INDEX

Abrasion pH of Stone Mountain granite, 67
Absorption, infrared, spectrogram of micas pretreated in various ways (Fig. 1), 123
Absorption spectra, X-ray and infrared, identification of kaolin minerals in clays, 236–249
Accumulation and formation, clay, in selected Oklahoma soils, 211–224
Addison, W. E., and J. H. Sharp, Redox behavior of iron in hydroxylated silicates, 95–104
Adsorbed water, prediction of compaction pressures for removal of, 181
Adsorption, NH₃, mechanism of, by montmorillonite and kaolinite, 301–320
Alberta, characteristics of 14 Å clay minerals occurring in B horizons of podzolized soils in, 74–82
Alteration of montmorillonite, diagenetic, to illite in ancient marine rocks, 144
Alteration products, stevensite and tale-hydrothermal, of wollastonite, 188–199
Aluminum, potassium, magnesium, incorporation of, and mechanism of clay mineral collapse, 147
Amines, inorganic, chemisorption of NH₃ by the formation of, 309
Ammonia sorption energies, measuring, 305
Amorphous, X-ray, and crystalline aluminum hydroxides, formation of, 299–300
Analysis chemical, of “pure” clay mineral fractions (Table 1), 163
of clay fractions in Oklahoma soils, 212
Analytical methods used in the studies of dioctahedral micas, 49
“Antigibbsite effect”, 41
Argentina clay temperature in °C of final collapse of one-layer complex (Table 5), 110
Ash, volcanic, near Denver, 174
Atoka Formation of Middle Pennsylvanian age, 170
Azurite–Malachite reaction, 91
B horizons, characteristics of 14 Å clay minerals occurring in, of podzolized soils in Alberta, 74–82
Base-exchange capacity in bentonite, 283
Bates, T. F., and Pa Hsu, Formation of X-ray amorphous and crystalline aluminum hydroxides, 299–300
Beck, C. W., George Brunton, and R. Tettenhorst, Montmorillonite–polyalcohol complexes, Part II, 105–116
Beck, C. W., and R. D. DeRudder, Stevensite and tale-hydrothermal alteration products of wollastonite, 188–199
Beidellite and mixed-layer clay minerals, basal X-ray diffraction peaks of, after various treatments (Fig. 4), 164
Bentonite beds, range in composition in, 169–177
Bentonite samples, X-ray diffractometer traces of some (Fig. 1), 171
“Bentonite–sulfur” complex, effect of, on germination of Aspergillus sydowi (Table 11), 354
Bentonites of Cabo de Gata (Southeast Spain) and of Guelaya Volcanic Province (North Morocco), the, J. L. Martin-Vivaldi, 327–356
Borate deposits, solid–gas reactions in, 91
Brady, J. G., C. B. Crawford, D. D. Hogarth, and P. C. Stobbe, Field trip to the Gatineau Area, Quebec, Canada, held in conjunction with the Eleventh Clay Conference, 13 August 1962, 1–10
Brucite deposit and processing plant, Wakefield, Quebec, 7
Brunton, George, R. Tettenhorst, and C. W. Beck, Montmorillonite–polyalcohol complexes, Part II, 105–116
Building research, clay mineralogy in, 296–298
Bulk density of Stone Mountain granite, 66
Cabo de Gata (Southeast Spain), the bentonites of and of Guelaya Volcanic Province (North Morocco), 327–356
California, hydrothermal rhyolitic alteration in Castle Mountains, 158–168
Carmel Formation of Middle and Late Jurassic age, 173
Cation exchange
  in kaolinite-iron oxide systems, G. W. Thomas and A. W. Swoboda, 321–326
  in K-bentonites, 203
Cell dimensions, studies on, of layer-lattice silicates, 225–228
Characteristics
  of 14 Å clay minerals occurring in B horizons of podzolized soils in Alberta, S. Pawluk, 74–82
  of prairie Planosol and reddish prairie soils, 213
Chemical analyses of wollastonite wall rock and hydrothermally altered equivalents (Table 1), 192
Chemical analysis of material typical of alteration zones in P. S. deposit (Table 2), 186
Chemical analysis of “pure” clay mineral fractions (Table 1), 163
Chemical investigations of clays in soils, 76
Chemical weathering, interlayering of expansive layer silicates in soils by, 29–46
Chemisorption by weakly acidic hydroxyl groups, 311
of NH₃ by the formation of inorganic amines, 309
Cheyenne River Basin, Eastern Wyoming, weathering and transport of sediment in the, 83
Classification of clay minerals, 16
Clay
  compacted, permeability and salt filtering properties of, 250–251
  Leda, landslides in, 6
  Regosol–Rideau, 3
  vermiculite, prediction of compaction behavior of, 152
  What is clay? 12
Clay formation and accumulation in selected Oklahoma soils, Fenton Gray, L. W. Reed and H. D. Molthan, 211–224
Clay fractions, analysis of, in Oklahoma soils, 212
Clay mineral collapse, mechanism of, and incorporation of potassium, magnesium, or aluminum, 147
Clay mineral diagenesis generalizations on the process of, 153
  in the Rappahannock estuary: an explanation, B. W. Nelson, 210
Clay mineral effects on the stress-strain response of soils in direct shear, R. L. Konder and V. R. Vendrell, Jr., 252–267
Clay mineral fractions, “pure”, chemical analysis of (Table 1), 163
Clay mineral soils, some polydisperse, zero-gradient rotational diffusion constants for, 295
Clay mineralogy, 217
  in building research, J. E. Gillott, 296–298
Clay minerals
  and clays, origin of, 21
  14Å, characteristics of, occurring in B horizons of podzolized soils in Alberta, 74–82
  classification of, 16
  differential thermal curves of, 79
electron micrographs of, 81
mixed-layer, and beidellite, after various treatments, basal X-ray diffraction peaks of (Fig. 4), 164
problems of diagenesis in: a review, 136–157
Clay sediments, compaction of, in the range of molecular particle distances, 178–187
Clays and clay minerals, origin of, 21
  identification of kaolin minerals in, by X-ray and infrared absorption spectra, 236–249
in soils, chemical investigations of, 76
Cleavage, micas, interlayering by, 30
Coastal Plain of Georgia and South Carolina, variability in “crystallinity” values among the kaolin deposits of the, 229–235
Compaction of clay sediments in the range of molecular particle distances, H. van Olphen, 178–187
Complex, one layer, temperature in °C of final collapse of (Table 2), 107
Complexes, montmorillonite–polyalcohol, Part II, 105–116
Composition, range in, in bentonite beds, 169–177
Compositional variations in stress–strain studies, 262
Cook, M. G., and C. I. Rich, Negative charge of dioctahedral micas as related to weathering, 47–64
Corrensite, diagenetic formation of, 145
INDEX

Crawford, C. B., J. G. Brady, D. D. Hogarth, and P. C. Stobbe, Field trip to the Gatineau Area, Quebec, Canada, held in conjunction with the Eleventh Clay Conference, 13 August 1962, 1-10

Criticism of X-ray identification methods, 237

Crystalline 'aluminum and X-ray amorphous hydroxides, formation of, 299-300

Crystallinity
degree of, 230
measurement, 231
values, variability in, among the kaolin deposits of the Coastal Plain of Georgia and South Carolina, 229-235

De Natura Lutorum, R. C. Mackenzie, 11-28

De Rudder, R. D., and C. W. Beck, Stevansite and talc-hydrothermal alteration products of wollastonite, 188-199

Degree of crystallinity, 230

Dehydration, gibbsite, solid-gas reaction in nature, 86

Density determination of dry bentonite, 283

Denver, volcanic ash near, 174

Deposit at P. S. Mine, genesis of, 165

Deposits, borate, solid-gas reactions in, 91

Diagenesis
clay mineral, in the Rappahannock Estuary: an explanation, 210
clay mineral, generalizations on the process of, 153
of illite since early Paleozoic time, 144
problems of, in clay minerals: a review, 136-157

Diagenetic alteration of montmorillonite to illite in ancient marine rocks, 144

Diagenetic formation of corrensite, 145

Diagenetic glauconitic mica from montmorillonite-illite, 142

Diagenetic illite and glauconite mica in the Morrison formation, 140

Differential thermal analysis on K-bentonites, 205

Differential thermal curves for the samples from Mazza (Fig. 7), 336
of clay minerals, 79

Diffusion constants, zero-gradient rotational, for some polydisperse clay mineral soils, 295

Dioctahedral micas, negative charge of, as related to weathering, 47-64

Dissolution and hydrochloric acid technique for identifying clays, 237

Distances, molecular particle, compaction of clay sediments in the range of, 178-187

Distribution, particle size, in montmorillonite suspensions, 283

Early Paleozoic time, diagenesis of illite since, 144

Electron micrographs of clay minerals, 81

Expansible layer silicates in soils, interlayering of, by chemical weathering, 29-46

Experimental procedure in swelling pressure studies, 269

Fault gouge alteration, 197

Field trip to the Gatineau Area, Quebec, Canada, held in conjunction with the Eleventh Clay Conference, 13 August 1962 by J. G. Brady, C. B. Crawford, D. D. Hogarth, and P. C. Stobbe, 1-10

Filtering, salt, and permeability properties of compacted clay, 250-251

Formation and accumulation, clay, in selected Oklahoma soils, 211-224

diagenetic, of corrensite, 145

of X-ray amorphous and crystalline aluminum hydroxides, Pa He Hsu and T. F. Bates, 299-300

Fractionated montmorillonite suspensions, studies in, 282-294

Frequency distribution, 40

Gatineau Area, Quebec, Canada, field trip to, held in conjunction with the Eleventh Clay Conference, 13 August 1962, 1-10

Gel development from montmorillonite, 291

Generalizations on the process of clay mineral diagenesis, 153

Genesis and mineralogy of the deposits, 328
of the deposit at P. S. Mine, 185

Georgia and South Carolina, Coastal plain of, variability in “Crystallinity” values among the kaolin deposits of the, 229-235

Gibbsite dehydration
mechanism of, 89
solid-gas reaction in nature, 86
INDEX

Gillott, J. E., Clay mineralogy in building research, 298–298

Glauconite and illite mica, diagenetic, in the Morrison formation, 140

Gouge, fault, alteration, 197

Granite, Stone Mountain, weathering of, 65–73


Grant, W. H., The weathering of Stone Mountain granite, 65–73

Gravimetric records of the water contents of treated mica preparations at elevated temperatures (Fig. 3), 125

Gray, Fenton, L. W. Reed and H. D. Molthan, Clay formation and accumulation in selected Oklahoma soils, 211–224

Guelaya (North America), location of bentonite deposits of (Fig. 3), 331

Guelaya Volcanic Province (North Morocco), the bentonites of Cabo de Gata (Southeast Spain), and of, 327–356

Hadley, R. F., and B. N. Rolfe, Weathering and transport of sediment in the Cheyenne River Basin, Eastern Wyoming, 83

Halloysite deposits, geologic section of (Fig. 6), 334

Harvard, M. E., and D. W. James, Mechanism of NH₃ adsorption by montmorillonite and kaolinite, 301–320

Heats of adsorption by montmorillonite, 313

Heavy mineral analysis of K-bentonites, 206

Heystek, H., Hydrothermal rhyolitic alteration in the Castle Mountains, California, 158–168

Hinckley, D. N., Variability in “crystallinity” values among the kaolin deposits of the Coastal Plain of Georgia and South Carolina, 229–235

Hinge structure in clay, 292

Hogarth, D. D., J. G. Brady, C. B. Crawford, and P. C. Stobbe, Field trip to the Gatineau Area, Quebec, Canada, held in conjunction with the Eleventh Clay Conference, 13 August 1962, 1–10


Horizons, B, characteristics of 14 Å clay minerals occurring in, of podzolized soils in Alberta, 74–82

Hsu, Pa Ho, and T. F. Bates, Formation of X-ray amorphous and crystalline aluminum hydroxides, 299–300

Huff, Warren D., Recent studies of some Ordovician K-bentonites, 200–209

Hydrochloric acid and dissolution technique for identifying clays, 238

Hydrogen atoms, studies in position and mobility of the, in hydrous micas, 117–135

Hydro-muscovite, pretreated, tritium water in water fractions from (Fig. 5), 127

Hydrothermal rhyolitic alteration in the Castle Mountains, California, H. Heystek, 158–168

Hydrous micas, studies in position and mobility of the H atoms in, 117–135

Hydroxides, X-ray amorphous and crystalline aluminum, formation of, 299–300

Hydroxy groups, weakly acidic, chemisorption by, 311

Hydroxylated silicates, redox behavior of iron in, 95–104

Identification of kaolin minerals in clays by X-ray and infrared absorption spectra, H. Kodama and K. Oinuma, 236–249

Illite and glauconite mica, diagenetic, in the Morrison formation, 140

Infrared absorption spectra

in the OH region of some chlorite minerals (Fig. 4c), 244

in the OH region of some illites and montmorillonite minerals (Fig. 4d), 245

in the OH region of some kaolin minerals (Fig. 4a), 243

in the OH region of vermiculite, serpentine and some other minerals (Fig. 4e), 246

Infrared adsorption spectrogram of micas pretreated in various ways (Fig. 1), 123

Infrared investigations on hydro-muscovite, 121
Infrared and tritium data, comparison of, 132
Infrared and X-ray absorption spectra, identification of kaolin minerals in clays by, 236-249
Inorganic amines, chemisorption of NH₃ by the formation of, 309
Insoluble residues of limestone adjacent to K-bentonites, 207
Intensity, maximum of one-layer complex, analysis of variance temperature for (Table 7), 112
Intergrades, 2 : 1-2 : 2, interlayering in, 33
Interlayering by mica cleavage, 30
of Expansible layer silicates in soils by chemical weathering, M. L. Jackson, 29-46
in 2 : 1-2 : 2 intergrades, 33
Iron, redox behavior of, in hydroxylated silicates, 95-104
Iron-kaolinite oxide systems, cation exchange in, 321-326
Jackson, M. L., Interlayering of expansible layer silicates in soils by chemical weathering, 29-46
James, D. W., and M. E. Harward, Mechanism of NH₃ adsorption by montmorillonite and kaolinite, 301-320
Jessen, Frank W., and Necmettin Mungan, Studies in fractionated montmorillonite suspensions, 282-294
Kaolin deposits, variability in “Crystallinity” values among the, of the Coastal Plain of Georgia and South Carolina, 229-235
Kaolin minerals, identification of, in clays by X-ray and infrared absorption spectra, 236-249
Kaolinite and montmorillonite, mechanism of NH₃ adsorption by, 301-320
characteristic reflections of, 237
Kaolinite-iron oxide systems, cation exchange in, 321-326
Keller, W. D., Problems of diagenesis in clay minerals: A review, 136-157
Kodama, H., and K. Oinuma, Identification of kaolin minerals in clays by X-ray in infrared absorption spectra, 236-249
Kondner, R. L., and V. R. Vendrell, Jr., Clay mineral effects on the stress-strain response of soils in direct shear, 252-267
Laboratory weathering methods of micas, 49
Landslides in Leda clay, 6
Layer silicates, expansible, interlayering of, in soils by chemical weathering, 29-46
Layer-lattice silicates, studies on the cell dimensions of, 225-228
Leda clay, landslides in, 6
Lithium nitrate treatment, molten, of micas, 59
Long-range particle interaction and “osmotic swelling”, 180
Loudoun phyllite, the effect of molten LiNO₃ on the chemical composition of, 59
Lutorum, de Natura, 11-28
Maazza deposit, location of bentonite deposits of the (Fig. 3), 331
Mackenzie, R. C., De Natura Lutorum, 11-28
Magnesium, potassium, or aluminum, incorporation of, and mechanism of clay mineral collapse, 147
Malachite-azurite reaction, 91
Marine rocks, ancient, diagenetic alteration of montmorillonite to illite in, 144
Martin-Vivaldi, J. L., The bentonites of Cabo do Gata (Southeast Spain) and of Guelaya Volcanic Province (North Morocco), 327-356
Materials and structural concepts for mica minerals, 117
McKelvey, J. G., I. H. Milne, and R. P. Trump, Permeability and salt filtering properties of compacted clay, 250-251
Measuring ammonia retention, 304
Measuring NH₃ sorption energies, 305
Mechanism of clay mineral collapse and incorporation of potassium, magnesium, or aluminum, 147
of gibbsite dehydration, 89
of NH₃ adsorption by montmorillonite and kaolinite, D. W. James and M. E. Harward, 301-320
for trioctahedral minerals, 103
INDEX

Mica, diagenetic illite and glauconite, in the Morrison formation, 140
Mica cleavage, interlayering by, 30
Mica structure, discussion in light of the, 133
Micas
dioctahedral, negative charge, as related to weathering, 47–64
hydrous, studies in position and mobility of H atoms in, 117–135
Milne, I. H., J. G. McKelvey, and R. P. Trump, Permeability and salt filtering properties of compacted clay, 250–251
Mineral, clay, what is? 15
Mineral collapse, clay, mechanism of, and incorporation of potassium, magnesium, or aluminum, 147
Mineral diagenesis
clay, in the Rappahannock Estuary: An explanation, 210
clay, generalizations on the process of, 153
Mineral effects, clay, on the stress-strain response of soils in direct shear, 252–267
Mineral fractions, “pure” clay, chemical analysis of, 163
Mineral soils, some polydisperse clay, zero-gradient rotational diffusion constants for, 295
Mineralogy
and genesis of the deposits, 327
clay, 217
clay, in building research, 296–298
diagenesis of the deposit in Castle Mountains, 159
Minerals
characteristics of 14 Å clay, occurring in B horizons of podzolized soils in Alberta, 74–82
clay, and clays, origin of, 21
clay, classification of, 16
clay, problems of diagenesis: a review, 136–157
kaolin, identification of, in clays by X-ray and infrared absorption spectra, 236–249
mixed-layer clay, and beidellite, after various treatments, basal X-ray diffraction peaks of (Fig. 4), 164
trioctahedral, mechanism for, 103
Molecular particle distances, compaction of clay sediments in the range of, 178–187
Molten lithium nitrate treatment of micas, 59
Moltchan, H. D., Fenton Gray, and L. W. Reed, Clay formation and accumulation in selected Oklahoma soils, 211–224
Montmorillonite
and kaolinite, mechanism of NH₃ adsorption by, 301–320
sodium, swelling pressure of, at depressed temperatures, 268–281
Montmorillonite suspensions, fractionated, studies in, 282–294
Montmorillonite–illite, diagenetic glauconitic mica from, 142
Morrison formation, diagenetic illite and glauconitic mica in the, 140
Mungan, Neemettin, and Frank W. Jessen, Studies in fractionated montmorillonite suspensions, 284–294
Murray, Haydn, and R. A. Rowland, Preface.
Negative charge of dioctahedral micas as related to weathering, M. G. Cook and C. I. Rich, 47–64
Nelson, B. W., Clay mineral diagenesis in the Rappahannock estuary: an explanation, 210
Nitrate treatment, molten lithium, of micas, 59
Nontronite, reduction of, 100
North Morocco, Guelaya Volcanic Province of, the bentonites of Cabo de Gata (Southeast Spain), 327–356
Oinuma, K., and H. Kodama, Identification of kaolin minerals in clays by X-ray and infrared absorption spectra, 236–249
Oklahoma soils, clay formation and accumulation in selected, 211–224
One-layer complex, temperature in °C of final collapse (Table 2), 107
Ontario muscovite treated with LiNO₃, 61
Ordovician K-bentonites, recent studies of some, 200–209
Origin of clays and clay minerals, 21
“Osmotic swelling” and long-range particle interaction, 180
Outer montmorillonite halo in alteration products, 101
Oxidation of iron (II), 95
Particle interaction and swelling pressure, 179
Particle size distribution in montmorillonite suspensions, 283
Pawluk, S., Characteristics of 14 Å clay minerals occurring in B horizons of podzolized soils in Alberta, 74–82
Phlogopite, pretreated, relative radioactivity of water fractions from (Fig. 6), 128
Physico-chemical studies of bentonites, 345
Pierre Shale of Late Cretaceous, 170
Planosol, prairie, and reddish prairie soils, characteristics of, 213
Pleistocene geology of Gatineau area in Quebec, 2
Podzol–Ste. Agathe, 4
Podzolic, brown, acid–brown wooded, or Sol Brun acide–Gatineau loam, 3
Podzolized soils in Alberta, characteristic of 14 Å clay minerals occurring in B horizons of, 74–82
Polyaleohol–montmorillonite complexes, Part II, 105–116
Polydisperse clay mineral soils, some, zero-gradient rotational diffusion constants for, 295
Potassium bentonites, some Ordovician, recent studies of, 200–209
Potassium–magnesium, or aluminum, incorporation of, and mechanism of clay mineral collapse, 147
Prairie Planosol and reddish prairie soils, characteristics of, 213
Precambrian geology of Gatineau area in Quebec, 1
Prediction of compaction behavior of a Vermiculite clay, 182
of compaction pressures for removal of adsorbed water, 181
Preface, R. A. Rowland and Haydn Murray.
Pretreatment of samples for weathering studies, 48
Problems of diagenesis in clay minerals: a review, W. D. Keller, 136–167
Quebec, Canada, field trip to the Gatineau Area, held in conjunction with the Eleventh Clay Conference, 13 August 1982, 1–10
Radioactivity, relative, of water fractions from pretreated hydro-muscovite (Fig. 4), 126
Radoslovich, E. W., Studies on the cell dimensions of layer-lattice silicates, 225–228
Range in composition in bentonite beds, L. G. Schultz, 169–177
Rappahanock Estuary, clay mineral diagenesis in the: an explanation, 210
Reactions, diagenetic, 146
Recent studies of some Ordovician K-bentonites, Warren D. Huff, 200–209
Redox behavior of iron in hydroxylated silicates, W. E. Addison and J. H. Sharp, 95–104
Reduction of iron (III), 96
of nontronite, 100
Reed, L. W., Fenton Gray, and H. D. Moltan, Clay formation and accumulation in selected Oklahoma soils, 211–224
Regosol–Rideau clay, 3
Relationship of sorption equations, 317
Rheology considerations in stress–strain responses in clay, 255
Rhyolitic alteration, hydrothermal, in the Castle Mountains, California, 158–168
Rich, C. L., M. G. Cook, Negative charge of dioctahedral micas as related to weathering, 47–64
Rolfes, B. N., and R. F. Hadley, Weathering and transport of sediment in the Cheyenne River Basin, Eastern Wyoming, 83
Rosenqvist, I. Th., Studies in position and mobility of the H atoms in hydrous micas, 117–135
Salt filtering and permeability properties of compacted clay, 250–251
Sample preparation of clays for X-ray, 230
Sampling plan in a clay deposit, 230
Schultz, L. G., Range in composition in bentonite beds, 169–177
Sediment, weathering and transport of, in the Cheyenne River Basin, Eastern Wyoming, 83
Sediments, clay, compaction of, in the range of molecular particle distances, 178–187
Sharp, J. H., W. E. Addison, Redox behavior of iron in hydroxylated silicates, 95-104
Shear, direct, clay mineral effects on the stress-strain response of soils in, 252-267
Short-range particle interaction, 181
Silicates
hydroxylated, redox behavior of iron in, 95-104
interlayering of expansible layer, in soils by chemical weathering, 29-46
layer-lattice, studies on the cell dimensions of, 225-228
Sodium montmorillonite at depressed temperatures, swelling pressure of, 268-281
Soil profiles in Gatineau area, 3
Soils
clay mineral effects on the stress-strain response of, in direct shear, 252-267
interlayering of expansible layer silicates in, by chemical weathering, 29-46
podzolized, in Alberta, characteristics of 14 Å clay minerals occurring in B horizons, 74-82
reddish prairie, and prairie Planosol, characteristics of, 213
selected Oklahoma, clay formation and accumulation in, 211-224
tested in shear tests, 254
some polydisperse clay mineral, zero-gradient rotations diffusion constants for, 295
Sol Brun Acide, acid brown wooded, or brown Podzolic-Gatineau loam, 3
Solid-gas interface in weathering reactions, the, C. H. Wayman, 84-94
Solid-gas reactions in borate deposits, 91
Sorption energies, measuring, ammonia, 305
Sorption equations, relationships of, 317
South Carolina and Georgia, variability in “crystallinity” values among the kaolin deposits of the Coastal Plain, 229-235
Southeast Spain, Cabo de Gata, the bentonites of, and of Guelaya Volcanic Province (North Morocco), 327-356
Spectra, X-ray and infrared absorption, identification of kaolin minerals in clays by, 236-249
Stevensite and talc-hydrothermal alteration products of wollastonite, R. D. De Rudder and C. W. Beck, 188-199
Stobbe, P. C., J. G. Brady, C. B. Crawford, and D. D. Hogarth. Field trip to the Gatineau Area, Quebec, Canada, held in conjunction with the Eleventh Clay Conference, 13 August 1962, 1-10
Stone Mountain granite
abrasion pH, 67
bulk density of, 66
thin sections of, 68
weathering of, 65-73
Stress-strain response of soils in direct shear, clay mineral effects on the, 252-267
Structural concepts and materials for mica minerals, 117
Structure, mica, discussion in light of, 133
Studies on the cell dimensions of layer-lattice silicates, E. W. Radoslovich, 225-228
Studies in fractionated montmorillonite suspensions, Necmettin Mungan and Frank W. Jessen, 282-294
Studies in position and mobility of the H atoms in hydrous micas. I. Th. Rosenqvist, 117-135
Surface symmetry in layer-lattice silicates, 226
Suspension, fractionated montmorillonite, studies in, 282-294
Swelling pressure and particle interaction, 179
Swelling pressure of sodium montmorillonite at depressed temperatures, R. Yong, L. O. Taylor and B. P. Warkentin, 268-281
Swoboda, A. W., and G. W. Thomas, Cation exchange in kaolinite-iron oxide systems, 321-356
Systems, kaolinite-iron oxide, cation exchange in, 321-326
Symmetry, surface, in layer-lattice silicates, 226
Talc-hydrothermal alteration and stevensite products of wollastonite, 188-199
Taylor, L. O., R. Yong and B. P. Warkentin, Swelling pressure of sodium montmorillonite at depressed temperatures, 268-281
Temperature in °C of final collapse or one-layer complex (Table 2), 107
Temperature, variance, analysis of, for maximum intensity of one-layer complex (Table 7), 112
Temperatures, depressed, swelling pressure of sodium montmorillonite at, 268–281
Tettenhorst, R., George Brunton, and C. W. Beck, Montmorillonite–polyalcohol complexes, 105–116
Thermal curves, differential, of clay minerals, 79
Thermal technique for identification of clays, 237
Thin sections of Stone Mountain granite, 68
Thomas, G. W., and A. W. Swobada, Cation exchange in kaolinite–iron oxide systems, 321–326
Tidinit deposit, location of bentonite deposits of the (Fig. 3), 331
Transport and weathering of sediment in the Cheyenne River Basin, Eastern Wyoming, 83
Trioctahedral minerals, mechanism for, 103
Tritium amounts of, in the various fractions collected (shown in Fig. 5A, B, and C), 126
Tritium data comments to the, 130
and infrared, comparison of, 132
van Olphen, H., Compaction of clay sediments in the range of molecular particle distances, 178–187
Variability in “crystallinity” values among the kaolin deposits of the Coastal Plain of Georgia and South Carolina, D. N. Hinckley, 229–235
Variance temperature for maximum intensity of one-layer complex (Table 7), 112
Vendrell, Jr., V. R., R. L. Kondner, Clay mineral effects on the stress–strain response of soils in direct shear, 252–267
Vermiculite clay, prediction of compaction behavior of a, 182
Vollcanic ash near Denver, 174
Vp, as a function of relative pressure (Fig. 3), 185
Wakefield, Quebec, brucite deposit and processing plant, 7
Wall-rock alteration, 189
Water content for sodium Llano vermiculite, at 25°C (Fig. 3), 185
Warkentin, B. P., R. Yong and L. O. Taylor, Swelling pressure of sodium montmorillonite at depressed temperatures, 268–281
Wayman, C. H., The solid–gas interface in weathering reactions, 84–94
Weathering chemical, interlayering of expansible layer silicates in soils by, 29–46
and transport of sediment in the Cheyenne River Basin, Eastern Wyoming, B. N. Rolfe and R. F. Hadley, 83
negative charge of dioctahedral micas as related to, 47–64
of Stone Mountain granite, the, W. H. Grant, 65–73
Weathering rates of 2:1–2:2 intergrades, 39
Weathering reactions, 40
the solid–gas interface in, 84–94
Willsboro, New York, geologic map of the vicinity of (Fig. 1), 190
Wollastonite-rich country rock, photograph of alteration halos developed to left of fault in (Plate 1), 191
Wollastonite, stevensite and talc-hydrothermal alteration products of, 188–199
Wollastonite wall rock, X-ray diffraction patterns of, and hydrothermally altered equivalents (Fig. 2), 193
Wyoming, Eastern, weathering and transport of sediment in the Cheyenne River Basin, 83
X-ray amorphous and crystalline aluminium hydroxides, formation of, 299–300
X-ray and infrared absorption spectra, identification of kaolin minerals in clays by, 236–249
X-ray data of K-bentonites, 202
X-ray diffraction of bentonite, 283
X-ray diffraction investigations of 14 Å clay minerals, 77
X-ray diffraction peaks, basal, of boedellite and mixed-layer clay minerals after various treatments (Fig. 4), 164
X-ray diffractometer curves of typical mineral combinations occurring in P. S. deposit (Fig. 2), 160
of minerals in P. S. clay (Fig. 3), 161
X-ray diffractometer traces of some bentonite samples (Fig. 1), 171
X-ray identification methods, criticism of, 237

Yong, R., L. O. Taylor and B. P. Warkentin, Swelling pressure of sodium montmorillonite at depressed temperatures, 268–281