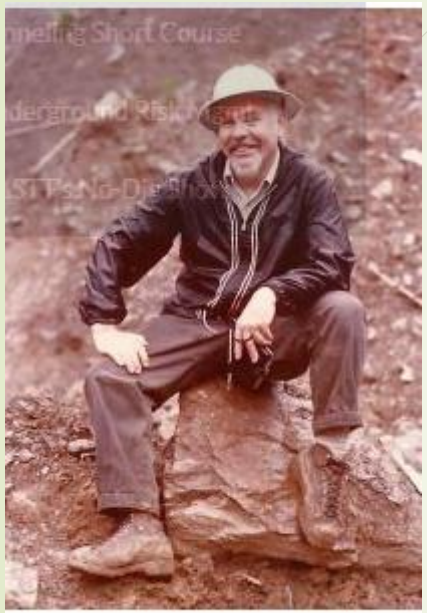
HOMENAGEM AO PROF. DON U. DEERE

(1922 – 2018)

PROF. MILTON ASSIS KANJI

14/03/2018



Don U. Deere circa 1960.

Don U. Deere (left) and Andrew H. Merritt.

DON UEL DEERE

Nasceu em 1922 em Iowa, numa fazenda.
1943 - B.S. Engenharia de Minas, Iowa State University (Casou com Da. Carmen)
1949 – M.S. Geologia, University of Colorado
1955 Ph.D. Engenharia Civil, University of Illinois (Ralph Peck)

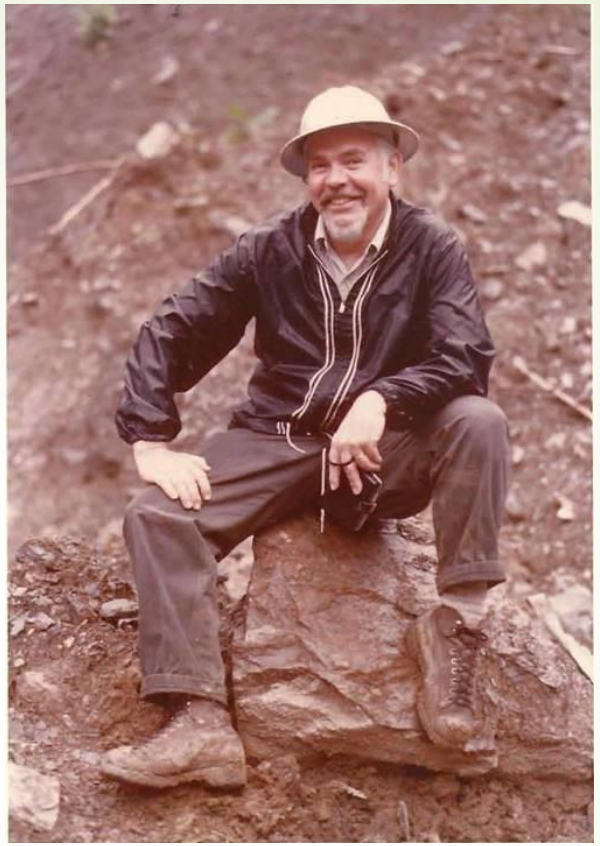
Trabalhou como Eng. Minas no Arizona e Novo México e mudou para a Universidade de Porto Rico.
Fundou a Foundation Engineering Co em Porto Rico.
Por influência de K. Terzaghi foi à Universidade de Illinois como Professor Assistente nos Departamentos de Engenharia Civil e de Geologia, passando a Full Professor.

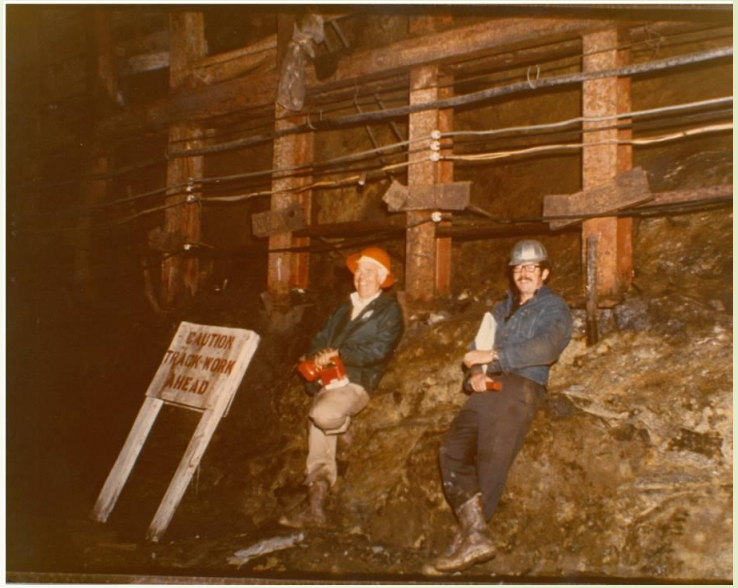
1972 - Mudou-se para a Universidade da Florida em Gainesville, como Professor Adjunto, para poder dedicar-se à consultoria.
Fundou empresa de consultoria com Andy Merrit.

Por convite do Presidente Ronald Reagan foi Presidente do US Nuclear Waste Technical Review Board
Eleito para Academia Nacional de Engenharia e para Academia Nacional de Ciências (USA)

Aos 80 anos de idade retirou-se do trabalho profissional.

1º Congr. Int. Mec. Rochas, Lisboa, 1966





PRINCIPAIS TRABALHOS INTERNACIONAIS

Consultor no Channel Tunnel (França – Inglaterra)
Fundações do World Trade Center
Túneis de adução de água para Nova Iorque
Metro de Washington DC
Cruzamento do Canal de Suez, etc.
Presidente do Comité de Estandardização de Ensaios de Campo e Laboratório da ISRM.

PARTICIPAÇÕES NO BRASIL - 1

PRIMEIRA VINDA, 1972, TALUDES FINAIS DA MINA CAUÊ, VALE

BRAZILIAN CONSULTING PROJECTS FOR DR. DEERE

DAM PROJECTS CONSTRUCTED:

Projects of CHESF	**Board of Consultants**
Sobradinho (1973 - 1979)	[Deere, Lyra, Sherard; Libby (partial)]
Pauto Afonso IV (1975 - 1980)	[Deere, Libby, Lyra, Sherard]
Itaparica (1975 - 1987)	[Deere (partial), Libby, Lyra, Sherard; John, Tuthill (later partial)]
Projects for ELECTRONORTE	**Board of Consultants**
Tucurui (1974 - 1985)	[Deere, DeMello, Libby, Lyra; specialized advisors: Carlson, Chow, John, Sherard]
Projects for FURNAS	**Board of Consultants**
Itumbiara (1973 - 1980)	[Carlson, Casagrande, Deere, Libby]
Projects for INTERNATIONAL	**Board of Consultants**
Itaipú Binacional (1972 - 1982)	[Blanchet, Carlson, Casagrande, Deere, John, Lyra, Wilbur]

CESP – AGUA VERMELHA 1974-1978 (Deese, DeMello, Libby, M.Rocha)

PARTICIPAÇÕES NO BRASIL - 2

DAM PROJECTS FEASIBILITY (Investigation and Design):

Projects of CHESF

Xingo (1980)	[Deere site visit for previously considered arch dam]

Projects for ELECTRONORTE	**Board of Consultants**
Sao Felix (1974 - 1975)	[Deere, DeMello, Libby, Lyra, Murillo, Ruiz]
Altamira (1979 - 1987)	[Libby (alone), Deere and Libby (together); Deere, DeMello, Lemos, Libby; Cooke (added)]
Cachoeira Porteira (1984 - 1986)	[Deere, Lemos, Libby, Pinto]
Jr - Parana (1985 - 1986)	[Deere, DeMello, Lemos, Libby]

OPEN PIT SLOPE STABILITY STUDIES:

CVRD - Itabira Caue Conceicao
MBR - Aquas Claras
Samarco - Germano; Samitri - Morro Agudo

GEOLOGIA E MECÂNICA DAS ROCHAS

Deere, D.U., 1968, "*Geologic Considerations*," Chapter 1, Rock Mechanics in Engineering Practice, ed. K. Stagg and O. Zienkiewicz, Wiley, N.Y., pp. 1 - 20.

Milton,
Una de las mas significativas contribuciones fue la de incorporar y cuantificar el significado de los aspectos geológicos en los parámetros de diseño requeridos en la Ingeniería. El gran valor de Illinois fue esta interacción cercana y cuantitativa de la geología y la Ingeniería civil personificada por Peck y Deere. Deere introdujo la importancia y el significado de la geología en la Ingeniería civil
Saludos
Gabriel

. "He really pushed the envelope of combining the disciplines of geology and engineering. He loved to teach and did it through presenting real-world case histories. Many of his students became leaders in the tunneling industry and his enthusiasm was contagious."

CASOS REAIS DE TÚNEIS E OUTRAS OBRAS EM SALA DE AULA.

1964 - RQD –ROCK QUALITY DESIGNATION (R% > 10cm)

"Rock Quality Designation or RQD was invented by him one evening in a hotel room as a way to demonstrate good rock vs. bad rock to a group of non-technical decision makers that were selecting the location of an underground chamber,"

Deere, D.U., and Deere, D.W., 1988, "*The Rock Quality Designation (RQD) Index in Practice*," Rock Classification Systems for Engineering Purposes, ASTM STP 984, ed. Louis Kirkaldie, American Society for Testing and Materials, Philadelphia, pp. 91 101.

Deere, D.U., and Deere, D.W., 1989, "*Rock Quality Designation (RQD) After Twenty Years*," Prepared for Department of the Army, U.S. Army Corps of Engineers, Contract No. DACW39-86-M-4273.

ROCK QUALITY DESIGNATION (ROD) AFTER TWENTY YEARS

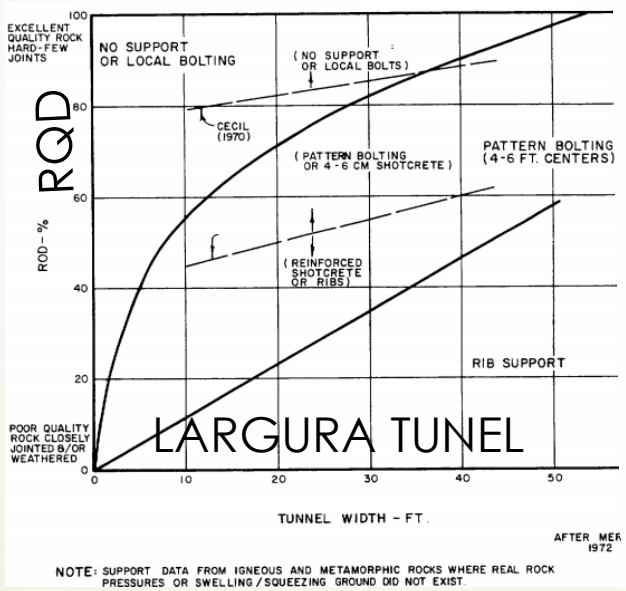
Don U. Deere, Consultant
Gainesville, FL

Feb 89

CLASSIFICACAO DE DEERE
BASEADO NO RQD.

EXEMPLO APROXIMADO:

RQD	CHUMBADORES	SHOTCRETE
90 – 100	nada (esporadico)	nenhum;local (3–5cm)
75 – 90	cd 2m	3-5cm no teto
50 – 75	cd 1,7m	10cm teto e paredes
25 – 50	cd 1,5m	15cm com fibra/malha
< 25	---	25cm (shotcrete / moldado)



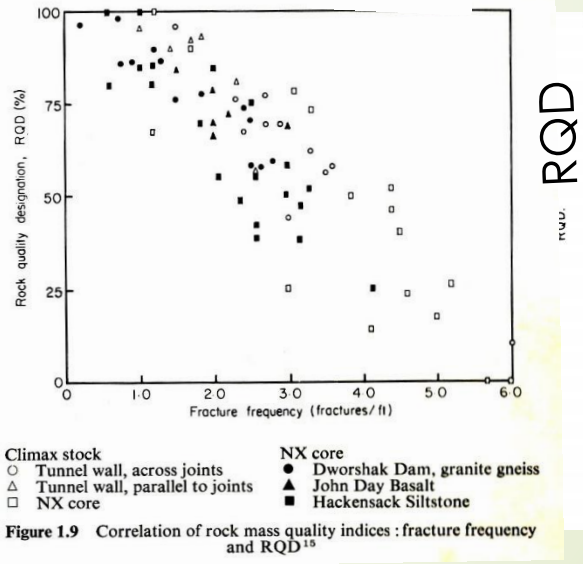
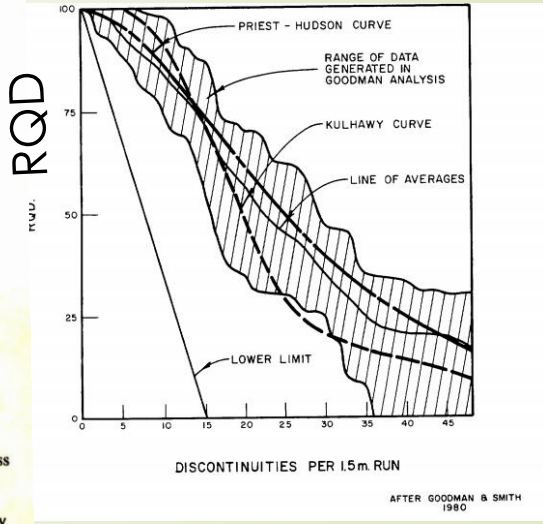


Figure 1.9 Correlation of rock mass quality indices : fracture frequency and RQD[15]



No. FRATURAS

RQD FAZ PARTE DO SISTEMA RMR - BIENIAWSKI

PROPRIEDADES MECÂNICAS DAS ROCHAS

ESCLERÔMETROS > RCS

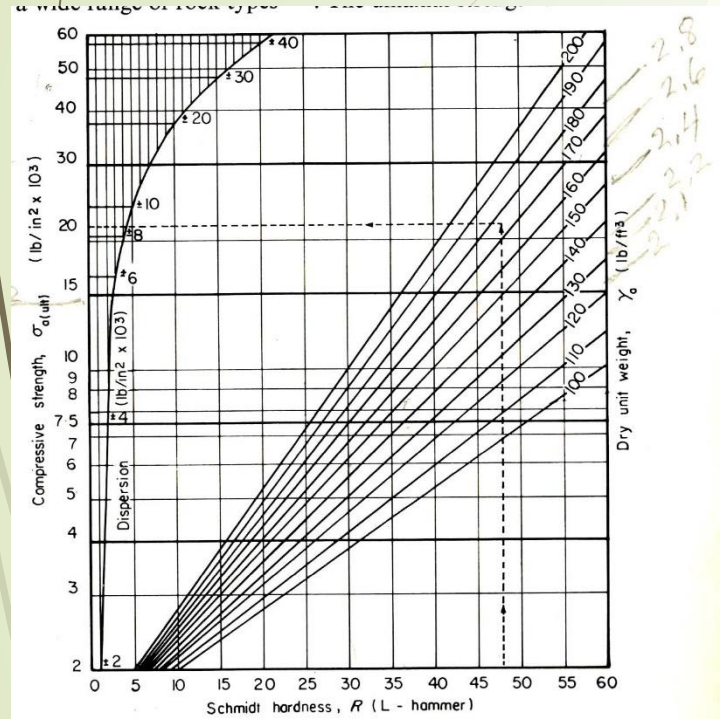


Figure 2.12 Rock strength classification chart based on Schmidt hardness[4]
Hammer vertical downward
Dispersion limits defined for 75% confidence

RCS X MOD. ELASTICIDADE

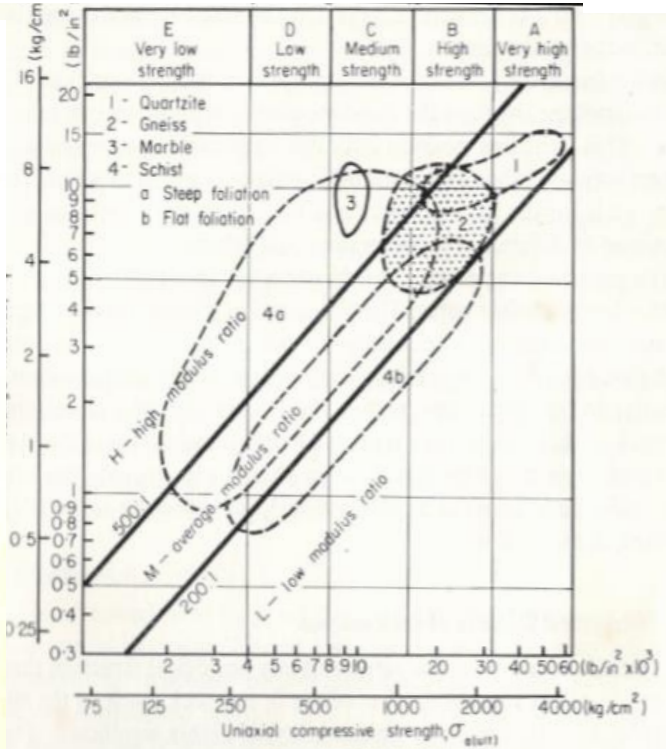


Figure 1.7 Engineering classification for intact rock—summary plot for metamorphic rocks (167 specimens, 75% of points)[4]
E_t = tangent modulus at 50% ultimate strength.
Classify rock as AM, BH, BL, etc.

SÍSMICA

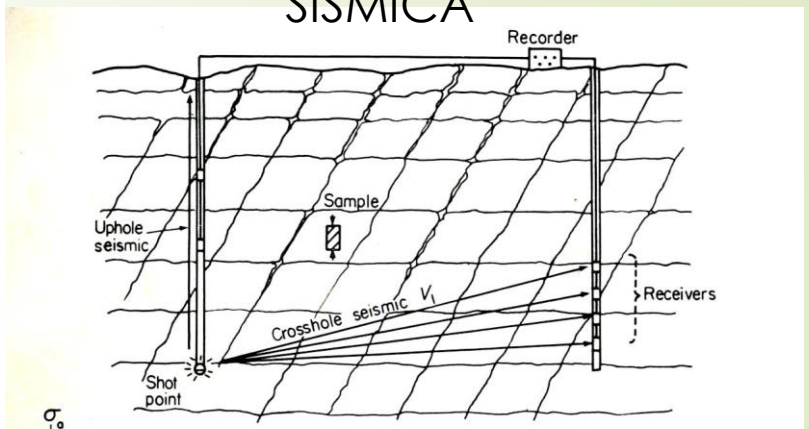
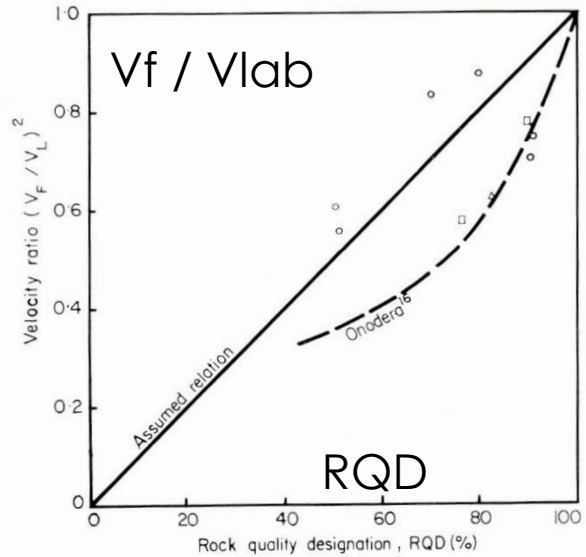


Figure 1.10



○ Manhatton Schist—6 borings
□ Rainier Mesa Tuff—averages from two locations
△ Hackensack Siltstone

Figure 1.11 Correlation of rock quality as determined by velocity ratio and RQD[15]

TÚNEIS E OBRAS SUBTERRÂNEAS

Consultor de importantes obras subterrâneas e grandes cavidades (inclusive Nevada Test Site)

Cording, Hendron e Deere – Rock Engineering for Underground Caverns, Proc. Symp. Undergr. Rock Chambers, ASCE, NY, 1971 (Dimensões e detalhes de suporte de 13 grandes projetos)

Deere, Merrit e Cording – Engineering Geology and Underground Construction, 2º Cong. IAEG, S.Paulo, 1974

1989 (with G. Lombardi) Lining of Pressure Tunnels and Hydrofracturing Potential. Victor de Mello Volume, Brasilia -(in press)- (published)

FUNDAÇÃO DE BARRAGENS

VIDEO

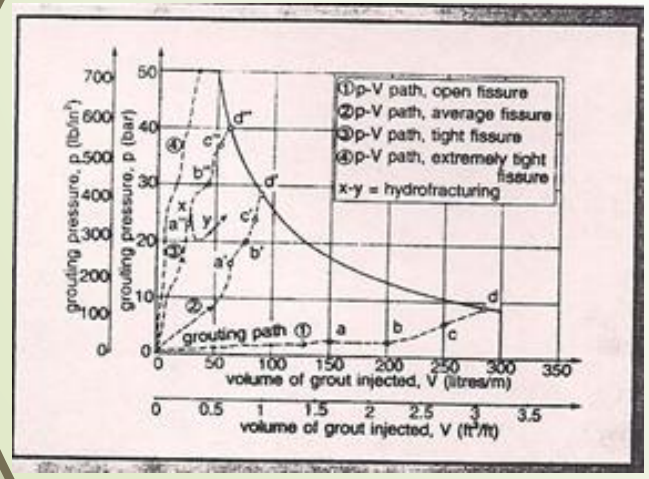
Deere, D.U., 1997 (video), "*Dam Foundations*," Tape I - Geologic Features and Investigations, Tape II - Remediation and Assessment, Federal Interagency Committee On Dam Safety. (Distributed by: Association of State Dam Safety Officials; 450 Old East Vine, Lexington, KY 40507, USA. Phone: 606-257-5140, Fax: 606-323-1958.)

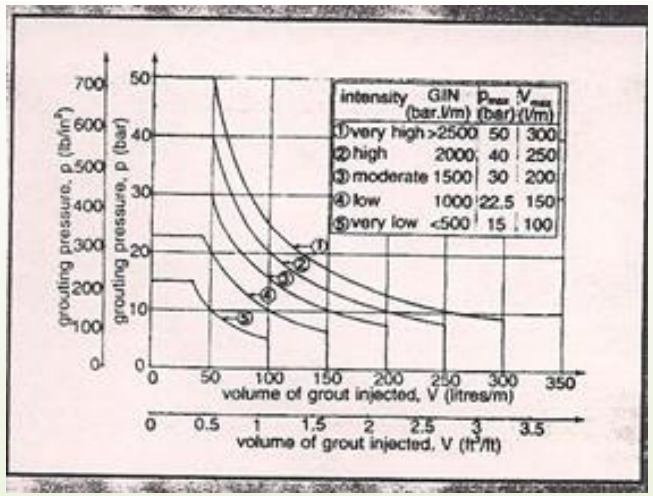
MÉTODO GIN DE INJEÇÃO

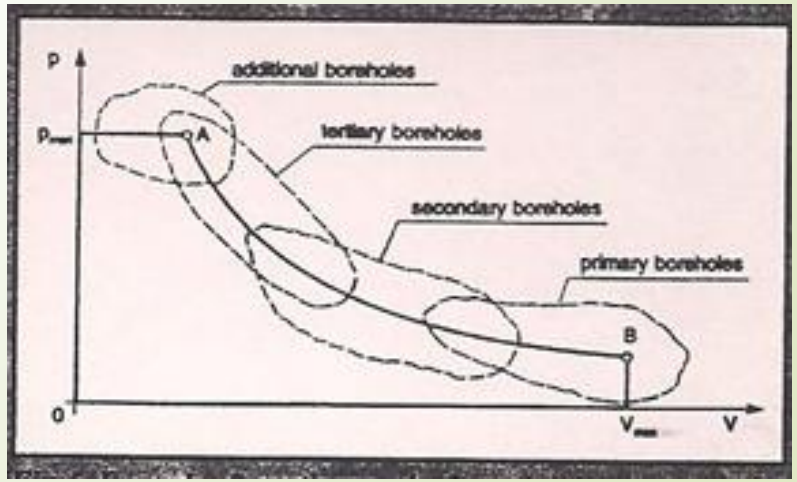
"The GIN grouting method (Grout Intensity Number) was invented in a tavern with his friend and colleague Dr. G Lombardi on the back of a napkin while sipping gin and tonics."

Deere, D.U., and Lombardi, G., 1985, "*Grout Slurries - Thick or Thin?*" *Issues in Dam Grouting*, ed. W. Baker, ASCE, N.Y., pp. 156-164.

Lombardi G., and Deere, D.U., 1993, "*Grouting Design and Control Using the GIN Principle*," International Water Power and Dam Construction, June.







TALUDES

SLOPE STABILITY IN RESIDUAL SOILS

D. U. Deere and F. D. Patton
University of Illinois, Urbana, Illinois, USA

4º Congr. Panam Mec Solos e Eng. Fund., P. Rico.

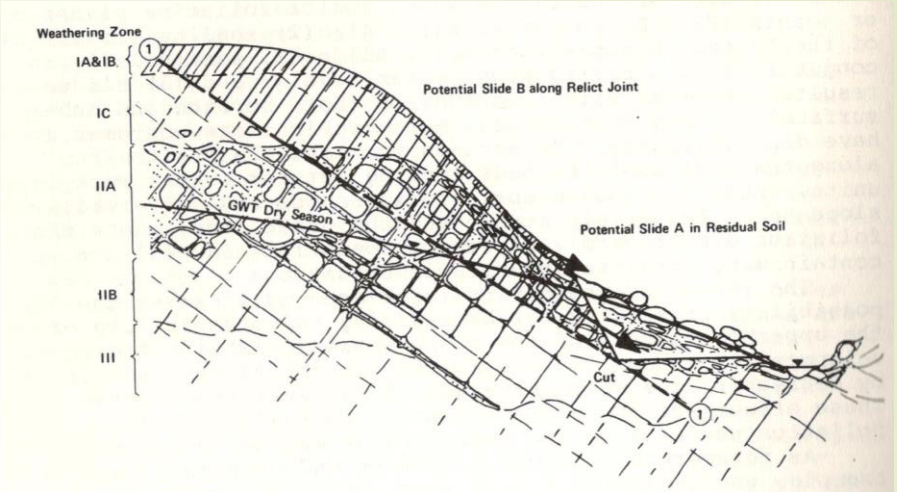


Fig. 6 Typical slope in weathered granite.

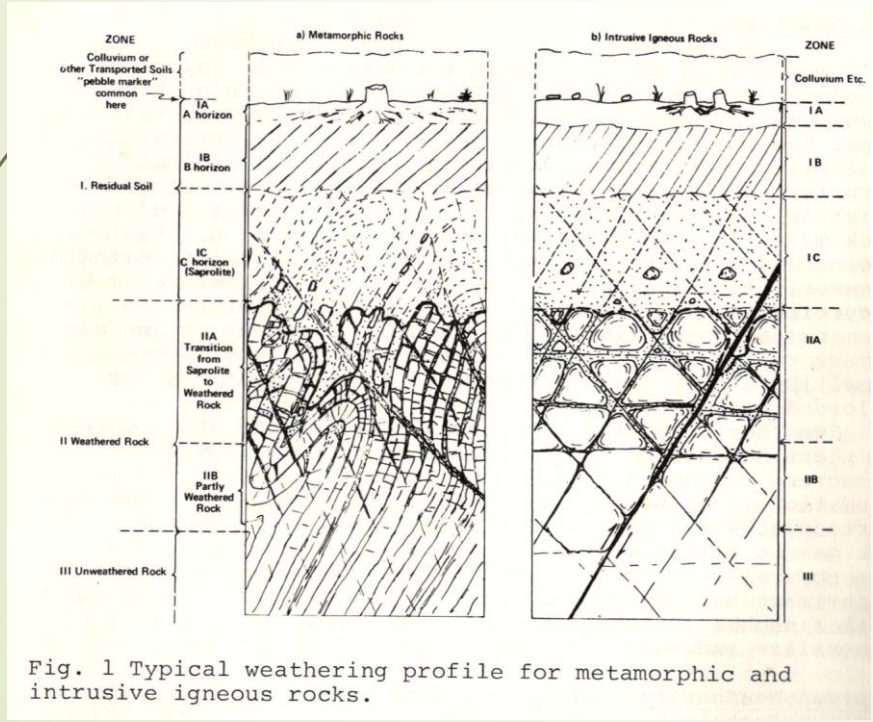


Fig. 1 Typical weathering profile for metamorphic and intrusive igneous rocks.

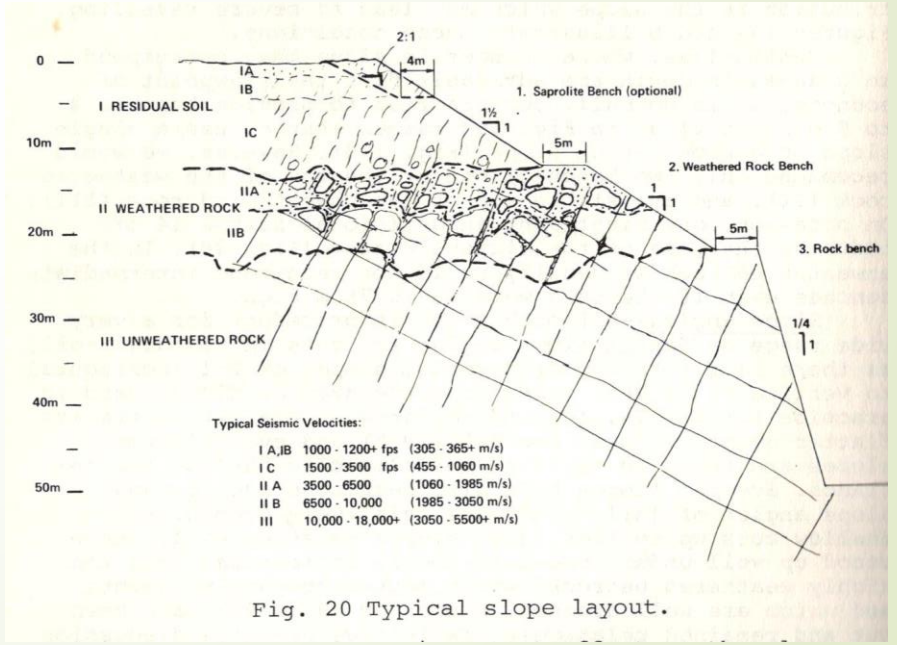


Fig. 20 Typical slope layout.

CONCLUINDO...

MULTIFACÉTICO – GEOLOGIA, MINAS, ENG. CIVIL, GEOTECNIA, MEC ROCHAS, BARRAGENS, TÚNEIS, TALUDES, ETC.

IMPORTANTE NO DESENVOLVIMENTO DA MECÂNICA DAS ROCHAS E SUAS APLICAÇÕES

REPUTADO COMO "ENGINEERING GEOLOGIST" – INFLUÊNCIA DA GEOLOGIA NA ENG.CIVIL

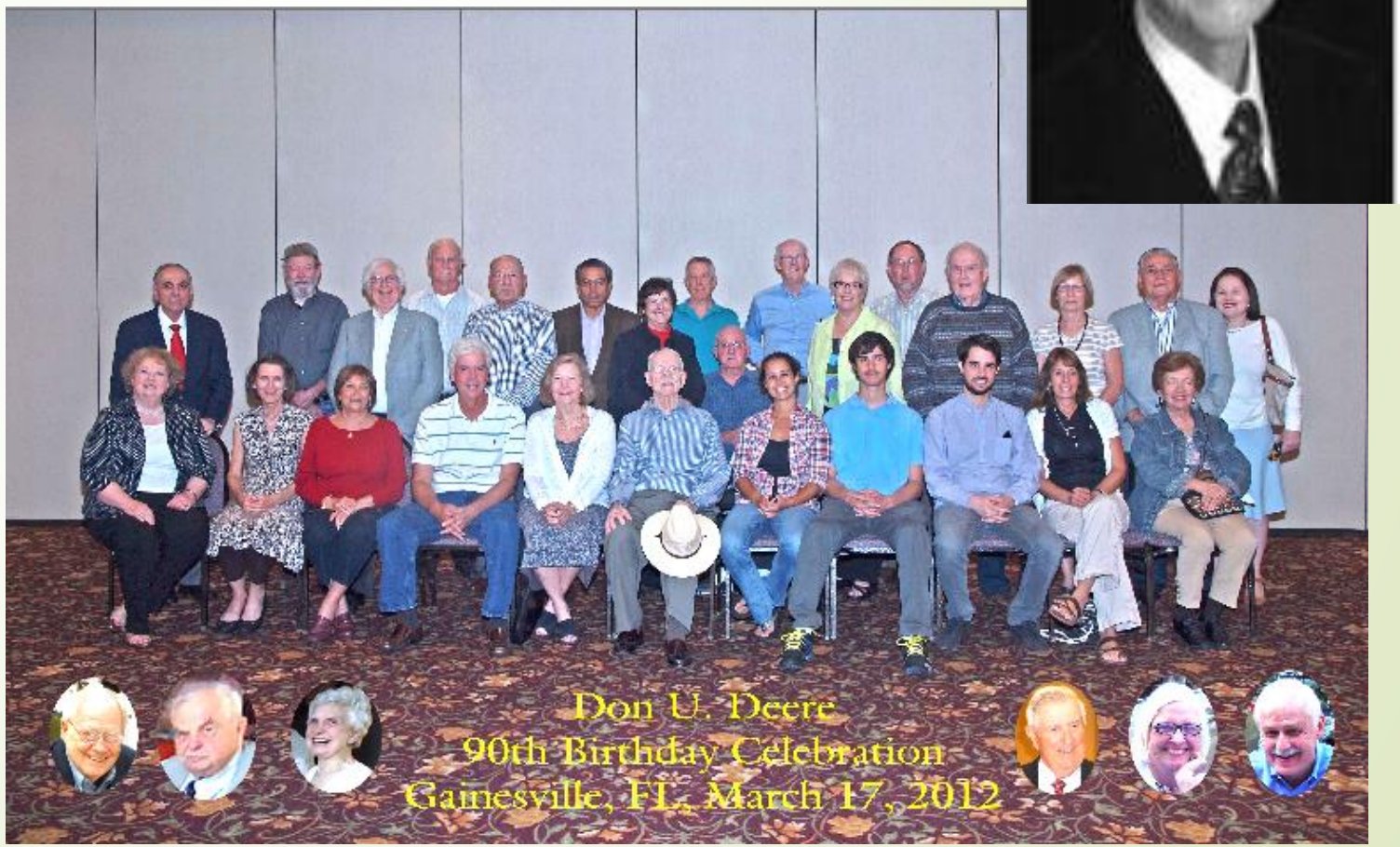
PROFESSOR (U.ILL., U.FLO.), FORMOU GERAÇÕES DE BONS TÉCNICOS
GENTIL, ATENCIOSO, INCENTIVADOR, APOIADOR
Andy Merritt (sócio), Roy Miller, Roy Benson, Harvey Parker (Presidente do ITA), Jim Colson (Chief Engineer no TVA), Bob Conlon (Chefe do Geotechnical Department at Acres and other companies), Brian Sinclair (Eng. Geólogo Sr. na Acres/Hatch), and many others.

TRABALHO EM EQUIPE – NA SUA ASCENÇÃO PROFISSIONAL INFLUIA NA ASCENÇÃO DOS ASSISTENTES (A. HENDRON, E. CORDING, F.PATTON, G.FERNANDEZ)

SENSO DE HUMOR

COMEMORAÇÃO DOS 90 ANOS (2012)

ORGANIZADO PELO FILHO DON W. DEERE, QUE JÁ TRABALHOU NO BRASIL (IESA)



TESTEMUNHAS NO SEU OBITUÁRIO 14-01-2018

at the University of Illinois with Prof. Deere as an advisor, he was my earliest mentor and instilled in me a sense of discovery and enjoyment for the Civil Engineering profession that remains with me to this day. ….how lucky we all were to have had the opportunity to share some part of his long and fruitful life with him.
Francisco Silva-Tulla
January 26, 2018 | Lexington, MA

I will always cherish fond memories of working on projects where we had the benefit of Dr. Deere's knowledge and intellect. He was always teaching and was generous with his vast experience and unselfishly shared his experience, always with kindness and good humor.
Roy Spitzer
January 22, 2018 | Longmont, CO