of the Symposium on Exploration for Rock Engineering*, Johannesburg pp. 97-107.
- Bieniawski, Z.T. (1978) Determining rock mass deformability: Experience from case histories, *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 15, pp. 237-247.
- Bieniawski, Z.T. (1979) The geomechanics classification in rock engineering applications. *Proceedings ISRM 4th International Congress on Rock Mechanics*, Montreux. Balkema, Boston, Chapter 5, pp. 55-95.
- Bieniawski, Z.T. (1983) The geomechanics classification (RMR system) in design applications to underground excavations. *International Symposium on Engineering Geology and Underground Construction*, Portugal, IAEG. Vol. 2 pp. II33-II47.
- Bieniawski, Z.T. (1988) The rock mass rating (RMR) system (geomechanics classification) in engineering practice. In *Rock Classification Systems for Engineering Purposes* (Kirkaldie ed.), ASTM, Philadelphia, pp. 17-34.
- Bieniawski, Z.T. (1989) *Engineering Rock Mass Classifications*. Wiley, New York.

- Bieniawski Z.T. and Nicholson G.A. (1990) A Nonlinear Deformation Modulus based on Rock Mass Classification, *International Journal of Mining and Geological Engineering*, Vol 8, pp. 181 – 202.
- Bieniawski, Z.T. and Orr, C.M. (1976) Rapid site appraisal for dam foundations by the geomechanics classification. *Douzieme Congres des Grands Barrages*, Mexico, pp. 483-501.
- Biswas, A.K. and Chatterjee, S. (1971) Dam disasters: an assessment. *Engineering Journal*, (March 1971), pp. 3-8.
- Blanton, A.C. (1915) Caverns under the Austin, Texas, dam. *Engineering News*, 73 (No. 16; Apr. 22), pp. 788-789.
- Blanton, T.L. (1981) Effect of strain rates from 10^{-2} to 10 sec^{-1} in triaxial compression tests on three rocks. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 18 pp. 47-62.
- Blind, H. (1983) The safety of dams. *Water Power & Dam Construction*, (May.), pp. 17-21.
- Bodonyi, J. (1970) Laboratory tests of certain rocks under axially-symmetrical loading conditions. *Proceedings of the 2nd Congress International Society for Rock Mechanics*, Beograd, Vol. 1 pp. 389-397.
- Bollo, M.F. (1965) Technical study of the bursting of the Vega de Tera Dam. *Review de la Federation Intl du Batiment et des Travaux Publics* (45), pp. 15-22.
- Borsetto, M., Frassoni, A., Rossi, P.P., Garbin, C. and Moro, T. (1970) The Anapo pumped-storage power station: geomechanical investigations and design criteria. *Design and Performance of Underground Excavations ISRM/BGS*, Cambridge, pp. 73-80.
- Boughton, N.O. (1970) Elastic analysis for behaviour of rockfill. *Journal of the Soil Mechanics and Foundations Division Proceedings of the American Society of Civil Engineers*, 96 (SM5), pp. 1715-1733.
- Bowers, N.A. (1928) St. Francis Dam catastrophe - A great foundation failure. *Engineering News Record*, 100 (12), pp. 466-473.
- Brace, W.F. (1964) Brittle fracture of rocks. *State of Stress in the Earth's Crust* (Judd ed.) Elsevier. pp. 111-174.
- Brace, W.F., Paulding, B.W. and Scholz, C. (1966) Dilatancy in the fracture of crystalline rocks. *Journal of Geophysical Research*, 71 (16), pp. 3939-3953.
- Brady, B.H.G. and Brown, E.T. (1993) *Rock Mechanics for Underground Mining*, Chapman & Hall.
- Bray, J.W. (1967) A study of jointed and fractured rock, *Rock Mechanics and Engineering Geology*, 5(2-3), pp. 119-136 & 197-216.
- Bredthauer, R.O. (1956) Strength characteristics of rock samples under hydrostatic pressure. *American Society of Mechanical Engineers Transactions*, 79 pp. 695-708.

- Broch, E. (1974) The influence of water on some rock properties. *Proceedings of the 3rd Congress International Society for Rock Mechanics*, Denver, Vol. 11-A pp. 33-38.
- Brown, E.T. (1970) Strength of models of rock with intermittent joints, *Journal of Soil Mechanics, Foundation Division, ASCE*, 96(SM6), pp. 1935-1949.
- Brown, E.T. (1971a) Brittle fracture of rock at low confining pressures. *First Australia-New Zealand Conference on Geomechanics*, Melbourne, Vol. 1 pp. 31-36.
- Brown, E.T. (1971b) The strength of jointed rock masses, *Queensland Division Technical Papers, The Institution of Engineers Australia*, 12(9), pp. 1-16.
- Brown, E.T. (1981) Suggested method for petrographic description of rocks. In *Rock Characterization, Testing & Monitoring, I.S.R.M. Suggested Methods* (Brown ed.), pp. 75-77.
- Brown, E.T. and Høek, E. (1988) "Discussion on Paper No. 20431 by R. Ucar, entitled: 'Determination of shear failure envelope in rock masses'". *A.S.C.E., Journal of the Geotechnical Engineering Division*, Vol. 114 (3), pp. 371-373.
- Byerlee, J.D. (1975) The fracture strength and frictional strength of Weber sandstone. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 12 (1-4).
- Byerlee, J.D. (1968) Brittle-ductile transition in rocks. *Journal of Geophysical Research*, 73 (14), pp. 4741-4750.
- Carrier, M.A. (1974) Causes of the failure of the Malpasset Dam. In *Foundations for dams*, California, A.S.C.E. pp. 5-11.
- Carter, B.J., Scott Duncan, E.J. and Lajtai, E.Z. (1991) Fitting strength criteria to intact rock. *Geotechnical and Geological Engineering*, 9, pp. 73-81.
- Cecconi, M. and Viggiani, G. (1998) Physical and structural properties of a pyroclastic soft rock. *The Geotechnics of Hard Soils - Soft rocks, Proceedings of the Second International Symposium*, (Picarelli ed.) Naples, Italy, Balkema. Vol. 1, pp. 85-91.
- Cecconi, M., Viggiani, G. and Rampello, S. (1998) An experimental investigation of the mechanical behaviour of a pyroclastic soft rock. *The Geotechnics of Hard Soils - Soft rocks, Proceedings of the Second International Symposium*, (Picarelli ed.) Naples, Italy, Balkema. Vol. 1 pp. 473-482.
- Chan, S.S.M., Crocker, T.J. and Wardell, G.G. (1972) Engineering properties of rocks and rock masses in the deep mines of the Coeur d'Alene Mining District, Idaho. *Transactions of the Society of mining Engineers of AIME*, 252 (4), pp. 353-361.
- Charles, J.A. (1976) The use of one-dimensional compression tests and elastic theory in predicting deformations of rockfill embankments. *Canadian Geotechnical Journal*, 13 (3), pp. 189-200.

- Charles, J.A. and Boden, J.B. (1985) The failure of embankment dams in the United Kingdom. In *Proceedings of the Symposium on Failures in Earthworks*, London, Thomas Telford. pp. 181-202.
- Charles, J.A. and Watts, K.S. (1980) The influence of confining pressure on the shear strength of compacted rockfill. *Geotechnique*, 30 pp. 353-367.
- Chen, Z. (1995) Recent developments in slope stability analysis. *ISRM International Congress on Rock Mechanics*, (Herausgeber ed.) Tokyo, ISRM. Vol. 3 pp. 1041-1048.
- Cheng Y. and Liu S.C. (1993) Power Caverns of Mingtan Pumped Storage Project – Taiwan, *Comprehensive Rock Engineering Principles Practice & Projects*, Vol 5, pp. 112 – 131.
- Chiu, H.K. and Johnston, I.W. (1980) The effects of drainage conditions and confining pressures on the strength of Melbourne mudstone. *3rd Australia New Zealand Conference on Geomechanics*, Wellington, pp. 1-185 to 1-189.
- Clements, T. (1969) St. Francis dam failure of 1928. In *Engineering Geology in Southern California* (R. Lung and R. Proctor ed.), AEG, pp. 89-91.
- Coates, D.F., McRorie, K.L. and Stubbins, J.B. (1963) Analysis of pit slides in some incompetent rocks. *Transactions of the Society of Mining Engineers, AIME*, 226 pp. 94-101.
- Collado, A. and Gili, J.A. (1988) *A Geological Study for Highway 420*, University Pol de Catalunya. In Spanish.
- Commission Administrative d'Enquête - France (1965a) The experts' report on the collapse of the Malpasset Dam. *Le Génie Civil*, 142 (11), pp. 239-246.
- Commission Administrative d'Enquête - France (1965b) The experts' report on the collapse of the Malpasset Dam. *Le Génie Civil*, 142 (12), pp. 277-283.
- Commission de Contre-Expertise - France (1966) The report of the re-surveying committee on the failure of the Malpasset Dam. *Le Génie Civil*, 143 (1), pp. 14-20.
- Cook, J.M., Sheppard, M.C. and Houwen, O.H. (1991) Effects of strain rate and confining pressure on the deformation and failure of shale. *SPE Drilling Engineering*, 6 (2), pp. 100-104.
- Coutinho Rodrigues, J.M. (1987) Failure and deterioration of arch dams. In *International Workshop on Arch Dams*, (J. Laginha Serafim and R. W. Clough ed.) Coimbra, A.A.Balkema. Vol. 1 pp. 495-499.
- Courtney, C.F. (1897) Failure of the Bouzey Dam. In *Masonry Dams - From inception to completion* Crosby Lockwood and son, London, pp. 91-101.
- Cunningham, D.M. (1986) *The Nattai North Escarpment Failure*. BE Thesis, University of Wollongong.
- Das, M.N. and Sheorey, P.R. (1986) Triaxial strength behaviour of some Indian coals. *Journal of Mines, Metals & Fuels*, 34 pp. 118-122.

- David Rogers, J. (1995) A man, a dam and a disaster: Mulholland and the St. Francis dam. The St. Francis dam disaster revisited: *Southern California Quarterly* (& Ventura County Historical Society Quarterly 40 Nos. 3-4), LXXVII (1-2).
- David Rogers, J. and McMahon, D.J. (1993) Reassessment of the St. Francis Dam failure. In *10th ASDSO Annual Conference*, Kansas City, Missouri, pp. 333-339.
- Dayre, M. and Giraud, A. (1986) Mechanical properties of granodiorite from laboratory tests. *Engineering Geology*, 23 (2), pp. 109-124.
- Dlugosz, M., Gustkiewicz, J. and Wysocki, A. (1981) Apparatus for investigation of rocks in a triaxial state of stress. Part II. Some investigation results concerning certain rocks. *Archiwum Gornictwa*, 26 pp. 29-41.
- Dobereiner, L. and de Freitas, M.H. (1986) Geotechnical properties of weak sandstones. *Geotechnique*, 36 (1), pp. 79-94.
- Donaghe, R.T. and Cohen, M.W. (1978) *Strength and Deformation Properties of Rock Fill*. Final report Technical Report S-78-1, U.S Army Engineers Waterways Experiment Station Soils and Pavements Laboratory.
- Donath, F.A. (1964) Strength variations and deformational behaviour in anisotropic rock. In *State of Stress in the Earth's Crust* (Judd ed.), Elsevier, New York, pp. 281-297.
- Doruk, P. (1991) *Analysis of the Laboratory Strength Data Using the Original and Modified Hoek-Brown Failure Criteria*. M.A.Sc, University of Toronto.
- Douglas, K.J. (1998) Case studies in the assessment of rock mass criteria. *3rd Young Geotechnical Professionals Conference*, Melbourne.
- Douglas, K.J. and Mostyn, G. (1999) Strength of large rock masses – field verification. Rock Mechanics for Industry, Proceedings of the 37th U.S. Rock Mechanics Symposium, Vail, Colorado, USA. 1:271-276. Balkema, Rotterdam, ISBN 90 5809 099 X0.
- Douglas, K., Spannagle, M. and Fell, R. (1998a) Estimating the probability of failure of concrete and masonry gravity dams. *1998 ANCOLD-NZSOLD Conference on Dams*, Sydney.
- Douglas, K., Spannagle, M. and Fell, R. (1998b) *Report on Analysis of Concrete and Masonry Dam Incidents*. UNICIV, The School of Civil and Environmental Engineering, The University of New South Wales.
- Douglas, K., Spannagle, M. and Fell, R. (1999a) Analysis of Concrete and Masonry Dam Incidents. *The International Journal on Hydropower & Dams*. 6(4):108-115. Aqua~Media, Surrey, ISSN 1352-2523.
- Douglas, K., Spannagle, M. and Fell, R. (1999b) Estimating the probability of failure of concrete and masonry gravity dams. *ANCOLD Bulletin*. No. 112:53-63. Australian National Committee on Large Dams, ISSN 0045-0731.

- Duevel, B. and Haimson, B. (1997) Mechanical characterization of pink Lac du Bonnet granite: evidence of nonlinearity and anisotropy. *International Journal of Rock Mechanics and Mining Sciences*, 34 (3-4), pp. 117.
- Dunikowski, A., Korman, S. and Kohsling, J. (1969) Laboratory test indices of physico-mechanical properties of rocks in three-axial state of stress (in Polish). *Przegląd Gorniczy*, 25 (11), pp. 523-528.
- Duran, A. and Douglas, K. (1999) "Do slopes designed with empirical rock mass strength criteria stand up?" *Proceedings ISRM 9th International Congress on Rock Mechanics*, Paris, France, 1, pp. 87-90. Balkema, Rotterdam, ISBN 90 5809 070 1.
- Duran, A. & Douglas, K.J. (2000) Experience with empirical rock slope design. *GeoEng2000: An International Conference on Geotechnical & Geological Engineering*, 19-24 November, Melbourne, Australia, 2, pp. 41 and CD-Rom paper no. SNES1186, Technomic Publishing, Pennsylvania, ISBN 1-58716-068-4.
- Edmond, J.M. and Paterson, M.S. (1972) Volume change during the deformation of rocks at high pressures. *International Journal of Rock Mechanics and Mining Sciences*, 9 pp. 161-182.
- Einstein H.H., Veneziano D., Baecher G.B. and O'Reilly K.J. (1983) The effect of discontinuity persistence on rock slope stability, *International Journal of Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 20(5), pp. 227-236.
- Elliot, G.M. and Brown, E.T. (1985) Yield of a soft, high porosity rock. *Geotechnique*, 35 (4), pp. 413-423.
- Engineering News (1897?) Failure of the dam of the Bouzey Reservoir, France. *Engineering News*, XXXIII (21), pp. 332.
- Engineering News (1900a) The failure of the Austin dam. *Engineering News*, 43 (16), pp. 250-253.
- Engineering News (1900b) Failure of the great masonry dam across the Colorado River at Austin, Tex. *Engineering News* (Apr 12), pp. 244-247.
- Engineering News (1900c) More light on the failure of the Austin dam. *Engineering News*, 43 (19), pp. 308-309.
- Engineering News (1900d) The silt deposit behind the Austin Dam and the relation of silt deposits to storage reservoirs. *Engineering News*, XLII (25), pp. 410-411.
- Engineering News (1900e) Silting-up of Lake McDonad and the leak at the Austin dam. *Engineering News* (Feb 22), pp. 135-136.
- Engineering News (1901) Coefficient of friction in dam design, and the failure of the dam at Austin, Tex. *Engineering News* (May 30), pp. 392-393.
- Engineering News (1902) An estimate for rebuilding the Austin dam. *Engineering News*, 47 (14), pp. 272-273.

- Engineering News (1908a) (Austin dam estimates for rebuilding) *Engineering News* (Nov. 12), pp. 530-532.
- Engineering News (1908b) A report on rebuilding the Austin dam. *Engineering News* (Nov. 12), pp. 530.
- Engineering News (1909) The undermining of a reinforced-concrete dam at Pittsfield, Mass. *Engineering News*, 61 (13; Apr. 1), pp. 345-347.
- Engineering News (1910a) Partial failure of a concrete dam at Austin, Pa. *Engineering News*, 63 (No. 11; Mar. 17), pp. 321-323.
- Engineering News (1910b) Designs and contract for rebuilding the Colorado River dam at Austin, Texas. *Engineering News*, 63 (No. 15; Apr. 14), pp. 440-441.
- Engineering News (1911) The partial failure of a concrete dam at Austin, Pa., on Jan. 23, 1910. *Engineering News*, 66 (14), pp. 417-423.
- Engineering News (1914a) Break in the Stony River Dam. *Engineering News*, 71 (4), pp. 211-214.
- Engineering News (1914b) Editorial: The failure of the Stony River Dam. *Engineering News*, 71 (4), pp. 199-201.
- Engineering News (1914c) The failure of the Stony River Dam. *Engineering News* (Jan 22), pp. 199-201.
- Engineering News (1915) Reconstruction of the Austin, Texas, dam. *Engineering News*, 73 (No. 11; Mar. 18), pp. 528-529.
- Engineering News (1916a) Austin dam section criticized. *Engineering News* (Aug. 3),.
- Engineering News (1916b) More trouble at Austin dam. *Engineering News*, 75 (No. 14; Apr. 6),.
- Engineering News Record (1911) Ignorance of the coefficient of sliding friction between rock substrata a cause of dam failures. *Engineering News Record*, 36 (18; Nov 1), pp. 453-454.
- Engineering News Record (1918) Will cost half million to make Austin dam usable. *Engineering News Record*, 80 (No. 8; Feb. 21), pp. 353-354.
- Engineering News Record (1924a) Details of the failure of an Italian multiple-arch dam. *Engineering News Record*, 92 (5), pp. 182-184.
- Engineering News Record (1924b) Failure of Gleno Dam charged to buttress shear. *Engineering News Record*, 92 (12), pp. 486-488.
- Engineering News Record (1924c) Official report on collapse of Gleno Dam. *Engineering News Record*, 93 (6), pp. 213-215.
- Engineering News Record (1926a) Abutment of dam fails through undermining. *Engineering News Record*, 96 (4; Jan. 28), pp. 172.
- Engineering News Record (1926b) Two arch dams fail through undermining of abutments. *Engineering News Record*, 97 (16; Oct. 14), pp. 616-618.

- Engineering News Record (1928a) Commission finds failure of St. Francis Dam due to defective foundations. *Engineering News Record*, 100 (14), pp. 553-555.
- Engineering News Record (1928b) Geological formation at the St. Francis Dam site. *Engineering News Record*, 100 (15), pp. 596-597.
- Engineering News Record (1928c) News of the week: All St. Francis Dam reports agree as to reason for failure. *Engineering News Record*, 100 (Apr. 19), pp. 639.
- Engineering News Record (1928d) News of the week: Mead committee is in agreement with others on St. Francis failure. *Engineering News Record*, 100 (Apr. 26), pp. 675.
- Engineering News Record (1928e) News of the week: St. Francis Dam of Los Angeles water-supply system fails under full head. *Engineering News Record*, 100 (11), pp. 456.
- Engineering News Record (1928f) Sixth report on St. Francis Dam offers new theories. *Engineering News Record*, 100 (23), pp. 895.
- Engineering News Record (1928g) St. Francis Dam catastrophe: A review six weeks after. *Engineering News Record*, 100 (19), pp. 726-736.
- Engineering News Record (1928h) The St. Francis Dam disaster. *Engineering News Record*, 100 (Mar. 22), pp. 465.
- Engineering News Record (1928i) St. Francis Dam failure - An engineer's study of the site. *Engineering News Record*, 100 (13), pp. 517-518.
- Engineering News Record (1928j) St. Francis Dam of Los Angeles water-supply system fails under full head. *Engineering News Record*, 100 (11), pp. 456.
- Engineering News Record (1929a) Rebuilding Power Plant No. 2 after the St. Francis Dam break. *Engineering News Record*, 102 (Mar. 28), pp. 494-495.
- Engineering News Record (1929b) Standing section of St. Francis Dam razed with dynamite. *Engineering News Record*, 103 (Jul. 11), pp. 51.
- Engineering News Record (1935) Overtopping of small dam causes flood in Italy. *ENR* (Oct. 31), pp. 607-610.
- Engineering News Record (1957) Flood waters hit Las Vegas as three small dams fail. *Engineering News-Record* (Aug), pp. 28.
- Engineering News Record (1959a) French dam collapse: Rock shift was probable cause. *Engineering News Record*, 163 pp. 24-25.
- Engineering News Record (1959b) Masonry dam crumbles in Spain. *Engineering News Record*, 162 (Jan. 15), pp. 28.
- Engineering News Record (1960a) Malpasset Dam's failure is half solved. *Engineering News Record*, 164 (Apr. 7), pp. 25.
- Engineering News Record (1960b) Rock did shift: Malpasset report delayed as engineers check fault. *Engineering News Record*, 164 (Jan. 21), pp. 26.

- Engineering News Record (1960c) Court convicts dam designers. *Engineering News Record*, 164 (Mar. 17), pp. 26.
- Engineering News Record (1962) New probe of dam collapse asked. *Engineering News Record*, 168 (6), pp. 22.
- Engineering News Record (1963) New Malpasset collapse study due. *Engineering News Record*, 170 (Mar. 14), pp. 23.
- Engineering News Record (1964a) Engineer on trial for dam collapse. *Engineering News Record*, 173 (18), pp. 14-15.
- Engineering News Record (1964b) Malpasset trial decision awaited. *Engineering News Record*, 173 (19), pp. 19.
- Engineering News Record (1967) Dam designers focus on safety. *Engineering News Record* (Sep 14), pp. 15-16.
- Engineering Record (1900a) The failure of the Austin dam. *Engineering Record*, 41 (15), pp. 340-342.
- Engineering Record (1900b) Failure of the Austin dam. *Engineering Record*, 41 (16), pp. 372-375.
- Engineering Record (1911a) Another account of the Austin dam failure. *Engineering Record*, 64 (No. 16; Oct. 14), pp. 444.
- Engineering Record (1911b) Masonry dams and their foundations. *Engineering Record*, 64 (17), pp. 492.
- Engineering Record (1911c) The probable cause of the Austin dam failure. *Engineering Record*, 64 (19), pp. 530-532.
- Engineering Record (1911d) The destruction of the Austin dam - An account of the conditions which caused its failure on September 30. *Engineering Record*, 64 (15), pp. 429-436.
- Engineering Record (1911e) The destruction of the Austin dam. Additional facts. *Engineering Record*, 64 (16), pp. 442.
- Engineering Record (1911f) The expert testimony at the Austin Dam investigation. *Engineering Record*, 64 (20), pp. 578.
- Engineering Record (1912) Washout of base of Port Angeles dam. *Engineering Record*, 66 (22; Nov. 30), pp. 600-601.
- Engineering Record (1914) Failure of Stony River Dam. *Engineering Record*, 69 (4), pp. 88.
- Engineering Record (1915a) Hollow reinforced-concrete structure replaces dam at Austin, Texas, which failed fifteen years ago; Part I. *Engineering Record*, 71 (No. 22; May 29), pp. 672-673.
- Engineering Record (1915b) Reinforced-concrete structure at Austin, Texas, replaces dam which failed. *Engineering Record*, 71 (Jun. 5), pp. 707-708.

- Evans, B., Fredrich, J.T. and Wong, T. (1990) The brittle-ductile transition in rocks: recent experimental and theoretical progress. In *The Brittle-Ductile Transition in Rocks, Geophysical Monograph 56*, Duba et al. Eds, American Geophysical Union, Washington, D.C., pp. 1-20.
- Everling, G. (1960) Rock mechanical investigations and basis for determination of rock pressure according to deformation of drill holes (in German). *Gluckauf*, 96 (7), pp. 390-409.
- Fairhurst, C. (1964) On the validity of the 'Brazilian' test for brittle materials. *International Journal for Rock Mechanics and Mining Sciences*, 1, pp. 535-546.
- Fang, H.Y. and Fernandez, J. (1981) Determination of tensile strength of soils by unconfined – penetration test, *Laboratory Shear Strength of Soils*, ASTM STP 740, pp. 130-144.
- Fayed, L.A. (1968) Shear strength of some argillaceous rocks. *International Journal of Rock Mechanics and Mining Sciences*, 5 (1), pp. 79-85.
- Feld, J. (1968) *Construction Failure*. Wiley Series of Practical Construction Guides pp. 91-109.
- Fell, R. (1996) Estimating the probability of failure of embankment dams under normal operating conditions. In *Repair and Upgrading of Dams*, Stockholm, KTH. pp. 567-576.
- Fell, R., McGregor, P. and Stapledon, D. (1992). *Geotechnical Engineering of Embankment Dams*. A.A. Balkema, pp. 675.
- FEMA (1995) *Water Control Infrastructure - National Inventory of Dams Update 1993-1994*, [CD-ROM] Federal Emergency Management Agency.
- Finch, J.K. (1914) Letters to the Editor: The Stony River Dam: Sliding as a danger in hollow dams. *Engineering News*, 71 (4), pp. 202.
- Flagg, C. Geological causes of dam incidents. *General 125146 79A*, USBR.
- Fleming, R.W., Spencer, G.S. and Banks, D.C. (1970) *Empirical Study of Behaviour of Clay Shale Slopes*. NCG Technical Report No.15, U.S. Army Engineer Nuclear Cratering Group, Livermore, California.
- Foster, M., Spannagle, M. and Fell, R. (1998) *Report on the Analysis of Embankment Dam Incidents*. UNICIV Report, School of Civil and Environmental Engineering, The University of New South Wales.
- Foster, P.F. and Fairless, G.J. (1994). *Waitaki Dam - Review of Aviemore rock strength*. (unpublished) ID: 9W551.BO, Power Engineering Office Works Consultancy Service Ltd (Wellington, N.Z.).
- Frasconi, A., Hegg, U. and Rossi, P.P. (1982) Large-scale laboratory tests for the mechanical characterization of granular materials for embankment dams. *Fourteenth Congress on Large Dams*, Rio de Janeiro, ICOLD. Vol. Q55 pp. 727-751.
- Franklin, J.A. (1971) Triaxial strength of rock materials. *Rock Mechanics*, 3 pp. 86-98.
- Franklin, J.A. and Hoek, E. (1970) Developments in triaxial testing technique. *Rock Mechanics*, 2 pp. 223-228.

- Freeman, G.L. and Alsop, R.B. (1941) Underpinning Austin dam. *Engineering News Record* (Jan. 30), pp. 52-57.
- Fry, J. (1996) Causes et probabilités de rupture des barrages en Europe. In *COGECH 1996*.
- Fujii, Y., Kiyama, T. and Ishijima, Y. (1997) Condition insensitive damage indicator for brittle rock. *International Journal of Rock Mechanics and Mining Sciences*, 34 (3-4), pp. 086.
- Fumagalli, E., Mosconi, B. and Rossi, P.P. (1970) Laboratory tests on materials and static models for rockfill dams. *Tenth Congress on Large Dams*, Montreal, ICOLD. Vol. Q36 pp. 531-551.
- Georgiadis M. and Michalopoulos A.P. (1986) Dilatometer Tests for the Design of Grouted Piles in Rock, USA, *Use of In-situ Tests in Geotechnical Engineering, Proceedings of In-situ '86*, pp. 560-568.
- Gifford A.B., Green G.E., Buechel G.J. and Feldman A.I. (1986) In-situ Tests and Design of a Cylinder Pile Wall, USA, *Use of In-situ Tests in Geotechnical Engineering, Proceedings of In-situ '86*, pp. 569-587.
- Giovanni B. (1993) Case Study of Rock Mechanics in the Masua Mine - Italy, *Comprehensive Rock Engineering Principles Practice & Projects*, Vol 5, pp. 291 – 333.
- Glastonbury, J. & Douglas, K.J. (2000) Catastrophic rock slope failures. *GeoEng2000: An International Conference on Geotechnical & Geological Engineering*, 19-24 November, Melbourne, Australia, Vol. 2 pp. 21 and CD-Rom paper no. SNES0507, Technomic Publishing, Pennsylvania, ISBN 1-58716-068-4.
- Gomez Laa, G., Alonso Franco, M. and Hernandez, J.L.R. (1979) Reflections on some incidents in Spanish dams. *Thirteenth International Congress on Large Dams*, New Dehli, ICOLD. Vol. Q49 pp. 721-740.
- Gonzalez Garcia, A.J. (1985) Rockfill strength with dimensionless parameters. *Proceedings of the Eleventh International Conference on Soil Mechanics and Foundation Engineering*, San Francisco, Balkema. Vol. 2 pp. 479-485.
- Good, R.J. (1976) Kangaroo Creek Dam use of a weak schist as rockfill for a concrete faced rockfill dam. *Twelfth Congress on Large Dams*, Mexico, ICOLD. Vol. Q44 pp. 645-659.
- Gosselin, M. (1960) The report on the failure of the Malpasset Dam. *Civil Engineering and Public works review*, 55 (648), pp. 921-922.
- Goto, S., Suzuki, Y., Nishio, S. and Oh-oka, H. (1992) Mechanical properties of undisturbed tone-river gravel obtained by in-situ freezing method. *Soils and Foundations*, 32 (3), pp. 15-25.
- Gowd, T.N. and Rummel, F. (1980) Effect of confining pressure on the fracture behaviour of a porous rock. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 17 (4), pp. 225-229.

- Graham, L.P. and Bartsch, M. (1995) Risk analysis safety assessment for use at Swedish dams. In *Research and Development in the Field of Dams*, Crans-Montana, Switzerland, Swiss National Committee on Large Dams. pp. 627-638.
- Gray, K.E. and Holder, J.T. (1991) Towards characterizing shale stability. *Proceedings of the 44th Canadian Geotechnical Conference*, Calgary, Alberta, Canada, Vol. 1 pp. 37/1 to 37/7.
- Gray, P.A. (1988) The problem of estimating the shear strength of unstable rock slopes. *Fifth Australia-New Zealand Conference on Geomechanics*, Sydney, pp. 375-380.
- Griffith, A.A. (1924) The theory of rupture. *Proceedings of the 1st Congress on Applied Mechanics*, Delft, pp. 55-63.
- Gruner, E. (1963) Dam disasters. *Proceedings of the Institute of Civil Engineering (London)*, 24 pp. 47-60.
- Gruner, E. (1967) The safety of reservoirs. *World Dams Today*, The Japan Dam Association pp. 104-109.
- Grunsky, C.E. and Grunsky, E.L. (1928) Letters to the Editor: The Grunsky Report on the failure of the St. Francis Dam. *Engineering News Record*, 101 (Jul. 26), pp. 144.
- Guerreiro, M., Fernandez Cuevas, R., Guerreiro, M.J. and Gomez Laa, G. (1991) Causes of failure of the Fonsagrada Dam. In *Dix-septieme Congres des Grands Barrages*, Vienne, ICOLD. Vol. Q65 pp. 49-63.
- Gulan, I.J. (1995) *A Study on the Failure of Concrete Gravity Dams Through the Concrete Mass*. Unpublished BE Thesis, The University of New South Wales.
- Gupta, K.K. and Ramamurthy, T. (1978) Prediction of the behaviour of rockfill materials. *Proceedings of GEOCON India Conference on Geotechnical Engineering*, New Delhi, Vol. 1 pp. 25-31.
- Gupta, K.K. and Soni, M.L. (1994) Prediction of rockfill material responses. *Proceedings of the Thirteenth International Conference on Soil Mechanics and Foundation Engineering*, New Delhi, Balkema. Vol. 3 pp. 963-966.
- Gurtu, S.K. (1925) Masonary dams and weirs. *Indian Engineering* (Aug 1), pp. 67-69.
- Gustkiewicz, J. (1985) Transition of rocks from brittle to ductile state; strain at failure as a function of confining pressure. *Acta Geophysica Polonica*, 33 (2), pp. 169-181.
- Habimana, J., Labiouse, V. and Descoedres, F. (2002) Geomechanical characterisation of cataclastic rocks: experience from the Cleuson-Dixence project, *International Journal of Rock Mechanics and Mining Sciences*, 39, pp.677-693.
- Hadizadeh, B. and Rutter, E.H. (1983) The low temperature brittle-ductile transition in a quartzite and the occurrence of cataclastic flow in nature. *Geologische Rundschau*, 72 (2), pp. 493-509.

- Haied, A. and Kondo, D. (1997) Strain localization in Fontainebleau sandstone: macroscopic and microscopic investigations. *International Journal of Rock Mechanics and Mining Sciences*, 34 (3-4), pp. 161.
- Haines, A. (1993) Rock slope classification for the optimal design of monitoring networks. *Geotechnical Instrumentation and Monitoring in Open Pit and Underground Mining*, (Szwedzicki ed.) Kalgoorlie, Balkema. pp. 201-209.
- Haines, A. and Terbrugge, P.J. (1991) Preliminary estimation of rock slope stability using rock mass classification systems. *Proceedings 7th International Society Rock Mechanics*, (Herausgeber ed.) Aachen, Vol. 2 pp. 887-892.
- Hall, E.B. and Gordon, B.B. (1963) Triaxial testing with large-scale high pressure equipment. *Laboratory Shear Testing of Soils*, ASTM STP 361, Ottawa, Canada, American Society for Testing and Materials. pp. 315-328.
- Handin, J. Strength at high confining pressure and temperature of serpentinite from Mayaguez, Puerto Rico. .
- Handin, J.H. and Hager, R.V. (1957) Experimental deformation of sedimentary rocks under confining pressure: Tests at room temperature on dry samples. *Bulletin of the American Association of Petroleum Geologists*, 41 (1), pp. 1-50.
- Handin, J.H., Hager, R.V., Friedman, M. and Feather, J.N. (1963) Experimental deformation of sedimentary rocks under confining pressure: Pore pressure tests. *Bulletin of the American Association of Petroleum Geologists*, 47 (5), pp. 717-755.
- Hanna, K., Conover, D. and Haramy, K. (1991) *Coal mine entry intersection behaviour study*. Report of Investigations 9337, United States Department of the Interior, Bureau of Mines.
- Hareland, G., Polston, C.E. and White, W.E. (1993) Normalised rock failure envelope as a function of grain size. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 30 (7), pp. 715-717.
- Hatem, G.A. (1985) *Development of a Data Base on Dam Failures in the United States Preliminary Results*. BE Thesis, Stanford University.
- Hatton, C. (1912) The Austin dam and its failure. *Engineering News* (Oct 3), pp. 605-606.
- Helgstedt, M.D. (1997) *An Assessment of the In-Situ Shear Strength of Rock Masses and Discontinuities*. M.E., University of Lulea.
- Helgstedt, M.D., Douglas, K.J. and Mostyn, G. (1997) A re-evaluation of in-situ direct shear tests at Aviemore Dam, New Zealand. *Australian Geomechanics*, 37 (June), pp. 56-65.
- Hencher, S.R. (1995) Interpretation of direct shear tests on rock joints, *Proceedings of the 25th US Symposium on Rock Mechanics* (Daeman and Schultz eds) Reno, pp. 99-106.
- Hill, W.R. (1902) A list of failures of American dams. *Engineering Record*, 46 (13; Sep 27), pp. 290-293.

- Hinds, J. (1953) Continuous development of dams since 1850. *A.S.C.E. Transactions* pp. 489-520.
- Hirth, G. and Tullis, J. (1989) The effects of pressure and porosity on the micromechanics of the brittle-ductile transition in quartzite. *Journal of Geophysical Research*, 94 (B12), pp. 17,825-17,838.
- Hobbs, D.W. (1964) The strength and the stress-strain characteristics of coal in triaxial compression. *Journal of Geology*, 72 pp. 214-231.
- Hobbs, D.W. (1966) A study of the behaviour of broken rock under triaxial compression, and its application to mine roadways, *International Journal on Rock Mechanics and Mining Sciences*, 3, pp. 11-14.
- Hobbs, D.W. (1970) The behaviour of broken rock under triaxial compression. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 7 pp. 125-148.
- Hoek, E. (1968) Brittle failure of rock. In *Rock Mechanics in Engineering Practice*, John Wiley & Sons, London, pp. 99-124.
- Hoek, E. (1970) Estimating the stability of excavated slopes in open cut mines. *Trans. Institution of Mining and Metallurgy*, 79 pp. A109-A132.
- Hoek, E. (1983) Strength of jointed rock masses. *Geotechnique*, 33 (3), pp. 187-223.
- Hoek, E. (1997) "Reliability of Hoek-Brown estimates of rock mass properties and their impact on design". Technical Note. *International Journal of Rock Mechanics and Mining Sciences*.
- Hoek, E. (1997) Practical estimates of properties of very weak to strong rock masses. *Draft paper (Melbourne City Link Tunnel - review of geotechnical aspects)*.
- Hoek, E. (1998) Reliability of Hoek-Brown estimates of rock mass properties and their impact on design, *International Journal of Rock Mechanics and Mining Sciences*, 35(1), pp. 63-68.
- Hoek, E. (1999) Putting numbers to geology – an engineer's viewpoint, *Quarterly Journal of Engineering Geology*, 32, pp. 1-19.
- Hoek, E. (2001) *Personal communication*, 1st October.
- Hoek, E. (2002) A brief history of the development of the Hoek-Brown failure criterion. Accessed through the program *RocLab*, pp. 4.
- Hoek, E. and Brown, E.T. (1980a) Empirical strength criterion for rock masses. *A.S.C.E., Journal of the Geotechnical Engineering Division*, **106**(GT9), pp. 1013-1035.
- Hoek, E. and Brown, E.T. (1980b) *Underground Excavations in Rock*, The Institution of Mining and Metallurgy, London.
- Hoek, E. and Brown, E.T. (1988) "The Hoek-Brown failure criterion - a 1988 update". *Proceedings of the 15th Canadian Rock Mechanics Symposium, Toronto*.

- Hoek, E. and Brown, E.T. (1997) Practical estimates of rock mass strength. *International Journal of Rock Mechanics and Mining Sciences*, **34**(8), pp. 1165-1186.
- Hoek, E., Carranza-Torres, C. and Corkum, B. (2002) Hoek-Brown failure criterion - 2002 edition. *Proceedings of the North American Rock Mechanics Society Meeting in Toronto in July 2002*.
- Hoek, E., Kaiser, P.K. and Bawden, W.F. (1995) *Support of Underground Excavations in Hard Rock*. Balkema.
- Hoek, E. and Karzulovic, A. (2001) Rock mass properties for surface mines. In *Slope Stability in Surface Mining* (Hustrulid, McCarter and Van Zyl ed.), Society for Mining, Metallurgy, and Exploration, Inc. (SME), pp. 59-69.
- Hoek, E. Marinos, P. and Benissi, M. (1998) Applicability of the geological strength index (GSI) classification for very weak and sheared rock masses. The case of the Athens Schist Formation. *Bulletin of Engineering Geology and the Environment*, **57**, pp. 151-160.
- Hoek, E., Wood, D. and Shah, S. (1992) "A modified Hoek-Brown failure criterion for jointed rock masses". Eurock '92 pp. 209-213.
- Holtz, W.G. and Gibbs, H.J. (1956) Triaxial shear tests on pervious gravelly soils. *Journal Soil Mechanics and Foundation Division Proceedings of the American Society of Civil Engineers*, 82 (SM1), pp. 1-22.
- Horii, H. and Nemat-Nasser, S. (1986) Brittle failure in compression: splitting, faulting and brittle-ductile transition. *Philosophical Transactions of the Royal Society of London, Series A: Mathematical and Physical Sciences*, 319 (1549), pp. 337-374.
- Horino, F.G. and Ellickson, M.L. (1970) *A method for estimating strength of rock containing planes of weakness*. Report of Investigations 7449, United States Department of the Interior, Bureau of Mines.
- Hornaday, W.D. (1899) Municipal ownership at Austin, Texas. *Electrical World and Engineer*, XXIV (16), pp. 575-576.
- Hoshino, K., Koide, H., Inami, K., Iwamura, S. and Mitsui, S. (1972) *Mechanical properties of Japanese tertiary sedimentary rocks under high confining pressures*. Geological Survey Report 244, Japanese Geological Survey.
- Hoskins, E.R. (1969) The failure of thick-walled hollow cylinders of isotropic rock. *International Journal of Rock Mechanics and Mining Sciences*, 6 (1), pp. 99-125.
- Hossaini, S.M.F. (1993) *Some Aspects of the Strength Characteristics of Intact & Jointed Rocks*. PhD, UNSW.
- Hossaini, S.M.F. and Vutukuri, V.S. (1993) On the accuracy of multifailure triaxial test for the determination of peak and residual strength of rocks. *Australian Conference on Geotechnical Instrumentation and Monitoring in Open Pit and Underground Mining*, (Szwedzicki ed.) Kalgoorlie, pp. 223-228.

- Hudson, J.A. and Harrison, J.P. (1997) *Engineering Rock Mechanics: An Introduction to the Principles*, Pergamon.
- Hunter, J.K. (1964) Failure of the Panshet and Khadakwasla dams, Bombay. *Water Power*, 16 (Jun), pp. 251-252.
- Ibanez, W.D. and Kronenberg, A.K. (1993) Experimental deformation of shale: mechanical properties and microstructural indicators of mechanisms. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 30 (7), pp. 723-734.
- ICOLD (1969) *Progress Report on ICOLD Committee on Failures and Accidents to Large Dams other than in Connection with the Foundations*. ICOLD.
- ICOLD (1973) *World Register of Dams*. International Commission on Large Dams, Paris.
- ICOLD (1974) *Lessons From Dam Incidents*. International Commission on Large Dams, Paris.
- ICOLD (1976) *World Register of Dams 1st Updating*. International Commission on Large Dams, Paris.
- ICOLD (1978) *Technical Dictionary on Dams*. International Commission on Large Dams, Paris.
- ICOLD (1979) *World Register of Dams 2nd Updating*. International Commission on Large Dams, Paris.
- ICOLD (1983) *Deterioration of Dams and Reservoirs*. International Commission on Large Dams, Paris.
- ICOLD (1984) *World Register of Dams 3rd Updating*. International Commission on Large Dams, Paris.
- ICOLD (1988) *World Register of Dams 4th Updating*. International Commission on Large Dams, Paris.
- ICOLD (1995) *Bulletin 99 - Dam Failures Statistical Analysis*. International Commission on Large Dams, Paris.
- INCOLD (1967) Dam construction in India from 1963-1966. *Neuvieme Congres des Grands Barrages*, Istamboul, ICOLD. Vol. 4 pp. 931-962.
- Indraratna, B. (1994) Implications of non-linear strength criteria in the stability assessment of rockfill dams. *Proceedings of the Thirteenth International Conference on Soil Mechanics and Foundation Engineering*, New Delhi, Balkema. Vol. 3 pp. 935-938.
- Indraratna, B., Haque, A. and Aziz, N. (1998a) Comparison of shear behaviour under direct shear and constant normal stiffness control. *Geomechanics/Ground Control in Mining and Underground Construction*, (Aziz & Indraratna ed.) Wollongong, Australia, Vol. 1 pp. 85-98.
- Indraratna, B., Ionescu, D. and Christie, H.D. (1998b) Shear behaviour of railway ballast based on large-scale triaxial tests. *Journal of Geotechnical and Geoenvironmental Engineering*, 124 (5), pp. 439-449.

- Indraratna, B., Wijewardena, L.S.S. and Balasubramaniam, A.S. (1993) Large-scale triaxial testing of greywacke rockfill. *Geotechnique*, 43 (1), pp. 37-51.
- Ingles, O.G. (1984) A short study of dam failures in Australia, 1857-1983. *Civil Engineering Systems*, 1 (June), pp. 190-194.
- Inglis, C. (1962) The Poona flood disaster of 12 July, 1961. *Proceedings of the Institution of Civil Engineers, London*, 22(May), pp. N10-N11.
- Institute of Civil Engineering (1897?) Failure of the Bouzey dam. *Proceedures of the Institution of Civil Engineers* pp. 461-467.
- Ismail, I.A.H. and Murrell, S.A.F. (1990) The effect of confining pressure on stress-drop in compressive rock fracture. *Tectonophysics*, 175 (1-3), pp. 237-248.
- I.S.R.M. (1981) Commission on classification of rocks and rock masses. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 18 pp. 85-110.
- ITCOLD (1967) General Paper No 6. *Neuvieme Congres des Grands Barrages*, Istamboul, ICOLD. Vol. 4 pp. 687-734.
- Jaeger, J.C. (1969) Behaviour of closely jointed rock. *Proceedings of the 11th U.S. Symposium on Rock Mechanics*, Berkeley, California, pp. 57-68.
- Jaeger, J.C. and Cook, N.G.W. (1997) *Fundamentals of Rock Mechanics*, Chapman & Hall.
- Jamison, J.R. and Teufel, L.W. (1979) Pore volume changes associated with failure and frictional sliding of a porous sandstone. *Concrete Shaft Lining Design, 20th U.S. Symposium on Rock Mechanics*, Austin, Texas, pp. 163-170.
- Jang, M.-H. and Yang, H.-S. (1996) Thermomechanical failure criteria of some granites for nuclear waste repository. *Proceedings of the Korea-Japan Joint Symposium on Rock Engineering*, (Li & Moon ed.) Seoul, Korea, The Korean Institute of Mineral & Energy Resources Engineers. pp. 95-99.
- Jansen, R.B. (1980) *Dams and Public Safety*. U.S. Government Printing Office, Denver.
- Jansen, R.B. (1988) *Advanced Dam Engineering for Design, Construction and Rehabilitation*. Van Nostrand Reinhold,, New York.
- Jeremic, M.L. (1994) Elasto-plastic deformation and failure. In *Rock Mechanics in Salt Mining*, Balkema, Rotterdam, pp. 167-197.
- John, K.W. (1962) An approach to rock mechanics, *Journal of the Soil Mechanics and Foundations Division, ASCE*, 88(SM4), Proc. Paper 3223, pp. 1-30.
- John, K.W. (1969) Engineering methods to determine strength and deformability of regularly jointed rock, *Preprint, 11th Symposium on Rock Mechanics*, Berkeley, California.
- Johnson, B., Friedman, M., Hopkins, T.N. and Bauer, S.J. (1987) Strength and microfracturing of Westerly granite extended wet and dry temperatures to 800degC and pressures to 200 MPa. *28th US Symposium on Rock Mechanics*, Tucson, pp. 399-412.

- Johnston, I.W. (1985a) Comparison of two strength criteria for intact rock. *A.S.C.E., Journal of the Geotechnical Engineering Division*, 111 (12), pp. 1449-1454.
- Johnston, I.W. (1985b) Strength of intact geomechanical materials. *A.S.C.E., Journal of the Geotechnical Engineering Division*, 111 (6), pp. 730-749.
- Johnston, I.W. (1988) Geotechnics of weak and jointed rock - General report. *Fifth Australia-New Zealand Conference on Geomechanics*, Sydney, pp. 236-242.
- Johnston, I.W. (1989) Discussion leaders report: Material properties of soft rocks. *Proceedings of the Twelfth International Conference on Soil Mechanics and Foundation Engineering*, Rio de Janeiro, Balkema. Vol. 5 pp. 2831-2848.
- Johnston, I.W. (1991) Geomechanics and the emergence of soft rock technology, *Australian Geomechanics*, Dec.
- Johnston, I.W. (1995) Rational determination of the engineering properties of soft rocks. *Procedures of the Institution of Civil Engineers; Geotechnical Engineering*, 113 (Apr), pp. 86-92.
- Johnston, I.W. and Chiu, H.K. (1984) Strength of intact weathered Melbourne sandstone. *Journal of Geotechnical Engineering*, 110 (7), pp. 875-898.
- Johnston, I.W. and Novello, E.A. (1985) Cracking and critical state concepts for soft rocks. *Proceedings of the Eleventh International Conference on Soil Mechanics and Foundation Engineering*, San Francisco, Balkema. Vol. 2 pp. 515-518.
- Johnston, I.W., Williams, A.F. and Chiu, H.K. (1980) Properties of soft rock relevant to socketed pile design. *International Conference on Structural Foundations on Rock*, Sydney, pp. 55-64.
- Jorda, L., Seron, J.B. and Romana, M. (1999) Application of the geomechanical classification SMR to slopes in limestones and marls. *9th ISRM International Congress on Rock Mechanics*, Paris, Balkema. Vol. 1 pp. 111-114.
- Jorgensen, L. (1920) Record of 100 dam failures. *Journal of Electricity (San Francisco)* (Apr.), pp. 320-321.
- Jorgensen, L.R. (1928) Letters to the Editor: The structural safety factor in the St. Francis Dam. *Engineering News Record*, 100 (25), pp. 982-983.
- Kaloustian, E.S. (1984) Statistical analysis of distribution of concrete dam rock foundations failures. *International Conference on Safety of Dams*, (Serafim ed.) Coimbra, A.A. Balkema. pp. 311-319.
- Kany, M. and Becker, H. (1967) Determination of the strength of a coarse-grained rock fill by means of a large-scale test. *Proceedings of the Geotechnical Conference Oslo 1967*, Oslo, NGI. Vol. 1 pp. 209-214.

- Kate, J.M. and Gokhale, C.S. (1998) Influence of moisture on triaxial compression behaviour of soft sandstone. *The Geotechnics of Hard Soils - Soft Rocks*, (Evangalista & Picarelli ed.) pp. 245-251.
- Kimura, T., Esaki, T., Kameda, N. and Nishida, T. (1987) Experimental and theoretical studies on strain softening behaviour of rocks. *28th U.S. Symposium on Rock Mechanics*, Tucson, pp. 197-202.
- King, J.R. and Huber, B. (1993) The history of Austin Dam. *In 10th ASDSO Annual Conference*, Kansas City, Missouri, pp. 217-223.
- Knoll, P. (1979) On the fracture mechanism of pillars under dynamic loading (in German). *Rock Mechanics*, Suppl. 8 pp. 209-226.
- Kotze, G.P. and Pells, P.J.N. (1980) Report on Stability of the Escarpment above Nattai North Colliery, NSW, McMahon Burgess & Yeates.
- Kovari, K. and Tisa, A. (1975) Multiple failure state and strain controlled triaxial tests. *Rock Mechanics*, 7 pp. 17-33.
- Kovari, K., Tisa, A. and Attinger, R.O. (1983) The concept of "continuous failure state" triaxial tests. *Rock Mechanics and Rock Engineering*, 16 pp. 117-131.
- Kulkarni, D.N. and Kulkarni, M.K. (1994) Safety improvement of some large dams in Maharashtra, India. *Eighteenth Congress on Large Dams*, Durban, ICOLD. Vol. Q68 pp. 143-155.
- Kung, W.H.R. (2001) *Estimation of the in-situ deformation modulus using rock mass classification systems*, BE(Hon) Thesis, unpublished, The University of New South Wales.
- Kwasniewski, M. (1983) Deformational and strength properties of the three structural varieties of carboniferous sandstones. *5th International Congress on Rock Mechanics*, ISRM, Balkema. Vol. 1 pp. A105-A115.
- Kwasniewski, M. (1987) A new linear criterion of brittle failure for rocks. *Proceedings of the 6th Congress International Society for Rock Mechanics*, Montreal, Canada, Vol. 2 pp. 1031-1038.
- Kwasniewski, M. (1990) Effect of moisture on the mode of deformation and failure of coal measure mudstone under triaxial compression. *Proceedings of the 11th Plenary Scientific Session of the International Bureau of Strata Mechanics/World Mining Congress*, Novosibirsk, Balkema. pp. 169-186.
- Kwasniewski, M. and Mogi, K. (1990) Effect of the intermediate principal stress on the failure of a foliated anisotropic rock. *Mechanics of Jointed and Faulted Rock*, (Rossmann ed.) Technical University of Vienna, Balkema, Rotterdam. pp. 407-416.
- Lade, P.V. (1993) Rock strength criteria: the theories and the evidence. *In Comprehensive Rock Engineering* (E. T. Brown ed.), Pergamon, Oxford, New York, pp. 255-284.

- Lane, K.S. (1961) Field slope charts for stability studies. *5th International Conference on Soil Mechanics & Foundation Engineering*, Paris, ISSMFE. Vol. 2 pp. 651-655.
- Laubscher, D.H. (1977) Geomechanics classification of jointed rock masses - mining applications. *Transactions of the Institution of Mining and Metallurgy, Section A, Mining Industry*, 86 (Jan), pp. A1-A8.
- Laubscher, D.H. (1990) A geomechanics classification system for the rating of rock mass in mine design. *Journal of the South African Institute of Mining and Metallurgy*, 90 (10), pp. 257-273.
- Lajtai, E.Z. (2001) Personal Communication from the University of Manitoba, 5th February.
- Leger, P., Tinawi, R., Bhattacharjee, S.S. and Leclerc, M. (1997) Failure mechanisms of gravity dams subjected to hydrostatic overload: Influence of weak lift joints. *Dix-neuvième Congrès des Grands Barrages*, Florence, ICOLD. Vol. Q75 pp. 11-37.
- Lempérière, F. (1993) Dams that have failed by flooding: an analysis of 70 failures. *Water Power & Dam Construction* (Sep./Oct.), pp. 19-24.
- Lempérière, F., Fry, J.J., Reverchon, B. and Royet, P. (1997) Analysis of failures of dams less than 30m high practical lessons. *Dix-neuvième Congrès des Grands Barrages*, Florence, ICOLD. Vol. Q75 pp. 673-710.
- Leps, T.M. (1970) Review of shearing strength of rockfill. *A.S.C.E., Journal of the Soil Mechanics and Foundations Division*, 96 (SM4), pp. 1159-1170.
- Lewis, M. (1988) *Two Hundred Years of Concrete in Australia*. Concrete Institute of Australia, pp. 137.
- Li, H.B., Zhao, J. and Li, T.J. (1999) Triaxial compression tests on a granite at different strain rates and confining pressures. *International Journal of Rock Mechanics and Mining Sciences*, 36 (8), pp. 1057-1063.
- Li, T. (1985) The strength of intact rocks and rock masses. *Earth Science - Journal of Wuhan College of Geology*, 10 (1), pp. 179-189.
- Liao, Q.H. and Hencher, S.R. (1997) "The effect of discontinuity orientation and spacing on failure mechanisms in rock slopes results from systematic numerical modelling". CIM Vancouver 97, Vancouver, Canadian Institute of Mining.
- Lin, Y. (1998) An introduction of the Chinese Standard for engineering classification of rock mass (GB50218-94). In *Advances in Rock Mechanics* (Lin ed.), World Scientific Publishing Co., Singapore, pp. 317-327.
- Littlechild B.D., Hill S.J., Statham I., Plumbridge G.D. and Lee S.C. (2000) Determination of Rock Mass Modulus for Foundation Design, *Geotechnical Specially Conference 'Innovations and Applications in Geotechnical Site Characterization'*, pp. 213 – 228.
- LNEC (1992) *Large Dams in Portugal*. [Online] National Laboratory for Civil Engineering. Available: <http://www.lnec.pt/bin/barragens/bin/aceder.pl>. Accessed on: 19 Dec. 1996.

- Londe, P. (1977) Panel Discussion in: Session 2 - Description and classification of the types of complexities and relative geotechnical models. In *The Geotechnics of Structurally Complex Formations*, Capri, Associazione Geotecnica Italiana. Vol. 2 pp. 205-211.
- Lubarda, V.A., Mastilovic, S. and Knap, J. (1996) Brittle-ductile transition in porous rocks by cap model. *Journal of Engineering Mechanics*, 122 (7), pp. 633-642.
- Lutton, R.J. (1970) Rock slope chart from empirical data. *Transaction of the Society of Mining Engineers, AIME*, 247 pp. 160-162.
- MacDonald, A., Kerr, J.W. and Coats, D.J. (1994) Remedial works to Upper Glendevon Dam. *Dix-huitième Congrès des Grands Barrages*, Durban, ICOLD. Vol. Q68 pp. 1193-1207.
- MacGregor, P. (1980) *Report on the Nature of the Defects in the Narrabeen Group Rocks in the Southern Coalfields Water Catchment Area*. Coffey Partners International Pty Ltd.
- Maksimovic, M. (1989) Nonlinear failure envelope for coarse-grained soils. *Proceedings of the Twelfth International Conference on Soil Mechanics and Foundation Engineering*, Rio de Janeiro, Balkema. Vol. 1 pp. 731-734.
- Marachi, N.D., ASCE, A.M., Chan, C.K. and Seed, H.B. (1972) Evaluation of properties of rockfill materials. *Soil Mechanics and Foundation Divisions* pp. 95-115.
- Marachi, N.D., Chan, C.K., Seed, H.B. and Duncan, J.M. (1969) *Strength and Deformation Characteristics of Rockfill Materials*. TE-69-5, Department of Civil Engineering, University of California.
- Marinos, P. and Hoek, E. (2001) Estimating the geotechnical properties of heterogeneous rock masses such as flysch, *Bulletin of Engineering Geology and the Environment*, 60, pp. 85-92.
- Marsal, R.J. (1967) Large scale testing of rockfill materials. *Journal of the Soil Mechanics and Foundations Division Proceedings of the American Society of Civil Engineers*, 93 (SM2), pp. 27-43.
- Marsal, R.J. (1971) Discussion of: Leps (1970) Review of shearing strength of rockfill. *Journal of the Soil Mechanics and Foundations Division Proceedings of the American Society of Civil Engineers*, 97 (SM3), pp. 590-592.
- Marsal, R.J. (1973) Mechanical properties of rockfill. In *Embankment Dam Engineering J*. Willey & Sons, N.Y., pp. 109-201.
- Marsal, R.J. (1976) Mechanical properties of rockfill soil mixtures. *Douzième Congrès des Grands Barrages*, Mexico, pp. 179-209.
- Mary, M. (1968) Arch Dams - Historic Accidents and Occurrences. In *Construction and Surveillance of Dams Dunod*, Paris, pp. 159.
- Matsumoto, N., Yasuda, N., Ohkubo, M. and Yoshioka, R. (1991) Monotonic and cyclic loading tests of rockfill materials. Wind and Seismic Effects; *Proceedings of the 23rd Joint*

- Meeting of the US-Japan Cooperative Program in Natural Resources Panel on Wind and Seismic Effects*. NIST Special Publication No. 820. pp. 149-158.
- McDonald, P. and Williams, A. (1993) Large Piles in Weak Rock – West Gate Freeway Project, *Comprehensive Rock Engineering Principles Practice & Projects*, Vol 5, pp. 728 – 758.
- McDonough, C. (1940) Historic Austin Dam rebuilt. *Engineering News Record* (Jun 20), pp. 52-55.
- McLamore, R. and Gray, K.E. (1967) The mechanical behaviour of anisotropic sedimentary rocks. *Transactions of the American Society of Mechanical Engineers, Series B, Journal of Engineering for Industry*, 89 (1), pp. 62-76.
- McMahon, B.K. (1976) *Estimation of Upper Bounds to Rock Slopes by Analysis of Existing Slope Data*. CANMET Report 76-14, Canada Centre for Mineral and Energy Technology.
- McMahon, Burgess and Yeates (1981). *Chichester Dam, Remedial Works, Report on Investigation Into Zone 5*.
- McMahon, B.K., Douglas, D.J. and Burgess, P.J. (1980) *Chichester Dam Remedial Works (1). Report on geology*, Volume 1, McMahon Burgess & Yeates, Consulting Engineers & Geologists.
- McWilliam, T. (2001) *Stability Assessment of Rockfill Dams*, Unpublished, BE(Hon) Thesis, The University of New South Wales.
- Medhurst, T.P. (1996) *Estimation of the in situ strength and deformability of coal for engineering design*. PhD thesis, University of Queensland.
- Medhurst, T.P. and Brown, E.T. (1996) Large scale laboratory testing of coal. *Seventh Australia-New Zealand Conference on Geomechanics*, Adelaide, pp. 203-208.
- Medhurst, T.P. and Brown, E.T. (1998) A study of the mechanical behaviour of coal for pillar design. *International Journal of Rock Mechanics and Mining Sciences*, 35 (8), pp. 1087-1105.
- Michelis, P. (1987) True triaxial yielding and hardening of rock. *ASCE Journal of Geotechnical Engineering*, 113 (6), pp. 616-635.
- Millar, P.J. and Murray, D.R. (1986) Triaxial testing of weak rocks including the use of triaxial extension tests. *Advanced Triaxial Testing of Soil and Rock*, ASTM STP 977, Louisville, Kentucky, American Society for Testing and Materials. pp. 376-386.
- Milovanovitch, D. (1958) Recherches sur le Barrage Expérimental de L'Idbar au Moyen D'Analyse Élastostatique, D'Essais sur Modèles Réduits et D'Auscultation du Barrage. In *Sixième Congrès des Grands Barrages*, New York, ICOLD. Vol. C34 pp. 571-587.
- Misra, B. (1972) *Correlation of Rock Properties with Machine Performance*. PhD, University of Leeds.

- Mogi, K. (1965) Deformation and fracture of rocks under confining pressure, 2: Elasticity and plasticity of some rocks. *Bulletin of the Earthquake Research Institute*, Tokyo University, 43 pp. 349-379.
- Mogi, K. (1966) Pressure dependence of rock strength and transition from brittle fracture to ductile flow. *Bulletin of the Earthquake Research Institute*, University of Tokyo, 44 (1), pp. 215-232.
- Mogi, K. (1973) Rock fracture. *Annual Review of Earth and Planetary Sciences*, 1, pp. 63-85.
- Moomivand, H. and Vutukuri, V.S. (1996) Effect of diameter-to-length ratio on the strength of cylindrical specimens in triaxial tests. *7th Australia New Zealand Conference on Geomechanics*, Adelaide, South Australia, pp. 134-139.
- Moon, B.P. and Selby, M.J. (1983) Rock mass strength and scarp forms in Southern Africa. *Geografiska annaler, Series A*, 65A (1-2), pp. 135-145.
- Moon, V., Russell, G. and Stewart, M. (2001) The value of rock mass classification systems for weak rock masses: a case study example from Huntly, New Zealand. *Engineering Geology*, 61 pp. 53-67.
- Moroto, N. and Ishii, T. (1990) Shear strength of uni-sized gravels under triaxial compression. *Soils and Foundations*, 30 (2), pp. 23-32.
- Mostyn, G.R. (1988) General report - stability of slopes. *Fifth Australia-New Zealand Conference on Geomechanics*, Sydney, pp. 435-445.
- Mostyn, G. (1993) Discussion of: Indraratna et al (1993) Large-scale triaxial testing of greywacke rockfill. *Geotechnique*, 44 (3), pp. 539-543.
- Mostyn, G. & Douglas, K.J. (2000) Issues Lecture: The shear strength of intact rock and rock masses. *GeoEng2000: An International Conference on Geotechnical & Geological Engineering*, 19-24 November, Melbourne, Australia, Vol. 1, pp. 1389-1421, Technomic Publishing, Pennsylvania, ISBN 1-58716-067-6.
- Mostyn, G. and Ferguson, A.J. (1984) Analysis of strength test results - Pynang formation rocks - Papua New Guinea. *Fourth Australia-New Zealand Conference on Geomechanics*, Perth, pp. 112-117.
- Mostyn, G., M.D. Helgstedt and K.J. Douglas (1997) "Towards field bounds on rock mass failure criteria". *International Journal of Rock Mechanics and Mining Sciences* Vol. 34 (3-4): Paper No. 208.
- Murrell, S.A.F. (1965) The effect of triaxial stress systems on the strength of rocks at atmospheric temperatures. *Journal of Geophysics*, Astronomy Society, 10 pp. 231-281.
- Murthy, Y.K., Mane, P.M. and Pant, B. (1979) Tensile failures in some stone masonry gravity dams in India. *Treizieme Congres des Grands Barrages*, New Delhi, pp. 461-477.
- Murthy, Y.K., Sreerami Reddi, M. and Rama Rao, M.S. (1976) Leakage investigations at the Bhandardara dam. *Water Power & Dam Construction*, (Sep.), pp. 43-46.

- Murti, N.G.K. (1967) Khadakwasla, the oldest masonry dam in India. In *Ninth Congress on Large Dams*, Istanbul, ICOLD. Vol. Q34 pp. 895-915.
- Nakayama, K., Itoga, F. and Inque, Y. (1982) Selection and quality control of materials for rockfill dam of pumped storage project in phyllocrystalline schistose area. *Fourteenth Congress on Large Dams, Rio de Janeiro*, ICOLD. Vol. Q55 pp. 23-45.
- Nasser, M.H., Rao, K.S. and Ramamurthy, T. (1997) Failure mechanism in schistose rocks. *International Journal of Rock Mechanics and Mining Sciences*, 34 (3-4), pp. 219.
- Naylor, D.J., Maranha Das Neves, E., Mattar JR, D. and Pinto, A.A.V. (1986) Prediction of construction performance of Beliche Dam. *Geotechnique*, 36 pp. 359-376.
- Neves, J.B. (1970) Control, mechanical characteristics and observation of Mira Dam. *Tenth Congress on Large Dams*, Montreal, ICOLD. Vol. Q36 pp. 321-333.
- Niandou, H., Shao, J.F., Henry, J.P. and Fourmaintraux, D. (1997) Laboratory investigation of the mechanical behaviour of Tornemire shale. *International Journal of Rock Mechanics and Mining Sciences*, 34 (1), pp. 3-16.
- Nicholson, P.G. and Seed, R.B. (1992) Laboratory correction method for undrained testing of coarse gravelly soils. *Proceedings of the 45th Canadian Geotechnical Conference*, Toronto, Ontario, Canada, pp. 3/1 to 3/10.
- Nishio, S. and Tamaoki, K. (1990) Stress dependency of shear wave velocities in diluvial gravel samples during triaxial compression tests. *Soils and Foundations*, 30 (4), pp. 42-52.
- Novello, E. and Johnston, I.W. (1995) Geotechnical materials and the critical state. *Geotechnique*, 45 (2), pp. 223-235.
- Ofoegbu, G.I. and Curran, J.H. (1991) Yielding and Damage of Intact Rock. *Canadian Geotechnical Journal*, 28 pp. 503-516.
- Ohnaka, M. (1995) A shear failure strength law of rock in the brittle-plastic transition regime. *Geophysical Research Letters*, 22 (1), pp. 25-28.
- Ohnaka, M., Akatsu, M., Mochizuki, H., Odedra, A., Tagashira, F. and Yamamoto, Y. (1997) A constitutive law for the shear failure of rock under lithospheric conditions. *Tectonophysics*, 277 (1), pp. 1-27.
- Okubo, S., Fukui, K. and Nishimatsu, Y. (1996) A recent development of servo-controlled testing method in rock mechanics. *Proceedings of the Korea-Japan Joint Symposium on Rock Engineering*, (Li & Moon ed.) Seoul, Korea, The Korean Institute of Mineral & Energy Resources Engineers. pp. 67-72.
- Olwage, H.J.W. and Oosthuizen, C. (1984) Lessons learnt from South African dam incidents. In *Safety of Dams*, Coimbra, A.A.Balkema, Rotterdam, pp. 33-39.
- Orr, C.M. (1992) Assessment of rock slope stability using the rock mass rating (RMR) system. *The AusIMM Proceedings*, 297 (2), pp. 25-29.

- Orr, C.M. (1996) Use of the Rock Mass Rating (RMR) system in assessing the stability of rock slopes. In *Milestones in Rock Engineering the Bieniawski Jubilee Collection*, A.A.Balkema, Rotterdam, pp. 159-171.
- Outland, C.F. (1963) *Man-Made Disaster the story of St. Francis Dam*. The Arthur H. Clark Co., California.
- Ouyang, Z. and Elsworth, D. (1991) A phenomenological failure criterion for brittle rock. *Rock Mechanics and Rock Engineering*, 24 (3), pp. 133-153.
- Ozbay, M.U., Dede, T. and Napier, J.A.L. (1996) Physical and numerical modelling of rock fracture. *The Journal of The South African Institute of Mining and Metallurgy*, 96 (7), pp. 317-323.
- Parkin, A.K. and Adikari, G.S.N. (1980) A theoretical investigation of the constructed behaviour of a rockfill dam. *3rd Australia New Zealand Conference on Geomechanics*, Wellington, pp. 1-7 to 1-12.
- Parkin, A.K. and Adikari, G.S.N. (1981) Rockfill deformation from large-scale tests. *Proceedings of the Tenth International Conference on Soil Mechanics and Foundation Engineering*, Stockholm, Balkema. Vol. 1 pp. 727-731.
- Paolina, R., Appendino, M., Baldovin, E., Berra, M., Bianchini, A., Carabelli, E., Posta, U. and Vielmo, I. (1991) Deterioration problems for concrete and masonry dams in Italy. *Dix-septieme Congres des Grands Barrages*, Vienne, ICOLD. Vol. Q65 pp. 785-815.
- Parker, R.D. (1900) Concerning the Austin Dam. *The Engineering Record*, 41 (26), pp. 610-611.
- Parry, R.H.G. (1995) *Mohr circles, stress paths, and geotechnics*, London, New York, Spon.
- Patterson, H.B. (1900) The Austin Dam - Report to the Austin Water and Light Commission. *The Engineering Record* (Jul. 28), pp. 79.
- Patton, F.D. (1966) *Multiple Modes of Shear Failure in Rock and Related Materials*. PhD, University of Illinois.
- Pavlakakis M. (1980) Pressuremeter Testing of Weathered Karroo Siltstone, *Seventh Regional Conference for Africa on Soil Mechanics and Foundation Engineering*, South Africa.
- Pells, P.J.N. (1975) Predicted displacements of the rock foundations of a major arch bridge. *Proceedings of the 6th Conference for Africa on Soil Mechanics*, Durban, SAICE. pp. 207-212.
- Pells, P.J.N., Braybrooke, J.C., Mong, J. and Kotze, G.P. (1987). Cliff collapse associated with mining activities. *Proceedings of an Extension Course on Slope Instability and Stabilisation*, Sydney, Balkema. 359-385.
- Pender, M.J. (1980) Friction and cohesion parameters for highly and completely weathered Wellington greywacke. *3rd Australia New Zealand Conference on Geomechanics*, Wellington, pp. 1-171 to 1-175.

- Penman, A.D.M., Charles, J.A. and Humphreys, J.D. (1982) Sandstone rockfill in two dams. *Fourteenth Congress on Large Dams, Rio de Janeiro*, ICOLD. Vol. Q55 pp. 279-291.
- Pierce, M., Brandshaug, T., and Ward, M. (2001) Slope stability assessment at the Main Cresson Mine, *Slope stability in surface mining*, (Hustrulid et al eds), Littleton, Society for Mining, Metallurgy and Exploration, Inc., pp. 239-250.
- Priest, S.D. (1993). *Discontinuity analysis for rock engineering*, Chapman & Hall.
- Queiroz, L. (1964) Geotechnical properties of weathered rock and behaviour of Furnas Rockfill Dam. *Huitième Congrès International des Grands Barrages*, Q28 pp. 877-890.
- Ramamurthy, T. (1985) Stability of rock mass. *Indian Geotechnical Journal*, pp. 1-74.
- Ramamurthy, T. and Arora, V.K. (1994) "Strength predictions for jointed rocks in confined and unconfined states". *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, Vol. 31 (1), pp. 9-22.
- Ramamurthy, T. and Gokhale, V.L. (1982) Stress-strain response of some intact sedimentary rocks. *Proceedings 4th International Congress IAEG, India*, IAEG. Vol. 2 pp. 103-114.
- Ramamurthy, T. and Gupta, K.K. (1980) Prediction of the behaviour of rockfill materials. *Third Australia-New Zealand Conference on Geomechanics*, pp. 1-13 to 1-18.
- Ramamurthy, T. and Kumar, N. (1978) Strength of rock-like materials. *Proceedings of GEOCON India Conference on Geotechnical Engineering*, New Delhi, Vol. 1 pp. 340-346.
- Ramamurthy, T., Seshagiri Rao, K. and Gupta, K.K. (1988a) Prediction of strength of intact rocks. *Evaluation and Applications in Geotechnical Engineering, Indian Geotechnical Conference*, Allahabad, Vol. 1 pp. 149-153.
- Ramamurthy, T., Venkatappa Rao, G. and Sheshagiri Rao, K. (1988b) A non-linear strength criterion for rocks. *Fifth Australia-New Zealand Conference on Geomechanics*, Sydney, pp. 247-252.
- Ramez, M.R.H. (1967) Fractures and strength of a sandstone under triaxial compression. *International Journal of Rock Mechanics and Mining Sciences*, 4 (3), pp. 257-268.
- Ransome, F.L. (1928) Geology of the St. Francis Dam-site. *Economic Geology*, 23 (5), pp. 553-563.
- Rao, K.L. (1960) Failures in weirs and dams. *Bhagirath*, VII (1), pp. 11-17.
- Rao, K.S., Venkatappa Rao, G. and Ramamurthy, T. (1988) Strength and deformation behaviour of sandstones. *Journal of the Institution of Engineers (India)*, 68 (CI4), pp. 181-186.
- Rao, N.S.G. (1967) Failure of the Khadakwasla and Panshet Dams. *Journal of the Institution of Engineers (India)*, 47 (11), pp. 1123-1144.
- Read, S.A.L., Dellow, G.D. and Barrel, D.J.A. (1995). *Waitaki Power Station. Review of geological and foundation data*. Unpublished client report 353911.01., Institute of Geological & Nuclear Science Ltd.

- Read, S.A.L., Dellow, G.D. and Perrin, N.D. (1996). *Aviemore Power Station. Review of geological and foundation data*. Unpublished client report 35504B.10, Institute of Geological & Nuclear Science Ltd.
- Reineking, V.H. (1914) Reconstruction of the Elwha River dam. *Engineering Record*, 69 (13), pp. 372-375.
- Renner, J. and Rummel, F. (1996) The effect of experimental and microstructural parameters on the transition from brittle failure to cataclastic flow of carbonate rocks. *Tectonophysics*, 258 pp. 151-169.
- Ribacchi R. (1984) Rock Mass Deformability: In-situ Tests, their interpretation and Typical Results in Italy, 2nd *International Symposium on Field Measurements in Geomechanics*, (Sakurai ed.), pp171-192.
- Ribacchi, R. (2000) Mechanical tests on pervasively jointed rock material: Insight into rock mass behaviour. *Rock Mechanics and Rock Engineering*, 33 (4), pp. 243-266.
- Rich, M. (1995) *A Study of the Failure of Concrete Gravity Dams Through Their Foundations*. Unpublished BE Thesis, The University of New South Wales.
- Richmond and Smith (1979) *Prediction of Mining Conditions from Bore Core Information*. PR 79-14. Australia. Coal Ind. Research Laboratories Ltd.
- Robertson, E.C. (1955) Experimental study of the strength of rocks. *Bulletin of the Geological Society of America*, 68 pp. 1275-1314.
- Robertson, A.M. (1988) Estimating weak rock strength. *SME Annual Meeting*, Phoenix, Arizona, Society of Mining Engineers, Preprint No. 88-145. pp. 1-5.
- Robertson, A.M., Olsen, R.S. and Pierce, G.L. (1987) Assessment of weak altered rock masses at the Island Copper Mine. *SME Annual Meeting*, Denver, Colorado, Society of Mining Engineers.
- Romana, M. (1985) New adjustment ratings for application of Bieniawski classification to slopes. *International Symposium on the Role of Rock Mechanics*, Zacatecas, ISRM. pp. 49-53.
- Romana, M. (1991) SMR classification. *7th International Congress on Rock Mechanics*, (Herausgeber ed.) Aachen, ISRM. Vol. 2 pp. 955-960.
- Romana, M. (1996) The SMR geomechanical classification for slopes: a critical ten-years review. *Proceedings of the Eighth International Conference and Field Trip on Landslides*, Granada, Spain, A.A.Balkema. pp. 255-267.
- Romana, M. (1997) The geomechanical classification SMR for slope correction. *Proceedings of the International Conference and Seminar on Tunnelling Under Difficult Conditions and Rock Mass Classification*, Basel, Switzerland, Independent Technical Conferences Ltd. pp. 1-16.

- Rosenberg, W. (1900) The failure of the Austin Dam. *The Engineering Record*, 41 (20), pp. 468-469.
- Rouve, G., Strack, B., Idel, K., Beckman, J., Hager, M., Boucek, B., Sowers, G. and Gilg, B. (1977) Lectures of the seminar failures of large dams - Reasons and remedial measures. In *Institute for Foundation Engineering, Soil Mechanics, Rock Mechanics and water Ways Construction*, Aachen, Vol. 4 pp. 1-242.
- Rummel, F. and Fairhurst, C. (1970) Determination of the post-failure behaviour of brittle rock using a servo-controlled testing machine. *Rock Mechanics*, 2 pp. 189-204.
- Rutter, E.H. (1991) On the influence of porosity on the low-temperature brittle-ductile transition in siliclastic rocks. *Journal of Structural Geology*, 13 (5), pp. 609-614.
- Santiago J.L. and Garcia F.A. (1986) Design Parameters for Grouted Piles in Rock from In-situ Load Test, USA, *Use of In-situ Tests in Geotechnical Engineering, Proceedings of In-situ '86*, pp. 968-984.
- Sarac, Dz. and Popovic, M. (1985) Shear strength of rockfill and slope stability, *Proceedings of the Eleventh International Conference on Soil Mechanics and Foundation Engineering*, San Francisco, pp. 641-645.
- Sawyer, W.H. (1911) The probable cause of the Austin Dam failure. *Engineering Record*, 64 (19), pp. 530-532.
- Scheibner, B.J. (1980) *Geology of the single-entry project at Sunnyside Coal Mines 1 and 2, Sunnyside, Utah*. Report of Investigations 8402, United States Department of the Interior, Bureau of Mines.
- Schmidt, K.M. and Montgomery, D.R. (1996) Rock mass strength assessment for bedrock landsliding. *Environmental & Engineering Geoscience*, II (3), pp. 325-338.
- Schnitter, N.J. (1994) *A History of Dams - The Useful Pyramids*. A.A.Balkema, Rotterdam, pp. 266.
- Schnitter, N.J. (1993) Dam failures due to overtopping. In *International Workshop on Dam Safety Evaluation*, (Kreuzer & Taylor ed.) Grindelwald, Switzerland, Dam Engineering. Vol. 1 pp. 13-19.
- Schober, W. and Rostek, R. (1979) The shear resistance in the interface of the fill material or the rock overburden and the bedrock. *Treizieme Congres des Grands Barrages*, New Delhi, Vol. Q48 pp. 989-1003.
- Schock, R.N., Heard, H.C. and Stephens, D.R. (1973) Stress-strain behaviour of a granodiorite and two greywackes on compression to 20 kilobars. *Journal of Geophysical Research*, 78 (26), pp. 5922-5941.
- Schultz, R.A. (1993) Brittle strength of basaltic rock masses with applications to Venus. *Journal of Geophysical Research - E - Planets*, 98 (E6), pp. 10883-10895.

- Schultz R.A. (1995) Limits on Strength and Deformation Properties of Jointed Basaltic Rock Masses, *Rock Mechanics and Rock Engineering*, pp. 1 – 15.
- Schuyler, J.D. (1906) The failure of the Santa Catalina Dam near Durango, Mexico. *Engineering News*, 57 (17).
- Schuyler, J.D. (1908). *Reservoirs for Irrigation, Water-Power and Domestic Water-Supply*. John Wiley & Sons, New York, pp.573.
- Schwab, H. and Pircher, W. (1979) Roughening of smooth and steeply sloping rock surfaces in the foundation of Finistertal rockfill dam. *Treizieme Congres des Grands Barrages*, New Delhi, Vol. Q48 pp. 387-403.
- Schwartz, A.E. (1964) Failure of rock in the triaxial shear test. *Proceedings of the Sixth Symposium on Rock Mechanics*, The University of Missouri at Rolla, pp. 109-151.
- Scott, G.A. and Von Thun, J.L. (1993) *Draft - Interim Guidelines Geotechnical Studies for Concrete Dams*. Bureau of Reclamation, Denver.
- Scott, T.E. and Nielsen, K.C. (1991a) The effects of porosity on fault reactivation in sandstones. *Journal of Geophysical Research*, 96 (B2), pp. 2353-2362.
- Scott, T.E. and Nielsen, K.C. (1991b) The effects of porosity on the brittle-ductile transition in sandstones. *Journal of Geophysical Research*, 96 (B1), pp. 405-414.
- Selby, M.J. (1980) A rock mass strength classification for geomorphic purposes: with tests from Antarctica and New Zealand. *Zeitschrift für Geomorphologie, N.F.*, 24 (1), pp. 31-51.
- Selby, M.J. (1982a) Controls on the stability and inclinations of hillslopes formed on hard rock. *Earth Surface Processes and Landforms*, 7 (5), pp. 449-467.
- Selby, M.J. (1982b) Rock mass strength and the form of some inselbergs in the central Namib Desert. *Earth Surface Processes and Landforms*, 7 (5), pp. 489-497.
- Selby, M.J. (1987) Rock slopes. In *Slope Stability, Geotechnical Engineering and Geomorphology*, John Wiley & Sons Ltd, Chichester, pp. 475-504.
- Selby, M.J. (1993) *Hillslope Materials and Processes*. Oxford University Press, Oxford, pp. 451.
- Serafim, J.L. (1981a) *Elements for a thorough statistical analysis of dam failures*. Revista da Universidade de Coimbra.
- Serafim, J.L. (1981b) Safety of dams judged from failures. *Water Power & Dam Construction*. (Dec.), pp. 32-35.
- Serafim, J.L. and Pereira, J.P. (1983) Considerations on the geomechanical classification of Bieniawski, *International Symposium on Engineering Geology and Underground Construction*, Portugal, IAEG, Vol. 1, pp. II33-II42.
- Seto, M., Nag, D.K., Vutukuri, V.S. and Katsuyama, K. (1997) Effect of chemical additives on the strength of sandstone. *International Journal of Rock Mechanics and Mining Sciences*, 34 (3-4), pp. 280.

- Seto, M., Vutukuri, V.S., Nag, D.K. and Katsuyama, K. (1996) Chemically induced change in strength of sandstone. *Proceedings of the Korea-Japan Joint Symposium on Rock Engineering*, (Li & Moon ed.) Seoul, Korea, The Korean Institute of Mineral & Energy Resources Engineers. pp. 151-156.
- Shah, S. (1992) *A Study of the Behaviour of Jointed Rock Masses*. PhD, University of Toronto.
- Shah, S. and Hoek, E. (1992) Simplex reflection analysis of laboratory strength data. *Canadian Geotechnical Journal*, 29 pp. 278-287.
- Shand, N. and Pells, P.J.N. (1970) Experience in the design and construction of reinforced rockfill dams. *Dixieme Congres des Grands Barrages*, Montreal,
- Sharma, V.M., Venkatachalam, K. and Roy, A. (1994) Strength and deformation characteristics of rockfill materials. *Proceedings of the Thirteenth International Conference on Soil Mechanics and Foundation Engineering*, New Delhi, Balkema. Vol. 3 pp. 959-962.
- Shea-Albin, V.R., Hansen, D.R. and Gerlick, R.E. (1991) *Elastic wave velocity and attenuation as used to define phases of loading and failure in coal*. Report of Investigations 9355, United States Department of the Interior, Bureau of Mines.
- Sheorey, P.R. (1997) *Empirical Rock Failure Criteria*. A.A.Balkema, pp. 200.
- Sheorey, P.R., Biswas, A.K. and Choubey, V.D. (1989) An empirical failure criterium for rocks and jointed rock masses. *Engineering Geology*, 26 (2), pp. 141-159.
- Sherman, C.W. (1910) Arched Masonry dam at Las Vegas, N.M. *Engineering News*, 64 (17; Oct. 27), pp. 446-447.
- Shimada, M. (1991) Comment on "The effects of pressure and porosity on the micromechanics of the brittle-ductile transition in quartzite". *Journal of Geophysical Research*, 96 (B7), pp. 11,877-11,879.
- Shimada, M. (1993) Lithosphere strength inferred from fracture strength of rocks at high confining pressures and temperatures. *Tectonophysics*, 217 pp. 55-64.
- Shimada, M. (2000) *Mechanical Behavior of Rocks under High Pressure Conditions*. Geomechanics Research Series 2 (Kwasniewski ed.), Balkema, Rotterdam, pp. 178.
- Shimada, M. and Cho, A. (1990) Two types of brittle fracture of silicate rocks under confining pressure and their implications in the earth's crust. *Tectonophysics*, 175 (1-3), pp. 221-235.
- Shimada, M., Cho, A. and Yukutake, H. (1983) Fracture strength of dry silicate rocks at high confining pressures and activity of acoustic emission. *Tectonophysics*, 96 (1-2), pp. 159-172.
- Shuk, T. (1965) Discussion of paper by Langejan. *6th International Conference on Soil Mechanics & Foundation Engineering*, Canada, ISSMFE. Vol. 3 pp. 576-577.
- Silveira, A. (1990) Some considerations on the durability of dams. *Water Power & Dam Construction*. (Feb.), pp. 19-28.

- Silveira, A.F. (1984) Statistical analysis of deteriorations and failures of dams. In *Safety of Dams*, (Serafim ed.) Coimbra, A.A. Balkema. pp. 55-60.
- Sizer, F.L. (1908) The break in the Hauser Lake dam, Montana. *Engineering News* (Apr. 30), pp. 491-492.
- Sjöberg, J., Sharp, J.C., and Malorey, D.J. (2001) Slope stability at Aznalcóllar, *Slope stability in surface mining*, (Hustrulid et al eds), Littleton, Society for Mining, Metallurgy and Exploration, Inc., pp. 183-202.
- Smith, J.L., DeVries, K.L., Bushnell, D.J. and Brown, W.S. (1969) Fracture data and stress-strain behaviour of rocks in triaxial compression. *Proceedings of the Society for Experimental Stress Analysis*, XXVI (2), pp. 348-355.
- Smith, N. (1972) *A History of Dams*. The Citadel Press, Secaucus.
- Smith, N.A.F. (1995) Unhappy anniversary - the disaster at Bouzey in 1895. *International Water Power & Dam Construction* (Apr.), pp. 40.
- Smolczyk, U. and Gartung, E. (1979) Geotechnical properties of a soft Keuper sandstone. *Proceedings of the 4th Congress International Society for Rock Mechanics*, Montreux, Vol. 2 pp. 639-644.
- Sowers, G.F. (1971) Discussion of: Leps (1970) Review of shearing strength of rockfill. *Journal of the Soil Mechanics and Foundations Division Proceedings of the American Society of Civil Engineers*, 97 (SM5), pp. 794-801.
- Stapleton, D.H. (1976) Geological hazards and water storage. *Bulletin of the International Association of Engineering Geology* (14), pp. 249-262.
- Steffen, O.K.H. (1976) Research and development needs in data collection for rock engineering. *Proceedings of the Symposium on Exploration for Rock Engineering*, (Bieniawski ed.) Johannesburg, Balkema. Vol. 2 pp. 93-104.
- Steger, W. and Unterberger, W. (1990) Rock slopes and dam abutments in jointed rock: FE-Analyses using Gap-Friction Elements and contact procedures. In *Mechanics of Jointed and Faulted Rock*, Rossmannith (ed.), (Rossmannith ed.) Technical University of Vienna, Balkema, Rotterdam. pp. 495-501.
- Stephansson, O., Swan, G. and Leijon, B. (1978) Mechanical properties of Stripa granite. *Proceedings of the Seminar on In Situ Heating Experiments in Geological Formations*, Stripa, pp. 191-204.
- Stoney, S.M. and Dhir, R.K. (1978) Measurement of anisotropy in rocks. *Proceedings of GEOCON India Conference on Geotechnical Engineering*, New Delhi, Vol. 1 pp. 351-359.
- Tarua, A. (1997) *Field validation of the Hoek-Brown failure criterion at Dog Face Rock*, Katoomba. B.E., Unpublished, The University of New South Wales.
- Tavares, L.V. and Serafim, J.L. (1983) Probabilistic study on failure of large dams. *A.S.C.E., Journal of the Geotechnical Engineering Division*, 109 (11), pp. 1483-1486.

- Taylor, F.S. (1915) Reconstruction of Austin, Tex., masonry dam. *Engineering News*, 73 (No. 22; Jun 3), pp. 1089-1093.
- Taylor, T.U. (1900) The latest soundings at the break in the Austin Dam. *Engineering News*, XLIV (23), pp. 390-391.
- Terzaghi, K. (1962) Does foundation technology really lag? *Engineering News Record*, 168 (7), pp. 58-59.
- The Engineer. (1896) Failure of the great dam at Bouzey. *The Engineer* (Jan 17), pp. 50-51.
- The Engineer (1928a) The collapse of the St. Francis dam. *The Engineer* (Apr 20), pp. 438.
- The Engineer (1928b) The St. Francis dam disaster. *The Engineer* (May 25), pp. 568-570.
- The Engineer. (1942) Historic accidents and disasters. *The Engineer* (Dec. 4), pp. 452-455.
- Thiers, G.R. and Donovan, T.D. (1980) Field density, gradation, and triaxial testing of large-size rockfill for Little Blue Run Dam. *Laboratory Shear Strength of Soil*. ASTM STP 740, Chicago, American Society for Testing and Materials. pp. 315-325.
- Tosun, H., Mirata, T., Mollamahmutoglu, M. and Colakoglu, N.S. (1999) Shear strength of gravel and rockfill measured in triaxial and prismatic wedge shear tests. *Electronic Journal of Geotechnical Engineering* pp. Paper No. 9903.
- Tsiambaos, G. and Telli, D. (1991) Application of rock mass classification systems on stability of limestone slopes. *Landslides. Proceedings of the Sixth International Symposium*, (Bell ed.) Christchurch, Balkema. Vol. 2 pp. 1065-1069.
- Ulusay, R., Arıkan, F., Yoleri, M.F. and Caglan, D. (1995) Engineering geological characterization of coal mine waste material and an evaluation in the context of back-analysis of spoil pile instabilities in a strip mine, SW Turkey. *Engineering Geology*, 40 pp. 77-101.
- Unal, E. (1996) Modified rock mass classification: M-RMR System. *Milestones in Rock Engineering, The Bieniawski Jubilee Collection*, Balkema. pp. 203-223.
- USBR (1961) *Laboratory tests of rock cores from the foundation of Shihmen Dam Taiwan, Formosa*. Concrete Laboratory Report No. C-1157, United States Department of the Interior Bureau of Reclamation.
- USBR (1965) *Laboratory tests of foundation rock cores Morrow Point damsite Colorado River storage project*. C-1157, United States Department of the Interior Bureau of Reclamation.
- USBR (1966) *Summary of large triaxial shear tests for silty gravels earth research studies*. EM-731, United States Department of the Interior Bureau of Reclamation - Soils Engineering Branch, Division of Research.
- USBR (1996) *Bureau of Reclamation Concrete Dams*. [Online] US Bureau of Reclamation. Available: <http://www.usbr.gov/cdams/>. Accessed on: 24 Mar. 1997.
- USCOLD (1975) *Lessons From Dam Incidents USA*. ASCE, New York.
- USCOLD (1988) *Lessons From Dam Incidents. USA-II*. ASCE, New York.

- USCOLD Committee on Dam Safety (1996) *Anthology of Dam Modification Case Histories*. USCOLD, Denver, pp. 138.
- Vallerga, B.A., Seed, H.B., Monismith, C.L. and Cooper, R.S. (1956) Effect of shape, size, and surface roughness of aggregate particles on the strength of granular materials. *Road and Paving Materials Presented at the Second Pacific Area National Meeting*, ASTM STP 212, Los Angeles, American Society for Testing Materials. pp. 63-76.
- Varshney, R.S. and Raheem, M.A. (1971) Concrete dam disasters and remedies. *Indian Journal of Power & River Valley Development*, (July), pp. 248-256.
- Veesaert, C. (198?) *Lessons from dam incidents*.
- Veltrop, J.A. (1988) Concrete arch dams. In *Development of Dam Engineering in the United States*, Pergamon Press, New York, pp. 219-532.
- Vernik, L., Lockner, D. and Zoback, M.D. (1992) Anisotropic strength of some typical metamorphic rocks from the KTB pilot hole, Germany. *Scientific Drilling*, 3 pp. 153-160.
- Vogel, A. (1984) Failures of masonry and concrete dams in Europe. In *International Conference on the Safety of Dams*, (J. L. Serafim ed.) Coimbra, A.A.Balkema. pp. 45-54.
- Vogel, A. (1994) *Bibliography of the History of Dam Failures*. Data Station for Dam Failures, Vienna.
- Von Thun, J.L. (1985) *Application of statistical data from dam failures and accidents to risk-based decision analysis on existing dams*. Bureau of Reclamation Engineering and Research Centre.
- Vutukuri, V.S. (1998) Strength of rock and rock mass, International Conference on Geomechanics/Ground Control in Mining and Underground Construction, (Aziz & Indraratna eds), 14-17 July, Wollongong, Australia, pp. 49-58.
- Vutukuri, V.S. and Farough Hossaini, S.M. (1993) Correlation between the effect of confining pressure on compressive strength in triaxial test and the effect of dia/height ratio on compressive strength in unconfined compression test. *12th Conference on Ground Control in Mining*, (Peng ed.) Morgantown, pp. 316-321.
- Wang, R. and Kemeny, J.M. (1995) A new empirical criterion for rock under polyaxial compressive stresses. *35th US Symposium on Rock Mechanics*, Reno, Nevada, Balkema. pp. 453-458.
- Wawersik, W.R. and Fairhurst, C. (1970) A study of brittle rock fracture in laboratory compression experiments. *International Journal of Rock Mechanics and Mining Sciences*, 7 pp. 561-575.
- Wawersik, W.R. and Brace, W.F. (1970) Post-failure behaviour of a granite and diabase. *Rock Mechanics*, 3 pp. 61-85.
- Wegmann, E. (1889) *The Design and Construction of Masonry Dams*. John Wiley & Sons, New York.

- Williams, D.J. and Walker, L.K. (1984) Laboratory and field strength of mine waste rock. *Fourth Australia-New Zealand Conference on Geomechanics*, Perth, pp. 118-123.
- Won, G.W. (1985) Engineering properties of Wianamatta Group rocks from laboratory and in-situ tests. In *Engineering Geology of the Sydney Region* (Pells ed.), Balkema, Sydney, pp. 143-155.
- Wright, A.J. and Hosking, A.D. (1966) *Shear strength of rockfill*. Construction Materials Report No. SM.1402, Snowy Mountains Hydro_Electric Authority.
- Wu, B., Marsden, J.R. and Hudson, J.A. (1990) Undrained mechanical behaviour of mudstone. *The Engineering Geology of Weak Rock*, University of Leeds, pp. 105-114.
- Yildiz, D. and Üzücek, E. (1994) Prediction of scour depth from free falling flip bucket jets. *International Water Power & Dam Construction* (Nov.), pp. 50-56.
- Yoshida, N., Morgenstern, N.R. and Chan, D.H. (1990) A failure criterion for stiff soils and rocks exhibiting softening. *Canadian Geotechnical Journal*, 27(2), pp. 195-202.
- Yoshinaka, R., Michiie, T., Norose, S. and Koshizuka, K. (1985) Fracture development in large underground quarry of soft rock and some consideration by numerical analysis. *The Role of Rock Mechanics in Excavations for Mining and Civil Works - ISRM Symposium*, Zacatecas, Mexico, pp. 257-264.
- Yudhbir, Lemanza, W. and Prinzl, F. (1983) "An empirical failure criterion for rock masses". Proceedings 5th Congress for I.S.R.M., Melbourne.
- Yumlu, M. and Ozbay, M.U. (1995) Technical note: A study of the behaviour of brittle rocks under plane strain and triaxial loading conditions. *International Journal for Rock Mechanics, Mining Sciences and Geomechanical Abstracts*, 32 (7), pp. 725-733.
- Zaretsky, Y.K., Chernilov, A.G., Vorontsov, E.I. and Garitselov, M.Y. (1978) Triaxial studies of mechanical properties of rockfills. *Proceedings of GEOCON India Conference on Geotechnical Engineering*, New Delhi, Vol. 1 pp. 145-150.

Intact Rock Database References – from Sheorey (1997)

- Barat, D. (1995) Personal communication from C.M.R.I., Dhanbad.
- Bieniawski, Z.T. and Denkhaus, H.G. (1967) Personal communication from M.A. Kwasniewski, Gliwice, 1995.
- Borecki, M., Kwasniewski, M., Pacha, J., Olesky, S., Berszakiewicz, Z. and Guzik, J. (1982) Triaxial compressive strength of two mineralogic/diagenetic varieties of coal-measure, fine-medium grained Pniowek and Anna sandstones tested under confining pressures up to 60 MPa. *Prace Instytutu PBKiOP Politechniki Slaskiej*, 119 (2),.
- Bowen, R. (1984) *Geology in Engineering*. Elsevier, New York, pp. 416.

- Chirkov, S.E. (1973) Test results in properties of rock in the conditions of triaxial nonuniform compression. In *Studies of Strength and Deformability of Rocks* (Barton ed.), Nauka, Moscow, pp. 113-134.
- Glushko, V.T. and Kirnichanskiy, G.T. (1974) *Engineering - Geological Prognosticating of Stability of the Openings in Deep Coal Mines*. Nedra, Moscow,
- Gnirk, P.F. and Cheatham, J.B. (1963) Indentation experiments on dry rocks under pressure. *Transactions of the Society of Petroleum Engineers, AIME*, 228 pp. 1031-1039.
- Gnirk, P.F. and Cheatham, J.B. (1965) An experimental study of single bit tooth penetration into dry rock at confining pressures of 0-5000 psi. *Journal of the Society of Petroleum Engineers*, 5 pp. 117-130.
- Gustkiewicz, J. (1984) Personal communication from M.A. Kwasniewski, Gliwice.
- Harza Engineering Co. (1976) *Comprehensive ground control study of a mechanised longwall operation, final report*. Vol 2. USBM OFR 5(2)-775(2)-77, United States Bureau of Mines.
- Heard, H.C., Abey, A.E., Bonner, B.P. and Schock, R.N. (1974) *Mechanical behaviour of dry Westerly granite at high confining pressure*. Lawrence Livermore Laboratory Report UCRL 51642.
- Hoshino, K., Koide, H., Inami, K., Iwamura, S. and Mitsui, S. (1972) *Mechanical properties of Japanese tertiary sedimentary rocks under high confining pressures*. Geological Survey Report 244, Japanese Geological Survey.
- Hoshino, K. and Mitsui, S. (1975) Mechanical properties of palaeogene and cretaceous rocks in Shikoku under high pressure. *Journal Japanese Association of Petroleum Technologists*, 40 pp. 166-173.
- Illnitskaya, E.I., Teder, R.I., Vatolin, E.S. and Kuntysch, M.F. (1969) Properties of rocks and methods of their determination. Nedra, Moscow,
- Kuntysch, M.F. (1964) *Investigation of methods of determining the basic physico-mechanical characteristics of rocks, used while solving the problem of rock pressure*. Cand. Technical Sci. Thesis, Moscow.
- Kwasniewski (1995) Personal communication from Gliwice, Poland.
- Ramamurthy, T. (1989) Personal communication from I.I.T., Delhi.
- Rao, K.S., Rao, G.V. and Ramamurthy, T. (1983) Strength anisotropy of a Vindhyan sandstone. *Indian Geotechnical Conference, Madras*, Vol. 1 pp. VI41-VI48.
- Singh, S.K. (1995) Personal communication from C.M.R.I., Dhanbad.
- Wilhelmi, B. and Somerton, W.H. (1967) Simultaneous measurement of pore and elastic properties of rocks under triaxial stress conditions. *Journal of the Society of Petroleum Engineers*, 7 pp. 283-294.