Soil Survey Investigations Report No. 25

Soil Survey Laboratory Data and Descriptions for Some Soils of...

NEW YORK

SOIL CONSERVATION SERVICE · U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
NEW YORK AGRICULTURAL EXPERIMENT STATION · CORNELL UNIVERSITY

Soil survey investigations reports already published:

SSIR No. 1	Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples
	Soil Survey Laboratory Data and Descriptions for Some Soils of:
SSIR No. 2	North Dakota
SSIR No. 3	Iowa
SSIR No. 4	Kansas
SSIR No. 5	Nebraska
SSIR No. 6	Arkansas, Louisiana, and Missouri
SSIR No. 7	Montana
SSIR No. 8	Wyoming
SSIR No. 9	Minnesota
SSIR No. 10	Colorado
SSIR No. 11	Oklahoma
SSIR No. 12	Puerto Rico and the Virgin Islands
SSIR No. 13	Mississippi
SSIR No. 14	Kentucky
SSIR No. 15	Tennessee
SSIR No. 16	North Carolina, South Carolina, and Georgia
SSIR No. 17	Wisconsin
SSIR No. 18	Indiana
SSIR No. 19	Illinois
SSIR No. 20	New England States
SSIR No. 21	A Toposequence of Soils in Tonalite Grus in the Southern California Peninsular Range
	Soil Survey Laboratory Data and Descriptions for Some Soils of:
SSIR No. 22	Alabama and Florida
SSIR No. 23	Nevada
SSIR No. 24	California

Soil Survey Investigations Report No. 25

Soil Survey Laboratory Data and Descriptions for Some Soils of...

... NEW YORK

August 1974

SOIL CONSERVATION SERVICE • U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
NEW YORK AGRICULTURAL EXPERIMENT STATION · CORNELL UNIVERSITY

METHODS CODE SYMBOLS

1. SAMPLE COLLECTION AND PREPARATION
   A. Field sampling
      1. Site selection
      2. Soil sampling
         a. Stony soils
   B. Laboratory preparation
      1. Standard (airdry)
         a. Square-hole 2-mm sieve
         b. Round-hole 2-mm sieve
      2. Field moist
2. CONVENTIONS
   A. Size-fraction base for reporting
      1. <2-mm
      2. < size specified
   B. Data sheet symbols
      tr: trace, not measurable by quantitative procedure used or less than reportable amount
      - : analysis run but none detected
      blank: analysis not run
      nd: analysis not run
      < : less than reported amount or none present
3. PARTICLE-SIZE ANALYSES
   A. Particles < 2-mm (pipet method)
      1. Airdry samples
         a. Carbonate and noncarbonate clay
      2. Moist samples
         a. Carbonate and noncarbonate clay
   B. Particles >2-mm
      1. Weight estimates
         a. By field and laboratory weighing
4. FABRIC-RELATED ANALYSES
   A. Bulk density
      1. Saran-coated clods
         a. Field state
         b. Airdry
         f. 1/3-bar desorption III
         g. 1/10-bar desorption
         h. Ovendry
      3. Cores
         a. Field moist
   B. Water retention
      1. Pressure-plate extraction
4. FABRIC RELATED ANALYSES (con.)
      (1/3 or 1/10-bar)
         a. Sieved samples
         b. Soil pieces
         c. Natural clods
         d. Cores
      2. Pressure membrane extraction (15-bars)
         a. Field-moist samples
      4. Field state
   C. Water-retention difference
      1. 1/3-bar to 15-bars
      2. 1/10-bar to 15-bars
   D. Linear extensibility
      1. Dry to moist
5. ION-EXCHANGE ANALYSES
   A. Cation-exchange capacity
      1. NH_4OAc, pH 7.0
         a. Direct distillation
         b. Displacement distillation
      3. Sum of cations
         a. Acidity by $BaCl_2$-TEA, pH 8.2; bases by NH_4OAc, pH 7.0
   B. Extractable bases
      1. NH_4OAc extraction
         a. Uncorrected
      4. NH_4OAc, pH 7.0 (modified)
         a. Uncorrected
   C. Base saturation
      3. Sum of cations
6. CHEMICAL ANALYSES
   A. Organic carbon
      1. Acid-dichromate digestion
         a. $FeSO_4$ titration
   B. Nitrogen
      1. Kjeldahl digestion
         a. Ammonia distillation
      2. Semimicro Kjeldahl
         a. Ammonia distillation
   C. Iron
      1. Dithionite extraction
         a. Dichromate titration
      5. Sodium pyrophosphate extraction
         a. Atomic absorption
   E. Calcium carbonate
      1. HCl treatment
         a. Gas volumetric
6. CHEMICAL ANALYSES (con.)
         c. Weight loss
   G. Aluminum
      5. Sodium pyrophosphate extraction
         a. Atomic absorption
   H. Extractable acidity
      1. $BaCl_2$- triethanolamine I
         a. Back-titration with HCl
      2. $BaCl_2$- triethanolamine II
         a. Back-titration with HCl
   N. Calcium
      2. NH_4OAc extraction
         b. Oxalate-permanganate I
         d. Oxalate-cerate
   O. Magnesium
      2. NH_4OAc extraction
         a. EDTA-alcohol separation
         b. Phosphate titration
         c. Gravimetric, $Mg_2P_2O_7$
   P. Sodium
      2. NH_4OAc extraction
         a. Flame photometry
   Q. Potassium
      2. NH_4OAc extraction
         a. Flame photometry
7. MINERALOGY
   A. Instrumental analysis
      1. Preparation
         b. Organic-matter removal
         c. Iron removal
         d. Particle-size fractionation
      2. X-ray diffraction
         a. Thin film on glass, solution
      3. Differential thermal analysis
8. MISCELLANEOUS
   C. pH
      1. Soil suspensions
         a. Water dilution
         b. Saturated paste
         c. KCl
         e. $CaCl_2$
   D. Ratios and estimates
      1. To total clay
      3. Ca to Mg (extractable)

PREFACE

The Soil Survey Investigations Report (SSIR) series was established to preserve and make available technical information resulting from soil survey investigations. SSIR No. 1, "Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples," revised April 1972, describes in detail the methods used in the soil survey laboratories. One report involves a single specific study. Other reports in the series contain pedon descriptions and data from individual states and Puerto Rico and the Virgin Islands. The entire series is listed on the inside front cover.

This report contains pedon descriptions and data obtained principally from 1955 to 1965. The majority of laboratory analyses were conducted at soil survey laboratories in Beltsville, Maryland, and Lincoln, Nebraska. Many of the soils were analyzed chemically at the Department of Agronomy, New York Agricultural Experiment Station, Cornell University, Ithaca.

Laboratory data for different soils cannot always be compared without allowance for the method. Methods are indexed by code or footnote in data sheet column headings and are identified briefly on the page opposite this Preface. Detailed explanations of coded procedures are in SSIR No. 1.

Many of the soil descriptions published herein were prepared as working documents, not necessarily for publication. Some contain unusually detailed information pertinent to specific soil survey investigations. Such information, including older concepts of soil series, relationships among pedons, and field estimates of properties, is useful in a publication of this type. Editing is, therefore, minimal with emphasis toward preservation of descriptive data.

Many pedons no longer represent the soil series with which they were originally identified. All were classified during the period 1970 to 1974 and were checked against series classification as of December 1973. Some series names changed and are footnoted where the original name carries useful connotations. Pedons barely exceeding the limits of recognized series are designated as taxadjuncts but those with large departures are classified only to the family level. The latter are listed with the most closely related series in the geographical and series indexes. In the taxonomic index and in the body of the text, they are arranged by taxonomic unit.

CLASSIFICATION INDEX

Page

ALFISOLS

AQUALFS

FRAGIAQUALFS

Aeric Fragiaqualfs
Coarse-loamy, mixed, mesic
Erie 3

OCHRAQUALFS

Aeric Ochraqualfs
Fine-loamy, mixed, mesic
Lockport, taxadjunct 5

Fine-silty, mixed, mesic
Niagara 7
Niagara 9

Fine, illitic, mesic
Lockport 11

Mollic Ochraqualfs
Very-fine, illitic, mesic
Covington 13

UDALFS

FRAGIUDALFS

Glossic Fragiudalfs
Coarse-loamy, mixed, mesic
Langford, taxadjunct 15

Ochreptic Fragiudalfs
Fine-loamy, mixed, mesic
Troy 17

Coarse-silty, mixed, mesic
Williamson, taxadjunct 19

HAPLUDALFS

Typic Hapludalfs
Fine-loamy, mixed, mesic
Lima, taxadjunct 21
Lima, taxadjunct 23
Nunda, taxadjunct 25

Very-fine, illitic, mesic
Vergennes, taxadjunct 27

Glossaquic Hapludalfs
Loamy-skeletal, mixed, mesic
Nunda, taxadjunct 29

Fine-loamy, mixed, mesic
Nunda 31

Fine, mixed, mesic
Vergennes, taxadjunct 33

Glossoboric Hapludalfs
Loamy-skeletal, mixed, mesic
Howard 35

Fine-loamy, mixed, mesic
Danley, taxadjunct 37
Hilton 39
Hilton 41
Hilton 43
Lansing, taxadjunct 45

Psammentic Hapludalfs
Sandy, mixed, mesic
Arkport, taxadjunct 47

Coarse-loamy, mixed, mesic
Arkport 49

Page

ENTISOLS

PSAMMENTS

UDIPSAMMENTS

Alfic Udipsamments
Mixed, mesic
Colonie 51
Colonie 53

INCEPTISOLS

AQUEPTS

FRAGIAQUEPTS

Typic Fragiaquepts
Coarse-loamy, mixed, mesic
Ellery, taxadjunct 55

HAPLAQUEPTS

Aeric Haplaquepts
Fine-loamy, mixed, mesic
Series not designated (sampled as Burdett) 57

OCHREPTS

FRAGIOCHREPTS

Typic Fragiochrepts
Loamy-skeletal, mixed, mesic
Bath, taxadjunct 59
Lackawanna, taxadjunct 61
Mardin, taxadjunct 63

Coarse-loamy, mixed, mesic
Broadalbin 65
Broadalbin 67
Broadalbin 69
Mardin 71
Sodus 73
Sodus 75

Fine-loamy, mixed, mesic
Mardin, taxadjunct 77
Mardin, taxadjunct 79

DYSTROCHREPTS

Typic Dystrochrepts
Loamy-skeletal, mixed, mesic
Chenango 81

Coarse-loamy, mixed, mesic
Unadilla, taxadjunct 83

EUTROCHREPTS

Typic Eutrochrepts
Loamy-skeletal, mixed, mesic
Chenango, taxadjunct 85

Aquic Eutrochrepts
Coarse-loamy, mixed, mesic
Amenia 87

MOLLISOLS

AQUOLLS

HAPLAQUOLLS

Typic Haplaquolls
Sandy, mixed, mesic
Granby, taxadjunct 89

CLASSIFICATION INDEX

Page

SPODOSOLS

AQUODS

FRAGIAQUODS

Typic Fragiaquods
Coarse-loamy, mixed, frigid
Camroden, taxadjunct 91
Camroden, taxadjunct 93

ORTHODS

FRAGIORTHODS

Typic Fragiorthods
Coarse-loamy, mixed, frigid
Pinckney 95
Potsdam 97

Aquic Fragiorthods
Coarse-loamy, mixed, frigid
Empeyville 99

Entic Fragiorthods
Coarse-loamy, mixed, mesic
Paxton 101

HAPLORTHODS

Typic Haplorthods
Coarse-loamy, mixed, frigid
Hermon, taxadjunct 103

Aquic Haplorthods
Sandy, mixed, frigid
Croghan 105

Sandy, mixed, frigid, ortstein
Wallace, taxadjunct 107

GEOGRAPHICAL INDEX

County	Soil Series	Soil Survey No. 1/	Classification	Page
Cayuga	Langford taxadjunct	S63NY-6-3	Fragiudalf	15
	Lansing taxadjunct	S58NY-6-1	Hapludalf	45
	Lima taxadjunct	S58NY-6-3	Hapludalf	21
	Mardin	S63NY-6-2	Fragiochrept	71
	Mardin taxadjunct	S63NY-6-1	Fragiochrept	63
	Sodus	S58NY-6-2	Fragiochrept	73
Cortland	Chenango taxadjunct	S58NY-12-1	Eutrochrept	85
Delaware	Lackawanna taxadjunct	S57NY-13-1	Fragiochrept	61
Essex	Vergennes taxadjunct	S57NY-16-1	Hapludalf	27
Franklin	Covington	S57NY-17-1	Ochraqualf	13
	Empeyville	S57NY-17-2	Fragiorthod	99
Fulton	Broadalbin	S63NY-18-1	Fragiochrept	65
	Broadalbin	S63NY-18-3	Fragiochrept	67
	Paxton	S63NY-18-2	Fragiorthod	101
Hamilton	Hermon	S63NY-21-2	Haplorthod	103
Herkimer	Not designated (sampled as Burdett) 2/	S63NY-22-2	Haplaquept	57
	Nunda taxadjunct	S63NY-22-1	Hapludalf	25
Jefferson	Vergennes taxadjunct	S57NY-23-1	Hapludalf	33
Lewis	Amenia	S57NY-25-2	Eutrochrept	87
	Camroden taxadjunct	S57NY-25-3	Fragiaquod	91
	Camroden taxadjunct	S63NY-25-2	Fragiaquod	93
	Croghan	S57NH-25-1	Haplorthod	105
	Pinckney	S63NY-25-1	Fragiorthod	95
Monroe	Colonie	S57NY-28-1	Udipsamment	51
	Hilton	S61NY-28-1	Hapludalf	39
Oneida	Broadalbin	S63NY-33-1	Fragiochrept	69
Ontario	Granby	S58NY-35-1	Haplaquoll	89
Orange	Troy	S57NY-36-1	Fragiudalf	17
Orleans	Arkport	S61NY-37-1	Hapludalf	49
	Arkport taxadjunct	S61NY-37-2	Hapludalf	47
	Colonie	S61NY-37-4	Udipsamment	53
	Hilton	S61NY-37-6	Hapludalf	41
	Hilton	S61NY-37-8	Hapludalf	43
	Lockport	S61NY-37-5	Ochraqualf	11
	Lockport taxadjunct	S61NY-37-3	Ochraqualf	5
	Sodus	S61NY-37-7	Fragiochrept	75
	Unadilla	S61NY-37-9	Dystrochrept	83
St. Lawrence	Potsdam	S63NY-45-1	Fragiorthod	97
	Wallace taxadjunct	S58NY-45-1	Haplorthod	107
Schoharie	Nunda	S63NY-48-2	Hapludalf	31
	Nunda taxadjunct	S63NY-48-1	Hapludalf	29
Tioga	Bath taxadjunct	S54NY-54-4	Fragiochrept	59
	Chenango taxadjunct	S54NY-54-6	Dystrochrept	81
	Mardin taxadjunct	S54NY-54-2	Fragiochrept	77
Tompkins	Danley taxadjunct	S59NY-55-4	Hapludalf	37
	Ellery	S58NY-55-2	Fragiaquept	55
	Erie	S59NY-55-13	Fragiaqualf	3
	Howard	S59NY-55-12	Hapludalf	35
	Lima taxadjunct	S59NY-55-5	Hapludalf	23
	Mardin taxadjunct	S54NY-55-2	Fragiochrept	79
	Niagara	S58NY-55-1	Ochraqualf	7
	Niagara	S59NY-55-9	Ochraqualf	9
Wayne	Williamson taxadjunct	S57NY-59-1	Fragiudalf	19

Footnotes are at the end of the soil series index.

SOIL SERIES INDEX

Series	Soil Survey No. 1/	Classification	Page
Amenia	S57NY-25-2	Eutrochrept	87
Arkport	S61NY-37-1	Hapludalf	49
Arkport taxadjunct	S61NY-37-2	Hapludalf	47
Bath taxadjunct	S54NY-54-4	Fragiochrept	59
Broadalbin	S63NY-18-1	Fragiochrept	65
Broadalbin	S63NY-18-3	Fragiochrept	67
Broadalbin	S63NY-33-1	Fragiochrept	69
Not designated (sampled as Burdett)2/	S63NY-22-2	Haplaquept	57
Camroden taxadjunct	S57NY-25-3	Fragiaquod	91
Camroden taxadjunct	S63NY-25-2	Fragiaquod	93
Chenango	S54NY-54-6	Dystrochrept	81
Chenango taxadjunct	S58NY-12-1	Eutrochrept	85
Colonie	S57NY-28-1	Udipsamment	51
Colonie	S61NY-37-4	Udipsamment	53
Covington	S57NY-17-1	Ochraqualf	13
Croghan	S57NY-25-1	Haplorthod	105
Danley taxadjunct	S59NY-55-4	Hapludalf	37
Ellery taxadjunct	S58NY-55-2	Fragiaquept	55
Empeyville	S57NY-17-2	Fragiorthod	99
Erie	S59NY-55-13	Fragiaqualf	3
Granby	S58NY-35-1	Haplaquoll	89
Hermon	S63NY-21-2	Haplorthod	103
Hilton	S61NY-28-1	Hapludalf	39
Hilton	S61NY-37-6	Hapludalf	41
Hilton	S61NY-37-8	Hapludalf	43
Howard	S59NY-55-12	Hapludalf	35
Lackawanna taxadjunct	S57NY-13-1	Fragiochrept	61
Langford taxadjunct	S63NY-6-3	Fragiudalf	15
Lansing taxadjunct	S58NY-6-1	Hapludalf	45
Lima taxadjunct	S58NY-6-3	Hapludalf	21
Lima taxadjunct	S59NY-55-5	Hapludalf	23
Lockport	S61NY-37-5	Ochraqualf	11
Lockport taxadjunct	S61NY-37-3	Ochraqualf	5
Mardin	S63NY-6-2	Fragiochrept	71
Mardin taxadjunct	S63NY-6-1	Fragiochrept	63
Mardin taxadjunct	S54NY-54-2	Fragiochrept	77
Mardin taxadjunct	S54NY-55-2	Fragiochrept	79
Niagara	S58NY-55-1	Ochraqualf	7
Niagara	S59NY-55-9	Ochraqualf	9
Nunda	S63NY-48-2	Hapludalf	31
Nunda taxadjunct	S63NY-22-1	Hapludalf	25
Nunda taxadjunct	S63NY-48-1	Hapludalf	29
Paxton	S63NY-18-2	Fragiorthod	101
Pinckney	S63NY-25-1	Fragiorthod	95
Potsdam	S63NY-45-1	Fragiorthod	97
Sodus	S58NY-6-2	Fragiochrept	73
Sodus	S61NY-37-7	Fragiochrept	75
Troy	S57NY-36-1	Fragiudalf	17
Unadilla taxadjunct	S61NY-37-9	Dystrochrept	83
Vergennes taxadjunct	S57NY-16-1	Hapludalf	27
Vergennes taxadjunct	S57NY-23-1	Hapludalf	33
Wallace taxadjunct	S58NY-45-1	Haplorthod	107
Williamson taxadjunct	S57NY-59-1	Fragiudalf	19

1/ Soil numbers are coded as follows:

S	58	NY	-	3	-	1
Samples taken for special studies	Year of sampling	State abbreviation		County numerical position in alphabetical order		Numerical order of pedons sampled in a county, beginning with 1 each year

2/ Pedons that are classified only to the family level because of major departures from current series.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aeric Fragiaqualf; coarse-loamy, mixed, mesic

SOIL Erie channery silt loam SOIL Nos. S59NY55-13 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60534-60538

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	Silt: (2–0.1)			Coarse fragments 2A2 ≥ 2 < 76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-9	Ap	20.3	55.2	24.5	1.4	1.8	2.2	6.5	8.4	18.3	36.9	30.8	11.9			16		
9-15	A2g	26.6	57.2	16.2	1.5	2.1	2.6	8.0	12.4	22.5	34.7	40.0	14.2			15		
15-28	B'x1	26.3	46.1	27.6	3.8	4.5	3.2	6.9	7.9	12.3	33.8	24.6	18.4			38		
28-42	B'x2	27.7	46.8	25.5	4.8	4.9	3.2	6.7	8.1	12.8	34.0	25.1	19.6			30		
42-60	C	27.3	51.5	21.2	6.7	4.9	2.9	5.8	7.0	13.9	37.6	24.4	20.3			28		

Depth (in.)	Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	Pct.			pH		8C1a (1:1) H_2O
0-9																		4.9
9-15																		5.1
15-28																		5.3
28-42																		6.7
42-60																		7.7

Depth (in.)	Extractable bases Ca	Mg	Na	K												Base saturation Pct.	Pct.
	meq/100 g																

Depth (in.)				

Pedon Classification: Aeric Fragiaqualf; coarse-loamy, mixed, mesic
Soil: Erie channery silt loam
Soil No.: 59NY55-13
Location: 2.5 miles northeast of Danby, 50 feet east of Marsh Road in excavation, 5 miles southeast of Ithaca, Tompkins County, New York. Aerial photo ARU-3N-136.
Vegetation: Idle.
Slope: 5 percent.
Erosion: Slight.
Drainage: Somewhat poor.
Permeability: Slow.
Parent material: Glacial till from fine grained sandstone and shale with small amount of limestone.
Date sampled: November 11, 1959.

Horizon and Beltsville Lab. Number	
Ap 60534	0 to 9 inches. Dark grayish brown (10YR 4/2) channery silt loam; weak fine crumb structure; very friable; many fine roots; clear smooth boundary; pH 5.2. 6 to 10 inches thick.
A2g 60535	9 to 15 inches. Mottled yellowish brown (10YR 5/4), grayish brown (2.5Y 5/2) and light brownish gray (2.5Y 6/2) channery silt loam; weak fine and medium crumb structure; very friable; many fine roots; clear wavy boundary; pH 5.4. 5 to 7 inches thick.
B'x1 60536	15 to 28 inches. Olive (5Y 5/4) channery heavy silt loam with common distinct yellowish brown (10YR 5/8) mottles; weak fine and medium subangular structure; peds are coated with light olive gray (5Y 6/2) silt; slightly firm; few roots between peds; gradual lower boundary; pH 5.6. 10 to 15 inches thick.
B'x2 60537	28 to 42 inches. Olive brown and light olive brown (5Y 4/4-5/4) channery silty clay loam with few fine faint light olive gray (5Y 6/2) mottles; coarse prisms 6 to 8 inches across breaks into moderate medium and coarse angular blocky structure; firm; gradual boundary; pH 6.2. 13 to 16 inches thick.
C 60538	42 to 60 inches. Olive (5Y 4/4) channery silt loam with few fine faint olive brown (2.5Y 4/4) mottles; coarse prisms that break into thick platy structure; firm; calcareous till to 15 feet.

Notes: Many roots in Ap and A2g and few in cracks of pan. The 0-9, 28-42 and the 42-60 inch zones were sampled for the Bureau of Public Roads. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aeric Ochraqualf; fine-loamy, mixed, mesic
SOIL Lockport taxadjunct SOIL Nos. S61NY-37-3 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61586 - 61591

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 <76 Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm														Pct. of < 76mm		
0-9	Ap	33.9	43.6	22.5	1.3	2.3	2.2	9.1	19.0	18.8	24.8	44.1	14.9		0.99	3		
9-12	A2g	29.8	45.5	24.7	1.0	2.3	1.9	7.6	17.0	16.0	29.5	38.3	12.8		0.99	2		
12-16	B21t	37.5	29.7	32.8	1.4	3.6	2.5	10.7	19.3	14.2	15.5	48.8	18.2		0.98	3		
16-24	B22t	27.0	38.3	34.7	1.2	4.8	1.9	6.5	12.6	14.5	23.8	31.3	14.4		0.99	1		
24-31	C1	10.4	68.1	21.5	0.6	0.6	0.5	1.4	7.3	27.9	40.2	36.1	3.1		0.99	1		
31-36	R	13.9	76.0	10.1	0.4	0.4	0.3	0.5	12.3	43.4	32.6	56.1	1.6		1.00	tr.		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9	2.04	0.151	14			1.7		1.29	1.36	0.02		17.5	11.3		0.08		4.7	5.7
9-12	0.67	0.068	10			2.1		1.70	1.80	0.02		17.4	13.0		0.07		4.4	6.0
12-16	0.34					2.1		1.72	1.86	0.03		17.0	12.9		0.07		5.2	6.8
16-24	0.19					1.9		1.78	1.95	0.03		16.6	13.6		0.05		5.8	7.3
24-31	0.11					1.8		1.84	2.04	0.03		15.9	10.2		0.10		7.0	8.2
31-36	0.15					0.9		1.97	2.13	0.03		11.5	6.0		0.11		7.1	8.0

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct.
	meq/100 g																
0-9	6.1	3.4	0.1	0.2	9.8	9.3	19.1		0.1		0.85	0.08	0.50	2		51	
9-12	4.3	4.1	0.2	0.2	8.8	7.1	15.9		0.2		0.64	0.08	0.53	1		55	
12-16	5.1	6.1	0.3	0.2	11.7	2.3	14.0		tr.		0.43	0.06	0.39	1		84	
16-24	6.1	8.3	0.3	0.2	14.9	2.3	17.2	14.8			0.50	0.05	0.39	1		87	
24-31	Calcareous							8.5				0.08	0.47				
31-36	Calcareous							6.2				0.09	0.59				

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts. blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Aeric Ochraqualf; fine-loamy, mixed, mesic
Soil: Lockport taxadjunct [1]
Soil No.: S61NY-37-3
Location: Orleans County, New York. South of Rutherford Road about 0.25 mile west of its junction with Oak Orchard River Road.
Vegetation and land use: Idle grass- and weed-covered field on a slope.
Slope and land form: Less than 1 percent.
Sampled by and date: D. Bohrer, October 10, 1961.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 61586	0 to 9 inches. Brown (10YR 4/3) silt loam; moderate medium granular in the upper 4 inches grading to moderate very fine subangular blocky in the lower 4 inches; friable; many fine roots; common 3 mm vertical holes with wormcastings; few subrounded sandstone fragments; clear slightly wavy boundary. 8 to 9 inches thick.
A2g 61587	9 to 12 inches. Silty clay loam in strong 1 inch to 2 inch prisms having dark grayish brown (10YR 4/2) coats on which are many fine roots that follow cleavage faces. Interiors are 70 percent brown (7.5YR 5/4) with 30 percent fine strong brown (7.5YR 5/6) mottles and a network of dark grayish brown (10YR 4/2) thread-like lines marking incipient weak medium blocks. Firm; slightly plastic; many fine vertical holes; common 5 to 3 mm vertical holes lined with grayish brown; few fine roots in ped interiors; clear wavy boundary. 2-1/2 to 3-1/2 inches thick.
B21t 61588	12 to 16 inches. Silty clay in strong 1 inch to 3 inch prisms coated dark grayish brown (10YR 4/2). These break to moderate medium angular blocks with discontinuous dark grayish brown (10YR 4/2) coats. Many fine roots are embedded in the grayish brown faces. Interiors of peds are reddish brown (5YR 4/3) with common fine yellowish red (5YR 4/6) mottles. Firm; plastic; few fine roots in ped interiors; common fine vertical holes; few 3 to 4 mm vertical holes with wormcastings; clear wavy boundary. 3 to 5 inches thick.
B22t 61589	16 to 24 inches. Silty clay in strong prisms ranging from 2 inches to 5 inches in diameter. Prisms are coated brown (7.5YR 4/2) and faces have common fine roots embedded in coats. Interiors have weak discontinuous cleavage faces of (2.5YR 3/4). When broken the interiors are red (2.5YR 4/6) with few fine (7.5YR 5/4) mottles; very firm; very plastic; few fine roots in prism interiors; common fine vertical holes. Clear wavy boundary. 6 to 10 inches thick.
C1 61590	24 to 31 inches. Dark yellowish brown (10YR 3/4) silty clay with 1/8 to 1 inch irregular shaped inclusions of (5GY 6/1) more silty shale remnants. The mass has inherited horizontal cleavage within plates of which are weak incipient angular blocks. Some fragments are very firm. Calcareous; gradual smooth boundary. 6 to 8 inches thick.
R 61591	31 to 36 inches plus. 85 percent dark yellowish brown (10YR 3/4) firm, very firm and extremely firm shale beds; 15 percent (10GY 6/1) soft silty shale. The mass can be cut with a spade. Some pieces cannot be crushed between the fingers; calcareous.

Notes: Colors refer to moist soil.

[1] This pedon is a taxadjunct because its family particle size is fine-loamy, missing fine by less than 1 percent. The Lockport series is in the fine class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aeric Ochraqualf; fine-silty, mixed, mesic
SOIL Niagara silt loam SOIL Nos. S58NY-55-1 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60638-60642

Depth (in.)	Horizon	1H1b Total: Sand (2-0.05)	Total: Silt (0.05-0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: (0.05-0.02)	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 2A2 > 2	2-19	19-76
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-10	Ap	9.2	65.5	25.3	0.4	0.6	0.6	2.3	5.3	14.2	51.3	21.2	3.9			tr		
10-12	A2g	17.3	58.6	24.1	0.4	1.2	1.0	3.6	11.1	16.3	42.3	30.0	6.2			tr		
12-23	B2tg	9.9	57.3	32.8	0.1	0.4	0.6	2.4	6.4	9.7	47.6	17.9	3.5			tr		
23-27	C1	1.9	67.7	30.4	0.3	0.2	0.1	0.4	0.9	6.7	61.0	7.9	1.0			tr		
27-50	C2	1.9	69.7	28.4	0.1	0.1	0.1	0.4	1.2	9.2	60.5	10.8	0.7			tr		

Depth (in.)	6A1a Organic carbon	6B2a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. iron Fe	Bulk density				Water content					pH 8C1c 1:1 1N KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.				
0-10	1.37	0.142	10		2	1.3										6.4	7.1
10-12	0.40	0.062	6		1	1.5										5.5	6.3
12-23	0.37	0.080	5		2	1.7										6.1	7.2
23-27	0.26				2	1.3											7.7
27-50	0.25				1	1.3											7.7

Depth (in.)	Extractable bases: Ca	Mg	Na	K												Base saturation	
	meq/100 g															Pct.	Pct.
0-10																	
10-12																	
12-23																	
23-27																	
27-50																	

Depth (in.)				

Pedon Classification: Aeric Ochraqualf; fine-silty, mixed, mesic
Soil: Niagara silt loam
Soil No.: S58NY-55-1
Location: Tompkins County, New York. 2/3 mile south of the village of Varna, 1/2 mile east of Ithaca town line, 200 yards north of Game Farm Road, 110 yards east of Lehigh Valley Railroad in cultivated field. Aerial photo ARU-3-74.
Vegetation and land use: Cultivated (plowed field).
Slope and land form: 2 percent.
Erosion: Slight or none.
Drainage: Somewhat poor.
Permeability: Slow.
Parent material: Lacustrine sediments of Old Lake Ithaca.
Physiographic position: Old Lake plain.
Date sampled: November 5, 1958.

Horizon and Beltsville Lab. No.	
Ap 60638	0 to 10 inches. Dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; pH 6.8; abrupt smooth lower boundary. 7 to 10 inches thick.
A2g 60639	10 to 12 inches. Grayish brown (10YR 5/2) and olive brown (2.5Y 4/4) silt loam; about equal amounts of each color; weak fine and medium subangular blocky structure; friable; few fine roots. pH 6.7; clear smooth boundary 1-1/2 to 3 inches thick. Most of this horizon has been mixed with the Alp horizon.
B2tg 60640	12 to 23 inches. Olive brown (2.5Y 4/4) silty clay loam with common medium light olive brown (2.5Y 5/4-5/6) mottles; strong coarse prisms 2 to 6 inches across increasing in size with depth and break into moderate medium angular blocky structure; prisms coated with very sticky dark brown (10YR 3/3) and gray (N 5/) clay; firm; few fine roots in cracks between prisms and in wormcasts ; pH 6.6; gradual wavy boundary; 8 to 12 inches thick.
C1 60641	23 to 27 inches. Dark grayish brown (2.5Y 4/2) and olive (5Y 4/4) laminated silt loam layers, 1/3 to 1/4 inches thick with very thin clay layers with precipitated $CaCO_3$ between silt layers; weak coarse to very coarse prisms that break into thick platy structure; firm; no roots; calcareous; clear smooth boundary.
C2 60642	27 to 50 inches. Olive brown (2.5Y 4/4) heavy silt loam with few gray (N 5/) vertical streaks marking boundary of weak very coarse prisms that separate into very thick platy structure; calcareous.

Notes: Many fine roots in Ap and A2g, few in cracks in B2tg, none in C. The 0-10, 12-23, and 27-50 inch zones were sampled for the Bureau of Public Roads. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aeric Ochraqualf; fine-silty, mixed, mesic
SOIL Niagara silt loam SOIL Nos. S59NY55-9 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60520-60524

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	3A1 Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 2A2 > 2 < 76 Pct.	2-19	19-76
		Pct. of < 2 mm															Pct. of < 76mm	
0-8	Ap	11.4	62.7	25.9	0.9	1.1	1.2	3.5	4.7	15.8	46.9	22.7	6.7			2		
8-12	A2g	13.8	63.6	22.6	1.0	1.2	1.3	4.2	6.1	16.7	46.9	25.8	7.7			3		
12-30	B21tg	8.7	57.6	33.7	1.0	1.2	1.0	2.5	3.0	12.4	45.2	17.1	5.7			3		
30-36	B22tg	7.1	59.4	33.5	1.7	1.0	0.7	1.6	2.1	9.6	49.8	12.7	5.0			4		
36-70	C	6.4	59.7	33.9	0.8	0.9	0.7	1.7	2.3	10.8	48.9	14.1	4.1			4		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron Fe Pct.	Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	Pct.			pH 8C1c 1:1 1N KCl	8C1a (1:1) H_2O
0-8	2.72	0.253	11			1.3										5.2	5.6
8-12	0.51	0.068	8			1.3										4.8	5.7
12-30	0.29					1.5										5.7	6.0
30-36	0.22				7	1.2										7.2	7.4
36-70	0.22				3	1.4										7.1	7.6

Depth (in.)	Extractable bases 6N2d Ca	6Q2b Mg	6P2a Na	5R1a 6Q2a K	6H2a Ext. acidity	5A3a Sum cations						8D1 Ratios to Clay CEC Sum	EXT. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum Pct.	Pct.
	meq/100 g																	
0-8	10.6	1.2	0.1	0.2	10.3	22.4						0.86	0.05				54	
8-12	4.2	0.6	0.1	0.1	5.1	10.1						0.45	0.06				50	
12-30	9.0	2.3	0.1	0.1	2.7	14.2						0.42	0.04				81	
30-36													0.04					
36-70													0.04					

Depth (in.)					

Pedon Classification: Aeric Ochraqualf; fine-silty, mixed, mesic
Soil: Niagara silt loam[1/]
Soil No.: S59NY-55-9
Location: Tompkins County, New York. 600 yards west of Route 38 on George Jr. Republic farm, 1 mile southeast of Freeville. Aerial photo ARU 1N-167.
Vegetation and land use: Idle.
Slope and land form: 4 percent.
Erosion: Slight.
Drainage: Somewhat poor.
Permeability: Slow.
Parent material: Lacustrine sediments.
Physiographic position: Local lake area in Valleys of Virgil and Fall Creeks.
Date sampled: October 29, 1959.

Horizon and Beltsville Lab. No.	
Ap 60520	0 to 8 inches. Dark grayish brown (10YR 4/2) heavy silt loam; weak fine and medium crumb structure; friable; pH 6.8; abrupt smooth boundary. 6 to 10 inches thick.
A2g 60521	8 to 12 inches. Mottled yellowish brown (10YR 5/6-5/8), grayish brown (2.5Y 5/2) and olive brown (2.5Y 5/4) heavy silt loam; weak prisms 2 to 3 inches across that break into weak fine and medium angular blocky structure; peds coated with light grayish brown (2.5Y 6/2) silt; friable; pH 6.5; clear smooth boundary. 3 to 5 inches thick.
B21tg 60522	12 to 30 inches. Dark grayish brown (2.5Y 4/2) silty clay loam with common fine faint gray and grayish brown (2.5Y 5/ -5/2) mottles; prisms 4 to 6 inches across breaks into moderate medium angular blocky structure that is easily separated into irregular plated; peds coated with dark grayish brown (2.5Y 4/2) silt; firm; pH 7.0; gradual lower boundary. 7 to 10 inches thick.
B22tg 60523	30 to 36 inches. Dark grayish brown (2.5Y 4/2) silty clay loam with few fine faint grayish brown (2.5Y 5/2) mottles; prisms 8 to 10 inches across break into moderate medium platy structure; peds coated with gray and dark grayish brown (2.5Y 5/- 4/2) clay; firm; pH 7.2. 14 to 18 inches thick.
C 60524	36 to 70 inches. Dark grayish brown and olive brown (2.5Y 4/2-4/4) silt loam with gray (N5/-) and dark greenish gray (5GY 4/1) clay films between prisms; prisms 1 to 3 inches across break into moderate thick platy structure; firm; approaching massive; calcareous.

Notes: Many fine roots in Alp with few in cracks between prisms. The 0-7, 30-36, and the 36-70 inch zones were sampled for the Bureau of Public Roads. Colors are for moist soil.

[1/] This pedon sampled in 1959 as a representative of the Fulton series, but Fulton is now in the fine, illitic, mesic family.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aeric Ochraqualf; fine, illitic, mesic
SOIL Lockport silt loam SOIL Nos. 861NY-37-5 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61602 - 61606

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	15.7	51.4	32.9	1.3	1.7	1.4	1.7	9.6	22.8	28.6	33.4	6.1		1.00	tr.		
8-11	A2	9.5	51.5	39.0	0.1	0.2	0.3	0.4	8.5	21.0	30.5	29.7	1.0		1.00	tr.		
11-15	B21t	7.2	47.5	45.3	0.1	0.2	0.2	0.4	6.3	17.9	29.6	24.4	0.9		1.00	tr.		
15-24	B22t	5.4	47.3	47.3	0.2	0.3	0.3	0.4	4.2	17.6	29.7	22.1	1.2		1.00	tr.		
24-30	R	19.3	62.4	18.3	0.2	0.9	0.9	3.2	14.1	29.4	33.0	45.7	5.2		0.95	6		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.22	0.171	13			2.2		1.46	1.54	0.02		18.3	15.7		0.04		3.9	5.0
8-11	0.64	0.072	9			2.2		1.58	1.66	0.02		21.6	18.8		0.04		3.6	4.8
11-15	0.39	0.054	7			2.2		1.59	1.70	0.02		22.2	19.0		0.05		3.4	4.6
15-24	0.32					2.1		1.66	1.86	0.04		20.4	19.6		0.01		3.6	4.8
24-30	0.12					2.1		2.04	2.18	0.02		11.2	9.1		0.04		5.4	6.6

Depth (in.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. Iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	1.9	2.2	0.1	0.2	4.4	13.4	17.8		0.8			0.54	0.07	0.48	1		25	
8-11	3.2	1.7	0.1	0.1	5.1	12.6	17.7		3.8			0.45	0.06	0.48	2		29	
11-15	3.4	1.2	0.1	0.2	4.9	12.8	17.7		4.8			0.39	0.05	0.42	3		28	
15-24	5.0	3.6	0.2	0.2	9.0	11.3	20.3		3.2			0.43	0.04	0.41	1		44	
24-30	6.8	4.0	0.2	0.2	11.2	3.0	14.2		tr.			0.78	0.11	0.50	2		79	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Aeric Ochraqualf; fine, illitic, mesic
Soil: Lockport silt loam
Soil No.: S61NY-37-5
Location: Orleans County, New York. Town of Murray on the west side of Norway Road 1.3 miles north of U.S. Highway 104 (Ridge Road). The site was 49 feet south and 99 feet west of an elm tree on the east side of Norway Road.
Vegetation: Idle.
Slope: 1 percent.
Sampled by and date: B. Brasher and D. Bohrer, October 11, 1961.
Described by: D. Flore.

Horizon and Beltsville Lab. No.	
Ap 61602	0 to 8 inches. Very dark grayish brown (10YR 3/2) silt loam with common fine 7.5YR 5/6 root mottles; weak to moderate fine and very fine subangular blocky; firm; many fine roots; many wormholes abrupt smooth boundary. 8 inches thick.
A2 61603	8 to 11 inches. Pale brown (10YR 6/3) silt loam with many fine prominent strong brown (7.5YR 5/6) mottles; weak medium plates which crush to weak medium and fine granular or very fine subangular blocks; firm; common fine roots; abrupt wavy boundary. Discontinuous; 0 to 6 inches thick. Films of this material coat the prism faces of B21 to a depth of 1 to 2 inches.
B21t 61604	11 to 15 inches. Light silty clay or silty clay loam in strong medium and fine angular blocks within strong medium prisms; prism coats are dark reddish gray (5YR 4/2) with few fine 5YR 4/4 mottles; coats of blocks also 5YR 4/2; centers are reddish brown (5YR 4/3) with many prominent fine to medium 7.5YR 5/6) mottles; very firm; few fine roots; clear wavy boundary. 2 to 6 inches thick.
B22t 61605	15 to 24 inches. Silty clay in moderate coarse and medium angular blocks within strong medium prisms; faces of prisms and faces of blocks are weak red (2.5YR 5/2) to reddish brown (2.5YR 4/4) interiors are dark reddish brown (2.5YR 3/4) with common fine prominent 5YR 4/6 mottles; very firm; few fine roots; abrupt smooth boundary. 5 to 11 inches thick.
R 61606	24 to 30 inches plus. Dark reddish brown (2.5YR 2/4) broken shale with very thin 2.5YR 4/2 silt and clay coatings.

Notes: Colors refer to moist soil. Chromas below Ap are inherited from shale and are not indicative of wetness.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Mollic Ochraqualf; very-fine, illitic, mesic

SOIL Covington clay loam[a] SOIL Nos. S57NY-17-1 LOCATION Franklin County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58506 - 58511

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int III (0.02-0.002)	Silt Int. II (0.2-0.02)	Silt (2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct	Coarse fragments 3B1 2-19 (Pct. of < 76mm)	Coarse fragments 3B1 19-76 (Pct. of < 76mm)
		Size class and particle diameter (mm) 3A2 — Pct. of < 2 mm																
0-8	Ap	25.4	38.5	36.1	0.7	1.3	1.9	8.7	12.8	15.6	22.9	33.7	12.6		1.00			
8-12	IIB21g	6.4	59.3	34.3	0.3	0.5	0.5	2.0	3.1	21.8	37.5	26.2	3.3		1.00			
12-19	IIB22tg[b]	4.7	38.1	57.2	0.2	0.4	0.4	1.3	2.4	6.6	31.5	9.8	2.3		1.00			
19-29	IIIB23tg[b]	c																
29-40	IIIB3tg[b]	c																
40-75	IIIC1g	1.5	28.0	70.5	0.0	0.0	0.1	0.4	1.0	2.9	25.1	4.2	0.5		1.00			

Depth (In.)	6A1a Organic matter[d] Pct.	6B1a Nitrogen[d] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext iron as Fe Pct.	Bulk density 4A3a Field moist g/cc	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content 4B1d 1/10 bar Pct	Water content 4B1d ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1.1) KCl	pH 8C1a (1.1) H_2O
0-8	9.2	0.417	13.0			0.5	1.04				35.3	32.0	19.1		0.13		6.3
8-12	1.0	0.056	10.5			0.8	1.24				30.1	27.9	15.6		0.15		7.1
12-19	0.7	0.045				0.7	1.22				34.4	32.7	20.6		0.15		7.2
19-29	0.5	0.040				0.7	1.24				37.4	36.0	23.3		0.16		7.2
29-40	0.5	0.032				0.7	1.28				38.4	37.4	24.3		0.17		7.3
40-75	0.5	0.032				0.8	1.16				43.3	42.6	24.5		0.21		7.3

Depth (In.)	Extractable bases 5B1a[a] Ca (meq/100 g)	Mg	Na	K	Sum	6H2a Ext.[d] acidity	CEC 5A3a Sum[d] cations	CEC 5A1b NH_4OAc[d]	6G1d Ext Al			Ratios to clay 8D1 CEC Sum	Ratios to clay 8D1 Ext. iron	Ratios to clay 8D1 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
0-8	22.5	7.5	0.1	0.3	30.4	10.4	40.8	38.8				1.13	0.01	0.53	3		75	
8-12	18.6	8.9	0.3	0.7	28.5	5.3	33.8	35.2				0.98	0.02	0.45	2		84	
12-19	17.8	8.9	0.3	0.5	27.5	4.6	32.1	35.0				0.56	0.01	0.36	2		86	
19-29	16.7	8.8	0.3	0.7	26.5	4.5	31.0	33.8									85	
29-40	15.3	8.8	0.2	0.8	25.1	4.5	29.6	33.3									85	
40-75	15.9	7.6	0.2	0.8	24.5	3.8	28.3	30.1				0.40	0.01	0.35	2		87	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl	Vm.	Mi	Int. Vm.-Mt.	Qtz	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	-	xxx	x	-	-			
8-12	-	-	xxx	xx	x	-			
12-19									
19-29									
29-40									
40-75	-	-	xx	xx	x	-			

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl = chlorite, Vm = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts, blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]PSDA made on moist samples
[c]Aggregated, PSDA not reported.
[d]Determined by Cornell University.

Pedon Classification: Mollic Ochraqualf; very-fine, illitic, mesic
Soil: Covington clay loam
Soil No.: S57NY-17-1
Location: Franklin County, New York. At Bombay go 5.0 miles east of Hogansburg on Highway 37 to a set of farm buildings on south side of the road. Drive past house and barn to fields about 250 yards south (downhill) to large meadow. Cross meadow, about 300 yards to southwest corner bounded on south by a hedge row and on west by a shallow ditch. Sampled in this corner 60 feet from either boundary. The ditch and fence on the west are the boundary of the Indian Reservation.
Vegetation and land use: Meadow.
Slope and land form: Nearly level.

Horizon and Beltsville Lab. No.	
Ap 58506	0 to 8 inches. Black (10YR 2/1) silty clay loam; strong medium granular; slightly firm; slightly plastic; many fine roots; pH 6.6; abrupt smooth boundary. 7 to 8 inches thick.
IIB21g 58507	8 to 12 inches. Dark gray (2.5Y 4/1) silty clay loam with common fine dark grayish brown to dark brown (10YR 4/2-4/3) mottles; moderate to strong fine and very fine blocky; firm; plastic; common fine roots; pH 6.8; clear smooth boundary. 4 to 5 inches thick.
IIIB22tg 58508	12 to 19 inches. Clay; strong medium prisms composed of strong to moderate medium and fine slightly angular blocks; dark gray (2.5Y-5Y 4/1) thick clay skins on peds; interiors have dark gray (2.5Y 4/1) rim and dark grayish brown (2.5Y 4/2) centers with many fine olive brown and dark yellowish brown (2.5Y 4/4 and 10YR 4/4) mottles; firm; very plastic; sticky; common to few fine roots; pH 7.0; gradual smooth boundary. 6 to 10 inches thick.
IIIB23tg 58509	19 to 29 inches. Clay; moderate medium prisms composed of moderate medium angular blocks; dark gray (5Y 4.5/1) clay skins on peds; interiors have dark gray to gray (2.5Y 4/1-5/1) rim and dark yellowish brown to brown (10YR 4/4-5/3) centers with common dark gray (2.5Y 4/1) thread-like mottles; firm; very plastic; sticky; few fine roots; pH 7.0+; gradual wavy boundary. 9 to 12 inches thick.
IIIB3tg 58510	29 to 40 inches. Clay; weak coarse prisms composed of moderate medium blocks; gray (5Y 5/1 to N 5/) skins, mainly thin clay films; interiors gray (5Y 5/1) with common medium dark grayish brown (10YR 4/2) mottles; firm; very plastic; sticky; occasional fine root; pH 7.0+; gradual slightly wavy boundary. 10 to 15 inches thick.
IIIC1g 58511	40 to 75 inches plus. Clay; irregular angular 2 to 4 inch blocks or short prisms; exteriors gray (5Y 5/1 to 10YR 5/0.5). Interiors massive dark grayish brown (2.5Y 4/2) with common medium olive brown (10YR-2.5Y 4/3-4/4) mottles; firm; very plastic; sticky; no roots; pH 7.5+ but not calcareous.

Note: Sampled to 68 inches. Water table at 64 inches; examined to 75 inches without reaching calcareous material. On the same flat the material is calcareous locally at 40 inches. Colors are for moist soil unless indicated otherwise.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossic Fragiudalf; coarse-loamy, mixed, mesic
SOIL Langford taxadjunct SOIL Nos. 863NY-6-3 LOCATION Cayuga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63453 - 63458

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-8	Ap	26.3	52.6	21.1	4.5	4.4	3.2	6.3	7.9	19.8	32.8	31.2	18.4		0.80	28		
8-18	B2	31.7	52.4	15.9	5.4	6.0	3.8	7.0	9.5	19.6	32.8	32.9	22.2		0.80	29		
18-21	IIA'2x	37.7	44.9	17.4	6.8	6.5	4.7	8.8	10.9	18.8	26.1	34.5	26.8		0.68	31		
21-34	IIB'x1	37.2	45.5	17.3	7.0	7.3	4.6	7.7	10.6	16.5	29.0	31.5	26.6		0.51	50		
34-54	IIB'x2	30.0	48.0	22.0	8.5	4.7	3.2	5.4	8.2	15.8	32.2	27.3	21.8		0.57	42*		
54-62	IIC	23.9	54.0	22.1	5.8	3.0	2.1	4.0	9.0	18.6	35.4	30.0	14.9		0.56	43*		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.70	0.241	11			1.5		1.23	1.28	0.01		26.6	9.8		0.17	5.0	4.7
8-18	0.87	0.046	19			1.2		1.34	1.40	0.01		20.7	6.2		0.16	4.1	5.4
18-21	0.28					1.0		1.86	1.89	0.00		13.4	5.2		0.10	3.9	5.2
21-34	0.12					1.1		1.79	1.84	0.01		15.1	6.2		0.08	3.8	5.3
34-54	0.16					1.2		1.78	1.84	0.01		15.0	7.9		0.07	5.0	6.4
54-62	0.14				7	1.0		1.86	1.94	0.01		14.7	7.1		0.08	6.5	7.1

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	8.3	0.6	0.1	0.1	9.1	12.2	21.3		-			1.01	0.07	0.46			43	
8-18	2.5	0.1	0.1	0.1	2.8	11.1	13.9		1.1			0.87	0.08	0.39			20	
18-21	1.3	0.2	0.1	0.1	1.7	6.2	7.9		1.6			0.45	0.06	0.30			22	
21-34	2.4	0.2	tr.	0.1	2.7	6.3	9.0		1.3			0.52	0.06	0.36			30	
34-54	6.4	0.8	tr.	0.1	7.3	2.2	9.5		-			0.43	0.05	0.36			77	
54-62		1.4	0.1	0.1		-			-				0.04	0.32				

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int. Mica-Vermiculite	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	tr.	xx	xx	tr.	-			
8-18	-	x	x	xx	x	-			
18-21	-	x	x	xx	tr.	-			
21-34	-	x	x	xxx	x	-			
34-54	-	x	x	xxx	xx	-			
54-62	-	xx	tr.	xxx	x	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossic Fragiudalf; coarse-loamy, mixed, mesic
Soil: Langford taxadjunct[1]
Soil No.: S63NY-6-3
Location: Cayuga County, New York. Take Frasier Road east of Sempronius to a V-shaped corner where graveled Case Road goes to left. Follow Case Road 0.2 miles to hedge row on left. Follow hedge row 250 feet north. Site is 90 feet west of hedge row.
Vegetation and land use: Hayfield of red clover and timothy.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 16, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63453	0 to 8 inches. Dark brown (10YR 3/3) moist; light brownish gray (10YR 6/2) dry; channery silt loam; moderate medium granular; friable; many fine and very fine roots hold the granules together when the soil is removed; pH 6.4; estimated 5 percent fragments greater than 3 inches by volume; abrupt smooth boundary. 8 inches thick.
B2 63454	8 to 18 inches. Yellowish brown (10YR 5/4) moist; light yellowish brown (10YR 6/4) dry; gravelly silt loam with less coarse material than in horizons above or below; very weak very fine and fine subangular blocky with some smooth faces but without cutans; fragments greater than 3 inches estimated at 3 percent by volume; very friable; many fine roots; pH 5.2; abrupt wavy boundary; 8 to 12 inches thick exclusive of a pocket that extends into IIA'2x on one side of the pit and which appears to be an old channel filled with mixed B2 and A'2 material.
IIA'2x 63455	18 to 21 inches. Grayish brown moist (2.5Y 5/2); light brownish gray (2.5Y 6/2) dry; gravelly loam high in fine sand; fragments greater than 3 inches estimated 10 percent by volume; common medium faint and few distinct (10YR 5/4) mottles; moderate thick and medium platy; plates have clean sand grains on faces; a V-shaped tongue 2 inches wide at 21 inch tapers to 1/2 inch wide at 30 inches; plate faces and pores lack clay cutans; few fine roots; pH 5.6; clear irregular boundary; mainly 3 inches thick but tongues 12 inches thick.
IIB'x1 63456	21 to 34 inches. Dark grayish brown to olive brown (2.5Y 4/3) loam as upward extensions of IIB'2x are 70 percent of the mass and are surrounded by 2.5Y 4/3 loam higher in fine sand and lower in clay, which are adjacent to tongues of IIA'2; nearly massive; very weak discontinuous cleavage planes give crude coarse angular blocks when broken; cleavage faces have 2.5Y 5/2 silty coats; very firm in place; firm to crush; pH 5.8; very few fine roots; gradual wavy boundary. 11 to 15 inches thick.
IIB'x2 63457	34 to 54 inches. Dark grayish brown (2.5Y 4/2) heavy loam; one vertical cleavage plane in a 2-foot face; this has a very thin grayish brown (2.5Y 5/2) silt filling without yellowish red border; weak but distinctly coarse subangular blocky; discontinuous cleavage faces, both vertical and horizontal, have almost continuous clay coats that have 1/2 to 1-1/2 mm semi-cylindrical depressions and 1 to 1-1/2 mm sinuous half-tubules within a network of micro-ridges, crests of some of which appear to have been pressed against adjacent face; common fine pores with clay cutans; firm in place and also to crush; estimated 15 percent fragments larger than 3 inches; no roots; pH 6.8; abrupt wavy boundary. 14 to 27 inches thick.
IIC 63458	54 to 62 inches. Dark grayish brown (2.5Y 4/2) heavy loam; weak medium and coarse lenticular platy; clay coats in pores but none on plate faces in upper 8 inches; firm in place; slightly firm to crush (very moist); no roots; calcareous.

Notes: pH by bromthymol blue and chlorphenol red. This pedon represents the most common condition in plowed fields of Langford soil. The "spodic" upper part of the B horizon, if present, has been destroyed by plowing. The B2 horizon sampled represents the condition considered a Cambic horizon in classification of Langford soils. Colors are for moist soil unless indicated otherwise.

[1]This pedon lacks the low chroma mottles of the Langford series, which is in the Aqueptic subgroup.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Ochreptic Fragiudalf; fine-loamy, mixed, mesic
SOIL Troy gravelly silt loam SOIL Nos. S57NY-36-1 LOCATION Orange County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58526 - 58535

Depth (In.)	Horizon	1B1b Total Sand (2-0 05)	Total Silt (0.05-0 002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0 5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0 02	Silt Int. III (0 02-0.002)	Silt Int. II (0.2-0.02)	(2-0 1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 - 19	19-76
		Pct. of < 2 mm															Pct. of < 76mm	
0-6	Ap	27.9	52.5	19.6	5.0	5.6	3.0	6.5	7.8	13.7	38.8	25.3	20.1					
6-11	B21	27.9	52.2	19.9	5.8	5.4	3.1	6.1	7.5	13.4	38.8	24.5	20.4					
11-15	B22&A'2	28.9	50.6	20.5	4.4	6.4	3.7	6.8	7.6	13.8	36.8	25.6	21.3					
15-22	B'x1	34.1	43.9	22.0	6.6	7.8	4.3	7.4	8.0	12.6	31.3	25.1	26.1					
22-32	B'x2	32.5	39.2	28.3	5.6	7.1	4.1	7.6	8.1	11.7	27.5	24.3	24.4					
32-48	B'x3	32.6	37.6	29.8	5.5	6.7	3.8	8.0	8.6	11.0	26.6	24.6	24.0					
48-60	B'x4	32.1	39.1	28.8	5.8	7.3	3.9	7.1	8.0	11.5	27.6	23.6	24.1					
60-74	B'x5	33.1	40.1	26.8	5.6	7.2	4.1	7.8	8.4	12.1	28.0	25.1	24.7					
74-82	C1	33.3	39.5	27.2	6.4	7.6	4.1	7.6	7.6	12.1	27.4	24.2	25.7					
480-492	C2	34.3	39.2	26.5	6.2	7.7	4.4	7.8	8.2	12.0	27.2	24.8	26.1					

Depth (In.)	6A1a Organic carbon Pct	6B1a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH 8C1c (1.1) KCl	8C1a (1.1) H_2O
0-6	2.01	0.164	12			1.1					38.2	27.5	7.2					4.5
6-11	1.01	0.100	10			1.2					34.2	26.8	7.3					4.7
11-15	0.51	0.068	8			1.1					28.7	23.6	7.0					4.8
15-22	0.26					1.3					24.3	21.1	7.6					5.0
22-32	0.13					1.4					24.3	20.6	10.9					5.1
32-48	0.14					1.5					24.7	20.6	11.6					5.8
48-60	0.12					1.5					24.1	20.8	12.1					6.2
60-74	0.16					1.4					23.1	20.0	10.9					7.3
74-82	0.18				3.2	1.1					22.1	20.1	10.8					8.0
480-492	0.28				7.5	-					21.3	18.6	11.4					7.9

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-6	0.8	0.4	0.1	0.1	1.4	14.9	16.3					0.83	0.06	0.37			8	
6-11	0.8	0.4	0.1	0.1	1.4	11.3	12.7					0.64	0.06	0.37			11	
11-15	1.2	0.4	tr.	0.2	1.8	8.5	10.3					0.50	0.05	0.34			17	
15-22	2.0	0.8	0.1	0.2	3.1	6.6	9.7					0.44	0.06	0.34			32	
22-32	3.7	1.5	0.1	0.1	5.4	5.0	10.4					0.37	0.05	0.38	2		52	
32-48	8.9	3.2	0.2	0.2	12.5	5.1	17.9					0.60	0.05	0.39	3		69	
48-60	11.2	2.6	0.2	0.1	14.1	5.3	19.4					0.67	0.05	0.42	4		73	
60-74	9.9	1.4	0.2	0.1	11.6	1.9	13.5					0.50	0.05	0.41	7		86	
74-82	Calcareous												0.04	0.40				
480-492	Calcareous													0.43				

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi	Int.	Qtz.	Kl.	Gibbsite	
	X-ray 7A2						7A3		
0-6	-	x	xxx[a]	x	-	-			
6-11	-	-	xxxx[a]	x	-	-			
11-15	-	-	xxxx[a]	x	-	-			
15-22	-	-	xxx[b]	xx	-	-			
22-32	-	-	xx[b]	xxx	-	-			
32-48	-	-	xx[c]	xxxx	-	-			
48-60	-	-	x[c]	xxxx	-	-			
60-74	-	x	-	xxxx	-	-			
74-82	-	xx	-	xxxx	-	-			
480-492	-	xxx	-	xxxx	-	-			

[a] 14Å K saturated mineral does not collapse at 110° C., but collapses between 110° C. and 500° C.
[b] 14Å K saturated mineral does not collapse at 25° C., but collapses almost completely at 110° C. and collapses fully at 500° C.
[c] 14Å K saturated mineral collapses at 25° C.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Ochreptic Fragiudalf; fine-loamy, mixed, mesic
Soil: Troy gravelly silt loam
Soil No.: S57NY-36-1
Location: Orange County, New York. Go to Maybrook on Highway 208 and continue toward Burnside to a triangle at the junction of 208 and the county road to Campbell Hall. At the southeastern apex of this triangle is a high cut through a drumlin. At the top of this cut is an old fence corner about 20 feet from the edge. Follow this old fence at right angles to the cut for 30 feet, turn left 30 feet.
Vegetation and land use: Mainly poverty grass and broad-leaved herbaceous weeds.
Slope and land form: 3 percent, east of the pit the slope breaks abruptly to a 12 percent slope.

Horizon and Beltsville Lab. No.	
Ap 58526	0 to 6 inches. Dark grayish brown (2.5Y 4/2) (5/2 dry) gravelly silt loam; moderate fine granular; soft; many fine roots; pH 4.6; abrupt smooth boundary. 6 to 7 inches thick.
B21 58527	6 to 11 inches. Yellowish brown (10YR 5/4) (7/3 dry) gravelly silt loam; very weak thin plates break to weak very fine blocks; soft; many fine roots; pH 4.8; gradual wavy boundary. 4 to 6 inches thick. (Except for structure this is like the horizon below.)
B22&A'2 58528	11 to 15 inches. Yellowish brown (10YR 5/4) (7/4 dry) gravelly silt loam; very weak fine subangular blocky; soft; fine roots common; pH 5.0; gradual smooth boundary. 3 to 4 inches thick.
B'x1 58529	15 to 22 inches. Brown (10YR 5/3.5) (7/3 dry) gravelly loam; weak medium and fine subangular blocky; soft; few to common fine roots; pH 5.0; abrupt wavy boundary. 6 to 9 inches thick.
B'x2 58530	22 to 32 inches. Gravelly clay loam in very coarse prisms 8 to 18 inches across. Prisms are separated by 1/4 inch of light olive gray (5Y 6/2) silt loam and have 1/8 inch rims of brown (7.5YR 5/4) silt loam. Prisms are composed of very weak fine blocks with discontinuous dark grayish brown (10YR 4/2) clay skins and few dark grayish brown (10YR 4/2) mottles on the faces. Interiors are dark grayish brown (10YR 4/2) with many medium and fine black (10YR 2/1) mottles. Very hard; few roots; pH 5.4; gradual wavy boundary. 9 to 14 inches thick.
B'x3 58531	32 to 48 inches. Gravelly clay loam in 10 to 20 inch prisms separated by 1/16 to 1/8 inch of light gray (5Y 6/1) silty clay and bounded by a rim colored dark yellowish brown (10YR 4/4). Prisms are composed of very weak fine subangular blocks having prominent dark grayish brown (10YR 4/2) clay skins with common medium and fine black (10YR 2/1) mottles. Interiors are dark grayish brown (10YR 4/2) with few faint mottles. Very hard; no roots; pH 5.5; gradual wavy boundary. 14 to 19 inches thick.
B'x4 58532	48 to 60 inches. Light olive brown (2.5Y 5/3) gravelly clay loam with common medium dark yellowish brown to yellowish brown (10YR 4/4-5/4) mottles; weak prisms 20 to 30 inches across. Within prisms on the crude discontinuous cleavage faces of imperfect very weak fine angular blocks are very dark grayish brown to black (10YR 3/2-2/1) coats and few clay skins; very hard; no roots; pH 5.8; gradual wavy boundary. 10 to 15 inches thick.
B'x5 58533	60 to 74 inches. Light olive brown (2.5Y 5/3) gravelly clay loam in weak medium plates discontinuously coated very dark grayish brown (10YR 3/2); few widely spaced vertical cleavage planes coated with gray (N 6/) silty clay and bounded by 1/4 inch of strong brown (7.5YR 5/6) clay loam extend downward from prisms of horizons above. Very firm; no roots; pH 6.2-7.0; abrupt wavy boundary. 11 to 15 inches thick.
C1 58534	74 to 82 inches plus. Grayish brown (2.5Y 5/2) gravelly clay loam; strong medium and thick plates completely coated black (10YR 2/1); firm; no roots; calcareous; (Seen only to 82 inches in the dug pit, but in the deep road cut nearby, this oxidized but unleached horizon extends to unoxidized till at an estimated depth of 30 feet.) The dark coats in the plates extend to an estimated 15 feet but decrease with depth below 9 feet.
C2 58535	480 to 492 inches (est.). Dark gray (5Y 4/1) gravelly heavy loam; weak medium platy; very firm; calcareous. (This is believed to be the unoxidized till, like that from which the soil has formed, though it could be an earlier deposit).

Notes: Colors refer to moist soil unless indicated otherwise.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Ochreptic Fragiudalf; coarse-silty, mixed, mesic
SOIL Williamson taxadjunct SOIL Nos. S57NY-59-1 LOCATION Wayne County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58548 - 58556

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm															Pct. of < 76mm	
0-10	Ap	32.5	58.8	8.7	0.2	0.5	0.4	1.2	30.2	37.1	21.7	68.0	2.3		1.00			
10-15	B2	31.9	63.3	4.8	0.2	0.6	0.5	1.2	29.4	38.0	25.3	68.1	2.5		1.00			
15-20	A'2	27.8	68.3	3.9	0.2	0.9	0.6	1.0	25.1	39.0	29.3	64.7	2.7					
20-32	B'x1t	28.2	61.4	10.4	0.1	0.4	0.5	1.2	26.0	35.9	25.5	62.5	2.2		1.00			
32-44	B'x2	21.8	71.2	7.0	0.1	0.4	0.4	1.1	19.8	43.3	27.9	63.7	2.0					
44-51	C1	34.7	60.6	4.7	0.1	0.4	0.4	1.4	32.4	40.0	20.6	73.3	2.3					
51-56	C2	19.9	74.7	5.4	0.1	0.3	0.4	1.0	18.1	40.7	34.0	59.4	1.8					
56-72	C3	23.4	69.4	7.2	0.1	0.4	0.6	1.3	21.0	39.9	29.5	61.7	2.4					
72-84	C4	26.0	69.2	4.8	0.1	0.2	0.5	1.6	23.6	39.9	29.3	64.4	2.4		1.00			

Depth (In.)	6A1a Organic[b] matter Pct	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	4.4	0.178	14.5			0.9	1.13					22.6	4.8		0.20		4.8
10-15	1.8	0.086	12.3			0.8	1.12					18.7	3.9		0.17		5.2
15-20	0.7	0.048				0.7						18.6	2.6				5.1
20-32	0.2	0.026				1.2	1.54					20.5	4.6		0.24		5.0
32-44	0.2	0.030				1.0						20.6	4.1				4.9
44-51	0.2	0.026				1.0						15.5	3.2				4.9
51-56	0.1	0.025				1.0						22.4	4.2				4.9
56-72	0.1	0.030				1.0						22.4	5.2				5.0
72-84	0.1	0.024				1.1	1.54					20.7	4.8		0.24		5.1

Depth (In.)	Extractable bases 5B1a[D]: Ca	Mg	Na	K	Sum (meq/100 g)	6H2a Ext.[b] acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc[b]	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
0-10	1.1	0.2	-	0.2	1.5	16.0	17.5	14.4				2.01	0.10	0.55			9	
10-15	1.2	0.1	-	0.1	1.4	11.8	13.2	11.7				2.75	0.17	0.81			11	
15-20	0.9	0.1	-	0.1	1.1	7.8	8.9	7.9				2.28	0.18	0.67			11	
20-32	2.0	0.5	-	0.3	1.0	6.1	8.9	8.0				0.86	0.11	0.44			31	
32-44	1.4	0.4	-	0.5	2.3	6.5	8.8	7.2				1.26	0.14	0.58			26	
44-51	1.0	0.3	-	0.3	1.6	5.6	7.2	6.1				1.53	0.21	0.68			22	
51-56	1.7	0.6	-	0.4	1.7	5.6	7.4	7.5				1.37	0.18	1.37			25	
56-72	2.4	0.8	-	0.3	3.5	5.2	8.7	7.8				1.21	0.14	1.21			40	
72-84	2.8	0.9	-	0.3	4.0	4.6	8.6	7.9				1.79	0.23	1.79			47	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-10	-	tr.	xxx	x	-	-			
10-15	-	tr.	xxx	-	-	-			
15-20	-	tr.	xx	x	-	-			
20-32	-	tr.	xx	xx	-	-			
32-44	-	tr.	xx	xx	-	-			
44-51	-	tr.	xx	xx	-	-			
51-56	-	-	-	-	-	-			
56-72	-	-	-	-	-	-			
72-84	-	-	-	-	-	-			

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined at Cornell University.

Pedon Classification: Ochreptic Fragiudalf; coarse-silty, mixed, mesic
Soil: Williamson taxadjunct 1/
Soil No.: S57NY-59-1
Location: Wayne County, New York. Follow Highway 104 east of Alton 1 mile to a cut 20 to 30 feet deep where road passes from smooth lake plain through a dissection form in the lake sediments. A sign "Alton Hotel--1 mi." is on the north side of the highway. Pace 200 feet west from this sign, climb the bank on the north side of the road and go due north to the second row of apple trees. Sampled in a pit oriented N-S on the north edge of the row of trees midway between a dead tree on the west and a live tree on the east.
Vegetation and land use: Orchard, variety of grasses, herbaceous weeds, and wild strawberry.
Slope and land form: 2 percent.

Horizon and Beltsville Lab. No.	
Ap 58548	0 to 10 inches. Dark grayish brown (10YR 4/2) silt loam, brown (10YR 5/3) (when dry); weak fine granular to massive; hard. This appeared to be a "traffic pan." Many fine roots; pH 5.0; abrupt smooth boundary; 8 to 14 inches thick from the edge of the roadway to the middle of the row of trees.
B2 58549	10 to 15 inches. Brown (7.5YR 5/4) silt loam (7.5YR 6/4 dry). Very weak medium and thin platy, possibly related to traffic. Very friable; many fine roots; pH 5.2; clear wavy boundary; 2 to 7 inches thick, depending upon plowing. This could be considered a color B or as an A2 horizon relative to the more clayey "fragipan."
A'2 58550	15 to 20 inches. Light brown to pinkish gray (7.5YR 6/3-6/2) silt loam with common very thin bands of brown (7.5YR 4/4) slightly more silty material in an intricate pattern when observed on a vertical surface. Common fine 7.5YR 4/4 and few fine 10YR 5/6 mottles. Strong thin platy; firm; hard when dry. Common vertical round holes 1 to 3 mm in diameter without smooth linings. Common fine roots; pH 5.2; abrupt very irregular boundary. This horizon caps prisms of the horizon below and extends downward around them as thin V-shaped bodies to depths of 36 inches. Thickness above prisms range from 2 to 8 inches.
B'xlt 58551	20 to 32 inches. A silt loam; round-topped prisms 6 to 14 inches in diameter separated by 7.5YR 5/2 extensions of the A'2 above. These wedge-shaped extensions taper from 4 inches wide at the top to 1/2 inch wide at 26 inches and end mainly at about 36 inches. A few extend to 72 inches. The outer 1/4 to 1/2 inch of the prism is brown to strong brown (7.5YR 5/4-5/6) silt loam, forming a ring around the prism. Inside this ring are dark brown (7.5YR 4/4) silt loam bands 1/2 to 2 inches wide separated by 1/8 to 1/4 inch discontinuous bands of light brown (7.5YR 6/3) coarse silt loam in the upper 3 inches, suggestive of a "degrading" horizon below the A22. In the lower 9 inches the 7.5YR 4/4 silt loam material is nearly continuous but includes 1/2 to 1 inch spherical bodies and a very few thin bands of 7.5YR 6/3 coarse silt loam. The prisms appear nearly massive in a vertical surface. When removed moderate thin platy structure is apparent, and there are a few vertical discontinuous cleavage faces, thinly coated with clay, and many 2 to 4 mm vertical holes with smooth linings. Very firm throughout; roots follow prism faces, and a few branch roots extend 1 to 3 inches into the prisms; pH 5.3; gradual wavy boundary; 10 to 15 inches thick. (The samples of this horizon exclude the material between prisms and the upper "degraded" part of the prism.)
B'x2 58552	32 to 44 inches. Horizontal bands of dark brown (7.5YR 4/4) silt loam 1 to 4 inches wide are separated by 1/8 to 1/2 inch discontinuous bands of light brown (7.5YR 6/3) very fine sandy loam with common 7.5YR 5/6 mottles. There are also few 1/2 to 1-1/2 inch pockets of 7.5YR 6/3 very fine sandy loam material within the darker silt loam material within the darker silt loam portions. Many vertical "pin-holes" and common 2 to 4 mm vertical holes with wax-like linings. Moderate medium and thick platy; firm to slightly firm. The whole is divided into 12 to 24 inch prisms by extensions of A'2 material from above. Roots are common in these vertical planes, but few or none extend into the prisms; pH 5.3; abrupt smooth boundary at a discontinuity in the lacustrine deposit. 10 to 13 inches thick.
C1 58553	44 to 51 inches. Light brown (7.5YR 6/3) coarse silt loam with few widely spaced bands of dark brown (7.5YR 4/4) finer silt loam in definite strata. Structureless within strata. Slightly firm. Vertical planes 20 to 30 inches apart extend from prism faces above and are bounded by a 7.5YR 5/6 rim. Many medium 7.5YR 5/6-5/4 mottles. Roots present only in vertical cleavage planes; pH 5.3; abrupt smooth boundary. 7 to 8 inches thick.
C2 58554	51 to 56 inches. Stratum of dark brown (7.5YR 4/4) silt loam with pinkish gray (7.5YR 6/2) very fine sandy loam varves 1/4 inch thick and 1 to 2 inches apart. The lighter colored varves have many large 7.5YR 5/6 mottles. Common vertical 2 to 4 mm holes lined with wax-like material are bounded by 1/8 inch of 7.5YR 6/2 very fine sand within 1/4 inch of 7.5YR 5/6 silt loam. These extend through all varves. Platy structure is controlled by varving. Slightly firm. Extension of a few vertical cleavage planes from prisms above divide the horizon into very large prisms 30 to 50 inches across. pH 5.2; abrupt smooth boundary. 5 inches thick.
C3 58555	56 to 72 inches. Brown (7.5YR 4/3) silt loam in massive layers 2 to 6 inches thick separated by very thin pinkish gray (7.5YR 6/2) varves of very fine sand. Many vertical cylinders 2 to 4 mm in diameter of 10YR 6/2 very fine sandy loam extend through all varves and are continuations of the vertical holes described above. These are bounded by 1/4 inch of 7.5YR 5/8-6/8 silt loam. The mass has common large 7.5YR 5/4 mottles, slightly firm; pH 5.2; no roots. One vertical cleavage plane extended through this horizon within the 3-1/2 x 7 foot pit. Arbitrarily divided from horizon below.
C4 58556	72 to 84 inches plus. Description of C21 above applies. Arbitrarily separated for sampling.

Notes: Ap, B'xlt, C4 horizons also sampled for Bureau of Public Roads. Colors are for moist soil.

1/ This pedon is a taxadjunct because it lacks an argillic horizon above the fragipan, as opposed to the Williamson series which is in a Typic subgroup.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Hapludalf; fine-loamy, mixed, mesic

SOIL Lima taxadjunct SOIL Nos. 858NY-6-3 LOCATION Cayuga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59331 - 59335

Depth (In.)	Horizon	1B1b Total Sand (2-0 05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt (0.05-0.02)	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76[a] Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-10	Ap	41.4	41.2	17.4	1.5	3.1	4.7	15.3	16.8	17.6	23.6	44.8	24.6		0.95	9.2		
10-12	B21	41.8	38.7	19.5	1.5	3.3	4.6	15.1	17.3	16.7	22.0	44.0	24.5			13.6		
12-18	B22	42.1	34.0	23.9	1.3	3.2	4.8	15.7	17.1	14.8	19.2	42.5	25.0		0.93	12.2		
18-34	C1	38.8	47.6	13.6	4.9	5.7	4.6	10.8	12.8	16.4	31.2	36.1	26.0			34.8		
34-41	C2	38.6	48.0	13.4	3.7	5.9	4.7	10.9	13.4	17.7	30.3	38.1	25.2		0.57	49.2		

Depth (In.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct.	C/N		6E1a Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist[b] g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	2.52	0.184	14			1.1	1.3				35.4	27.0	8.9		0.22		7.0
10-12	0.88	0.089	10			1.3					29.0	20.5	8.8				7.3
12-18	0.90	0.104	9			1.7	1.5				28.0	20.3	10.7		0.13		7.6
18-34	0.19				39.0	0.6					19.5	15.3	5.5				8.3
34-41	0.14				38.8	0.6	2.1				18.9	15.0	5.4		0.11		8.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc[b]	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-10	13.4	2.3	0.1	0.1	15.9	4.8	20.7	18.0				1.19	0.06	0.51	6		77	
10-12	10.2	2.0	0.1	0.1	12.4	3.7	16.1	15.5				0.82	0.07	0.45	5		77	
12-18	14.6	2.6	0.1	0.1	17.4	3.5	20.9	17.3				0.87	0.07	0.45	6		83	
18-34	Calcareous							15.2					0.04	0.40				
34-41	Calcareous							14.4					0.04	0.40				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
0-10	-	x	xx	x	-	-		
10-12	-	x	xxx	x	-	-		
12-18	-	xx	xx	xx	-	-		
18-34	-	xx	tr.	xxx	-	-		
34-41	-	xx	-	xxx	-	-		

[a]Large stones and boulders in C1 and C2 occupy an estimated 15 percent of the volume in addition to coarse fragments sampled.

[b]Determined at Cornell University.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Hapludalf; fine-loamy, mixed, mesic
Soil: Lima taxadjunct 1/
Soil No.: S58NY-6-3
Location: Cayuga County, New York. Go west from Poplar Ridge about 2.2 miles to headquarters of Cornell Agronomy Experimental Farm at Chapel Corners. Turn north, cross ravine and go less than 1/4 mile to first field boundary marked by a hedgerow, which is the northern boundary of the experimental farm. The sampling site was 65 feet west of the center of the road and 20 feet south of the field boundary.
Vegetation and land use: Timothy and clover.
Slope and land form: 2 percent.
Physiographic position: Very gently undulating.

Horizon and Beltsville Lab. No.	
Ap 59331	0 to 10 inches. Very dark grayish brown (10YR 3/2) loam; moderate medium granules mixed with moderate fine subangular blocks; friable; many fine roots; clear smooth boundary. 9 to 10 inches thick.
B21 59332	10 to 12 inches. Brown (10YR 5/3) gravelly loam; weak fine subangular blocky; friable; common fine roots; clear smooth boundary. 0 to 3 inches thick.
B22 59333	12 to 18 inches. Dark brown (10YR 4/3) gravelly loam; moderate medium and fine subangular blocky; slightly firm; few fine roots; contains soft yellowish brown fragments of weathered rock; 15 percent of the soil mass is vertical 3/8 inch diameter cylinders of dark material like the A1, presumably worm channels; abrupt slightly wavy boundary. 5 to 7 inches thick.
C1 59334	18 to 34 inches. Grayish brown (10YR 5/2) gravelly loam with common fine and medium (10YR 5/3) mottles and common medium 10YR 5/4 mottles; common light brownish gray (10YR 6/2) coats of concentrated lime in cleavage planes; weak medium and thick platy; firm; strongly calcareous, gradual wavy boundary. 14 to 18 inches thick.
C2 59335	34 to 41 inches plus. Grayish brown (10YR 5/2) gravelly loam; containing cemented masses from 1/4 to 3/4 inch thick and 1 to 2 inches long that can be broken with difficulty between the fingers; the soil between cemented masses is moderate medium platy; very firm; strongly calcareous.

Notes: Ap, B22, and C2 horizons also sampled for Bureau of Public Roads. Colors are for moist soil.

1/ This pedon is a taxadjunct because it lacks the interfingering of the Glossoboric subgroup of which the Lima series is a member.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Hapludalf, fine-loamy, mixed, mesic

SOIL Lima taxadjunct SOIL Nos. S59NY55-5 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60515-60519

Depth (In.)	Horizon	1Hlb Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	3A1 Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 2A2 ≥ 2 < 76 Pct.	2-19 (Pct. of < 76mm)	19-76 (Pct. of < 76mm)
		Pct. of < 2 mm																
0-7	Ap	34.6	46.6	18.8	1.4	3.3	5.4	12.1	12.4	15.9	30.7	35.5	22.2			10		
7-12	A2	35.9	46.1	18.0	2.7	3.8	5.5	11.9	12.0	13.8	32.3	32.6	23.9			16		
12-20	B21t	31.0	41.3	27.7	2.5	3.3	3.6	9.6	12.0	12.4	28.9	30.3	19.0			15		
20-24	B22tg	33.0	35.9	31.1	3.0	4.0	4.4	12.1	9.5	10.8	25.1	28.0	23.5			19		
24-36	Cg	40.1	43.2	16.7	6.2	6.0	5.1	12.4	10.4	13.6	29.6	31.4	29.7			27		

Depth (In.)	Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	Pct.			pH 8C1c 1:1 1N KCl	8C1a (1:1) H_2O
0-7																6.2	6.7
7-12																5.7	6.8
12-20																5.8	6.8
20-24																6.2	7.0
24-36																7.1	7.7

Depth (In.)	Extractable bases Ca	Mg	Na	K												Base saturation Pct.	Pct.
	meq/100 g																

Depth (In.)

Pedon Classification: Typic Hapludalf; fine-loamy, mixed, mesic
Soil: Lima taxadjunct[1/]
Soil No: S59NY55-5
Location: 1 mile east of Lake Ridge, 225 yards north of Fenner Road on east bank of Davis road, Tompkins County, New York.
Vegetation: Corn.
Slope: 3 percent.
Drainage: Moderately well.
Permeability: Moderately slow.
Parent material: Glacial till (high lime).
Physiography: Upland.
Sampled: October 26, 1959.

Horizon and Beltsville Lab. Number	
Ap 60515	0 to 7 inches. Very dark grayish brown (10YR 3/2) silt loam; very weak fine crumb structure; very friable; pH 7.0; many fine roots; abrupt smooth boundary.
A2 60516	7 to 12 inches. Brown (10YR 5/3) silt loam; weak medium subangular blocky structure; ped coats lighter color than interiors; friable; pH 7.0; small amounts of Ap material in warm casts; clear smooth boundary.
B21t 60517	12 to 20 inches. Yellowish brown (10YR 5/4) heavy silt loam; moderate fine and medium subangular blocky structure; ped surfaces have thin discontinuous dark brown (10YR 4/2) clay films; friable; pH 7.0; gradual boundary.
B22tg 60518	20 to 24 inches. Olive brown (2.5Y 4/4) silty clay loam with many common distinct yellowish brown (10YR 5/4-5/6) mottles; continuous thick dark brown clay films on peds; few small black concretions; firm; slightly sticky; pH 7.2; clear wavy boundary.
Cg 60519	24 to 36 inches. Dark grayish brown (2.5Y 4/2) silt loam with faint olive brown (2.5Y 4/4) and gray (5Y 5/1) mottles; firm; thick platy structure; calcareous below 26 inches; limestone and black shale fragments in profile.

Notes: Many roots in Ap, A2, and few in B. The 0-7, 12-20 and 24-36 inch zones were sampled for the Bureau of Public Roads.

[1/] This pedon is a taxadjunct because it lacks the interfingering of the Glossoboric subgroup of which the Lima series is a member.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Hapludalf; fine-loamy, mixed, mesic

SOIL Nunda taxadjunct SOIL Nos. S63NY-22-1 LOCATION Herkimer County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63459 - 63466

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt (0.05-0.02)	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 < 76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-3	Ap	24.9	43.8	31.3	1.1	3.5	4.6	8.9	6.8	8.5	35.3	20.2	18.1			2		
3-6	B1	25.4	45.2	29.4	1.7	3.4	4.5	8.9	6.9	9.4	35.8	21.4	18.5		0.96	8		
6-11	B21	25.9	44.9	29.2	1.8	3.7	4.5	8.8	7.1	10.2	34.7	22.3	18.8		0.95	11		
11-16	B22	28.0	46.0	26.0	2.3	4.2	4.7	9.2	7.6	9.5	36.5	22.4	20.4		0.93	12		
16-24	IIA'21	33.9	41.8	24.3	2.2	5.4	5.5	11.0	9.8	9.8	32.0	25.9	24.1		0.89	16		
24-32	IIA'22	32.0	42.4	25.6	2.9	5.8	5.1	9.5	8.7	9.3	33.1	23.4	23.3		0.94	9		
32-46	IIIB'2t	19.4	51.6	29.0	1.3	1.6	2.0	5.0	9.5	14.9	36.7	27.4	9.9		0.89	16		
46-50	IIIC	26.5	41.6	31.9	7.6	4.7	2.8	6.1	5.3	6.7	34.9	15.4	21.2		0.70	40		

Depth (In.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1e (1:1) H_2O
0-3	4.8	0.426	11			1.8							17.6			3.7	5.0
3-6	2.31	0.233	10			2.0		1.17	1.22	0.01		29.7	12.4		0.19	3.7	4.5
6-11	1.16	0.141	8			2.5		1.14	1.20	0.02		31.0	11.4		0.21	3.7	4.5
11-16	0.95	0.138	7			1.9		1.39	1.41	0.00		24.3	10.3		0.18	3.8	4.8
16-24	0.34					1.9		1.66	1.70	0.01		18.8	9.5		0.14	3.8	5.0
24-32	0.36					1.9		1.67	1.74	0.01		17.9	9.0		0.14	3.7	5.0
32-46	0.53	0.096	6			2.2		1.64	1.81	0.03		21.2	13.3		0.12	4.7	6.1
46-50	0.26				3	1.7		1.72	1.84	0.02		18.7	10.1		0.10	6.4	8.2

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-3	3.0	0.9	0.1	0.6	4.6	20.8	25.4		4.0			0.81	0.06	0.56			18	
3-6	2.1	0.3	tr.	0.3	2.7	23.2	25.9		6.7			0.88	0.07	0.42			10	
6-11	1.6	0.1	0.1	0.2	2.0	19.6	21.6		5.6			0.74	0.08	0.39			9	
11-16	1.1	0.1	tr.	0.1	1.3	17.0	18.3		3.9			0.70	0.07	0.40			7	
16-24	2.0	0.1	tr.	0.2	2.3	11.0	13.3		3.7			0.55	0.08	0.39			17	
24-32	2.5	0.1	tr.	0.2	2.8	11.0	13.8		3.6			0.54	0.07	0.35			20	
32-46	12.3	0.8	0.1	0.1	13.3	5.4	18.7		-			0.64	0.08	0.46			71	
46-50		0.8	0.1	0.1		-			-				0.05	0.32				

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int. Mica-Vermiculite	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
0-3	-	tr.	xx	tr.	tr.	-		
3-6	-	x	xx	x	tr.	-		
6-11	-	x	x	x	tr.	-		
11-16	-	xx	x	xx	tr.	-		
16-24	-	xx	tr.	xx	tr.	-		
24-32	-	x	x	xx	tr.	-		
32-46	-	tr.	xx	xx	tr.	-		
46-50	-	tr.	xx	xx	tr.	-		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Hapludalf; fine-loamy, mixed, mesic
Soil: Nunda taxadjunct [1]
Soil No.: S63NY-22-1
Location: Herkimer County, New York. About 200 yards south of junction of Steuben Hill Road and Upson Road.
Vegetation and land use: Idle land for at least 30 years, possibly longer, within partly reforested State land; sparse grass with herbaceous plants, including strawberry, dewberry, and devil's paint brush; pincherry 15 feet high occur in places.
Slope and land form: Elevation near 1,400 feet, at about the level of shale hilltops north of Mohawk Valley.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 19, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63459	0 to 3 inches. Dark grayish brown (10YR 4/2) crushed or broken moist; brown (10YR 5/3) crushed and dry; silt loam; medium and fine granules and moderate medium subangular blocks held in network of fine roots; subangular blocks crush to medium and fine granules; friable; many fine roots; pH 4.8; clear smooth boundary. 3 to 3-1/2 inches thick.
B1 63460	3 to 6 inches. Brown to dark brown (10YR 4/3) crushed or broken and moist; brown (10YR 5/3) crushed or broken and dry; silt loam; very weak, medium and fine subangular blocky; peds not apparent in pit, 25 percent discontinuous pressure faces when broken; common 1/2 mm tubular pores with smooth linings; no clay skins in pores or on peds; slightly hard when dry; many fine roots; pH 4.8; clear wavy boundary. 2 to 3 inches thick. (Probably part of original Ap.)
B21 63461	6 to 11 inches. Dark brown (10YR to 7.5YR 4/4) crushed or broken and moist; brown (10YR 5/3) crushed and dry; silt loam; weak medium and fine subangular blocky; peds barely distinguishable in pit; discontinuous pressure faces on 25 percent of ped faces; slightly hard; many very fine tubular pores with smooth interiors; no clay skins in pores or on peds; many fine roots; pH 5.0; clear wavy boundary 5 to 8 inches thick.
B22 63462	11 to 16 inches. Dark grayish brown (10YR 4/2) when moist; brown (10YR 5/3) when dry; silt loam; moderate fine subangular blocky; peds distinct in pit face; 75 percent pressure faces on peds; many 1/2 mm tubular pores with smooth linings; no clay skins on ped faces or in pores; slightly hard; many fine roots; pH 5.0; gradual wavy boundary. 5 to 6 inches thick.
IIA'21 63463	16 to 24 inches. Dark grayish brown (10YR 4/2) moist and broken; grayish brown (10YR 5/2) moist and crushed; silt loam or loam; moderate fine and medium subangular blocky, apparent on pit face; very weak tendency to platy cleavage within peds, which have nearly continuous pressure faces; clean sand grains on 10 percent of ped faces; few 1/2 mm pores; no clay skins on peds or in pores; many fine roots; slightly firm; pH 5.4; 3 percent coarse fragments larger than 3 inches; gradual wavy boundary. 7 to 11 inches thick.
IIA'22 63464	24 to 32 inches. Dark grayish brown (10YR 4/2) gravelly loam; weak thick platy; breaks to weak fine slightly angular blocks with distinct pressure faces; no cutans on peds; common 1 mm to 3 mm pores have distinct cutans; few 5 mm cavities with distinct clay films; scattered clean sand grains on some plate faces; slightly firm; common fine roots; few dark shale fragments; 3 percent coarse fragments greater than 3 inches; pH 5.4; clear wavy boundary. 7 to 9 inches thick.
IIIB'2t 63465	32 to 46 inches. Very dark grayish brown (10YR 3/2) gravelly silty clay loam; strong very coarse blocky with secondary weak medium and coarse blocky cleavage; primary peds have thick pitted and ridged clay skins, dark grayish brown (10YR 4/2) to dark gray (10YR 4/1); secondary peds have patches of thick to thin, similar clay skins; common 1 to 3 mm pores lined with clay; firm; moderately plastic; many black soft shale fragments; few fine roots; 3 percent fragments by volume larger than 3 inches; pH 5.8; clear wavy boundary. 12 to 16 inches thick.
IIIC 63466	46 to 50 inches plus. Very dark grayish brown (10YR 3/2) broken and moist; dark grayish brown (10YR 4/2) crushed; gravelly silty clay loam; moderate to weak coarse platy with vertical cleavage into crude angular blocks; firm; plate faces have patchy thin coats—possibly discontinuous clay skins (these have micropitted appearance); other parts of faces have similar pits and microridges, but material appears under low power to be silt; many fragments of black (10YR 2/1) soft shale; no roots; calcareous; less than 5 percent fragments greater than 3 inches.

Notes: Site represents one of the finer textured silty surficial materials intermediate between those of Tug Hill Plateau soils considered definitely spodic and others of comparable texture south of the Mohawk River, considered cambic. Horizons in underlying till were expected to be fragipans comparable to those of the Pinckney series. They proved, however, to be more clayey and were interpreted as argillic horizons. Entire profile has horizon sequence in contrasting material described for Nunda series. Upper sequum at site sampled represents the most spodic (by field criteria) of the series an alfic variety of Dystrochrept. Most nearby soils less reddish in B21. with 10YR hue.

[1] This pedon is a taxadjunct at the subgroup level because it lacks interfingering of albic materials in the upper part of the argillic horizon. The Nunda series is in the Glossaquic subgroup of Hapludalfs.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Hapludalf; very-fine, illitic, mesic

SOIL Vergennes taxadjunct[a] SOIL Nos. 857NY-16-1 LOCATION Essex County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58520 - 58525

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm															Pct. of < 76mm	
0-5	Ap	11.6	29.2	59.2	1.0	3.1	2.4	2.7	2.4	6.2	23.0	9.9	9.2		1.00			
5-8	A2	7.2	24.6	68.2	0.4	1.3	1.1	2.0	2.4	5.9	18.7	9.4	4.8		1.00			
8-19	B21t	2.0	13.5	84.5	0.1	0.3	0.3	0.6	0.7	1.3	12.2	2.3	1.3		1.00			
19-26	B22t	0.7	13.3	86.0	0.1	0.1	0.1	0.2	0.2	0.6	12.7	0.9	0.5		1.00			
26-36	C1	1.2	20.5	78.3	0.3	0.2	0.1	0.2	0.4	1.4	19.1	1.9	0.8		1.00			
36-60	C2	0.6	13.8	85.6	0.1	0.1	0.1	0.1	0.2	0.7	13.1	1.0	0.4					

Depth (In.)	6A1a Organic matter[b] Pct.	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist g/cc	4A1a ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1d 1/10 bar Pct.	4B1d ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5	4.4	0.240	10.8			2.1	1.06				36.3	34.3	19.4		0.16		5.6
5-8	1.5	0.140	6.1			1.8	1.18				33.6	30.4	20.4		0.12		5.2
8-19	1.0	0.082				1.5	1.38				34.0	32.2	21.1		0.15		6.1
19-26	0.7	0.072				1.3	1.32				35.3	32.2	23.4		0.12		7.0
26-36	0.5	0.065				1.1	1.39				31.6	28.8	22.4		0.09		7.9
36-60	0.5	0.072				1.1											8.0

Depth (In.)	Extractable Bases 5B1a[b]: Ca	Mg	Na	K	Sum	6H2a Ext.[b] acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc[b]	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-5	8.5	4.6	0.1	0.4	13.6	14.2	27.8	26.2				0.47	0.04	0.33	2		49	
5-8	5.6	7.2	0.2	0.4	13.4	12.9	26.3	25.0				0.38	0.03	0.30	1		51	
8-19	8.3	12.1	0.4	0.4	21.2	8.6	29.8	31.6				0.35	0.02	0.25	1		71	
19-26	8.5	12.1	0.4	0.5	21.5	4.2	25.8	28.6				0.30	0.02	0.27	1		83	
26-36	Calcareous							22.2					0.01	0.29				
36-60	Calcareous							30.2					0.01					

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-5	-	tr.	xx	xxx	-	-	tr.		
5-8	-	tr.	xxx	xx	-	-	tr.		
8-19	-	tr.	xx	xxx	-	-	tr.		
19-26	-	x	x	xx	-	-	tr.		
26-36	-	-	-	-	-	-			
36-60	-	x	x	xxx	-	-	tr.		

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined at Cornell University.

Pedon Classification: Typic Hapludalf; very-fine, illitic, mesic
Soil: Vergennes taxadjunct[1]
Soil No.: S57NY-16-1
Location: Essex County, New York. At Ticonderoga follow Highway 9N about 3-1/2 miles southward from Crown Point to the first hard-surfaced road to the east which makes an acute angle with 9N. Follow road about 1/2 mile to first gravelled crossroad, continue 0.35 mile south to end of orchards on the west. 50 yards further is a live elm tree by a field driveway. Pace 180 feet south along the road from this tree and 150 feet east.
Vegetation and land use: Quackgrass , timothy, and a few widely scattered alfalfa plants.
Slope and land form: 2 percent.
Physiographic position: Gently undulating landscape.

Horizon and Beltsville Lab. No.	
Ap 58520	0 to 5 inches. Grayish brown (10YR 5/2) clay; weak fine to coarse granular; slightly hard; slightly plastic; many fine roots; pH 5.8; abrupt smooth boundary. 5 to 7 inches thick.
A2 58521	5 to 8 inches. Dark grayish brown (10YR 4.5/2) clay with common medium and fine yellowish brown (10YR 5/4) mottles; very weak medium angular blocky breaking to weak fine subangular blocky; slightly hard; pH 5.3; abrupt irregular boundary. 1 to 5 inches thick.
B21t 58522	8 to 19 inches. Brown (7.5YR 4/2) clay with few to common fine dark yellowish brown (10YR 4/4) mottles; strong very coarse prismatic peds composed of moderate medium and fine subangular blocks; hard; very plastic; clay skins prominent on peds; fine roots common; pH 6.2; gradual wavy boundary. 11 to 15 inches thick.
B22t 58523	19 to 26 inches. Dark brown (10YR 3/3) clay; moderate very coarse prisms composed of moderate medium and coarse blocks; hard; very plastic; prominent clay skins; few fine roots; pH 6.8; clear wavy boundary. 5 to 8 inches thick.
C1 58524	26 to 36 inches. Dark gray (10YR 4/1) clay; moderate medium angular blocks, many with concoidal faces; hard; very plastic; white (10YR 8/2) lime nodules 1/8 to 3/4 inch in diameter are spaced 2 to 8 inches apart; a few short horizontal cleavage faces have segregated lime. The soil mass effervesces mildly to moderately; cleavage faces, violently; diffuse plane boundary. 9 to 11 inches thick.
C2 58525	36 to 60 inches plus. Dark gray (10YR 4/1) clay with common very faint fine mottles; irregular-sized angular blocks, many with triangular cross section, 1/2 to 3 inches across; ped faces have net-like black (10YR 2/1) material; many 1/4 to 1-1/2 inch white (10YR 8/2) soft lime nodules; lime is segregated locally on short horizontal cleavage planes. The material is not varved. Moderately calcareous; hard; very plastic.

Notes: Colors refer to moist soil. Low chromas are inherited and do not reflect an aquic moisture regime.

[1] This pedon is a taxadjunct because it lacks interfingering and low chroma mottles of the Glossaquic subgroup. The Vergennes series is in the very-fine, illitic, mesic family of Glossaquic Hapludalfs.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossaquic Hapludalf; loamy-skeletal, mixed, mesic

SOIL Nunda taxadjunct SOIL Nos. S63NY-48-1 LOCATION Schoharie County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63467 - 63473

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2-19 (Pct. of < 76mm)	19-76 (Pct. of < 76mm)
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
0-8	Ap	32.2	47.3	20.5	2.2	3.0	4.3	10.4	12.3	16.5	30.8	34.8	19.9		0.92	16		
8-9½	A2[a]	38.9	47.7	13.4	2.4	3.5	4.3	12.1	16.6	17.0	30.7	40.9	22.3			63		
9½-12½	B2[a]	41.4	47.2	11.4	2.3	3.3	4.4	13.1	18.3	18.8	28.4	45.1	23.1		0.95	12		
8-13	B22	28.0	49.6	22.4	3.5	2.1	2.4	7.6	12.4	14.8	34.8	32.0	15.6		0.88	19		
13-16	A'21	21.3	58.2	20.5	1.5	0.7	1.3	5.1	12.7	16.9	41.3	33.1	8.6		0.90	16		
16-18	IIA'28B	Not sampled																
18-35	IIB'2t	35.4	42.3	22.3	3.8	4.3	5.3	11.4	10.6	13.6	28.7	30.5	24.8		0.82	24		
35-40	IIC	49.9	29.6	20.5	8.5	7.6	7.4	14.0	12.4	12.0	17.6	32.4	37.5		0.70	37		

Depth (In.)	6A1a Organic carbon (Pct.)	6B2a Nitrogen (Pct)	C/N		6E1e Carbonate as $CaCO_3$ (Pct)	6C1a Ext. iron as Fe (Pct.)	Bulk density: (g/cc)	Bulk density: 4A1e ⅓ bar (g/cc)	Bulk density: 4A1h Oven dry (g/cc)	4D1 COLE	Water content: (Pct.)	Water content: 4B1c ⅓ bar (Pct.)	Water content: 4B2 15 bar (Pct)		4C1 WRD (in/in)	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-8	2.91	0.204	14			1.6		1.14	1.19	0.01		25.8	10.2		0.16	3.7	4.9
8-9½	1.06	0.096	11			0.9							7.7			3.7	5.2
9½-12½	1.56					1.9		1.10	1.14	0.01		35.0	11.3		0.25	4.3	5.8
8-13	0.83	0.058	14			1.2		1.47	1.49	0.00		21.1	6.3		0.19	3.9	5.5
13-16	0.49	0.091	5			1.0		1.60	1.62	0.00		17.3	5.1		0.18	4.1	5.5
16-18																	
18-35	0.21				1	1.4		1.83	1.90	0.01		15.4	8.3		0.11	5.2	6.9
35-40	0.23				6	1.2		1.90	1.96	0.01		14.7	8.4		0.08	6.7	7.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	3.9	0.7	0.1	0.1	4.8	17.9	22.7		2.6			1.11	0.08	0.50			21	
8-9½	3.3	0.4	tr.	tr.	3.7	10.8	14.5		3.0			1.08	0.07	0.57			26	
9½-12½	4.2	0.6	0.1	tr.	4.9	14.6	19.5		0.6			1.71	0.17	0.99			25	
8-13	2.3	0.4	0.1	tr.	2.8	9.1	11.9		1.2			0.53	0.05	0.28			24	
13-16	2.2	0.2	0.1	tr.	2.5	6.0	8.5		0.8			0.41	0.05	0.25			29	
16-18																		
18-35		2.3	0.1	tr.		1.5			-			[c]	0.06	0.37				
35-40		2.1	0.1	0.1		-			-			[c]	0.06	0.41				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	-	xxx	tr.	-	-	8		
8-9½	-	-	xxx	tr.	-	-	8		
9½-12½	-	-	xxx	tr.	-	-	8		
8-13	-	x	xxx	x	-	-	8		
13-16	-	x	xxx	x	-	-	8		
16-18									
18-35	-	x	xxx	xx	-	-	5		
35-40	-	x	xxx	xxx	-	-	5		

[a] Discontinuous horizons that occupy only about 1/8 of the pedon exposed; not present on face of pit.

Mt. = Montmorillonite, Chl = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossaquic Hapludalf; loamy-skeletal, mixed, mesic
Soil: Nunda taxadjunct 1/
Soil No.: S63NY-48-1
Location: Schoharie County, New York. 3/4 mile east of Carlisle on Highway U.S. 20, slightly less than 5/8 mile south on road to Carlisle Center, 100 feet west of road.
Slope and land form: Broad-topped drumloid land form oriented east-west; 3 percent slope, increasing to the south.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 22, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63467	0 to 8 inches. Pale brown (10YR 6/3) dry; dark grayish brown (10YR 4/2) moist; brown to dark brown (10YR 4/3) crushed and moist; channery silt loam; moderate medium and fine granular; many fine roots; pH 5.2; common earthworm channels; friable; 10 percent fragments smaller than 3 inches; abrupt smooth boundary. 8 to 9 inches thick.
A2 remnant 63468	8 to 9-1/2 inches. White (10YR 8/2) to very pale brown (10YR 7/3) dry; light brownish gray (10YR 6/2) to brown (10YR 5/3) moist; silt loam; moderate fine and very fine platy; slightly hard and slightly brittle when dry; slightly firm when moist; common 1/2 mm vertical tubular pores with smooth interiors; plates light gray throughout or laminated with brown; faces coated light gray to white silt; many fine roots; pH 5.4; clear boundary; occurs only as a pocket, from a thin film to a 2 inch thick layer below a thin black humic layer that contained charcoal fragments.
B2 remnant 63469	9-1/2 to 12-1/2 inches. Yellowish brown (10YR 5/6); silt loam; very weak medium and fine subangular blocks with 20 percent pressure faces; very friable to very weak very fine granules; common 1/2 mm root channels with smooth interiors; many fine roots; 5 to 10 percent fragments larger than 3 inches; far less coarse fragments than in horizons above; pH 6.2; gradual wavy boundary; 0 to 3 inches thick. Remnant horizon occurring only with pocket of A2. This sequum may have occurred in most virgin profiles and remains in this spot, a slight depression that was filled when the soil was plowed. Spots this bright in color are found occasionally but are not typical of the plowed soil.
B22 63470	8 to 13 inches. Yellowish brown (10YR 5/4) crushed and moist; pale brown (10YR 6/3) broken and dry; silt loam; weak very thin platy in the topmost inch; medium and fine irregular fragments and subangular blocks with less than 25 percent pressure faces; very friable to very weak very fine granules; common fine roots; common vertical earthworm channels; less than 5 percent fragments greater than 3 inches; pH 5.8; clear wavy boundary. 4 to 6 inches thick.
A'21 63471	13 to 16 inches. 35 percent light olive brown to grayish brown (2.5Y 5/3) with 25 percent coarse (2.5Y 6/2), 25 percent (10YR 5/4), and 15 percent (7.5YR 5/6) mottles, all colors moist, gravelly silt loam; moderate thin and very thin platy; with distinct pressure faces; firm in place; firm and slightly brittle to crush; many fine tubular pores (root channels) with smooth interiors; common fine roots; pH 5.8; clear wavy boundary; 10 percent fragments larger than 3 inches. 3 to 6 inches thick.
IIA'2&B Not sampled	16 to 18 inches. 40 percent light brownish gray (2.5Y 6/2) and 40 percent pale brown (10YR 6/3) mottled matrix with 20 percent strong brown (7.5YR 5/6) fine and medium mottles, all colors moist, as caps and sides of coarse and medium blocks; latter have dark grayish brown (10YR 4/2) more clayey centers; caps themselves grade from coarse silt loam in topmost 1/4 inch to a heavy silt loam adjacent to darker interiors; common 1/2 mm vertical pores; horizontal block faces rough, vertical faces smooth; possibly some thin clay films; fine roots between the blocks; 10 percent fragments larger than 3 inches; pH 6.0; clear irregular boundary. 1-1/2 to 3 inches thick.
IIB'2t 63472	18 to 35 inches. Heavy loam or light clay loam in moderate medium and coarse plates, interiors being dark grayish brown (10YR 4/2), separated by gray (5Y 5/1) material; random vertical cleavage of same color across plates; common but patchy clay skins, less on horizontal faces; firm in place; firm and slightly brittle to crush; many fine tubular pores with clay linings; very few fine roots; 20 percent stones greater than 3 inches, with rippled clay coats; pH 6.6 (top) to 7.4 (bottom); clear slightly wavy boundary. 13 to 18 inches thick.
IIC 63473	35 to 40 inches. Heavy loam or light clay loam in moderate medium to fine plates; dark grayish brown (10YR 4/2) with common coarse gray (2.5Y 5/1) and few medium dark yellowish brown (10YR 4/4) mottles; distinct clay skins on pebbles and large stones; thin patchy clay skins on ped faces; common fine pores; no roots; 20 percent fragments larger than 3 inches; calcareous, greatest in light gray mottles; firm in place; slightly firm to crush.

Notes: Burial of original soil by 8 inches of Ap material has preserved the original A2 and B2 horizons described above. Initial purpose of site selection, before chance finding, was to illustrate cambic horizons beneath silt loam material.

1/This pedon is a taxadjunct because of loamy-skeletal family particle size and clay content in the argillic horizon as opposed to the Nunda series which is in the fine-loamy, and ranges approximately 28 to 35 percent clay in the argillic horizon.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossaquic Hapludalf; fine-loamy, mixed, mesic

SOIL: Munda gravelly silt loam SOIL Nos. 863NY-48-2 LOCATION: Schoharie County, New York

SOIL SURVEY LABORATORY: Beltsville, Maryland LAB. Nos. 63474 - 63480

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 <76 Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	61.4	24.4	14.2	8.2	12.6	13.8	16.0	10.8	9.5	14.9	28.3	50.6			29		
7-15	B2	41.5	34.6	23.9	5.0	7.3	7.4	11.5	10.3	9.9	24.7	26.4	31.2			52		
15-19	IIA'21	61.4	25.3	13.3	7.8	12.7	14.0	16.2	10.7	10.2	15.1	28.4	50.7			54		
19-24	IIA'22B	40.0	36.2	23.8	5.6	6.9	6.6	11.0	9.9	10.8	25.4	26.6	30.1		0.81	25		
24-29	IIB'21t	21.2	49.3	29.5	4.2	2.3	2.1	5.2	7.4	13.9	35.4	24.5	13.8		0.83	23		
29-48	IIB'22t	23.5	46.0	30.5	4.7	2.7	2.1	5.7	8.3	10.9	35.1	22.7	15.2		0.78	29		
48-54	IIC	18.2	50.6	31.2	2.4	0.8	1.2	4.4	9.4	13.0	37.6	25.4	8.8		0.83	23		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-7	3.04	0.247	12			1.6							11.2				3.8	5.4
7-15	1.24	0.064	19			1.7							12.2				3.9	5.1
15-19	0.62	0.057	11			1.0							7.0				4.0	5.4
19-24	0.28					1.4		1.83	1.96	0.02			9.6				3.9	5.4
24-29	0.23					1.7		1.81	1.93	0.02			11.5				4.4	6.2
29-48	0.24				3	1.6		1.81	1.92	0.02			12.1				5.7	6.9
48-54	0.22				3	1.4		1.88	1.98	0.01			11.4				6.5	7.5

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	3.9	0.4	0.1	0.2	4.6	20.3	24.9		3.3			1.75	0.11	0.79			18	
7-15	1.7	tr.	0.1	0.1	1.9	18.4	20.3		3.0			0.85	0.07	0.51			9	
15-19	1.6	0.3	tr.	0.1	2.0	8.9	10.9		1.7			0.82	0.08	0.53			18	
19-24	4.0	1.2	tr.	0.1	5.3	6.8	12.1		1.1			0.51	0.06	0.40	3		44	
24-29	9.0	2.6	0.1	0.1	11.8	4.0	15.8		-			0.54	0.06	0.39	3		75	
29-48		2.8	0.1	0.1		2.1			-				0.05	0.40				
48-54		2.5	0.1	0.1		0.2			-				0.04	0.36				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
0-7	-	x	xxx	tr.	-	-		
7-15	-	x	xx	x	-	-		
15-19	-	x	xx	xx	-	-		
19-24	-	x	xx	xxx	-	-		
24-29	-	x	xx	xxx	-	-		
29-48	-	x	xx	xx	-	-		
48-54	-	x	xx	xx	-	-		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossaquic Hapludalf; fine-loamy, mixed, mesic
Soil: Munda gravelly silt loam
Soil No.: S63NY-48-2
Location: Schoharie County, New York. About 1 mile north from Highway 20 on first road east of junction with 7A, eastward along jog in road, and about 200 yards west of point where road turns north again.
Vegetation and land use: Idle area supporting weeds and grasses.
Slope and land form: Crest of east-west drumlin.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 22, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63474	0 to 7 inches. Pale brown (10YR 6.3) dry; brown to dark brown (10YR 4/3) moist; gravelly silt loam; moderate to strong medium and fine granular; slightly hard; many fine roots; 5 percent coarse fragments larger than 3 inches; pH 5.0; abrupt smooth boundary. 7 to 8 inches thick.
B2 63475	7 to 15 inches. Very pale brown (10YR 7/3) dry; dark yellowish brown (10YR 4/4) moist; gravelly loam; very weak fine and medium subangular blocks with medium and fine granules; less than 10 percent pressure faces on blocks; slightly hard to crush to very weak very fine granules; many fine roots; 15 percent gravel coarser than 3 inches in the face sampled, but 50 percent in other spots within pedon; many fine vertical pores; no clay skins; pH 5.2; abrupt wavy boundary. 7 to 10 inches thick.
IIA'21 63476	15 to 19 inches. Light yellowish brown (10YR 6/4) dry; yellowish brown (10YR 5/4) moist; gravelly sandy loam; weak medium and fine plates having common medium fine light gray (2.5Y 7/2) dry and light yellowish brown (2.5Y 6/4) moist mottles; common fine 10YR 5/4 to 7.5YR 5/4 mottles are intermingled with the lighter colors; plate faces are smooth and irregular; common 1/2 mm tubular pores with smooth interiors; no clay skins; hard in place; slightly hard and brittle to crush; very few fine roots; gravel coarser than 3 inches ranges from 20 percent to 75 percent; pH 5.2; clear wavy boundary. 4 to 6 inches thick.
IIA'2 & B 63477	19 to 24 inches. Dark grayish brown (2.5Y 4/2) gravelly clay loam in weak medium and coarse angular blocks coated with 1/8 inch of silt that is light gray (10YR 7/2) dry and pale brown (10YR 6/3) moist; a 1/4 inch band colored 7.5YR 5/4 between the gray coat and grayish brown interior of some peds; gray coat is thickest at the top and thins with depth; peds have discontinuous cleavage faces and break along them to fine angular to subangular blocks; thin pitted cutans, possibly clay, on 20 percent of faces; 75 percent of broken ped faces covered with clean light gray silt and sand particles; remainder contains irregular-shaped patches a few mm across that are clay skins; few fine pores with clay linings; very few roots; very hard in place and to crush; 20 percent fragments larger than 3 inches; pH 5.3; clear wavy boundary. 2 to 5 inches thick.
IIB'21t 63478	24 to 29 inches. Dark grayish brown (2.5Y 4/2) gravelly clay loam; crude horizontal cleavage suggestive of platy structure; breaks along discontinuous cleavage planes to weak fine angular blocks, less than 10 percent clay skins in small patches; common 1/2 mm pores have smooth interiors with clay coats; very hard in place and to crush; 10 percent fragments greater than 3 inches; very few fine roots; pH 5.4; diffuse boundary. 4 to 6 inches thick.
IIB'22t 63479	29 to 48 inches. Dark grayish brown (2.5Y 4/2) gravelly clay loam; very weak medium and coarse platy, breaking into medium and fine angular blocks along weak vertical cleavage planes; distinct cleavage faces discontinuous; 10 to 50 percent irregular-shaped fine pits on ped faces; pits have thin clay skins; common very fine tubular, and 1 to 2 mm irregular-shaped pores with distinct clay linings; very few roots; very firm in place; firm to crush (horizon moist); fragments greater than 3 inches; stone fragments have pitted clay coatings; pH 6.8; clear wavy boundary. 17 to 21 inches thick.
IIC 63480	48 to 54 inches plus. Grayish brown (2.5Y 5/2) gravelly light clay loam; moderate medium and coarse platy with irregularly spaced vertical cleavage to elongated angular blocks; pitted patchy clay skins on vertical faces; fewer pitted patchy clay skins on horizontal faces; few 1/2 mm vertical pores with smooth linings; very firm in place and to crush; 10 percent fragments larger than 3 inches; calcareous. (Moisture contributed somewhat to apparent firmness.)

Notes: Site is near a borrow pit of poorly sorted gravel, and the A'21 appears to be in a thin layer of this material. The soil was dry to 30 inches.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossaquic Hapludalf; fine, mixed, mesic

SOIL Vergennes taxadjunct[a] SOIL Nos. S57NY-23-1 LOCATION Jefferson County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58499 - 58505

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	7.3	59.1	33.6	0.3	1.0	1.2	1.8	3.0	14.7	44.4	18.6	4.3		1.00			
7-11	A2 & B	11.2	47.6	41.2	0.2	1.2	1.5	3.1	5.2	?	52.3	2.3	6.0		1.00			
11-20	B21t	3.7	43.3	53.0	0.0	0.3	0.4	1.2	1.8	7.4	35.9	9.8	1.9		1.00			
20-27	B22t[b]	c																
27-42	B3t[b]	c																
42-51	C1[b]	c																
51-78	C2[b]	1.9	46.7	51.4	0.3	0.3	0.2	0.5	0.6	2.3	44.4	3.2	1.3		1.00			

Depth (In.)	6A1a Organic[d] matter Pct	6B1a Nitrogen Pct	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1d 1/10 bar Pct.	4B1d ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	4.9	0.233	12.3			1.4	1.10				33.3	30.7	12.7		0.20		5.2
7-11	1.3	0.086	8.8			1.5	1.23				28.8	25.6	10.8		0.18		5.3
11-20	0.6	0.048				1.6	1.36				28.1	25.4	13.4		0.16		5.6
20-27	0.4	0.048				1.4	1.26				36.1	33.5	23.2		0.13		6.5
27-42	0.3	0.031				1.3	1.30				31.2	29.5	18.2		0.15		6.9
42-51	0.2	0.040				1.3	1.24				32.3	30.8	18.8		0.15		7.7
51-78	0.2	0.026				1.1	1.29				31.9	30.6	15.2		0.20		7.8

Depth (In.)	Extractable bases 5B1a[d]: Ca	Mg	Na	K	Sum	6H2a Ext[d] acidity	CEC: 5A3a Sum[d] cations	5A1b NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	6.2	1.6	0.1	0.3	8.2	16.8	25.0	25.3				0.74	0.04	0.38	4		33	
7-11	6.2	2.1	0.1	0.3	8.7	11.8	20.5	20.5				0.50	0.04	0.26	3		42	
11-20	12.3	5.6	0.3	0.4	18.6	10.3	28.9	30.1				0.54	0.03	0.25	2		64	
20-27	15.9	7.2	0.3	0.4	23.8	6.4	30.2	30.5							2		79	
27-42	11.9	5.5	0.2	0.4	18.0	4.2	22.2	23.6							2		81	
42-51	15.8	5.9	0.2	0.4	22.3	2.5	24.8	25.0							3		90	
51-78	Calcareous							24.1					0.02	0.30				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-7	-	-	xxx	x	-	-	tr.		
7-11	-	-	xxx	x	-	-	tr.		
11-20	-	-	-	-	-	-			
20-27	-	-	xxx	xx	-	-	tr.		
27-42	-	-	-	-	-	-			
42-51	-	-	-	-	-	-			
51-78	-	-	xx	xx	-	-	tr.		

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]PSDA made on moist samples without oven drying.
[c]Aggregated, did not disperse.
[d]Determined at Cornell University.

Pedon Classification: Glossaquic Hapludalf; fine, mixed, mesic
Soil: Vergennes taxadjunct[1]
Soil No.: S57NY-23-1
Location: Jefferson County, New York. Follow U.S. 11 north of Watertown about 2 miles beyond Evans Mills to regional forage variety trial on west side of road. This is 1.15 miles south of an abandoned school house on the same side of the road and 0.2 mile south of a bridge over a small stream by an old unpainted barn. Sampled south of the plots outside the plot fence opposite the center alley.
Vegetation and land use: Timothy, quackgrass, and birdsfoot trefoil.
Slope and land form: 2 percent.
Physiographic position: Gently undulating lake plain.

Horizon and Beltsville Lab. No.	
Ap 58499	0 to 7 inches. Dark brown (10YR 3/3) (5/2 dry) silty clay loam; weak to moderate medium granular; slightly firm; many medium and fine roots; pH 5.2; abrupt smooth boundary. 6 to 8 inches thick.
A2 & B 58500	7 to 11 inches. Brown (10YR 5/3) silty clay loam with common medium 10YR 6/2 and 5/4 mottles surrounding dark grayish brown (10YR 4/2) silty clay fine and medium blocks or prisms that constitute 10 percent of the upper inch and 75 percent of the lower inch of the horizon. The silty clay loam portion is weak thin and medium platy and friable where dominant; the silty clay loam blocks are firm. Roots are common but not abundant; pH 5.4; abrupt irregular boundary-silty material in vertical bands 1/4 to 1/2 inch thick and 3 to 6 inches apart extend downward 1 to 2 inches around tops of prisms of the underlying B. 3 to 5 inches thick.
B21t 58501	11 to 20 inches. Brown (7.5YR 4/2) silty clay; moderate medium prisms made up of moderate medium and fine blocks; ped interiors are brown (7.5YR 4/2) with common fine faint mottles; clay skins abundant below the uppermost 2 inches; few fine roots; pH 5.8; gradual wavy boundary. 7 to 10 inches thick.
B22t 58502	20 to 27 inches. Dark grayish brown (10YR 4/2) silty clay with common medium dark grayish brown to olive brown (2.5Y 4/2-4/4) mottles; moderate medium and coarse subangular blocks coated with dark gray (10YR 4/1.5) clay; plastic; firm; few fine roots; pH 6.3; gradual wavy boundary. 6 to 9 inches thick.
B3t 58503	27 to 42 inches. Dark grayish brown (10YR 4/2) silty clay in plates 2 to 6 inches thick separated by light brownish gray (10YR 6/2) thin layers of silt loam 1/10 to 1/4 inch wide. Few medium faint mottles. Crude vertical cleavage divides the plates into weak medium and coarse angular blocks. Plastic; firm; few to common discontinuous clay skins; very thin black (10YR 2/1) coats on peds; few roots; pH 6.6; clear wavy boundary. 12 to 18 inches thick.
C1 58504	42 to 51 inches. Alternating 1/8 to 1/2 inch varves ranging from silt to clay colored dark grayish brown (10YR 4/2), brown (7.5YR 5/2 to 10YR 5/3), and light brownish gray (10YR 6/2), giving strong to moderate plates. Few to common 1/4 to 1/2 inch nodules and few 1/8 inch horizontal bands of silty calcareous material within a soil mass that does not effervesce with HCl. Firm; plastic; clear wavy boundary. 8 to 12 inches thick.
C2 58505	51 to 78 inches plus. Dark grayish brown, grayish brown, and light brownish gray (10YR 4/2, 5/2, and 6/2) varves 1/8 to 1/2 inch thick, ranging from clay to silt loam; thin strongly calcareous coats; soil mass weakly to moderately calcareous; firm; plastic.

Notes: Colors refer to moist soil unless indicated otherwise.

[1] This pedon is a taxadjunct because the particle size and mineralogy classes differ from the Vergennes series which is very fine and illitic. The X-ray analysis infers vermiculitic mineralogy, but CEC/clay is lower than in vermiculite-dominated mixtures.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossoboric Hapludalf; loamy-skeletal, mixed, mesic

SOIL Howard gravelly loam SOIL Nos. S59NY55-12 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60529-60533 + 60643

Depth (In.)	Horizon	1H1b Size class and particle diameter (mm) Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1) 3A1			Coarse fragments 2A2 > 2 < 76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-8	Ap	33.9	51.5	14.6	5.3	5.3	4.0	7.5	11.8	20.9	30.6	37.4	22.1			24		
8-11	A21	23.7	58.5	17.8	2.5	3.0	2.5	5.5	10.2	19.9	38.6	33.5	13.5			18		
11-14	A22	29.5	57.4	13.1	4.7	4.5	3.4	6.3	10.6	21.0	36.4	35.8	18.9			25		
14-23	B1	41.5	47.1	11.4	14.6	9.5	3.9	5.0	8.5	17.5	29.6	29.0	33.0			66		
23-36	B2t	47.8	31.2	21.0	20.4	15.2	5.2	3.2	3.8	9.7	21.5	15.2	44.0			65		
36-60	C	60.8	26.3	12.9	31.0	19.7	4.5	2.8	2.8	8.0	18.3	12.1	58.0			65		

Depth (In.)	Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$		Bulk density				Water content					pH		8C1a (1:1)
	Pct.	Pct.			Pct.		g/cc	g/cc	g/cc		Pct.	Pct.	Pct.					H_2O
0-8																		5.9
8-11																		4.6
11-14																		4.8
14-23																		5.1
23-36																		6.9
36-60																		

Depth (In.)	Extractable bases: Ca	Mg	Na	K												Base saturation	
	meq/100 g															Pct.	Pct.

Depth (In.)

Pedon Classification: Glossoboric Hapludalf; loamy-skeletal, mixed, mesic
Soil: Howard gravelly loam
Soil No.: S59NY-55-12
Location: 100 yards north of Route 38, 1 mile west of Dryden, Tompkins County, New York. Aerial photo ARU-1N-167.
Vegetation: Alfalfa
Slope: 5 percent.
Erosion: Slight.
Drainage: Well drained.
Permeability: Rapid.
Parent material: Glacio fluvial sand and gravel from limestone, sandstone, and shale.
Physiography: Outwash terrace.
Date sampled: November 21, 1958.

Horizon and Beltsville Lab. Number	
Ap	0 to 8 inches. Dark brown (10YR 4/3) gravelly loam; weak fine crumb structure; very friable; pH 5.8; 8 to 11 inches thick, abrupt smooth boundary.
A21 60529	8 to 11 inches. Strong brown (7.5YR 5/6) gravelly loam; weak fine crumb structure; very friable; pH 5.6; clear smooth boundary. 2 to 4 inches thick.
A22 60530	11 to 14 inches. Yellowish brown (10YR 5/6) gravelly loam; very weak thin platy structure; very friable; pH 5.6; clear wavy boundary; 3 to 10 inches thick. Pockets of this horizon extend downward 15 to 20 inches into horizons below at intervals of about 10 inches and have been described as inverted cones in appearance.
B1 60531	14 to 23 inches. Dark grayish brown (10YR 4/2) heavy gravelly silt loam; weak medium subangular structure; friable; peds coated with brown (10YR 5/3) silt; pH 5.6; gradual irregular boundary. 3 to 11 inches thick.
B2t 60532	23 to 36 inches. Dark brown (7.5YR 4/2) and dark grayish brown (10YR 4/2) gravelly clay loam with vertical streaks 1/2 to 3/4 inches wide of pale brown (10YR 6/3) silt or very fine sand; moderate medium subangular blocky structure; friable; some clay films present; pH 5.8; clear irregular boundary. 10 to 14 inches thick.
C 60533	36 to 60 inches. Dark grayish brown (10YR 4/2) gravelly sandy clay loam and coarse loamy sand mixed; structureless; loose; pH 6.8 at 36 inches. Calcareous at 38 inches.

Notes: Alfalfa roots extend to 30 inches, depth in weathered, inverted cones. The 11-14, 23-36 and the 36-60 inch zones were sampled for the Bureau of Public Roads. Many stones which range from very fine gravels to cobbles. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossoboric Hapludalf; fine-loamy, mixed, mesic

SOIL Danley taxadjunct SOIL Nos. S59NY-55-4 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60510-60514

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 > 2 < 76	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-8	Ap	36.5	46.8	16.7	3.9	5.1	4.9	10.1	12.5	16.5	30.3	35.2	24.0			17		
8-14	A2	39.3	45.0	15.7	5.6	5.7	4.9	10.4	12.7	13.8	31.2	32.9	26.6			19		
14-18	B21t	33.6	45.2	21.2	3.8	4.3	4.2	8.9	12.4	14.3	30.9	32.3	21.2			21		
18-34	B22t	31.8	46.1	32.1	4.2	4.0	3.2	8.8	11.6	11.0	25.1	28.4	20.2			11		
34-40	C	40.6	42.3	17.1	7.9	6.6	5.0	9.6	11.5	14.1	28.2	31.4	29.1			6		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. iron Fe	Bulk density				Water content					pH: 8C1c 1:1 1N KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.				
0-8	2.18	0.176	12			1.0										4.6	5.3
8-14	0.41	0.046	8			1.0										4.7	5.9
14-18	0.24					1.2										4.6	5.8
18-34	0.28					1.5										5.1	6.4
34-40	0.22				3	1.2										6.9	7.4

Depth (In.)	Extractable bases: 6N2d Ca	6Q2b Mg	6P2a Na	5R1a 6Q2a K	6H2a Ext. acidity	5A3a Sum cations	Ratios to Clay: CEC sum	EXT. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum	
	meq/100 g										Pct.	Pct.
0-8	7.5	0.6	tr	0.2	9.2	17.5	1.05	0.06			47	
8-14	4.5	0.3	0.1	0.1	3.6	8.6	0.55	0.06			58	
14-18	5.8	0.7	0.1	0.1	3.6	10.3	0.48	0.06			65	
18-34	10.7	1.5	0.1	0.1	3.4	15.8	0.49	0.05			78	
34-40								0.07				

Depth (In.)

Pedon Classification: Glossoboric Hapludalf; fine-loamy, mixed, mesic
Soil: Danley taxadjunct [1]
Soil No.: S59NY-55-4
Location: Tompkins County, New York. 0.5 mile north of Krum Corners, about 100 feet south of Perry City Road. Sampled from the side of freshly dug tile trench on Dana Poyer farm. 4.5 miles northwest of Ithaca. Aerial photo ARU-3-73.
Vegetation and land use: Wheat.
Slope and land form: 5 percent.
Erosion: Slight.
Drainage: Moderately well drained.
Permeability: Moderate.
Parent Material: Glacial till of moderate lime content.
Date sampled: September 15, 1959.

Horizon and Beltsville Lab. No.	
Ap 60510	0 to 8 inches. Dark grayish brown (10YR 4/2) gravelly silt loam; very weak fine crumb and weak subangular blocky structure; very friable; pH 6.5; abrupt smooth boundary. 8 to 12 inches thick.
A2 60511	8 to 14 inches. Brown to yellowish brown (10YR 5/3-5/4) gravelly silt loam, with few firm faint gray and yellowish brown (10YR 5/1-5/6) mottles; weak medium subangular blocky structure; peds coated with very fine sand and silt; pH 6.5; clear smooth boundary, 6 to 8 inches thick.
B21t 60512	14 to 18 inches. Dark grayish brown and dark brown (10YR 4/2-4/3) gravelly heavy silt loam with few fine faint gray and yellowish brown (10YR 5/1-5/4) nodules; moderate medium and coarse subangular and angular blocky structure, slightly firm; pH 6.8; gradual boundary. 4 to 8 inches thick.
B22t 60513	18 to 34 inches. Dark grayish brown (10YR 4/2) gravelly heavy silty clay loam, thin clay films on peds slightly darker than the interior; moderate coarse angular blocky structure; firm; pH 7.0; gradual boundary. 12 to 16 inches thick.
C 60514	34 to 40 inches. Grayish brown (10YR 5/2) gravelly silt loam with yellowish brown (10YR 5/4) mottles; moderate thick platy structure; slightly firm, secondary lime on peds in places; calcareous below 36 inches.

Notes: Many fine roots in Ap, few below. The 0-8, 18-34, and 34-40 inch zones were sampled for the Bureau of Public Roads.

[1] This pedon is a taxadjunct because it lacks the mottling of the Glossaquic subgroup. The Danley series is in the fine-loamy, mixed, mesic family of Glossaquic Hapludalfs.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossoboric Hapludalf; fine-loamy, mixed, mesic

SOIL Hilton silt loam SOIL Nos. S61NY-28-1 LOCATION Monroe County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61641 - 61648

Depth (in.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-12	Ap	43.0	44.2	12.8	2.2	3.5	4.2	13.4	19.7	20.1	24.1	48.7	23.3		0.94	10		
12-15	B2	47.6	46.6	5.8	2.4	3.5	4.4	13.9	23.4	23.2	23.4	56.0	24.2		0.94	10		
15-19	A'2	43.3	46.1	10.6	4.8	5.3	4.5	11.8	16.9	18.3	27.8	42.8	26.4		0.86	19		
19-26	B'21t	23.0	57.2	19.8	1.3	2.0	2.4	6.7	10.6	18.1	39.1	32.8	12.4		0.93	10		
26-38	B'22t	33.5	53.2	13.3	2.0	2.6	2.8	8.0	18.1	26.2	27.0	49.1	15.4		0.92	12		
38-46	C11	33.9	56.8	9.3	2.8	3.6	3.2	7.4	16.9	24.7	32.1	46.0	17.0		0.87	18		
46-55	C12	34.3	57.4	8.3	2.3	2.4	2.6	7.7	19.3	26.5	30.9	50.7	15.0		0.90	15		
55-62	IIC2	22.0	63.0	15.0	1.3	2.0	2.3	6.5	9.9	15.3	47.7	29.2	12.1		0.97	4		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-12	1.66	0.145	11			1.0		1.44	1.46	0.00		21.6	6.9		0.20		5.3	5.6
12-15	0.68	0.057	12			0.9		1.46	1.47	0.00		17.7	4.7		0.18		4.5	5.2
15-19	0.12					1.0		1.82	1.84	0.00		14.7	4.6		0.16		4.3	5.1
19-26	0.16					1.5		1.68	1.78	0.02		19.1	9.1		0.16		4.8	5.9
26-38	0.04					1.1		1.80	1.86	0.01		14.3	6.4		0.13		6.4	7.2
38-46	0.06					1.2		1.76	1.80	0.01		15.4	5.0		0.16		6.1	6.8
46-55	0.06					1.1		1.72	1.76	0.01		15.1	4.8		0.16		4.9	5.9
55-62	0.05					1.3		1.64	1.70	0.01		22.1	6.8		0.24		4.2	5.6

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-12	8.7	0.4	0.1	0.4	9.6	8.6	18.2		0.1			1.42	0.08	0.54			53	
12-15	1.2	0.2	tr.	0.1	1.5	9.0	10.5		0.9			1.81	0.16	0.81			14	
15-19	3.0	0.4	tr.	0.1	3.5	3.8	7.3		0.5			0.69	0.09	0.43			48	
19-26	9.8	1.3	0.1	0.1	11.3	3.4	14.7		0.1			0.74	0.08	0.46			77	
26-38	a/	0.8	0.1	0.1	1.0	0.3	a/		tr.			-	0.08	0.48				
38-46	a/	0.8	tr.	0.1	0.9	1.1	a/		tr.			-	0.13	0.54				
46-55	5.4	0.7	0.1	0.1	6.3	1.9	8.2		0.1			0.99	0.13	0.58			77	
55-62	5.8	0.7	0.1	0.1	6.7	3.2	9.9		0.2			0.66	0.09	0.45			68	

a/ Calcareous.

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossoboric Hapludalf; fine-loamy, mixed, mesic
Soil: Hilton silt loam
Soil No.: S61NY-28-1
Location: Monroe County, New York. 0.7 mile east from Orleans County line road; approximately 2-3/4 miles east of Holley. Pit is 135 feet north of road and 40 feet east of a large elm tree beside the road.
Vegetation and land use: Harvested tomato field.
Slope and land form: 1 percent.
Sampled by and date: B. Brasher and D. Bohrer. October 11, 1961.
Described by: D. Flora.

Horizon and Beltsville Lab. No.	
Ap 61641	0 to 12 inches. Brown (7.5YR 4/2) coarse silt loam; weak fine subangular blocky; crushes to weak fine granular; friable; many fine roots; 5 to 10 percent gravel; abrupt smooth boundary. 12 inches thick.
B2 61642	12 to 15 inches. Brown (7.5YR 5/4) very fine sandy loam with common fine faint 7.5YR 5/8 mottles; weak medium platy; crushed to weak fine and very fine subangular blocks; slightly firm; common fine roots; 5 to 10 percent gravel; abrupt wavy boundary. 1-1/2 to 8 inches thick.
A'2 61643	15 to 19 inches. Light brown (7.5YR 6/4) dry, with many fine dark brown (7.5YR 4/4) and reddish brown (5YR 4/4) mottles; finely gravelly loam; weak medium platy; very firm in place and to crush; few fine roots; abrupt wavy boundary as a general fact, but there are occasionally funnel-shaped projections into the B'2 to 2 to 4 inch depth. 0 to 6-1/2 inches thick.
B'21t 61644	19 to 26 inches. A silty clay loam in weak medium plates that break to fine subangular blocks; ped surfaces are reddish brown (2.5YR 4/4 to 5YR 4/4); interiors are reddish brown (2.5YR 4/4) with common fine faint yellowish red (5YR 4/6) mottles; 5 to 10 percent fine shale fragments; some of these fine and partially disintegrated fragments are green shale (5YR 5/1) and appear very occasionally as 2 to 3 mm specks in the mass; firm in place and to crush; clear wavy boundary. 3-1/2 to 8-1/2 inches thick.
B'22t 61645	26 to 38 inches. A shaly clay loam in weak to moderate medium and thick plates; ped faces are dark reddish brown (2.5YR 3/3) and centers are slightly stronger dark reddish brown (2.5YR 3/4); very firm; few fine roots; gradual wavy boundary. 9 to 13 inches thick.
C11 61646	38 to 46 inches. A gravelly loam with many fine shale fragments; dark reddish brown (5YR 3/3) with common fine distinct 7.5YR 4/4 mottles; very weak thick platy; very firm in place and to crush; arbitrarily separated from C2.
C12 61647	46 to 55 inches. Separation of C1 and C2 is arbitrary. C2 is similar to C1 in all characteristics. The whole C horizon is 17 inches thick. Boundary to horizon below is clear and smooth.
IIC2 61648	55 to 62 inches. Reddish brown (5YR 4/4) silty clay loam with many fine prominent 7.5YR 4/4 and few fine distinct 5YR 5/3 mottles; weak fine subangular blocks; clay flow prominent; firm; few fine roots. This is a contrasting inclusion in the till.

Notes: Colors refer to moist soil unless indicated.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossoboric Hapludalf; fine-loamy, mixed, mesic

SOIL Hilton gravelly loam SOIL Nos. 861NY-37-6 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61607 - 61612

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 <76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	60.2	28.2	11.6	2.1	5.3	10.3	20.4	22.1	17.2	11.0	49.8	38.1		0.85	24		
8-11	A21	67.0	24.1	8.9	4.6	6.9	11.9	22.4	21.2	15.3	8.8	47.5	45.8		0.81	29		
11-15	A22	60.2	29.1	10.7	3.9	5.9	9.6	19.2	21.6	17.5	11.6	48.9	38.6		0.86	22		
15-20	B1	70.7	22.1	7.2	3.1	7.8	13.2	24.8	21.8	14.2	7.9	48.2	48.9		0.84	23		
20-27	IIB2t	44.1	34.8	21.1	1.8	3.9	6.0	13.3	19.1	19.3	15.5	45.9	25.0		0.90	16		
27-33	IIC	54.3	40.5	5.2	5.5	6.1	5.6	13.1	24.0	24.9	15.6	56.4	30.3		0.78	29		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct	6C1a Ext. iron as Fe Pct.	Bulk density:	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD ie/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	1.83	0.140	13			0.8		1.48	1.52	0.01		18.9	6.2		0.16		5.2	5.9
8-11	0.63	0.050	13			0.7		1.54	1.58	0.01		17.6	4.6		0.16		5.5	6.1
11-15	0.29					0.4		1.59	1.58	0.00		14.3	3.1		0.15		5.8	6.3
15-20	0.20					0.8		1.72	1.74	0.00		11.2	4.2		0.10		5.5	6.6
20-27	0.22					1.1		1.61	1.72	0.02		16.8	8.6		0.12		6.0	6.8
27-33	0.05					0.5		1.88	1.90	0.00		10.8	2.3		0.12		7.5	7.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	7.3	0.8	0.1	0.1	8.3	5.2	13.5		tr.			1.16	0.07	0.53			61	
8-11	4.8	0.4	0.1	0.1	5.4	2.8	8.2		tr.			0.92	0.08	0.52			66	
11-15	2.7	0.2	tr.	tr.	2.9	1.3	4.2		tr.			0.39	0.04	0.29			69	
15-20	4.1	0.5	tr.	tr.	4.6	1.1	5.7		-			0.79	0.11	0.58			81	
20-27	11.0	1.3	0.1	0.1	12.5	1.3	13.8	-	-			0.65	0.05	0.41			91	
27-33	a/							2.0	-				0.10	0.44				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz	Kl.	Gibbsite
	7A2 X-ray						7A3	

a/ Calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossoboric Hapludalf; fine-loamy, mixed, mesic
Soil: Hilton gravelly loam
Soil No.: S61NY-37-6
Location: Orleans County, New York. About 1-1/2 miles north of Childs (on Highway U.S. 104) on the east side of Highway 98.
Vegetation and land use: Harvested oat field in which alfalfa had been seeded with the oats.
Slope and land form: 2 percent.
Sampled by and date: D. Bohrer, October 12, 1961.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 61607	0 to 8 inches. Dark brown (10YR 3/3) gravelly loam; weak medium and fine granular; the upper 3 inches is slightly compact and cloddy; very many fine roots; common 2 mm vertical holes and associated cavities in some of which are earthworms. Included gravel are mainly sandstone. An estimated 10 percent by volume was stones greater than 3 inches and was discarded. Abrupt smooth boundary. 8 inches thick.
A21 61608	8 to 11 inches. Brown (7.5YR 5/4) gravelly fine sandy loam; very weak medium plates, the upper surfaces of which have localized coats of light brown (7.5YR 6/3) fine sand; locally, circular areas on a horizontal surface are light brown (7.5YR 6/3) and appear to be upward extensions of the A22 horizon through the A21 horizon. About 15 percent of a horizontal surface is 1/4 to 1/2 inch circular areas of dark brown (10YR 3/3) loam, which are cross sections of vertical holes filled with material like that of the Ap; many fine roots; common 1/8 inch vertical holes with dark linings; common fine and very fine vertical holes. This horizon contained a weathered fragment of fossiliferous calcareous sandstone that was dark in color and effeversed violently with H_2O_2, this was avoided in sampling. An estimated 10 percent coarse fragments greater than 3 inches was discarded. Clear wavy boundary. 1 to 4 inches thick.
A22 61609	11 to 15 inches. Light brown (7.5YR 6/3) gravelly fine sandy loam; common medium and coarse brown (7.5YR 5/4-5/2) mottles; very weak medium and thick platy; very firm in place, firm but brittle to crush; many fine roots; common vertical 1 to 2 mm holes; common 1/4 inch vertical channels filled with worm castings or material from the Ap. An estimated 15 percent fragments greater than 3 inches was discarded; clear wavy boundary. 4 to 7 inches thick.
B1 61610	15 to 20 inches. Dark brown (7.5YR 4/4) loam with many medium and coarse brown (7.5YR 5/4) mottles; very weak very thick platy with few weak vertical cleavage faces; firm in place; firm to crush; common fine roots; many fine and very fine pores, commonly with clay skins; common 1/8 to 1/2 inch vertical channels filled or lined with dark material like the Ap; common worm casts; an estimated 20 percent coarse fragments larger than 3 mm was discarded; clear wavy boundary. 2 to 6 inches thick.
IIB2t 61611	20 to 27 inches. Reddish brown (5YR 4/3) gravelly clay loam; common medium faint mottles; common 1/8 to 1/2 inch light green mottles are weathered fragments of greenish shale; moderate medium subangular blocky; discontinuous clay coats in pits on clay faces; slightly firm, slightly plastic; common fine roots; few fine vertical holes with shiny linings; few 1/4 inch vertical holes, commonly but not all containing dark colored material as linings or as fillings. An estimated 15 percent fragments greater than 3 inches was discarded; abrupt wavy boundary. 6 to 9 inches thick.
IIC 61612	27 to 33 inches plus. Brown (7.5YR 5/4) gravelly fine sandy loam with discontinuous layers ranging from thin films to 3/4 inch of brown (7.5YR 5/2) to pinkish gray (7.5YR 6/2) zones of carbonate segregation; common coarse brown (10YR 5/3) mottles; common dark reddish brown (5YR 3/3) fragments of soft shale; moderately expressed but fragile lens-shaped medium plates; firm in place but friable to crush; few fine roots; few 1/4 inch vertical holes containing dark material; an estimated 10 percent coarse fragments was discarded; strongly calcareous.

Notes: Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossoboric Hapludalf; fine-loamy, mixed, mesic

SOIL Hilton gravelly loam SOIL Nos. S61NY-37-8 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61620 - 61624

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand (Pct. of < 2 mm): Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt (Pct. of < 2 mm): 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 < 76 Pct.	2–19 (Pct. of < 76mm)	19–76 (Pct. of < 76mm)
0-8	Ap	54.6	33.0	12.4	9.6	11.3	10.6	11.4	11.7	16.6	16.4	33.9	42.9		0.84	24		
8-10	A21	71.0	22.5	6.5	16.1	17.3	14.4	12.6	10.6	13.2	9.3	29.3	60.4		0.82	25		
10-12	A22	62.0	34.2	3.8	8.2	10.2	10.2	14.4	19.0	19.3	14.9	46.1	43.0		0.85	21		
12-28	B2t	34.5	45.7	19.8	2.8	3.6	3.8	9.3	15.0	19.4	26.3	40.0	19.5		0.92	11		
28-43	C	55.0	40.7	4.3	4.8	6.4	6.3	14.7	22.8	24.7	16.0	56.5	32.2		0.86	19		

Depth (in.)	6A1a Organic carbon (Pct)	6B2a Nitrogen (Pct)	C/N		Carbonate as $CaCO_3$ (Pct.)	6C1a Ext. iron as Fe (Pct.)	Bulk density: (g/cc)	4A1e ⅓ bar (g/cc)	4A1h Oven dry (g/cc)	4D1 COLE	Water content (Pct):	4B1c ⅓ bar (Pct.)	4B2 15 bar (Pct.)		4C1 WRD (in/in)		pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	3.78	0.147	26			1.0		1.58	1.61	0.01		14.6	6.8		0.10		4.5	5.4
8-10	1.08	0.052	21			0.6		1.77	1.78	0.00		13.8	4.1		0.14		4.5	5.5
10-12	0.30					0.5		1.78	1.80	0.00		12.2	3.0		0.14		4.6	5.3
12-28	0.11					1.3		1.76	1.86	0.02		16.3	8.6		0.12		5.2	6.3
28-43	0.02					0.4		1.91	1.92	0.00		10.6	2.2		0.14		7.2	7.5

Depth (in.)	Extractable bases 5B1a (meq/100 g): 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
0-8	4.5	0.7	0.1	0.1	5.4	9.9	15.3		0.4			1.23	0.08	0.55			35	
8-10	1.5	0.4	0.1	0.1	2.1	6.4	8.5		0.6			1.31	0.09	0.63			25	
10-12	1.1	0.3	0.1	tr.	1.5	3.8	5.3		0.3			1.39	0.13	0.79			28	
12-28	9.4	1.2	0.1	0.1	10.8	2.3	13.1		-			0.66	0.06	0.43			82	
28-43	a/					-		1.8	-				0.09	0.51				

Depth (in.)	Clay Fraction Analysis 7A1b-d (7A2 X-ray): Mt.	Chl.	Vm.	Mi	Int.	Qtz.	Kl. (7A3)	Gibbsite	

a/ Calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossoboric Hapludalf; fine-loamy, mixed, mesic
Soil: Hilton gravelly loam
Soil No.: S61Ny-37-8
Location: Orleans County, New York. Town of Albion; Wetherby farm; 5-1/2 miles south of Eagle Harbor in a cultivated field.
Vegetation and land use: Cultivated field from which beans had been harvested.
Slope and land form: 1 percent.
Sampled by and date: B. Brasher and D. Bohrer, October 12, 1961.
Described by: R. Marshall.

Horizon and Beltsville Lab. No.	
Ap 61620	0 to 8 inches. Very dark grayish brown (10YR 3/2) gravelly loam, weak medium granular; slightly firm in place; friable to crush; many fine pores; fine roots plentiful; pH 5.2; abrupt smooth boundary. 8 inches thick.
A21 61621	8 to 10 inches. Dark brown (7.5YR 4/4) finely gravelly loam; moderate fine subangular blocks crush to moderate medium granules; slightly firm in place; friable to crush; many fine pores; fine roots plentiful; pH 5.8; clear wavy boundary. 1 to 4 inches thick.
A22 61622	10 to 12 inches. Brown to light brown (7.5YR 5/4-6/4) gravelly loam with few fine faint strong brown (7.5YR 5/6) mottles; weak fine subangular blocky; firm in place; friable to crush; many fine and medium pores; fine roots are common; pH 6.0; abrupt wavy general boundary, but tongues extend irregularly into the horizon below at 8 to 15 inch intervals around very weakly expressed very coarse prisms. 1 to 8 inches thick.
B2t 61623	12 to 28 inches. Gritty silty clay loam (approximately 5 percent gravel) dark brown (7.5YR 4/2) coats on moderate medium subangular blocks; centers are dark reddish brown (2.5YR 3/4) with common fine distinct dark yellowish brown (10YR 4/4) mottles; the blocks are arranged in very weak very coarse prisms 8 to 15 inches across; firm in place and to crush; few worm holes and many fine pores; few fine roots; pH 6.8; clear wavy boundary. 9 to 20 inches thick.
C 61624	28 to 43 inches plus. Dark brown (7.5YR 4/3) gravelly fine sandy loam; moderate medium and and coarse platy; firm in place, friable to crush; many fine pores; no roots; weakly calcareous in upper portion and becomes more strongly calcareous with depth.

Notes: Occasional stones and cobbles of granite and sandstone occur throughout the soil mass. Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Glossoboric Hapludalf; fine-loamy, mixed, mesic

SOIL Lansing taxadjunct SOIL Nos. 858NY-6-1 LOCATION Cayuga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59323 - 59330

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt (0.05-0.02)	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-4	A1	39.5	49.7	10.8	1.3	2.7	3.9	13.6	18.0	21.4	28.3	48.5	21.5			9		
4-8	A21	41.6	48.5	9.9	1.7	3.2	4.2	14.1	18.4	20.9	27.6	48.9	23.2			13		
8-16	A22	44.9	46.7	8.4	2.7	3.6	4.4	14.6	19.6	19.8	26.9	49.1	25.3			12		
16-18	A & B	43.2	45.4	11.4	1.8	3.4	4.3	14.5	19.2	19.4	26.0	48.5	24.0			12		
18-21	B & A	41.0	43.0	16.0	1.6	3.3	4.1	13.7	18.3	18.5	24.5	46.1	22.7			11		
21-27	B2t	37.9	38.7	23.4	1.8	3.2	4.0	12.3	16.6	16.6	22.1	41.6	21.3			12		
27-42	C1	43.2	49.0	7.8	5.0	5.1	4.7	12.3	16.1	19.4	29.6	43.6	27.1			20		
70-80	C2	43.8	46.7	9.5	5.4	6.4	4.9	12.0	15.1	18.2	28.5	40.8	28.7			3		

Depth (In.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct.	C/N		6C1a Carbonate as $CaCO_3$ Pct	Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	3.17	0.196	16			0.8					39.2	27.0	8.6					5.4
4-8	1.17	0.078	15			0.8					30.5	21.4	5.1					4.8
8-16	0.38	0.034	11			0.7					22.1	20.9	3.5					5.2
16-18	0.30	0.034	9			1.0					22.6	17.2	5.3					5.1
18-21	0.35	0.034	10			1.3					22.9	17.4	6.9					5.4
21-27	0.48	0.038	12			1.8					27.9	19.3	10.0					6.9
27-42	0.10				31.4	0.6					18.2	14.9	4.0					8.0
70-80	0.12				34.6	0.6					16.4	13.5	4.2					8.2

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations	5A1b NH_4OAc	6G1d Ext Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-4	7.1	1.8	0.1	0.3	9.3	13.1	23.2					2.15	0.07	0.80	4		44	
4-8	1.1	0.3	0.1	0.1	1.6	10.9	12.5					1.26	0.08	0.52			13	
8-16	0.9	0.2	0.1	0.1	1.3	5.4	6.7					0.80	0.08	0.42			19	
16-18	1.4	0.5	0.1	0.1	2.1	5.8	7.9					0.69	0.09	0.46			26	
18-21	2.7	1.2	0.1	0.1	4.1	6.4	10.4					0.65	0.08	0.43	2		38	
21-27	3.8	1.4	tr.	0.1	5.3	4.4	9.7					0.41	0.07	0.43	3		55	
27-42	Calcareous							10.4					0.08	0.51				
70-80	Calcareous							11.2					0.06	0.44				

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-4	-	-	-	-	-	-			
4-8	-	x	xxxx	x	-	-			
8-16	-	x	xxx	xx	-	-			
16-18	-	-	-	-	-	-			
18-21	-	x	xx	xx	-	-			
21-27	-	x	xx	xxx	-	-			
27-42	-	xx	x	xxx	-	-			
70-80	-	-	-	-	-	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Glossoboric Hapludalf; fine-loamy, mixed, mesic
Soil: Lansing taxadjunct 1/
Soil No.: S58NY-6-1
Location: Cayuga County, New York. 30 feet north of the Cayuga-Tompkins County line road, also called "Lansing-Genoa town line road," 0.35 mile west of Atwater Road.
Vegetation and land use: Cutover woodlot having a few large sugar maple, basswood, and red oak remaining with sugar maple, American beech, black birch, and hop hornbeam saplings.
Slope and land form: 3 percent to the east but increases to 8 percent 40 feet east of the site.
Physiographic position: Gently rolling to rolling till plain. The sampling site is on the crest of a land form resembling a low drumlin.

Horizon and Beltsville Lab. No.	
A1 59323	0 to 4 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine subangular blocks and medium granules; friable; many fine and common medium roots; pH 5.6; common partially rounded gravel; clear wavy boundary; 3-1/2 to 9 inches thick; locally fine tongues coated to depth of 9 inches.
A21 59324	4 to 8 inches. Yellowish brown (10YR 5/4) gravelly silt loam; very weak fine subangular blocks composed of very weak, very fine granules; very friable; common fine and medium woody roots; few partly rounded stones and common partly rounded gravel; pH 5.4; gradual wavy boundary; locally horizon is discontinuous. 3 to 5 inches thick. (This horizon could be interpreted as a color B.)
A22 59325	8 to 16 inches. Brown (10YR 5/3) gravelly loam; very weak, medium and thick platy to almost massive; slightly firm; common fine and few medium woody roots; pH 5.4; gradual wavy boundary. 5 to 10 inches thick.
A & B 59326	16 to 18 inches. Brown (10YR 5/3) gravelly loam enclosing dark brown (10YR 4/3) gravelly clay loam spherical bodies 1/8 to 1/4 inch in diameter; inside medium subangular blocks; weak peds; slightly firm; few fine and medium woody roots; pH 5.4; clear wavy boundary. 1 to 4 inches thick.
B & A 59327	18 to 21 inches. Dark brown (10YR 4/3) gravelly clay loam forming the centers of weak and moderate, medium subangular blocks with casts of brown (10YR 5/3) loam ranging from 1/32 to 1/4 inch thick; slightly firm; few fine and medium woody roots; pH 5.6; clear wavy boundary. 2 to 4 inches thick.
B2t 59328	21 to 27 inches. Dark brown (10YR 4/3) gravelly silty clay loam; moderate medium and fine subangular blocks with darker brown (10YR 3/4) continuous clay skins; firm; very few fine and medium roots; abrupt wavy boundary. 4 to 9 inches thick.
C1 59329	27 to 42 inches. Brown (10YR 5/2.5) very gravelly loam; crudely medium and thick platy characteristic of basal till; very firm; few medium roots; many partly rounded stones and gravel firmly embedded in the loam matrix; includes much limestone; strongly calcareous.
C2 59330	70 to 80 inches. Material apparently similar to C1 sampled to represent the deep substratum. A measured volume was dug out, stones and gravel greater than 3 mm were weighed. Assuming specific gravity of 2.5, stones occupy about 56 percent of the volume of this horizon.

Notes: Colors refer to moist soil.

1/ This pedon is a taxadjunct because the argillic horizon is thinner than permitted at the series level.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Psammentic Hapludalf; sandy, mixed, mesic

SOIL: Arkport taxadjunct — SOIL Nos. S61NY-37-2 — LOCATION: Orleans County, New York

SOIL SURVEY LABORATORY: Beltsville, Maryland — LAB. Nos. 61574 - 61585

Depth (in.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 — Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	71.1	25.3	3.6	0.1	1.3	8.3	37.6	23.8	20.4	4.9	63.9	47.3		1.00	tr.		
8-12	B21	83.6	13.9	2.5	0.2	1.6	10.9	45.8	25.1	8.3	5.6	56.5	58.5		1.00	tr.		
12-21	A&B(1)	77.2	20.8	2.0	0.2	1.1	9.0	42.0	24.9	11.5	9.3	55.0	52.3		1.00	tr.		
21-31	A&B(2)	82.6	14.2	3.2	0.3	2.6	25.9	44.6	9.2	5.1	9.1	30.3	73.4		1.00	tr.		
31-45	A'2	89.3	9.1	1.6	-	0.3	13.9	60.1	15.0	3.8	5.3	44.1	74.3		1.00	0.1		
45-49	B22t	77.9	13.5	8.6	-	0.1	5.4	53.7	18.7	6.8	6.7	53.3	59.2		1.00	-		
49-56	A&B(3)	75.2	22.9	1.9	-	0.1	2.2	48.2	24.7	16.8	6.1	67.6	50.5		1.00	-		
56-76	IIC1	71.4	23.9	4.7	tr.	tr.	0.8	41.0	29.6	18.7	5.2	76.4	41.8		1.00	-		
76-81	IIIC2	49.2	46.0	4.8	-	0.1	0.4	11.8	36.9	30.7	15.3	78.7	12.3		1.00	-		
81-87	IVC3	89.2	8.7	2.1	-	0.6	24.7	57.6	6.3	3.4	5.3	25.8	82.9		1.00	-		
87-95	IVC4	86.7	7.3	6.0	-	0.1	21.6	62.2	2.8	2.3	5.0	18.6	83.9		1.00	-		
21-42		74.9	12.0	13.1	0.1	2.3	25.9	42.0	4.6	3.5	8.5	19.6	70.3		1.00	tr.		

Depth (in.)	6A1e Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1b Air dry	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content: 4B1c 1/10 bar	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in		
0-8	0.59	0.050	12			0.6	1.68				13.2	7.8	3.0		0.08	4.2	4.6
8-12	0.05	0.020	-			0.5	1.69				9.1	5.5	2.2		0.06	4.4	5.2
12-21	0.08					0.5	1.62				12.4	6.7	1.7		0.08	4.4	5.4
21-31	0.06					0.6	1.67				8.6	6.7	2.1		0.08	4.4	5.7
31-45	0.04					0.7	1.49				6.5	4.4	1.8		0.04	4.5	5.5
45-49	0.06					0.9	1.65				13.1	8.5	4.6		0.06	4.6	6.1
49-56	0.03					0.7	1.61				13.3	6.0	2.1		0.06	4.6	6.0
56-76	0.02					0.9	1.65				16.8	7.7	3.5		0.07	4.8	6.0
76-81	0.06					1.0	1.64				26.1	13.5	4.0		0.16	4.7	6.1
81-87	0.02					0.8					5.8	4.1	2.1			4.8	6.2
87-95	0.02					0.9	1.53				9.0	6.5	3.5		0.05	4.9	6.2
21-42	0.02					1.3	1.65				14.0	10.4	5.7		0.08	4.5	5.8

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			a/ Ratios to clay: CEC Sum	Ext. iron	8D1 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-8	1.2	0.1	tr.	0.2	1.4	6.1	7.6		0.9			2.11	0.17	0.83			20	
8-12	0.7	tr.	tr.	0.1	0.8	2.8	3.6		0.5								22	
12-21	1.2	0.2	tr.	0.1	1.5	1.5	3.0		0.2								50	
21-31	1.7	0.3	tr.	tr.	2.0	1.3	3.3		0.1			1.03	0.03	0.66			61	
31-45	1.6	0.3	tr.	0.1	2.0	0.8	2.8		0.1								71	
45-49	2.8	1.0	tr.	0.1	3.9	1.5	5.4		0.1			0.63	0.01	0.53			72	
49-56	1.8	0.6	0.1	0.1	2.6	1.3	3.9		0.1								67	
56-76	2.2	0.7	tr.	0.1	3.0	1.3	4.3		0.1			0.91	0.02	0.74			70	
76-81	2.8	1.1	tr.	tr.	3.9	1.7	5.6		0.1			1.17	0.02	0.83			70	
81-87	1.6	0.5	tr.	tr.	2.1	0.8	2.9		0.1								72	
87-95	2.2	1.0	tr.	0.1	3.3	0.8	4.1		tr.			0.68	-	0.58			80	
21-42	4.1	0.8	0.1	0.1	5.1	0.8	5.9		0.1			0.45	0.01	0.44			86	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

a/ Ratios to clay omitted where clay less than 3 percent.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Psammentic Hapludalf; sandy, mixed, mesic
Soil: Arkport taxadjunct[1/]
Soil No.: S61NY-37-2
Location: Orleans County, New York. At southern edge of Lyndonville on N.Y. Highway 63 turn west on field road by cobblestone house. Go almost 1/4 mile to point where field road crosses small drainway. Site is 350 feet west of this point and 45 feet north of the field road.
Vegetation and land use: Potato field.
Sampled by and date: M. G. Cline and D. Bohrer. October 10, 1961.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 61574	0 to 8 inches. (7.5YR 4/3) loamy fine sand; very weak fine and very fine granular; slightly firm; few fine gravel; common fine roots; few stems; abrupt slightly wavy boundary. 8 to 9 inches thick.
B21 61575	8 to 12 inches. (5YR 4/4) loamy fine sand; very weak very fine granular; friable; few fine roots; few 1/2 inch crudely spherical (5YR 3/4) firm bodies comparable to bands in the horizon below; few fine gravel; common fine pores; few 1/2 mm to 1 mm black hard pellets, some of which form a black streak on a cut face, some appear to be seeds; others smear and could be charcoal; clear wavy boundary with one extension 8 inches wide cutting across horizon B22 on one side of the pit. 5 to 13 inches thick.
A&B(1) 61576	12 to 21 inches. Intricately mottled nearly equal proportions of (5YR 5/3 and 5YR 4/3) loamy fine sand or fine sand. One wavy band (5YR 4/3) fine sandy loam within the upper 3 inches of the horizon ranges from 1-1/2 to 1/4 inches in thickness. Firmer than the remainder of the horizon and was not sampled. Spots of similar material from 1/8 to 1/2 inch across occur and were sampled. Slightly firm in place; massive or extremely weak very fine granular; many fine pores in the firmest parts of the horizon; few in the most friable parts. Horizon is interrupted by B21 on one side of the pit. Few fine roots; abrupt very slightly wavy boundary. 5 to 12 inches thick.
A&B(2) 61577	21 to 31 inches. (5YR 3/3) fine sandy loam bands and irregular shaped bodies occupy approximately 20 percent of the horizon within the matrix of loamy fine sand in which individual sand grains are about 40 percent pinkish gray and 60 percent dark reddish brown. When crushed the mass is (2.5YR 4/4). Massive. The matrix is friable to slightly firm; the bands and similar bodies are slightly firm to firm and have distinct clay bridges among sand grains; few fine roots; common fine pores concentrated in the most clayey parts. A 4 inch irregular shaped body of (5YR 3/3) sticky fine sandy loam or fine sandy clay loam occurs. This was sampled separately as 21 to 42 inch depth. Very irregular abrupt to clear boundary. 4 to 17 inches thick.
A'2 61578	31 to 45 inches. Fine sand or sand that is 80 percent pinkish gray and 20 percent reddish brown and becomes (2.5YR 3/4) when crushed; single grain; loose. It includes irregular-shaped bodies aggregating less than 20 percent of the mass which are slightly firm in place and appeared to have slightly more than the matrix; few fine roots; common fine pores; abrupt wavy boundary. 6 to 21 inches thick.
B22t 61579	45 to 49 inches. Dominantly (5YR 3/3) fine sandy loam but intermingled with (5YR 4/3) loamy fine sand and (5YR 7/2) fine sand bodies a fraction to as much as 2 inches across; massive; slightly firm; few fine roots; few fine pores; the darker and finer parts have distinct clay bridges. Abrupt wavy boundary. 3 to 6 inches thick.
A&B 61580	49 to 56 inches. 80 percent fine sand or sand like that described for B31. Within this matrix 20 percent of the section is thin bands of (5YR 4/3) loamy fine sand that curve from the horizontal to almost vertical orientation on a diameter of about 6 inches. In this 20 percent are bodies of (5YR 4/3) fine sandy loam from a fraction to 2 inches across; massive in the finer spots to single grain in the coarsest spots; slightly firm in the finest spots to loose in the coarsest spots; few fine roots; few fine pores; abrupt wavy boundary. 0 to 7 inches thick.
IIC1 61581	56 to 76 inches. (5YR 4/3) fine sandy loam with a relatively high component of very fine sand, enclosing pockets of fine sand comparable to the matrix of B32 above. The topmost 2 to 3 inches appears to be slightly higher in clay than the remainder of the horizon; very few fine roots; massive; slightly firm; few fine pores; few discontinuous diagonal cleavage faces coated with pinkish gray fine sand; abrupt wavy boundary. 15 to 23 inches thick.
IIIC2 61582	76 to 81 inches. Dark reddish gray (5YR 4/2) very fine sandy loam and silt loam in thin layers with a few thin layers of medium or fine sand. This thin layer is divided into prisms 10 inches across by 1/4 to 1/2 inch (7.5YR 5/4-5/6) material that cuts across the horizontal layers. Firm; massive or platy inside prisms; no roots; abrupt wavy boundary. 3 to 6 inches thick.
IVC3 61583	81 to 87 inches. Sand; single grain; loose. An estimated 90 percent of the grains are (7.5YR 7/2) and the remaining 10 percent are (5YR 4/3). When rubbed the material is (5YR 5/3); no roots; clear wavy boundary. 4 to 8 inches thick.
IVC4 61584	87 to 95 inches plus. Sand or loamy sand, single grain or massive; loose to slightly firm at spots within the layer. An estimated 50 percent of the sand grains are (5YR 4/3); 50 percent are (5YR 7/2). When rubbed the mass is (5YR 4/3).
Special sample 61585	21 to 42 inches. A nearly vertically oriented body ranging from 2 to 5 inches wide cutting through horizons B23 and B31. (5YR 3/3) sticky fine sandy loam or fine sandy clay loam; massive; slightly firm; few fine roots; few fine vertical holes; many clayey bridges between sand grains. (Bodies such as this occur erratically in various parts of the exposure below 20 inches, but few are so large or so nearly vertical in orientation.)

Notes: Colors refer to moist soil.

[1/] This pedon is a taxadjunct because it is in a sandy particle size class. The Arkport series is in the coarse-loamy, mixed, mesic family of Psammentic Hapludalfs.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Psammentic Hapludalf; coarse-loamy, mixed, mesic

SOIL Arkport fine sandy loam SOIL Nos. S61NY-37-1 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61562 - 61573

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-9	Ap	49.2	46.2	4.6	-	0.1	0.4	11.3	37.4	26.0	20.2	73.6	11.8		0.99	2		
9-15	B21	72.0	25.6	2.4	0.3	0.6	2.3	22.4	46.4	18.6	7.0	81.7	25.6		0.98	4		
15-28	A&B(1)	72.8	25.7	1.5	-	0.2	1.6	18.4	52.6	20.1	5.6	87.2	20.2		1.00	tr.		
28-30	A&B(2)	70.4	27.7	1.9	-	tr.	0.2	11.4	58.8	21.4	6.3	91.1	11.6		1.00	-		
30-42	A&B(3)	69.1	30.4	0.5	-	0.1	0.4	11.9	56.7	24.1	6.3	91.5	12.4		1.00	-		
42-45	B22t	74.8	21.4	3.8	tr.	0.7	4.2	30.0	39.9	14.9	6.5	75.0	34.9		1.00	-		
45-58	A&B(4)	79.1	19.9	1.0	0.1	0.6	4.1	33.4	40.9	14.5	5.4	77.9	38.2		1.00	-		
58-79	A'21	83.2	16.2	0.6	-	0.5	6.2	39.9	36.6	12.4	3.8	74.2	46.6		1.00	-		
79-80	B23t	79.3	11.4	9.3	tr.	2.1	10.6	42.2	24.4	7.2	4.2	54.9	54.9		1.00	-		
80-90	A'22	83.2	16.4	0.4	-	1.4	6.9	38.7	36.2	12.3	4.1	71.7	47.0		1.00	-		
90-92	B24t	75.7	14.5	9.8	0.8	6.8	14.2	31.0	22.9	9.1	5.4	47.8	52.8		1.00	tr.		
92-106	B31	83.0	15.1	1.9	0.4	3.5	8.6	35.0	35.5	12.0	3.1	68.5	47.5		1.00	-		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A1b Air dry g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1c 1/10 bar Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9	1.42	0.122	12			0.6	1.37				23.7	12.7	5.9		0.09	5.4	6.0
9-15	0.31	0.029	11			0.4	1.51				15.6	7.0	3.0		0.06	4.7	5.7
15-28	0.09					0.4	1.45				14.0	4.9	1.7		0.05	4.5	5.5
28-30	0.10					0.6	1.59				16.7	6.3	2.4		0.06	4.4	5.5
30-42	0.04					0.4	1.54				17.4	5.1	1.2		0.06	4.4	5.5
42-45	0.05					0.6	1.63				13.9	7.1	2.5		0.07	4.4	5.6
45-58	0.04					0.5	1.53				12.6	5.3	1.5		0.06	4.4	5.6
58-79	0.04					0.4	1.53				10.4	4.1	1.5		0.04	4.3	5.5
79-80	0.06					0.9	1.70				15.1	9.0	4.8		0.07	4.4	5.7
80-90	0.02					0.5					11.2	4.2	1.3			4.5	5.6
90-92	0.02					0.9	1.67				14.0	9.1	5.0		0.07	4.2	5.4
92-106	0.02					0.6	1.64				11.6	4.1	1.6		0.04	4.5	5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al		Ratios to clay[a] 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-9	6.9	1.4	0.1	0.3	8.7	6.6	15.3		tr.		3.33	0.13	1.28			57	
9-15	1.2	0.7	0.1	tr.	2.0	4.2	6.2		0.2							32	
15-28	0.7	0.2	tr.	tr.	0.9	2.1	3.0		0.3							30	
28-30	0.9	0.3	tr.	tr.	1.2	3.0	4.2		0.3							28	
30-42	0.7	0.1	tr.	tr.	0.8	1.3	2.1		0.2							38	
42-45	1.6	0.2	tr.	tr.	1.8	2.1	3.9		0.2		1.03	0.16	0.66			46	
45-58	1.2	0.2	tr.	tr.	1.4	1.3	2.7		0.1							52	
58-79	1.0	0.3	tr.	tr.	1.3	1.1	2.4		0.1							54	
79-80	3.0	0.3	tr.	0.1	3.4	2.1	5.5		0.1		0.59	0.09	0.52			62	
80-90	1.2	0.2	0.1	0.1	1.6	0.8	2.3		0.1							65	
90-92	3.0	0.3	0.1	0.1	3.5	2.5	6.0		0.2		0.61	0.09	0.51			58	
92-106	1.4	0.3	tr.	tr.	1.7	1.3	3.0		0.1							57	

Depth (In.)	Clay mineral analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	Ptcl. size (mm)
	7A2 X-ray						7A3		
0-9									
9-15									
15-28									
28-30	-	xx	x	xxxx	x[b]	tr.	xx	-	<.005
30-42	-	-	x	x	x[c]	-	x	-	<.002 d
42-45	-	tr.	tr.	tr.	tr.[c]	-	tr.	-	<.0002 e
45-58	-	xx	xx	xxxx	x[b]	tr.	-	-	<.005
58-79	-	tr.	xxx[f]	xxxx	tr.[c]	-	x	-	<.002
79-80	-	-	tr.	tr.	tr.	-	-	-	<.0002 e
80-90	-	x	x	xxxx	x[b]	-	x	-	<.005
90-92	-	-	tr.	xxxx	x[b]	-	tr.	-	<.002
92-106	-	-	x	xxxx	tr.[c]	-	tr.	-	<.0002

[a] Ratios to clay omitted where clay less than 3 percent.
[b] Interstratified vermiculite/chlorite.
[c] Interstratified vermiculite/mica.
Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[d] All peaks of the X-ray patterns are low, broad, poorly resolved
[e] All peaks of the X-ray patterns are very low, narrow, barely discernable.
[f] Collapses randomly with K saturation and heating to 250° C.

Pedon Classification: Psammentic Hapludalf; coarse-loamy, mixed, mesic
Soil: Arkport fine sandy loam
Soil No.: S61NY-37-1
Location: Orleans County, New York. Approximately 1/4 mile south of intersection with N.Y. Highway 31 about 2 miles east of Albion.
Vegetation and land use: Abandoned cherry orchard.
Sampled by and date: M. G. Cline, B. Brasher, and D. Bohrer. October 9, 1961.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 61562	0 to 9 inches. (7.5YR 4/2) fine sandy loam; weak very fine granular structure; very friable; few medium and common fine roots; few very fine gravel; abrupt smooth boundary. 8 to 9 inches thick.
B21 61563	9 to 15 inches. (7.5YR 5/6) fine sandy loam; weak very fine granular structure; friable; common medium roots; few fine gravel; common very fine vertical pores; gradual wavy boundary. 5 to 9 inches thick.
A&B(1) 61564	15 to 28 inches. Loamy fine sand having 1/4 to 1/2 inch mottles; 7.5YR 5/4 is 50 to 75 percent of the mass and 7.5YR 5/2 is 25 to 50 percent of the mass. One (5YR 4/3) wavy 1/16 inch band of fine sandy loam; three similar bands occur below this band; massive; slightly firm in place; slightly brittle and slightly firm to crush; a few discontinuous cleavage faces are coated with a 7.5YR 6/2 film of fine sand grains; common fine and few medium roots; few vertical channels filled with material like that of B21; few medium and fine elongated pores; abrupt wavy boundary. 7 to 15 inches thick.
A&B(2) 61565	28 to 30 inches. (5YR 4/4) fine sandy loam occupying 65 percent of the horizon within which 30 percent is (5YR 5/2) fine sand in irregular shaped bodies; massive; darker parts are slightly firm and have distinct clay bridges among sand grains; lighter inclusions are friable; few medium roots; very few very fine pores; abrupt wavy boundary. 1-1/2 to 3 inches thick.
A&B(3) 61566	30 to 42 inches. (5YR 6/3) fine sand; massive; slightly firm in place; friable to crush; 5 percent of the vertical section is irregular shaped bodies of (5YR 4/3) loamy fine sand. 20 percent of the section is (5YR 5/3) faint mottles intermediate in color and texture between the matrix and the bands; a filled cylindrical channel runs diagonally across the section and is filled with 7.5YR 4/4 loamy fine sand that is more friable than the surrounding material and in which are common medium and fine roots; the mass of the horizon contains few medium roots; abrupt wavy boundary. 12 to 15 inches thick.
B22t 61567	42 to 45 inches. Comparable in color to A&B(2) but with the brown areas seemingly slightly lower in clay and with the sand of the light areas coarser than in A&B(2). Abrupt wavy boundary. 2-1/2 to 4 inches thick.
A&B(4) 61568	45 to 58 inches. An intricate pattern of (5YR 4/3) fine sandy loam or loamy fine sand with (5YR 6/3) fine sand in essentially equal proportions. The more sandy areas of the vertical section range from a fraction of an inch to 3 inches across within an intricate pattern of branching heavy horizontal bands and very coarse mottles of the darker fine sandy loam; upon rubbing the 5YR 6/3 material becomes 5YR 4/4; massive; slightly firm; few medium and fine roots; few fine pores; distinct clay bridges in the darker bands and mottles; lower boundary abrupt and wavy, marked by a 1/2 to 1/4 inch continuous band of reddish brown fine sandy loam.
A'21 61569	58 to 79 inches. (5YR 6/2) fine sandy within which are 1/32 to 1/16 inch bands of dark reddish brown (5YR 3/4) fine sandy loam which are discontinuous horizontally and aggregate less than 3 percent of the mass; few coarse faint mottles, intermediate in color between the matrix and the bands appear to be incipient concentration of fines; massive; friable to slightly firm. When the light material is crushed its color is 5YR 4/6. Few medium roots; few fine pores; abrupt wavy boundary. 18 to 25 inches thick.
B23t 61570	79 to 80 inches. (5YR 3/4) fine sandy loam, comparable to thinner bands of B26 but sharply defined and continuous horizontally; abrupt wavy boundary. 1/2 to 1-1/2 inches thick.
A'22 61571	80 to 90 inches. (5YR 6/2) fine sand comparable to horizon A'21 above. Abrupt wavy boundary. 8 to 14 inches thick.
B24t 61572	90 to 92 inches. (5YR 3/4) fine sandy loam band; continuous across face of the pit; massive; few medium roots; slightly firm; few fine pores; distinct clay bridges; abrupt wavy boundary. 1 to 3 inches thick.
B31 61573	92 to 106 inches. 75 percent (5YR 5/2) fine sandy and 25 percent (5YR 3/3-4/3) slightly sticky fine sandy loam in bands 1/4 to 1 inch thick that curve and branch without consistent pattern. The bands are comparable to that of horizon B24t.
B32 Not sampled	106 to 127 inches. Sampled with a post-hole digger; essentially comparable to B31, consisting of dominantly 5YR 5/2-6/2 fine sand with mottles and branching bands of 5YR 4/3-3/4 fine sandy loam. The deepest band, which was 3 inches thick at 127 inches was collected as a clod sample.

Notes: Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Alfic Udipsamment; mixed, mesic

SOIL Colonie loamy fine sand[a] SOIL Nos. 357NY-28-1 LOCATION Monroe County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58541 - 58547

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand (2–1) Very coarse	Sand (1–0.5) Coarse	Sand (0.5–0.25) Medium	Sand (0.25–0.1) Fine	Sand (0.1–0.05) Very fine	Silt (0.05–0.02)	Silt (0.02–0.002) Int. III	Silt (0.2–0.02) Int. II	Silt (2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 – 19	19 – 76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm															Pct. of < 76mm	
0-11	Ap	85.2	11.4	3.4	1.8	7.6	15.0	38.8	22.0	6.9	4.5	50.5	63.2					
11-18	B21	84.6	11.9	3.5	2.0	8.1	17.5	38.0	19.0	7.0	4.9	46.4	65.6					
18-35	B22	91.4	6.8	1.8	1.5	7.6	16.4	46.2	19.7	4.4	2.4	49.7	71.7					
35-48	B23	95.2	3.9	0.9	0.3	4.5	18.0	53.8	18.6	3.2	0.7	51.1	76.6					
48-61	B24	90.7	7.2	2.1	2.4	13.0	21.0	36.8	17.5	5.3	1.9	41.8	73.2					
61-80	C11	91.6	5.8	2.6	2.8	10.4	19.5	39.7	19.2	4.2	1.6	43.7	72.4					
80-89	C12	94.5	4.1	1.4	1.1	8.3	22.0	44.2	18.9	3.3	0.8	43.7	75.6					
89-93	C2	Not sampled																

Depth (In.)	6A1a Organic[b] matter Pct	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1a ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-11	1.6	0.063	14.9			0.5					10.2		2.0					5.9
11-18	0.4	0.037				0.6					8.7		2.2					5.8
18-35	0.2	0.032				0.4					5.1		1.4					5.9
35-48	-	0.032				0.3					4.0		0.7					6.0
48-61	0.1	0.033				0.6					6.4		1.5					6.0
61-80	0.1	0.023				0.6					6.9		1.7					6.2
80-89	-	0.023				0.4					4.7		0.9					6.9
89-93	Not sampled																	

Depth (In.)	Extractable bases 5B1a[b] Ca	Mg	Na	K	Sum	6H2a Ext[b] acidity	CEC 5A3a Sum cations	5A1b NH_4OAc[b]	6G1d Ext. Al			Ratios to clay CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-11	1.6	0.4	-	0.2	2.2	5.5	7.7	6.3				2.26	0.15	0.59			28	
11-18	0.5	0.2	-	0.1	0.8	3.3	4.1	4.2				1.17	0.17	0.62			20	
18-35	0.5	0.1	-	-	0.6	1.5	2.1	3.2									33	
35-48	0.3	-	-	-	0.3	0.8	1.1	2.0									27	
48-61	1.2	0.2	-	-	1.4	1.6	3.0	3.8									47	
61-80	1.5	0.3	-	-	1.8	1.3	3.1	3.6									55	
80-89	1.2	0.2	-	-	1.4	0.2	1.6	2.2									88	
89-93	Not sampled																	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-11	-	tr.	xxxx	-	-	-			
11-18	-	tr.	xxxx	-	-	-			
18-35	-	-	-	-	-	-			
35-48	-	x	xx	x	-	-			
48-61	-	-	-	-	-	-			
61-80	-	-	-	-	-	-			
80-89	-	tr.	xx	xxx	-	-			
89-93	Not sampled								

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt = Montmorillonite, Chl. = chlorite, Vm = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined at Cornell University.

Pedon Classification: Alfic Udipsamment; mixed, mesic
Soil: Colonie loamy fine sand
Soil No.: S57NY-28-1
Location: Monroe County, New York. Follow Highway 31 west from Palmyra. Turn south on Benedict Road where Highway 31 crosses the Barge Canal. Follow Benedict Road about 1/4 mile to a T, turn west, go 0.2 miles on this dirt trail to a point where a row of young trees has been planted.
Vegetation and land use: Mainly quackgrass.
Slope and land form: 3 percent.

Horizon and Beltsville Lab. No.	
Ap 58541	0 to 11 inches. Dark grayish brown (10YR 4/2) loamy fine sand; very weak very fine granular; very friable; many fine roots; pH 5.6; abrupt wavy boundary. 9 to 12 inches thick.
B21 58542	11 to 18 inches. Strong brown (7.5YR 5/6) loamy fine sand; very weak very fine granular; very friable; many medium and fine roots; a few large brittle roots, apparently of a shrub that had been removed; pH 5.5; gradual wavy boundary. 6 to 8 inches thick.
B22 58543	18 to 35 inches. Brown (7.5YR 5/4) fine sand with few 1/2 to 1-1/2 inch lenticular to circular areas of lower chroma (7.5YR 5/3) suggestive of the diffuse B of sandy Gray Brown Podzolic soils. These are very slightly more coherent than the matrix, which is very weak very fine granular and very friable. Medium and fine roots are common. pH 5.8. Clear wavy boundary. 14 to 19 inches thick.
B23 58544	35 to 48 inches. Brown (7.5YR 5/4) loamy fine sand forming an intricate pattern of darker slightly more coherent material within a light brown (7.5YR 6/4) matrix of fine sand. The darker parts are very weak very fine granular and very friable; the lighter parts are almost single grain and loose. Common medium and fine roots; pH 5.8. Clear wavy boundary. 13 to 19 inches thick.
B24 58545	48 to 61 inches. A horizon of coarser sands representing a discontinuity in material, common in stratified waterlaid material. Dark brown (7.5YR 4/4) sand with common 1/4 to 1/8 inch firm nodules of 10YR 3/2-2/2 loamy sand. Common medium faint mottles; very weak very fine granular to single grain; slightly firm in place but loose when removed; common medium and fine roots; pH 5.6; abrupt smooth boundary. 12 to 14 inches thick.
C11 58546	61 to 80 inches. Light yellowish brown (10YR 6/4) sand with an intricate pattern of medium and coarse 7.5YR 4/2-4/3 and 10YR 4/3-4/4 mottles constituting 50 percent of a vertical surface. These mottles are slightly firm. The matrix is very friable. Very weak very fine granular to single grain. Few fine roots, mainly dead. pH 5.8. Clear wavy boundary. 17 to 23 inches thick.
C12 58547	80 to 89 inches. Dark brown (7.5YR 4/2) sand. Single grain; loose; few very thin varves of fine sandy loam; no roots; pH 6.0; temperature 56° F; clear wavy boundary. 8 to 10 inches thick. The water table stood in this horizon when sampled.
C2 Not sampled	89 to 93 inches plus. Dark brown (7.5YR 4/2) sand with few thin very fine sand lenses. Saturated. pH 6.2.

Notes: Ap, B22, and B23 horizons were also sampled for Bureau of Public Roads. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Alfic Udipsamment; mixed, mesic

SOIL Colonie fine sand SOIL Nos. S61NY-37-4 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61592 - 61601

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1															Pct. of < 76mm	
		Pct. of < 2 mm																
0-8	Ap	90.5	7.4	2.1	0.2	0.6	5.0	66.2	18.5	3.9	3.5	66.2	72.0		1.00	tr.		
8-10	B21	95.2	4.0	0.8	-	0.3	4.0	75.1	15.8	2.0	2.0	63.3	79.4		1.00	-		
10-16	B22	96.8	3.0	0.2	-	0.3	5.7	75.8	15.0	1.8	1.2	62.7	81.8		1.00	-		
16-28	B31	96.8	2.6	0.6	-	0.2	4.3	74.5	17.8	2.1	0.5	68.7	79.0		1.00	-		
28½-33	B32	97.6	2.3	0.1	-	tr.	1.8	76.0	19.8	2.1	0.2	75.3	77.8		1.00	-		
33½-38	B33	97.2	2.8	-	-	tr.	2.4	75.7	19.1	2.2	0.6	72.2	78.1		1.00	-		
38½-44	B34	97.5	2.4	0.1	-	0.1	2.9	76.2	18.3	1.9	0.5	73.2	79.2		1.00	-		
44½-49	B35	97.7	2.3	-	-	0.2	3.5	76.0	18.0	1.8	0.5	71.6	79.7		1.00	-		
49½-63	C1	97.2	2.8	-	-	0.5	6.1	74.3	16.3	2.1	0.7	61.7	80.9		1.00	-		
63-80	C2	97.0	1.0	2.0	-	0.4	9.8	73.1	13.7	1.0	-	62.9	83.3		1.00	-		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A1b Air dry g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1c 1/10 bar Pct	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	1.37	0.118	12			0.5	1.33				13.6	9.4	5.8		0.05	6.3	7.1
8-10	0.39	0.032	12			0.4	1.53				4.8	3.6	2.7		0.01	5.8	6.8
10-16	0.30					0.4	1.54				4.6	2.4	1.9		0.01	5.4	6.2
16-28	0.14					0.4					3.6	1.7	1.2			5.0	5.8
28½-33	0.06					0.3	-				3.1	1.2	0.9			4.9	5.6
33½-38	0.04					0.3	-				3.1	1.4	0.8			4.9	5.5
38½-44	0.04					0.3	-				3.4	1.5	0.8			4.6	5.6
44½-49	0.04					0.3	-				2.7	1.3	0.7			4.8	5.6
49½-63	0.04					0.3	-				3.2	1.6	0.8			4.6	5.2
63-80	0.04					0.4	-				3.6	2.0	1.0			4.7	5.7

Depth (in.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-8	8.9	1.8	0.1	0.8	11.6	3.8	15.4		tr.							75	
8-10	1.9	0.5	tr.	0.3	2.7	2.8	5.5		0.1							49	
10-16	1.1	0.2	tr.	0.2	1.5	2.1	3.6		0.1							42	
16-28	0.6	0.2	tr.	tr.	0.8	1.5	2.3		0.1							35	
28½-33	0.4	0.1	tr.	0.1	0.6	1.3	1.9		0.1							32	
33½-38	0.4	tr.	tr.	tr.	0.4	0.8	1.2		0.1							33	
38½-44	0.4	0.1	tr.	tr.	0.5	0.6	1.1		0.1							45	
44½-49	0.4	0.2	tr.	0.1	0.6	0.6	1.3		0.1							54	
49½-63	0.4	0.1	tr.	0.1	0.6	0.7	1.3		0.2							46	
63-80	0.4	0.4	tr.	0.1	0.9	1.2	2.1		0.1							43	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi	Int	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Alfic Udipsamments; mixed, mesic
Soil: Colonie fine sand
Soil No.: S61NY-37-4
Location: Orleans County, New York.
Vegetation and land use: Weedy cultivated area.
Slope and land form: 2 percent.
Sampled by and date: B. Brasher and D. Bohrer. October 10, 1961.
Described by: D. Flora.

Horizon and Beltsville Lab. No.	
Ap 61592	0 to 8 inches. Very dark grayish brown (10YR 3/2) loamy fine sand; weak fine and very fine granular; very friable; roots plentiful; many medium pores. Near the boundary of the B21 there are some irregular and circular bodies filled with B21 material. Abrupt smooth boundary. 8 inches thick.
B21 61593	8 to 10 inches. Strong brown (7.5YR 5/6) loamy fine sand; very weak, very fine granular; very friable; roots common. Some of the Ap material occurs near the boundary with the Ap in irregular and circular bodies. Clear wavy boundary. 1 to 3 inches thick.
B22 61594	10 to 16 inches. Strong brown (7.5YR 5/6) fine sand; single grain; loose to very friable; slightly firm in place; few roots; gradual wavy boundary. 2 to 6 inches thick.
B31 61595	16 to 28 inches. Yellowish brown (10YR 5/4 moist and 10YR 6/4 dry) fine sand; single grain; loose to very friable; slightly firm in place; few roots; abrupt and wavy boundary. 10 to 13 inches thick. (This horizon includes one discontinuous, approximately horizontal band consisting of irregular spots, 1/16 to 1/2 inch thick, of strong brown (7.5YR 4/6) material, which does not occupy more than 1 to 2 percent of the mass of the horizon. There is no apparent texture difference between the band material and the remainder of the horizon.)
B23 Not sampled	28 to 28-1/2 inches. Brown (7.5YR 4/4) loamy fine sand; massive; firm in place; friable to crush; few roots; abrupt wavy boundary. 1/4 to 1/2 inch thick.
B32 61596	28-1/2 to 33 inches. Yellowish brown (10YR 5/4) fine sand; single grain; loose to very friable; slightly firm in place; abrupt wavy boundary. 4 to 6 inches thick.
B24 Not sampled	33 to 33-1/2 inches. This band consists of smaller bands, which differ in color. The center of this band is dark reddish brown (5YR 3/4) loamy fine sand, about 1/16 inch thick. The material around this center band is 7.5YR 4/4 loamy fine sand. 50 percent of the horizon is 7.5YR 4/4 and 50 percent 5YR 3/4 material. The whole band is massive, friable to crush and firm in place. Abrupt wavy boundary. 1/8 to 3/4 inches thick. (This major band branches into 2 bands, one continuous and one discontinuous. The latter cuts through a part of the horizon below, is wavy and consists of spots of irregular-shaped bodies. These spots sometimes reach 1/4 inch in thickness.)
B33 61597	33-1/2 to 38 inches. Brown (10YR 5/3) fine sand; single grain; loose to very friable; slightly firm in place; few roots; abrupt wavy boundary. 3 to 5-1/2 inches thick.
B25 Not sampled	38 to 38-1/2 inches. Similar to B24. Consists of lighter (7.5YR 4/4) and darker (5YR 3/4) bands within the major band. 50 percent dark and 50 percent lighter colored material; abrupt wavy boundary. 1/4 to 1/2 inch thick.
B34 61598	38-1/2 to 44 inches. Brown (10YR 5/3) fine sand; single grain; loose to very friable; slightly firm in place; similar to the interband material described above under B33; abrupt wavy boundary. 1/2 to 6 inches thick.
B26 Not sampled	44 to 44-1/2 inches. Same as bands above (B24 and B25); abrupt wavy boundary. 1/8 to 1/4 inch thick.
B35 61599	44-1/2 to 49 inches. Brown (7.5YR 5/4) fine sand; abrupt wavy boundary. 2-1/2 to 8 inches thick. Similar to interband material described above under B34. This horizon includes one very thin discontinuous band of material like B24.
B27 Not sampled	49 to 49-1/2 inches. Dark brown (7.5YR 4/4) loamy fine sand; similar to bands described above but only one kind of material; boundary abrupt and wavy. 1/8 to 1/4 inch thick.
C1 61600	49-1/2 to 63 inches. Brown (7.5YR 5/4) fine sand with many medium faint 7.5YR 5/6 mottles; other characteristics are similar to interband material described above; few roots; gradual wavy boundary. 3 to 5 inches thick.
C2 61601	63 to 80 inches plus. A horizon in which mottling is very apparent; 7.5YR 5/3 fine sand with common distinct medium to coarse 7.5YR 5/8 and 2.5YR 3/4 mottles; firm in place; friable to crush; also few black (10YR 2/1) coarse mottles that are very firm and massive.

Notes: Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiaquept; coarse-loamy, mixed, mesic

SOIL Ellery taxadjunct SOIL Nos. S58NY-55-2 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59316 - 59322

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm														Pct. of < 76mm		
0-9	Ap	25.2	46.5	28.3	2.0	2.9	3.1	6.8	10.4	18.7	27.8	33.2	14.8			5		
9-16	A2g	41.2	44.5	14.3	6.3	6.7	5.3	10.0	12.9	19.4	25.1	38.2	28.3			32		
16-21	B'x1	40.7	44.5	14.8	7.4	6.9	5.1	9.4	11.9	18.2	26.3	35.6	28.8			40		
21-26	B'x2	35.9	47.5	16.6	7.9	7.0	4.0	7.4	9.6	15.3	32.2	29.4	26.3			40		
26-56	B'x3	32.1	46.8	21.1	4.8	5.2	4.2	8.2	9.7	16.7	30.1	31.0	22.4			24		
56-78	B'x4	40.9	46.2	12.9	6.8	6.6	5.0	10.0	12.5	18.6	27.6	37.0	28.4			25		
78-84	C	44.4	41.5	14.1	7.8	7.5	5.3	10.6	13.2	21.5	20.0	41.3	31.2			28		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD m/m	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9	3.57	0.323	11			1.4				44.3	34.1	16.3				5.5
9-16	0.51	0.68	8			1.0				24.6	17.0	6.5				5.6
16-21	0.38	0.69	6			1.0				22.7	17.5	6.1				5.5
21-26	0.26					1.0				22.2	19.5	6.3				5.6
26-56	0.16					0.7				22.6	19.0	8.7				6.0
56-78	0.17					1.0				20.5	17.5	5.9				5.8
78-84	0.14				5.7	0.8				18.0	15.6	4.2				8.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc	6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct.
	meq/100 g																
0-9	10.0	2.3	0.1	0.4	12.8	16.7	29.5				1.04	0.05	0.58	2		43	
9-16	3.4	0.9	0.1	0.1	4.5	6.6	11.1				0.78	0.07	0.45			40	
16-21	3.1	1.0	0.1	0.1	4.3	5.8	10.1				0.68	0.07	0.41	3		42	
21-26	3.4	1.0	0.1	0.1	3.7	5.0	9.6				0.58	0.06	0.38	3		48	
26-56	4.7	1.3	0.1	0.1	6.2	2.7	8.9				0.42	0.03	0.41	4		70	
56-78	3.4	1.1	0.1	0.1	4.7	3.5	8.2				0.64	0.08	0.46	3		57	
78-84								15.2				0.06	0.30				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-9	-	x	x	xxx	-	-			
9-16	-	-	-	-	-	-			
16-21	-	-	-	-	-	-			
21-26	-	-	-	-	-	-			
26-56	-	xx	tr.	xxxx	-	-			
56-78	-	-	-	-	-	-			
78-84	-	x	tr.	xxxx	-	-			

Mt = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiaquept; coarse-loamy, mixed, mesic
Soil: Ellery taxadjunct [1]
Soil No.: S58NY-55-2
Location: Tompkins County, New York. Follow Ellis Hollow Road about 3 miles east of its junction with Judd Falls Road. Sampled on the property of Earl Stone, 6 feet south of edge of road ditch and 125 feet east of spruce tree at the corner of Dr. Stone's yard.
Vegetation and land use: Mainly weeds, scotch pine seedlings had been planted among the weeds.
Slope and land form: 3 percent.

Horizon and Beltsville Lab. No.	
Ap 59316	0 to 9 inches. Very dark grayish brown (10YR 3/2) heavy channery silt loam; weak fine subangular blocks mixed with moderate medium granules; friable; many fine roots; clear smooth boundary. 7 to 10 inches thick.
A2g 59317	9 to 16 inches. Grayish brown (10YR 5/2) channery silt loam with common medium yellowish brown (10YR 5/6) and many medium faint mottles; weak fine subangular blocks; friable; few fine roots; clear smooth boundary. 5 to 8 inches thick.
B'x1 59318	16 to 21 inches. Channery heavy silt loam; moderate prisms 2 to 6 inches across; interiors have weak medium angular blocky structure. Interiors of blocks are dark grayish brown (10YR 4/2) with common fine faint mottles. Exteriors, which constitute 60 percent of the mass, are grayish brown (10YR 5/2) with many medium 10YR 5/6 mottles; firm to very firm; no roots; gradual smooth boundary. 4 to 8 inches thick.
B'x2 59319	21 to 26 inches. Channery silty clay loam; strong prisms 4 to 8 inches across are separated by olive gray (5Y 5/2) silt loam in vertical bands 1/4 to 3/4 inch wide. Inside these bands is a strong brown (7.5YR 5/6) rim 1/4 inch wide. Interiors of prisms are dark grayish brown (10YR 4/2) silty clay loam with few mottles; very firm; no roots; diffuse boundary. 4 to 12 inches thick.
B'x3 59320	26 to 56 inches. Channery silty clay loam in strong prisms 6 to 18 inches across separated by 1/8 to 1/4 inch of olive gray (5Y 5/2) silt loam and bounded by 1/4 inch rim of strong brown (7.5YR 5/6) silty clay loam. Interiors have weak fine subangular blocks bounded by thin discontinuous very dark brown (10YR 2/2) films; very firm; diffuse boundary. 25 to 40 inches thick.
B'x4 59321	56 to 78 inches. Channery silty clay loam divided into prisms 1-1/2 to 3 feet across by very thin coats of light gray (5Y 6/1). Interiors are grayish brown (2.5Y 5/2) with common fine faint mottles; very firm; clear wavy boundary. 12 to 18 inches thick.
C 59322	78 to 84 inches plus. Grayish brown (2.5Y 5/2) channery loam; weak lenticular platy; firm; few fine faint mottles; calcareous.

Notes: Colors refer to moist soil.

[1] This pedon is a taxadjunct because its family particle size placement is coarse-loamy as opposed to fine-loamy for the Ellery series.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aeric Haplaquept; fine-loamy, mixed, mesic

SOIL Series not designated SOIL Nos. S63NY-22-2 LOCATION Herkimer County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63426 - 63431

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-9	Ap	16.6	52.6	30.8	1.6	1.5	1.7	4.7	7.1	13.7	38.9	23.7	9.5		0.92	14[a]		
9-18	B2	20.1	48.6	31.3	3.1	1.8	2.2	5.5	7.5	11.6	37.0	22.3	12.6		0.96	8[a]		
18-22	IIA'2	19.2	52.3	28.5	2.1	1.7	2.2	5.4	7.8	13.8	38.5	24.8	11.4		0.88	17[a]		
22-27	IIB'21t	19.4	55.9	24.7	2.3	1.7	2.3	5.6	7.5	15.4	40.5	26.4	11.9		0.79	29[a]		
27-36	IIB'22t	24.1	53.5	22.4	6.1	3.7	2.6	5.0	6.7	12.8	40.7	22.5	17.4		0.76	32[a]		
36-42	IIC	20.6	57.3	22.1	5.0	2.3	2.0	4.4	6.9	14.5	42.8	24.0	13.7		0.79	28[a]		

Depth (in.)	6A1a Organic carbon	6B2a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density:	4A1a ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in			
0-9	2.14	0.194	11			1.6		1.36	1.42	0.01		25.9	12.7		0.17		4.5	5.4
9-18	0.60	0.077	8			1.9		1.40	1.45	0.01		26.7	13.5		0.18		4.0	5.4
18-22	0.47	0.064	7			1.7		1.70	1.76	0.01		17.7	11.3		0.10		4.0	5.4
22-27	0.23					1.7		1.68	1.76	0.01		19.6	11.2		0.11		5.1	6.2
27-36	0.23				1	1.6		1.74	1.80	0.01		17.3	10.3		0.09		6.1	7.0
36-42	0.21				6	1.5		1.82	1.80	0.01		15.5	9.5		0.09		6.6	7.5

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-9	8.8	0.8	0.1	0.1	9.8	10.7	20.5		0.1			0.66	0.05	0.41			48	
9-18	4.3	0.6	0.1	0.1	5.1	12.2	17.3		2.0			0.55	0.06	0.43			29	
18-22	6.8	0.8	0.1	0.1	7.8	8.1	15.9		0.1			0.56	0.06	0.40			49	
22-27	11.4	1.2	0.1	0.1	12.8	3.7	16.5		-			0.67	0.07	0.45			78	
27-36		1.0	0.1	0.1		1.6			-				0.07	0.46				
36-42		1.0	0.1	0.1		0.2			-				0.07	0.43				

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-9	-	tr.	xx	tr.	-	-			
9-18	-	tr.	xxx	x	-	-			
18-22	-	tr.	xx	xx	-	-			
22-27	-	-	xx	xxx	-	-			
27-36	-	-	xx	xxx	-	-			
36-42	-	-	xx	xxx	-	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Aeric Haplaquept; fine-loamy, mixed, mesic
Soil: Series not designated[1/]
Soil No.: S63NY-22-2
Location: Herkimer County, New York. About 1-1/2 miles northeast of Starkville, on south side of gravel road east of Cramer Corners.
Vegetation and land use: Hay field.
Drainage: Somewhat poorly drained.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 23, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63426	0 to 9 inches. Pale brown (10YR 6/3) dry; dark grayish brown (10YR 4/2) crushed and moist; silt loam; moderate medium and fine granular, slightly platy; friable; many fine roots; common earthworm channels; pH 5.6; very few fragments greater than 3 inches; abrupt smooth boundary. 9 to 10 inches thick.
B2 63427	9 to 18 inches. Yellowish brown (10YR 5/4) crushed and moist silt loam (color like Nunda); moderate fine and medium subangular blocky; uncrushed blocks are 40 percent grayish brown (10YR 5/2) moist with many medium yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles, concentrated mainly in middle of blocks; 5 to 15 percent dark grayish brown (10YR 4/2) silt loam, like Ap, filling or coating earthworm channels; slightly firm but crumbles under light pressure to fine and very fine blocks and granules; all peds have smooth pressure faces with few small patchy clay films; many fine tubular pores with smooth interiors, possibly some clay films; common fine roots; pH 5.6; very few fragments greater than 3 inches; clear smooth boundary. 4 to 10 inches thick.
IIA'2 63428	18 to 22 inches. Yellowish brown (10YR 5/4) crushed and moist, pale brown (10YR 6/3) crushed and dry; silt loam getting heavier with depth, moderate coarse prismatic; prism faces coated 5Y 7/2 dry, 2.5Y 6/2 moist; interiors 2.5Y 6/2 and 10YR to 7.5YR 4/4 to 5/4 (moist) in upper 2 inches, 40 percent (2.5YR 5/2) mottled 40 percent 7.5YR 5/6 and 5/8 and 20 percent 10YR 5/4 to 5/6 in lower 2 inches; common to few fine roots; common vertical earthworm channels; pH 6.0; hard in place; hard to crush; ped faces have many root impressions and few patchy clay skins; very fine tubular cavities have smooth linings, some possibly clay skins; very few fragments larger than 3 inches; abrupt wavy boundary. 3 to 5 inches thick.
IIB'21t 63429	22 to 27 inches. Dark grayish brown (10YR 4/2) crushed and moist; clay loam; moderate coarse prisms have dark gray (5Y 4/1) faces, smooth, with network of root impressions; ped faces 75 percent or more clay films in upper part, patchy films in lower part; ped interiors 60 percent 2.5Y 4/3 with many faint medium and fine mottles of lower chroma; many small to large black to very dark brown soft shale fragments; common vertical earthworm channels; many very fine tubular pores with clay linings; very firm in place; very firm to crush; many fine roots in cracks between primary peds and few in ped interiors; slight tendency for platy cleavage within prisms; less than 5 percent fragments greater than 3 inches; pH 6.6; gradual boundary. 5 to 6 inches thick.
IIB'22t 63430	27 to 36 inches. Dark grayish brown (10YR 4/2) crushed and moist; light clay loam; weak medium platy with irregularly spaced very weak medium and fine angular blocks; horizontal faces 30 percent irregular shaped patchy clay films intermingled with non-clay dark brown films; vertical faces discontinuous, but where distinct have 50 percent patchy clay films; distinct cleavage faces 10YR 4/1; ped interiors 10YR 4/2 with few to common faint mottles of slightly higher chroma; few tubular pores with clayey linings; common earthworm channels; common black soft shale fragments; firm in place and slightly firm to crush; pH 6.8; less than 5 percent fragments coarser than 3 inches; clear wavy boundary. 9 to 11 inches thick.
IIC 63431	36 to 42 inches. Dark grayish brown (2.5Y 4/2) crushed and moist; heavy loam; moderate fine and medium platy; broken faces across plates show alternating 2.5Y 4/2 plate interiors and 5Y 4/1 to 5/1 lines between the plates; natural plate faces have distinct patchy clay films intermingled with patches of gray to light gray segregated lime; few to common fine 2.5Y 4/4 mottles in plate interiors; common soft black shale fragments; few fine tubular pores; earthworm evidence; slightly firm in place; slightly firm to crush; calcareous; pH 7.6; few fine roots; less than 5 percent fragments greater than 3 inches.

Notes: Pedon represents a somewhat poorly drained analog of Nunda soils and has a slightly mottled, presumably cambic horizon in a silty mantle over an argillic horizon in dark shaly till. Colors are for moist soil unless indicated otherwise.

[1/] This pedon was sampled as a representative of the Burdett series, which is now in the fine-loamy, mixed, mesic family of Aeric Ochraqualfs.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; loamy-skeletal, mixed, mesic
SOIL Bath taxadjunct SOIL Nos. S54NY-54-4 LOCATION Tioga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 55528 - 55533

Depth (in.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 < 76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-8	Ap	30.6	56.0	13.4	14.7	6.7	1.8	2.1	5.3	22.2	33.8	28.5	25.3			43		
8-12	A2	30.6	57.2	12.2	13.5	7.0	2.0	1.9	6.2	24.6	32.6	31.8	24.4			50		
12-22	B1	27.8	58.6	13.6	12.7	6.2	1.8	1.7	5.4	24.2	34.4	30.5	22.4			57		
22-48	Bx1	36.3	54.1	9.6	15.5	8.3	2.6	2.9	7.0	26.7	27.4	35.2	29.3			48		
48-72	Bx2	36.8	54.4	8.8	12.7	9.7	2.8	3.2	8.4	26.0	28.4	36.1	28.4			57		
72-84	C2	43.8	48.4	7.8	15.5	11.5	3.5	3.7	9.6	25.8	22.6	37.3	34.2			55		

Depth (in.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density:	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in			
0-8	2.64					1.0												4.8
8-12	0.49					0.8												5.1
12-22	0.33					1.0												5.2
22-48	0.16					0.7												5.2
48-72	0.03					0.8												5.2
72-84	0.14					0.8												5.3

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-8	1.7	0.5	0.1	0.1	2.4	17.4	19.8					1.48	0.07				12	
8-12	0.8	0.3	0.2	0.1	1.4	8.4	9.8					0.80	0.06				14	
12-22	0.8	0.3	0.2	0.2	1.5	8.4	9.9					0.73	0.07				15	
22-48	1.1	0.3	0.2	0.1	1.7	6.4	8.1					0.84	0.07				20	
48-72	1.3	0.6	0.3	0.2	2.3	4.0	6.4					0.73	0.09				38	
72-84	1.9	1.0	0.2	0.2	3.3	4.2	7.5					0.96	0.10				44	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						D1A 7A3		
0-8									
8-12									
12-22									
22-48		xx		xxxx		x	xxx		
48-72									
72-84									

Mt. = Montmorillonite, Chl. = chlorite, Vm = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; loamy-skeletal, mixed, mesic
Soil: Bath taxadjunct [1]
Soil No.: 854NY-54-4
Location: Tioga County, New York. 3 miles north of Owego.
Vegetation and land use: Pasture.
Sampled by and date: W. H. Lyford, July 27, 1954.

Horizon and Beltsville Lab. No.	
Ap 55528	0 to 8 inches. Very dark grayish brown (10YR 3/2), grayish brown (2.5Y 5/2) (dry) friable channery silt loam, weak fine granular structure, grading to weak thick platy in places. Some of this latter structure may be the result of compression from heavy equipment.
A2 55529	8 to 12 inches. Olive brown (2.5Y 4/4) friable very channery loam with a high proportion 1/4 to 1/2 inch channers, weak 1/32 inch thin platy structure. This is about the same color as the underlying B1 and is distinguished principally by its platy structure.
B1 55530	12 to 22 inches. Essentially like the horizon above but with a weak 1/2 inch subangular blocky structure.
Bx1 55531	22 to 48 inches. Olive brown (2.5Y 4/4) very channery loam to silt loam with many rather obvious and continuous clay coats. Much unaggregated silt occurs in and around the pebbles and pores. Rather large pores are common, very firm in place, moderately brittle, essentially massive.
Bx2 55532	48 to 72 inches. Like the above only deeper. Both horizons very firm and a rather strong blow from the geology pick-hammer is needed to dislodge a 1x2x2 inch fragment. No mottling, the color is homogeneous throughout.
C2 55533	72 to 84 inches plus. Olive brown (2.5Y 3/4) very channery loam. Channers are about 1/2 inch in size, no obvious structure, but perhaps a faint indication of a horizontal arrangement of fragments. 1/16 inch pores are common and clay flows occur but are discontinuous and spaced roughly at 1/4 inch intervals. Firm in place but much less firm than the horizons above. Perhaps this is more nearly a B3 or C1 rather than a C2.

Notes: Colors refer to moist soil unless indicated otherwise.

[1] This pedon has coarse fragment content too high for the Bath series, which is in the coarse-loamy family particle size class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; loamy-skeletal, mixed, mesic
SOIL Leckawanna taxadjunct[a] SOIL Nos. S57NY-13-1 LOCATION Delaware County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58536 - 58540

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <25[b] Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-5	Ap	25.5	45.8	28.7	1.9	2.4	2.7	9.3	9.2	14.0	31.8	29.0	16.3			14[c]		
5-16	B2	21.9	52.4	25.7	2.2	2.2	2.4	7.3	7.8	15.8	36.6	28.1	14.1					
16-22	A'2	25.7	50.5	23.8	2.5	3.5	3.2	8.4	8.1	15.7	34.8	29.0	17.6					
22-42	B'x1	46.2	40.6	13.2	5.7	6.5	4.9	14.7	14.4	15.8	24.8	39.4	31.8			46[c]		
42-54	B'x2	44.6	39.9	15.5	5.5	6.4	4.9	14.8	13.0	14.0	25.9	36.2	31.6			34[c]		

Depth (in.)	6A1a Organic[b] matter Pct.	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density:	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5	9.6	0.460	12.2			1.5						40.0	17.9					5.2
5-16	2.6	0.156	9.8			1.6						27.9	10.0					5.3
16-22	2.0	0.127	9.2			1.3						25.7	8.7					5.4
22-42	0.6	0.049				1.0						18.3	3.3					5.5
42-54	0.3	0.041				1.3						17.7	3.5					5.6

Depth (in.)	Extractable bases 5B1a[b]: 6N2 Ca	6O2 Mg	6P2 Na	6Q2 K	Sum	6H2a Ext.[b] acidity	CEC: 5A3a[b] Sum cations	5A1b NH_4OAc[b]	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-5	7.5	2.1	0.1	0.3	10.0	18.8	29.8	31.0				1.04	0.05	0.62	4		37	
5-16	4.6	1.4	-	0.2	6.2	12.3	18.5	19.8				0.72	0.06	0.39	3		34	
16-22	3.8	1.2	-	0.2	5.2	11.1	16.3	16.6				0.68	0.05	0.36	3		32	
22-42	1.9	0.7	-	0.1	2.7	4.5	7.2	7.8				0.54	0.08	0.25			37	
42-54	2.3	0.9	-	0.1	3.3	2.7	6.0	6.2				0.39	0.08	0.22			35	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-5	-	x	x	xxx	-	-			
5-16	-	xx	tr.	xxx	-	-			
16-22	-	x	xx	xxx	-	-			
22-42	-	xx	tr.	xxx	-	-			
42-54	-	xx	x	xxx	-	-			

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined at Cornell University.

[c]An estimated 25, 35, and 40 percent fragments greater than 1 inch discarded from horizon Ap, B'x1, and B'x2 respectively in the field.

Pedon Classification: Typic Fragiochrept; loamy-skeletal, mixed, mesic
Soil: Lackawanna taxadjunct 1/
Soil No.: S57NY-13-1
Location: Delaware County, New York. At Walton, take the hard-surfaced unnumbered road North toward Franklin for 2.2 miles and turn northwest on hard-surfaced road toward Northfield and Sidney. Go 1.04 miles to a road cut about 10 feet high on the north side of the road. This is about 100 yards southeast of a house. Sampled 50 feet from the cut at right angles to the road opposite the highest part of the cut.
Vegetation and land use: Meadow.
Slope and land form: 8 percent.

Horizon and Beltsville Lab. No.	
Ap 58536	0 to 5 inches. Dark brown (7.5YR 3/2) (5/2 dry) flaggy silt loam; strong medium and coarse granular; slightly hard; many fine roots; estimated 50 percent channers and flags; pH 5.4; abrupt clear boundary. 5 to 6 inches thick.
B2 58537	5 to 16 inches. Reddish brown (5YR 4/3) (5/4 dry) flaggy silt loam; very weak fine subangular to weak fine granular; slightly hard; common fine roots; estimated 50 percent channers and flags; pH 5.2; clear wavy boundary. 9 to 14 inches thick.
A'2 58538	16 to 22 inches. Dark reddish gray (5YR 4/2) (6/2 dry) flaggy silt loam with horizontal 1/2 inch bands of light brownish gray (10YR 6/2) silt loam; massive to very weak thick platy; very hard; few fine roots; estimated 60 percent coarse fragments; pH 5.4; clear wavy boundary. 3 to 7 inches thick.
B'x1 58539	22 to 42 inches. Brown (7.5YR 4/2) (5/2 dry) flaggy loam in very coarse prisms 8 to 24 inches across separated by 1/8 to 1/4 inch of grayish brown (10YR 5/2) silt loam; massive within prisms; very hard; few fine roots, all between prisms; estimated 60 percent coarse fragments; pH 5.4; diffuse boundary. 18 to 24 inches thick.
B'x2 58540	42 to 54 inches plus. Brown (7.5YR 5/2) (6/2 dry) flaggy loam; massive to very weak fine angular blocky; very hard; a few widely spaced vertical cleavage planes extend downward from prisms above, commonly ending at flat stone fragments; stones and cleavage faces coated with grayish brown (10YR 5/2) silt loam; no roots; estimated 60 percent coarse fragments; pH 5.4; lower boundary not seen.

Notes: Colors refer to moist soil unless indicated otherwise.

1/ This pedon is a taxadjunct because its family particle size placement is loamy-skeletal as opposed to coarse-loamy for the Lackawanna series.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; loamy-skeletal, mixed, mesic
SOIL Mardin taxadjunct SOIL Nos. S63NY-6-1 LOCATION Cayuga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63439 - 63449

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	29.2	52.6	18.2	4.7	4.8	3.6	6.8	9.3	19.3	33.3	32.5	19.9			24		
8-12	B21	23.4	56.6	20.0	3.6	3.8	2.5	5.2	8.3	19.4	37.2	30.7	15.1		0.83	33		
12-17	B22	30.8	51.7	17.5	6.0	6.2	3.6	6.1	8.9	17.2	34.5	29.4	21.9		0.81	36		
17-21	IIA'2x	39.8	47.4	12.8	9.7	8.5	4.6	6.9	10.1	18.3	29.1	32.4	29.7		0.61	51		
21-28	IIB'x1	37.0	49.3	13.7	8.8	7.8	4.3	6.4	9.7	18.5	30.8	31.9	27.3		0.62	46		
28-38	IIB'x2	36.5	44.8	18.7	9.0	8.0	4.2	6.1	9.2	19.6	25.2	32.3	27.3		0.60	49		
38-46	IIB'x3	35.2	52.8	12.0	8.4	7.7	4.1	5.9	9.1	21.2	31.6	33.6	26.1		0.65	44		
46-60	IIB'x4	33.4	50.5	16.1	8.1	7.2	3.7	5.4	9.0	20.4	30.1	32.4	24.4		0.69	40		
60-72	IIB'x5	28.8	49.9	21.3	9.8	5.1	2.5	3.4	8.0	19.4	30.5	29.3	20.8		0.66	43		
72-76	IIC1	23.2	57.3	19.5	6.7	4.1	1.5	2.4	8.5	22.7	34.6	32.7	14.7		0.67	42		
76-78	IIC2	30.2	51.6	18.2	10.5	5.8	2.8	3.5	7.6	19.8	31.8	29.5	22.6		0.67	41		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	3.32	0.242	14			1.6							11.0				5.3	5.7
8-12	2.06	0.186	11			2.4		1.08	1.12	0.01		37.6	11.4		0.23		3.7	4.8
12-17	1.41	0.162	9			1.8		1.14	1.20	0.01		35.9	9.1		0.25		3.8	4.8
17-21	0.27					1.0		1.64	1.66	0.00		19.3	5.0		0.14		3.8	5.0
21-28	0.19					1.0		1.88	1.82	0.00		15.4	5.6		0.11		3.7	5.1
28-38	0.16					1.0		1.86	1.89	0.00		13.8	5.1		0.10		3.7	5.1
38-46	0.16					1.0		1.84	1.89	0.01		14.6	4.1		0.13		3.8	5.2
46-60	0.16					1.1		1.82	1.85	0.00		14.9	6.3		0.11		3.8	5.6
60-72	0.14					1.1		1.77	1.81	0.00		17.0	7.3		0.11		4.5	6.1
72-76	0.18					1.0		1.79	1.82	0.00		16.2	12.0		0.05		6.1	7.0
76-78	0.16				3	0.9		1.88	1.94	0.01		15.5	11.3		0.05		6.7	7.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	12.6	0.5	tr.	0.1	13.2	10.0	23.2		-			1.27	0.09	0.60			57	
8-12	2.4	0.1	tr.	0.1	2.6	28.7	31.3		4.7			1.56	0.12	0.57			8	
12-17	1.5	-	tr.	0.1	1.6	21.4	23.0		2.8			1.31	0.10	0.52			7	
17-21	0.9	-	tr.	0.1	1.0	7.1	8.1		1.8			0.63	0.08	0.39			12	
21-28	1.3	-	tr.	0.1	1.4	6.6	8.0		1.9			0.58	0.07	0.41			18	
28-38	1.9	0.2	tr.	0.1	2.2	6.2	8.4		1.7			0.45	0.05	0.27			26	
38-46	2.1	0.1	tr.	0.1	2.3	5.7	8.0		1.4			0.67	0.08	0.34			29	
46-60	4.3	0.3	tr.	0.1	4.7	4.6	9.3		0.6			0.58	0.07	0.39			51	
60-72	6.4	0.3	0.1	0.1	6.9	3.0	9.9		-			0.46	0.05	0.34			70	
72-76	8.0	0.4	0.1	0.1	8.6	1.3	9.9		-			0.51	0.05	0.62			87	
76-78		0.8	0.1	0.1		0.4			-				0.05	0.62				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl	Gibbsite	
	7A2 X-ray				Mica Vermiculite		7A3		
0-8	-		xxx	x	tr.				
8-12	-		xxx	x	tr.				
12-17	-		xx	xx	tr.				
17-21	-		x	xxx	tr.				
21-28	-		x	xxx	x				
28-38	-		x	xxx	x				
38-46	-		x	xxx	x				
46-60	-		tr.	xxx	xx				
60-72	-		tr.	xxx	xx				
72-76	-		tr.	xxx	xx				
76-78	-		tr.	xxx	x				

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; loamy-skeletal, mixed, mesic
Soil: Mardin taxadjunct [1]
Soil No.: S63NY-6-1
Location: Cayuga County, New York. 6.3 miles East of Moravia post office, 350 feet north of Brockway Road.
Vegetation and land use: Hay field; alfalfa and quackgrass mainly.
Slope and land form: A low place of the microrelief common in forested areas.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 15, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63439	0 to 8 inches. Grayish brown (10YR 5/2) dry; channery silt loam; strong medium and fine granules among moderate medium and fine subangular blocks; friable; many fine roots; pH 6.8; 10 percent fragments greater than 3 inches; clear smooth boundary. 8 inches thick.
B21 63440	8 to 12 inches. Dark brown (7.5YR 3/2) moist; brown (7.5YR 5/4) dry; gravelly silt loam; very soft, very weak medium to very fine granular; very friable; many fine roots; pH 5.3; 5 percent fragments greater than 3 inches; gradual wavy boundary. 0 (4/5 of pedon) to 5 inches thick.
B22 63441	12 to 17 inches. Dark yellowish brown (10YR 4/4) moist; yellowish brown (10YR 5/4) dry; slightly gravelly silt loam; very weak fine and very fine subangular blocky; very friable; common fine roots; pH 5.4; abrupt wavy boundary. 4 to 6 inches thick.
IIA'2x 63442	17 to 21 inches. Grayish brown (2.5Y 5/2) moist; light brownish gray (2.5Y 6/2) dry; gravelly fine sandy loam; weak medium and coarse platy; 35 percent stones greater than 3 inches; very firm in place; firm and slightly brittle to crush; ped interiors slightly darker than faces; few fine roots; pH 5.4; clear irregular boundary. 3 to 8 inches thick.
IIB'x1 63443	21 to 28 inches. Dark grayish brown to olive brown (2.5Y 4/3) gravelly loam tongued with grayish brown (2.5Y 5/2) material like A'2; very firm in place and firm to crush; essentially massive; 25 percent fragments larger than 3 inches; few 1- to 2- mm pores; few fine roots; pH 5.4 to 5.6, lower in 2.5Y 5/2 part; gradual wavy boundary. 4 to 10 inches thick.
IIB'x2 63444	28 to 38 inches. Dark grayish brown to olive brown (2.5Y 4/3) gravelly loam; 10 to 14 inch prisms, separated by seams of 2.5Y 6/2 and 10YR 4/4; massive to extremely weak medium angular blocky; fine pores with 2.5Y 5/2 cutans; very firm in place; firm to crush; a very few fine roots between prisms; pH 5.5; 20 percent stones greater than 3 inches; diffuse boundary.
IIB'x3 63445	38 to 46 inches. Dark grayish brown (2.5Y 4/2) gravelly loam; 10 to 12 inch prisms, separated by seams of 2.5Y 6/2 and 10YR 5/4; break to few to many 1/2 to 1 mm pores with 2.5Y 5/2 glossy cutans; breaking to very weak fine blocky fragments; pH 5.5; 15 percent stones greater than 3 inches; diffuse boundary.
IIB'x4 63446	46 to 60 inches. Dark grayish brown (2.5Y 4/2) crushed and moist; light brownish gray (2.5Y 6/2) dry; very gravelly loam; 15 percent stones greater than 3 inches; strong 10 inch prisms separated by seams of 5Y 6/1 and 7.5YR 5/6; break to crudely angular medium blocky fragments; common 1/2 to 2 mm pores locally concentrated, lined with glossy cutans; common very dark brown sandy loam remnants of weathered calcareous sandstone 1/2 to 3 inches; very firm in place; firm to crush; no roots; pH 5.8; diffuse boundary. 14 inches thick.
IIB'x5 63447	60 to 72 inches. Dark grayish brown (2.5Y 4/2) moist; grayish brown (2.5Y 5/2) dry; very gravelly loam; 19 percent stone fragments larger than 3 inches; 15 inch prisms separated by 5Y 6/1 yellowish red seams; slightly thick platy; very weak fine angular blocky; common clay skins; firm in place; friable to crush; pH 5.8; no roots; common very dark brown and yellowish red weathered red limestone fragments; clear smooth boundary. 12 inches thick.
IIC1 63448	72 to 76 inches. Grayish brown (2.5Y 5/2) very gravelly loam; weak medium and coarse lenticular plates; few fine spherical pores with glossy cutans; few cutans on horizontal cleavage faces; firm in place; slightly firm to crush; 20 percent fragments larger than 3 inches; abrupt smooth boundary. 3 to 5 inches thick.
IIC2 63449	76 to 78 inches. Grayish brown (2.5Y 5/2) very gravelly loam; crude moderate lenticular plates; firm in place; slightly firm to crush; no roots; calcareous.

Notes: pH values by bromthymol blue and chlorphenol red. Pedon with original B horizon almost intact, showing a condition common before cultivation. B horizon preserved by overburden acquired when adjacent areas were cleared. (Normally the B21 is destroyed by plowing.) Occupies up to 5 percent of mappable areas of Langford soils.

[1] This pedon is a taxadjunct because it is in the loamy-skeletal family textural class as opposed to coarse-loamy for the Mardin series.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; coarse-loamy, mixed, mesic

SOIL: Broadalbin loam — SOIL Nos. S63NY-18-1 — LOCATION: Fulton County, New York

SOIL SURVEY LABORATORY: Beltsville, Maryland — LAB. Nos. 63412 - 63418

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 <76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	42.7	42.7	14.6	1.9	6.0	7.2	13.6	14.0	19.0	23.7	40.2	28.7		0.96	8		
8-12	B21	40.3	46.1	13.6	2.0	6.0	7.1	13.3	11.9	18.5	27.6	37.5	28.4		0.97	6		
12-15	B22	41.1	47.9	11.0	2.1	6.7	7.7	13.3	11.3	24.6	23.3	43.0	29.8		0.94	10		
15-30	IIA'2x	64.2	29.0	6.8	3.8	11.1	12.1	21.7	15.5	13.0	16.0	40.2	48.7		0.93	10		
30-38	IIB'2x	60.0	24.7	15.3	3.2	10.3	11.7	20.6	14.2	10.7	14.0	36.1	45.8		0.93	11		
38-48	IIB'3x	59.6	25.0	15.4	5.2	10.3	11.2	17.6	15.3	11.0	14.0	35.1	44.3		0.88	18		
48-54	IIC	59.8	25.9	14.3	4.3	9.6	11.6	19.9	14.4	11.2	14.7	36.4	45.4		0.92	13		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density:	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.12	0.156	13			1.4		1.19	1.24	0.01		26.2	11.2		0.17		5.0	6.0
8-12	0.96	0.122	8			1.4		1.29	1.30	0.00		22.9	12.1		0.14		4.7	5.7
12-15	0.35	0.046	8			1.1		1.50	1.52	0.00		21.5	9.1		0.17		4.7	6.0
15-30	0.13					0.8		1.77	1.78	0.00		14.4	8.9		0.09		4.5	5.9
30-38	0.18					1.3		1.66	1.70	0.01		17.7	4.3		0.21		4.5	5.9
38-48	0.15					1.3		1.66	1.72	0.01		20.0	6.0		0.20		4.8	6.1
48-54	0.09					1.2		1.62	1.67	0.01		19.0	5.8		0.20		4.9	5.7

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	7.7	0.5	tr.	0.1	8.3	13.3	21.6		-			1.48	0.10	0.77			38	
8-12	1.7	0.1	tr.	0.1	1.9	12.7	14.6		0.5			1.07	0.10	0.89			13	
12-15	1.6	0.1	tr.	0.1	1.8	8.1	9.9		0.1			0.90	0.10	0.83			18	
15-30	1.4	0.1	tr.	0.1	1.6	3.3	4.9		0.2			0.72	0.12	1.31			33	
30-38	4.2	0.8	0.1	0.1	5.2	4.1	9.3		0.1			0.61	0.08	0.28			56	
38-48	4.4	0.7	0.1	0.1	5.3	3.1	8.4		-			0.54	0.08	0.39			63	
48-54	4.0	0.8	0.1	0.1	5.0	2.6	7.6		-			0.53	0.08	0.40			66	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	-	xx	tr.	-	-			
8-12	-	-	xx	tr.	-	-			
12-15	-	-	x	x	-	-			
15-30	-	-	x	xx	-	-			
30-38	-	-	x	xxx	-	-			
38-48	-	-	x	xxx	-	-			
48-54	-	-	x	xxx	-	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; coarse-loamy, mixed, mesic
Soil: Broadalbin loam
Soil No.: S63NY-18-1
Location: Fulton County, New York. 2-1/4 miles east on Highway 29 from its junction with 30A, take right onto a private gravel road for 0.3 miles to Fagan farmstead, 250 feet south of barn.
Vegetation and land use: Harvested hay field supporting mainly timothy and quackgrass with some birdsfoot trefoil.
Slope and land form: 7 percent slope to the north.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Frenzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 20, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63412	0 to 8 inches. Dark grayish brown (10YR 4/2) moist and broken; brown to dark brown (10YR 4/3) moist and crushed; loam high in coarse silt; moderate coarse and medium fine granular; friable; many fine roots; a very few stones larger than 3 inches; a few earthworm burrows; pH 5.8; abrupt smooth boundary. 8 to 9 inches thick.
B21 63413	8 to 12 inches. Yellowish brown (10YR 5/4) moist and broken or crushed; breaks to weak subangular blocks having 75 percent pressure faces; friable to very weak very fine granules; many fine pores, with smooth linings; no clay skins on peds or in pores, possibly a very few in 2 mm cavities; pH 5.8; many fine roots; a few earthworm channels; clear wavy boundary. 3 to 5 inches thick.
B22 63414	12 to 15 inches. Discontinuous horizon that reaches thickness of 10 inches in tongues into the fragipan and vanishes where B21 rests directly on fragipan; brown (10YR-2.5YR 4/3) broken and moist; dark yellowish brown (10YR 4/4) crushed and moist; loam high in coarse silt; breaks into moderate medium and fine subangular blocks having nearly continuous pressure faces but almost no clay skins; many 1/2 mm tubular pores having smooth linings but very thin or no clay films; common fine roots; very few stones greater than 3 inches; pH 5.8; abrupt irregular and interrupted boundary. 0 to 5 inches thick.
IIA'2x 63415	15 to 30 inches. Brown to grayish brown (10YR 5/3-5/2) moist and crushed; broken faces are a mixture of dark grayish brown (10YR 4/2) centers and light brownish gray (10YR 6/2) faces; fine sandy loam; massive in pit face but breaks to weak medium to very thick plates whose surfaces are coated with clean (10YR 6/2) sand grains with very few small patches of (10YR 4/2) pitted surfaces that may be clay skins; 1/3 of matrix is (10YR 4/2) and lacks protruding sand grains; many spherical, irregularly shaped and tubular cavities, mainly less than 1 mm, having thin smooth coats, some of which may be clay; pH 5.6; few fine roots; few fragments larger than 3 inches; clear irregular boundary. 9 to 20 inches thick.
IIB'2x 63416	30 to 38 inches. Dark grayish brown (10YR 4/2) crushed and moist; loam; moderate, medium thick platy; plate surfaces (10YR 4/2) and smooth, sprinkled with clean sand grains surrounding small thin patches of pitted clay skins; interiors of plates are brown (10YR 4/3); common fine tubular pores have smooth clay linings; matrix is dotted with black (10YR 2/1) soft weathered shale fragments ranging from 2 mm to 2 inches; larger fragments crush greasy, are filled with tubular pores 1/2 mm in diameter that look like root channels, are much more numerous than in the surrounding matrix; fragments greater than 3 inches are less than 5 percent by volume; pH 5.8; clear wavy boundary. 5 to 10 inches thick.
IIB'3x 63417	38 to 48 inches. Brown (10YR-2.5Y 4/3) crushed or broken and moist; loam; moderate, medium and coarse platy; slightly firm; brittle to crush; plate faces have rippled and pitted surfaces with more than 50 percent clay films; vertical cleavage faces absent; common tubular pores 1/2 mm in diameter penetrate plates vertically, have thin clay linings; common black weathered shale fragments crush greasy, giving some parts of soil a sandy clay loam texture; very few roots; pH 6.2; few fragments larger than 3 inches; gradual wavy boundary. 8 to 12 inches thick.
IIC 63418	48 to 54 inches plus. Brown (10YR-2.5Y 4/3) crushed or broken and moist; loam; moderate medium and coarse platy; slightly firm; plate faces are mainly pressure faces with very thin clay films and small spots of (10YR 4/2); very few vertical pores, with smooth linings; very few roots; pH 6.5; common soft black shale fragments; a few fragments larger than 3 inches. (Dominantly a loam but sandy clay loam where shale fragments are included.)

Notes: Type location of Broadalbin series. Sampled as marginal case between cambic and spodic horizons in a silty surficial deposit. Most of pit represents central concept of series, and is described above. (See S63NY-18-2 for rest of pit.) Colors are for moist soil unless otherwise indicated.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; coarse-loamy, mixed, mesic

SOIL Broadalbin loam SOIL Nos. S63NY-18-3 LOCATION Fulton County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63419 - 63425

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 - 19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	59.5	31.0	9.5	3.0	9.3	12.6	19.5	15.1	16.5	14.5	41.4	44.4		0.95	10		
8-13	B21	57.2	32.7	10.1	2.7	9.2	11.1	18.5	15.7	17.4	15.3	43.4	41.5		0.90	17		
13-19	B22	63.8	27.9	8.3	3.2	10.8	12.7	20.7	16.4	15.5	12.4	42.9	47.4		0.86	22		
19-24	IIB'x1	64.9	26.0	9.1	3.0	10.0	11.8	23.6	16.5	12.4	13.6	42.0	48.4		0.89	15		
24-34	IIB'x2	61.4	26.3	12.3	3.5	8.4	10.9	22.1	16.5	11.7	14.6	40.5	44.9		0.90	15		
34-45	IIB'x3	63.7	25.7	10.6	4.5	8.9	11.8	22.2	16.3	11.6	14.1	39.9	47.4		0.92	11		
45-55	IIC	22.2	50.1	27.7	2.5	1.9	2.6	6.7	8.5	12.8	37.3	25.1	13.7		0.91	13		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD m/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.08	.177	12			1.4		1.28	1.32	0.01		22.0	9.2		0.16		4.0	4.3
8-13	0.75	.070	11			1.3		1.38	1.40	0.00		20.0	9.5		0.13		4.5	5.3
13-19	0.32					1.2		1.49	1.50	0.00		14.6	7.6		0.09		4.9	5.9
19-24	0.05					1.1		1.81	1.85	0.01		14.7	5.4		0.15		4.8	6.2
24-34	0.05					1.4		1.74	1.77	0.01		14.7	5.8		0.14		4.7	6.1
34-45	0.04					1.1		1.78	1.80	0.00		13.8	5.0		0.14		4.7	6.1
45-55	0.02					1.0		1.82	1.84	0.00		13.5	4.6		0.15		5.0	6.5

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	1.5	0.2	tr.	0.1	1.8	15.0	16.8		1.8			1.77	0.15	0.97			11	
8-13	0.7	tr.	tr.	tr.	0.7	9.2	9.9		0.5			0.98	0.13	0.94			7	
13-19	0.8	tr.	tr.	tr.	0.8	6.0	6.8		-			0.82	0.14	0.92			12	
19-24	2.3	0.2	tr.	0.1	2.6	2.9	5.5		-			0.60	0.12	0.59			47	
24-34	3.1	0.7	tr.	0.1	3.9	2.8	6.7		-			0.54	0.11	0.47			58	
34-45	2.6	0.7	0.1	0.1	3.5	2.4	5.9		-			0.56	0.10	0.47			59	
45-55	2.5	0.9	0.1	0.1	3.6	2.0	5.6		-			0.20	0.04	0.17			64	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	-	xx	-	-	-			
8-13	-	-	x	tr.	-	-			
13-19	-	-	x	tr.	-	-			
19-24	-	-	x	xx	-	-			
24-34	-	-	x	xx	-	-			
34-45	-	-	x	xx	-	-			
45-55	-	-	x	xx	-	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; coarse-loamy, mixed, mesic
Soil: Broadalbin loam
Soil No.: 863NY-18-3
Location: Fulton County, New York. 3 miles west of Perth on county highway 107, 100 feet south of highway and 150 feet east of a line extended from farm road north of highway.
Vegetation and land use: Idle land with sparse stand of grasses and many herbaceous low-growing weeds. Brush just east of the site has good low-bush blueberries.
Slope and land form: 4 percent slope to the west.
Sampled by and date: J. G. Cady, M. G. Cline, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, E. J. Pedersen. July 20, 1963.
Described by: R. L. Marshall.

Horizon and Beltsville Lab. No.	
Ap 63419	0 to 8 inches. Dark grayish brown (10YR 4/2) broken and moist; brown to dark brown (10YR 4/3) crushed moist; loam; weak medium granules which break to very weak very fine granules; friable; many roots; many fine tubular pores that appear to be root channels; pH 5.4; clear smooth boundary. 7 to 8 inches thick.
B21 63420	8 to 13 inches. Dark yellowish brown (10YR 4/4) crushed or broken and moist; loam; very weak coarse platy which breaks into very weak very fine granules; no pressure faces; peds contain common fine tubular pores that appear to be coated but not with clay skins; few pores 1 mm diameter which contain very dark grayish brown (10YR 3/2) coats, apparently silt or organic matter; roots plentiful; pH 5.4; diffuse wavy boundary. 5 to 6 inches thick.
B22 63421	13 to 19 inches. Dark yellowish brown (10YR 4/4) crushed or broken and moist; loam; few fine dark brown to brown (7.5YR 4/4) mottles and thin streaks; weak medium and coarse subangular blocks that break to very weak very fine granules; friable; common very fine tubular pores that appear to be root channels; few spherical pores 1/2 to 1 mm in diameter; no cutans observed; pressure faces common on 10 to 25 percent of ped surfaces of larger blocks; roots plentiful; few stones larger than 3 inches; pH 5.6; abrupt wavy boundary. 5 to 7 inches thick.
IIB'x1 63422	19 to 24 inches. Dark grayish brown (10YR 4/2) broken and moist; sandy loam or fine sandy loam; coarse mottles of 10YR and 2.5Y 5/3 centers surrounded by 7.5YR 4/4; these are concentrated in a horizontal zone in the lower 2 inches of the horizon; many very fine tubular pores with linings apparently clay skins; moderate coarse platy, with scattering of clean sand grains between plates; latter have almost continuous pressure faces without clay skins; few to common pores 1/2 to 2 mm in diameter; firm; very hard when dry; few soft shale fragments; 1 percent fragments larger than 3 inches; very few roots; pH 5.8; clear wavy boundary. 4 to 6 inches thick.
IIB'x2 63423	24 to 34 inches. Dark grayish brown (10YR 4/2) broken moist; brown to dark brown (10YR 4/3) crushed moist; loam; strong medium and coarse platy; plates coated with nearly continuous clay skins, and a scattering of clean sand grains; very few fine pores; firm to very firm in place; friable to slightly firm to crush; few coarse mottles with 2.5Y 6/3 centers surrounded by 7.5YR 4/4 band; 1 to 3 percent fragments greater than 3 inches; contains few blotches of soft black shale, which is very greasy to the fingers; pH 6.0; few fine roots; diffuse wavy boundary. 9 to 12 inches thick.
IIB'x3 63424	34 to 45 inches. Dark grayish brown (10YR 4/2) on moist ped faces; dark grayish brown to olive brown (2.5Y 4/3) in ped centers moist; fine sandy loam; strong medium and coarse platy; thin cutans cover 50 to 60 percent of ped faces; few fine pores occur within peds, such pores coated with clay skins; few scattered clean sand grains on ped faces; very few small soft shale fragments throughout; 1 to 3 percent coarse fragments larger than 3 inches; no roots; pH 6.2; clear wavy boundary. 10 to 12 inches thick.
IIC 63425	45 to 55 inches plus. Dark grayish brown to olive brown (2.5Y 4/3) crushed or broken and moist; strong coarse platy; 2 to 15 percent of the ped faces have thin clay skins; occasional fine pores in ped faces or interiors; no roots; pH 6.4; few soft black shale fragments; 1 to 3 percent fragments coarser than 3 inches; friable in place; friable to crush.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; coarse-loamy, mixed, mesic

SOIL Broadalbin SOIL Nos. S63NY-33-1 LOCATION Oneida County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63486 - 63489

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-7	Ap	12.7	57.9	29.4	1.4	1.8	1.2	2.5	5.8	21.4	36.5	28.7	6.9		0.95	12		
7-12	B21	24.2	56.7	19.1	2.8	5.3	3.1	4.9	8.1	18.2	38.5	29.0	16.1		0.84	31		
12-21	B22	25.8	58.0	16.2	3.0	6.5	3.4	5.1	7.8	24.8	33.2	35.3	18.0		0.80	35		
21-26	B3	33.0	51.5	15.5	5.2	9.4	4.8	6.3	7.3	17.7	33.8	28.3	25.7			40		
26-30	IIBx	Not sampled																

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N	Na Pyrop. (pH 10) ext. 6C5 Fe Pct.	6G5 Al Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	5.8	0.352	16	0.9	1.3	2.4		0.96	1.03	0.02		39.2	17.2		0.20	3.8	4.5
7-12	1.17	0.101	12			1.9		1.13	1.19	0.01		33.1	10.1		0.22	3.9	4.7
12-21	1.18	0.121	10			2.0		1.25	1.29	0.01		32.6	9.1		0.24	3.9	4.6
21-26	1.23	0.103	12			1.3							8.2			4.1	4.8
26-30																	

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	1.6	0.5	0.2	0.1	2.4	33.9	36.3		5.1		1.23	0.08	0.58			7	
7-12	1.0	0.1	0.1	tr.	1.2	21.2	22.4		3.9		1.17	0.10	0.53			5	
12-21	0.4	0.1	0.1	0.1	0.7	19.1	19.8		3.6		1.22	0.12	0.56			4	
21-26	0.4	0.1	0.2	0.1	0.8	19.5	20.3		2.8		1.31	0.08	0.53			4	
26-30																	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-7	-	tr.	xxx	-	-	-			
7-12	-	x	xx	tr.	-	-			
12-21	-	x	xx	tr.	-	-			
21-26	-	xx	xx	tr.	-	-			
26-30									

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; coarse-loamy, mixed, mesic
Soil: Broadalbin[1/]
Soil No.: S63NY-33-1
Location: Oneida County, New York. 0.9 mile south of Ava-Hillside Road junction along Hillside-Booneville Road, 125 feet east of road.
Vegetation and land use: Idle land covered with grasses, wild strawberries, few bracken fern, occasional thorn apple shrubs.
Slope and land form: On crest of low knoll. Slope about 3 percent to north.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 19, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63486	0 to 7 inches. Brown to dark brown (10YR 4/3) crushed and moist; dark yellowish brown (10YR 3/4) broken and moist; silt loam with few shale fragments and occasional channers; moderate fine and medium granular; very friable; pH 5.0; many fine roots; peds are distinct in place; fragments greater than 3 inches estimated at less than 1 percent by volume; abrupt smooth boundary. 7 inches thick. (Note brown color reflecting dominance of an originally spodic horizon, remnants of which having 10YR 3/3-4/4 colors can be found in spots in vicinity of the pit.)
B21 63487	7 to 12 inches. Brown (8YR 5/4) crushed and moist; darker brown (8YR 4/4) broken and moist; silt loam with few channers; weak medium and fine subangular blocks, not evident in place but with distinct though discontinuous pressure faces when broken; these are friable or very friable to very weak fine and very fine granules; common 1/2 to 1 mm tubular pores which may be root impressions; these have smooth interiors but no cutans; many fine roots; pH 5.1; fragments greater than 3 inches estimated at less than 1 percent by volume; gradual wavy boundary. 4 to 7 inches thick.
B22 63488	12 to 21 inches. Dark yellowish brown (10YR 4/4) crushed or broken and moist; silt loam with few channers and few shale fragments; weak medium and fine subangular blocks that are not evident in place but have discontinuous pressure faces when removed; common 1/2 to 1 mm tubular pores have smooth interiors but no cutans; many fine roots; pH 5.2; fragments greater than 3 inches estimated at less than 1 percent by volume; clear wavy boundary. 7 to 11 inches thick.
B3 63489	21 to 26 inches. Slightly olive brown (10YR-2.5Y 4/3) crushed or broken and moist; silt loam with moderate numbers of shale fragments and few channers; very weak medium and subangular blocky to massive; peds not apparent in face of pit but material breaks to irregular blocklike pieces that have few discontinuous pressure faces; friable, though slightly brittle, to very weak very fine granules; common 1 mm to 1/2 mm tubular pores without cutans; common fine roots; pH 5.2; fragments coarser than 2 inches estimated at 2 percent by volume; clear wavy boundary. 3 to 7 inches thick.
IIBx Not sampled	26 to 30 inches plus. Grayish brown (2.5Y 5/2) crushed and moist; dark grayish brown (2.5Y 4/2) broken; common fine light olive brown (2.5Y 5/4) mottles; channery loam; massive; few weakly expressed small discontinuous cleavage planes with smooth interiors and apparently silty linings but no clay skins; broken faces leave clean protruding sand grains; very firm in place; very firm and brittle to crush; fragments coarser than 3 inches estimated at 20 percent by volume.

Notes: Represents a plowed soil in which the topmost 4 to 6 inches of the spodic horizon has been incorporated in Ap. Colors are for moist soil.

[1/] This pedon was sampled as a representative of the Pinckney series, but the B21 horizon lacks the required 0.2 ratio of sodium pyrophosphate extractable iron plus aluminum to clay.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; coarse-loamy, mixed, mesic

SOIL Mardin silt loam SOIL Nos. S63NY-6-2 LOCATION Cayuga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63450 - 63452

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 < 76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-3	A2	18.0	60.2	21.8	2.8	3.0	2.1	4.2	5.9	21.1	39.1	29.3	12.1			14		
3-6	B21	18.4	64.0	17.6	2.4	2.9	1.9	4.1	7.1	22.8	41.2	31.2	11.3			18		
6-13	B22	21.9	61.8	16.3	3.2	3.8	2.5	4.8	7.6	22.1	39.7	32.4	14.3			21		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	8C1e (1:1) H_2O
0-3	8.9	0.596	15			1.4							23.7				3.7	4.8
3-6	2.30	0.196	12			2.4							10.8				3.6	4.6
6-13	1.91	0.172	11			2.3							9.6				3.8	4.4

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-3	7.1	0.3	0.1	0.5	8.0	27.5	35.5		1.4			1.63	0.06	1.09			22	
3-6	1.4	0.2	tr.	0.1	1.7	26.5	28.2		6.3			1.60	0.14	0.61			6	
6-13	1.0	0.2	0.1	0.1	1.4	24.8	26.2		4.2			1.61	0.14	0.59			5	

Depth (in.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int. Mica-Vermiculite	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-3	xx	-	xx	xx	-	-			
3-6	-	-	xxx	x	tr.	-			
6-13	-	tr.	xxx	x	x	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; coarse-loamy, mixed, mesic
Soil: Mardin silt loam[1/]
Soil No.: S63NY-6-2
Location: Cayuga County, New York. Near site of S63NY-6-1.
Vegetation and land use: Forest.
Sampled by and date: J. G. Cady, D. P. Franzmeier, and E. J. Pedersen. July 16, 1963.
Described by: J. G. Cady, D. P. Franzmeier, and E. J. Pedersen.

Horizon and Beltsville Lab. No.	
A2 63450	0 to 3 inches. Grayish brown (10YR 5/2) to dark grayish brown (10YR 4/2) very friable silt loam with weak fine subangular blocky structure. A few gravel fragments.
B21 63451	3 to 6 inches. Dark brown (10YR 4/3) very friable silt loam with fine weak subangular blocky structure.
B22 63452	6 to 13 inches. Strong brown (7.5YR 5/6) to yellowish brown (10YR 5/6) very friable silt loam with fine weak subangular blocky structure.

Notes: Only the uppermost horizons were studied and sampled to represent a pedon undisturbed by plowing or pasturing. It can be compared to the B21 of S63NY6-1, which is believed to be a remnant of the upper part of the forested soil buried by plowing. Colors are for moist soil.

[1/] This satellite sample is classified on the basis that horizons below 13 inches are similar to those at pedon S63NY-6-1 except possibly in coarse fragment content.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; coarse-loamy, mixed, mesic

SOIL Sodus gravelly loam SOIL Nos. S58NY-6-2 LOCATION Cayuga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59341 - 59348

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76[a] Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	52.6	38.0	9.4	2.0	4.4	5.0	16.3	24.9	19.2	18.8	55.6	27.7			28		
7-16	B2	54.3	38.9	6.8	3.1	5.7	5.6	16.8	23.1	18.9	20.0	53.5	31.2			39		
16-20	A'2	57.6	37.0	5.4	2.3	4.0	4.4	17.8	29.1	19.6	17.4	61.6	28.5			20		
20-30	B'x1	51.9	36.6	11.5	1.8	3.4	4.0	16.7	26.0	18.0	18.6	56.2	25.9		0.82	23		
30-41	B'x2	53.0	37.2	9.8	2.2	4.1	4.2	16.6	25.9	17.9	19.3	55.7	27.1			15		
41-53	B'x3	55.3	35.4	9.3	1.8	3.5	4.2	18.0	27.8	17.8	17.6	58.4	27.5			17		
53-73	C1	53.3	36.7	10.0	2.4	4.1	4.2	16.5	26.1	17.5	19.2	55.3	27.2			23		
73-85	C2	54.1	37.5	8.4	2.8	4.5	4.4	16.3	26.1	18.2	19.3	55.4	28.0		0.73	33		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a[b] Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	2.77	0.166	17			1.0					36.7	21.2	6.6				5.7
7-16	0.82	0.061	13			0.9					30.0	15.7	4.8				5.4
16-20	0.25					0.4					20.4	10.6	2.4				5.2
20-30	0.10					1.0	2.0				19.6	12.6	5.2				5.8
30-41	0.06					0.7					19.1	12.3	5.1				6.3
41-53	0.08					0.7					19.6	11.7	4.5				6.2
53-73	0.06					1.0					19.3	12.6	5.0				6.3
73-85	0.06				16.5	0.6	2.0				17.1	11.3	4.2				8.1

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1b[b] NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	5.1	0.5	0.1	0.2	5.9	12.4	18.7	15.0				1.99	0.11	0.70			34	
7-16	1.6	0.1	tr.	0.1	1.8	8.9	10.7	8.7				1.57	0.13	0.70			17	
16-20	1.0	tr.	tr.	0.1	1.1	3.4	4.5	4.1				0.83	0.07	0.44			24	
20-30	2.7	0.7	tr.	0.1	3.5	2.4	5.9	5.9				0.51	0.09	0.45			59	
30-41	2.5	1.1	tr.	0.1	3.7	1.7	5.4	5.2				0.55	0.07	0.52	2		68	
41-53	2.1	1.1	tr.	0.1	3.3	1.7	5.0	4.6				0.54	0.08	0.48	2		66	
53-73	2.4	1.1	tr.	0.1	3.6	1.7	5.3	4.4				0.53	0.10	0.50	2		68	
73-85	-	1.1	0.1	0.1	1.3	-		3.6					0.07	0.50				

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-7	-	tr.	xxxx	-	-	-			
7-16	-	x	xxxx	-	-	-			
16-20	-	xx	xx	x	-	-			
20-30	-	xx	xx	xx	-	-			
30-41	-	-	-	-	-	-			
41-53	-	xx	xx	xx	-	-			
53-73	-	xx	x	xxx	-	-			
73-85	-	-	-	-	-	-			

[a] An estimated 10 to 20 percent of >2 discarded in the field.
[b] Determined at Cornell University.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; coarse-loamy, mixed, mesic
Soil: Sodus gravelly loam
Soil No.: S58NY-6-2
Location: Cayuga County, New York. Follow Highway 104-A approximately 1.2 miles north of Sterling Valley to the crest of a broad hill where there is a cut 3-1/2 feet deep through a low knoll on the east side of the road. The sampling site is 30 feet east of the highest point of the road cut.
Vegetation and land use: Mixture of timothy and clover.

Horizon and Beltsville Lab. No.	
Ap 59341	0 to 7 inches. Dark brown (10YR 3/3) gravelly loam; weak medium granular; very fine subangular blocky structure; friable; many fine roots; pH 5.9; abrupt, slightly wavy boundary, 6 to 9 inches thick.
B2 59342	7 to 16 inches. Yellowish brown (10YR 5/6) gravelly very fine sandy loam; very weak fine subangular blocky structure crumbles to very weak very fine granules; very friable; common roots of herbaceous plants; pH 5.6; clear wavy boundary, 2 to 11 inches thick.
A'2 59343	16 to 20 inches. Gravelly very fine sandy loam in moderate, medium plates; horizon consists of alternating horizontal bands of pale brown (10YR 6/3) very fine sandy loam, ranging from 1/2 to 1-1/2 inches thick, separated by bands of brown (7.5YR 4/4) slightly sticky very fine sandy loam; firm; few roots; common to many rounded stones and gravel; the brown bands are discontinuous and pale brown dominates; pH 5.6; clear wavy boundary, 3 to 6 inches thick.
B'x1 59344	20 to 30 inches. Dark brown (7.5YR 4/4) gravelly loam; weak medium and thick platy; very firm; divided into prisms 2 to 3 feet across by vertical bands of light brownish gray very fine sandy loam tapering from 3/4 inch at top to 1/4 inch at bottom and bounded by strong brown (7.5YR 5/6) loam bands less than 1/4 inch wide; very few roots penetrate below topmost 2 inches; pH 6.0; common rounded red and green sandstone gravel; few yellowish brown remnants of weathered sandstone fragments; diffuse lower boundary, 9 to 12 inches thick.
B'x2 59345	30 to 41 inches. Dark brown (7.5YR 4/4) gravelly very fine sandy loam; very weak medium platy; firm; common red and green sandstone gravel and stones; no roots; pH 6.1; divided into 2 to 3 foot prisms by vertical cracks filled with 10YR 6/2 very fine sandy loam; gradual lower boundary, 7 to 12 inches thick.
B'x3 59346	41 to 53 inches. Dark brown (7.5YR 4/3) gravelly very fine sandy loam; very weak medium platy; firm; no roots; common rounded red and green gravel and stones; few soft weathered fragments of sandstone; includes pockets of fine sandy loam material that is friable; cleavage from above divides horizon into very large prisms; pH 5.9; gradual lower boundary, 10 to 14 inches thick.
C1 59347	53 to 73 inches. Dark brown (7.5YR 4/3) gravelly very fine sandy loam; moderate medium platy; firm; no roots; common rounded red and green sandstone gravel and stones; vertical cleavage from horizon above stops at top of this horizon; pH 6.4; structure like that of basal till; no roots; clear wavy boundary, 20 to 24 inches thick.
C2 59348	73 to 85 inches plus. Dark brown (7.5YR 4/3) gravelly very fine sandy loam; weak medium and thick lenticular platy; firm; very many well rounded stones, mainly red and gray sandstone; no roots; weakly to moderately calcareous; soil material characteristic of firm basal till.

Notes: Ap, B'x1, and C2 horizons also sampled for Bureau of Public Roads. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; coarse-loamy, mixed, mesic
SOIL: Sodus loam SOIL Nos. 861NY-37-7 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61613 - 61619

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm														Pct. of < 76mm		
0-10	Ap	45.3	44.0	10.7	3.3	4.3	4.8	12.6	20.3	22.7	21.3	50.2	25.0		0.93	13		
10-16	B2	46.0	41.7	12.3	3.3	4.0	4.8	12.6	21.3	22.1	19.6	51.0	24.7		0.95	8		
16-20	A'2	46.6	43.5	9.9	3.7	5.2	5.1	12.4	20.2	24.5	19.0	51.9	26.4		0.91	12		
20-38	B'x	46.1	43.7	10.2	4.3	4.4	4.5	10.8	22.1	24.8	18.9	53.3	24.0		0.89	15		
38-47	C1	46.4	46.4	7.2	4.2	5.2	4.7	10.1	22.2	27.7	18.7	55.8	24.2		0.89	16		
47-56	C2	50.8	41.1	8.1	6.2	6.2	5.3	11.3	21.8	23.1	18.0	51.5	29.0		0.90	14		
56-65	C3	43.3	45.6	11.1	6.3	5.7	4.6	10.4	16.3	21.6	24.0	44.3	27.0		0.83	23		

Depth (in.)	6A1e Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	1.28	0.109	12			0.9		1.43	1.44	0.00		15.9	6.4		0.13	5.1	6.8
10-16	0.52	0.046	11			1.0		1.54	1.58	0.01		19.0	5.4		0.20	4.6	5.6
16-20	0.12					0.9		1.86	1.89	0.00		11.6	4.1		0.13	4.4	5.5
20-38	0.06					1.0		1.80	1.83	0.00		11.5	4.4		0.11	4.4	5.5
38-47	-					0.8		1.74	1.76	0.00		11.4	3.3		0.13	4.8	5.9
47-56	0.02					0.8		1.74	1.76	0.00		9.2	3.0		0.10	4.9	6.1
56-65	-					0.8		1.79	1.81	0.00		9.4	4.2		0.08	7.2	7.7

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-10	5.2	1.1	0.1	0.2	6.6	7.6	14.2		0.1			1.33	0.08	0.60			46	
10-16	2.4	0.7	0.1	0.1	3.3	6.5	9.8		0.5			0.80	0.08	0.44			34	
16-20	2.7	0.7	0.1	0.1	3.6	2.9	6.5		0.3			0.66	0.09	0.41			55	
20-38	3.5	0.8	0.1	0.1	4.5	1.8	6.3		0.2			0.62	0.10	0.43			71	
38-47	3.2	0.7	tr.	0.1	4.0	1.0	5.0		0.1			0.69	0.11	0.46			80	
47-56	3.3	0.7	tr.	0.1	4.1	1.0	5.1		0.1			0.63	0.10	0.37			80	
56-65	Calcareous					-		3.8	-				0.07	0.38				

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; coarse-loamy, mixed, mesic
Soil: Sodus loam
Soil No.: S61NY-37-7
Location: Orleans County, New York. Town of Murray, 1-1/4 miles west of Brockville. By E. Brockville road. 1/4 mile east of Transit road. 65 paces north of E. Brockville road and 15 paces west of a lane which goes into a fruit orchard on the south side of the road.
Vegetation and land use: Oat field in which alfalfa had been seeded.
Slope and land form: 1 percent.
Sampled by and date: B. Brasher, October 12, 1961.
Described by: D. Flora.

Horizon and Beltsville Lab. No.	
Ap 61613	0 to 10 inches. Brown (7.5YR 4/2) loam; weak medium and fine granular; slightly firm in place; friable to crush; many fine roots; 5 to 10 percent gravel and channers; many wormholes and many fine pores; pH 6.2; abrupt smooth boundary. 10 inches thick.
B2 61614	10 to 16 inches. Reddish brown (5YR 4/4); very fine sandy loam; very weak fine subangular blocky; crushes to weak medium and fine granular; slightly firm in place; friable to crush; many fine pores; 5 to 10 percent gravel and channers; common coarse and many medium and fine pores; pH 5.2; abrupt wavy boundary. 7 to 11 inches thick.
A'2 61615	16 to 20 inches. Dry colors 5YR 5/3 with many fine 5YR 3/4 bodies. When moist, the whole mass assumes reddish brown (5YR 4/3-4/4) colors. Finely gravelly fine sandy loam; weak coarse platy; very firm in place; firm to crush; many fine and medium pores; few fine roots; pH 5.6; abrupt wavy boundary. 0 to 4 inches thick.
B'x 61616	20 to 38 inches. Dark reddish brown (5YR 3/4) "gritty" loam with fine bodies of sandier material of similar color and with few disintegrated greenish-colored shale spots; massive; firm in place and slightly firm to crush; 5 to 10 percent medium gravel; few medium and large pores; many fine pores; pH 5.8; occasionally clayey and sandy inclusions; clear wavy boundary. 9 to 18 inches thick.
C1 61617	38 to 47 inches. Reddish brown (5YR 4/3) fine sandy loam with common medium reddish gray (5YR 5/2) mottles and few dark reddish brown (2.5YR 3/4) disintegrated shale fragments; massive; slightly firm; few fine roots; weakly calcareous in a few spots; pH about 7.0 where not calcareous; diffuse boundary.
C2 61618	47 to 56 inches. This was arbitrarily separated from C11 for sampling purposes. It differed primarily in lacking roots. Clear wavy boundary. (The entire C1 horizon was 18 to 25 inches thick.)
C3 61619	56 to 65 inches plus. Reddish brown (5YR 4/3) gravelly loam with green and red fragments of disintegrated shale and local spots of sandy material. Weak medium platy; firm in place; friable to crush; calcareous.

Notes: Colors refer to moist soil unless otherwise noted. Occasional cobbles, stones, and boulders occur throughout the soil mass.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; fine-loamy, mixed, mesic

SOIL Mardin taxadjunct SOIL Nos. 854NY-54-2 LOCATION Tioga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 55521 - 55527

Depth (In)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 < 76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-4	A1	11.6	65.0	23.4	2.0	a/2.6	1.0	1.6	4.4	22.2	42.8	27.4	7.2			18		
4-6	A2	11.2	66.9	21.9	3.4	2.7	0.8	0.9	3.4	21.8	45.1	25.7	7.8			31		
6-10	B21	13.3	64.1	22.6	4.8	3.3	0.9	1.0	3.3	20.4	43.7	24.2	10.0			24		
10-16	B22	16.4	63.1	20.5	6.2	3.9	1.2	1.2	3.9	19.6	43.5	24.1	12.5			34		
16-24	Bx1	18.8	55.3	25.9	6.5	4.9	1.4	1.6	4.4	19.2	36.1	24.4	14.4			36		
24-48	Bx2	19.8	53.3	26.9	7.6	5.1	1.5	1.5	4.1	17.6	35.7	22.4	15.7			35		
48-54	Bx3	18.7	54.1	27.2	7.8	4.8	1.4	1.4	3.3	16.8	37.3	20.8	15.4			39		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density:	4A1a ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content:	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	7.30					1.1												4.9
4-6	1.19					1.3												4.8
6-10	0.63					1.3												4.7
10-16	0.46					1.1												4.7
16-24	0.16					1.3												4.8
24-48	0.15					1.3												5.2
48-54	0.24					1.4												5.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-4	7.6	0.4	tr.	0.6	8.6	28.4	37.0					1.58	0.05				23	
4-6	1.4	0.4	tr.	0.2	2.0	14.6	16.6					0.76	0.06				12	
6-10	1.3	0.3	0.2	0.2	2.0	12.2	14.2					0.63	0.06				14	
10-16	1.2	0.4	0.3	0.1	2.0	9.8	11.8					0.58	0.05				17	
16-24	1.2	0.7	0.3	0.1	2.3	10.8	13.1					0.50	0.05				18	
24-48	3.1	2.2	0.2	0.1	5.6	8.8	14.4					0.54	0.05		1		39	
48-54	5.1	3.3	0.2	0.1	8.7	8.0	16.7					0.61	0.05		2		52	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt	Chl.	Vm.	Mi.	Int	Qtz.	Kl	Gibbsite	
	7A2 X-ray						DTA 7A3		
0-4									
4-6			xxxx	xx			xx		
6-10									
10-16			xxx	xxx			xx		
16-24			xx	xxxx			xx		
24-48									
48-54									

a/ Undecomposed organic matter in sample.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Pedon Classification: Typic Fragiochrept; fine-loamy, mixed, mesic
Soil: Mardin taxadjunct[1/]
Soil No.: S54NY-54-2
Location: Tioga County, New York. Four miles NNE of Owego.
Vegetation and land use: The predominant trees in this area are chestnut, white and black oaks with a scattering of northern hardwoods.
Slope and land form: 5 to 8 percent.
Sampled by and date: W. H. Lyford. July 28, 1954.

Horizon and Beltsville Lab. No.	
A1 55521	0 to 4 inches. Earthworm middens were numerous and there were only twigs on the surface. The leaves were all gone. Dark brown to very dark brown (10YR 3/3 dry, 2/2 moist) channery silt loam, very friable, fine and coarse well developed granular structure; mostly earthworm casts.
A2 55522	4 to 6 inches. Light brownish gray to olive brown (2.5Y 6/3 dry, 4/4 moist) weak thin platy channery silt loam to loam. Ten to 20 percent coarse skeleton consisting of angular channers. There was no mottling; the material was friable, not vesicular and no pores were seen. Under 20 powers this material was seen to be sandpapery in texture and had a rough microrelief. There were no clay flows. There were some weathered pebbles and some ghosts 5 to 10 mm in diameter scattered throughout the material.
B21 55523	6 to 10 inches. Dark yellowish brown to light brownish gray (10YR 4/4 moist, 2.5Y 6/2 dry) channery silt loam; friable, moderate 1 to 2 inch subangular blocky structure, vesicular; the peds have dull surfaces of the same color as the interiors. There were only faint traces of clay flows seen under 10 powers. Under 20 powers the surface seemed to be sandpapery with many .1 mm pores uniformly distributed 1 to 4 mm apart. These pores were not glazed; there were no clay flows seen; mycelium present.
B22 55524	10 to 16 inches. Light brownish gray to light olive brown (2.5Y 6/3 dry, 5/4 moist) channery silt loam; mottled faintly with light brownish gray (2.5Y 6/3) in the lower part. Well developed 1 to 2 inch subangular blocky structure; vesicular with no coats and no clay flows seen under 10 powers. This material rests sharply on domes spaced 18 inches on center. Mottling occurs in the funnels between domes. There is a distinct and sharp boundary to the fragipan below. This was easily determined with the pick. The bottoms of most of the funnels were at a depth of about 20 inches. Under 20 powers it was noted that .1 mm pores were common and were glazed. The material surrounding the pores was also glazed and perhaps denser than the material in the horizon above. No definite clay flows were seen. All of the material was of one color; mycelium was common.
Bx1 55525	16 to 24 inches. Pinkish gray (5Y 7/2), reddish gray (2.5Y 5/2), yellowish brown (10YR 5/6 dry) to reddish brown (5Y 5/3), reddish brown (2.5YR 4/4), strong brown (7.5YR 5/6 moist), reddish brown (mostly 5/3) sticky plastic light clay loam, very firm and brittle with weak to moderate 1 inch blocky structure fusing into a massive unmottled pan below. The mottles are distinct medium to many strong brown (7.5YR 5/6); they are 1/8 inch in width and border the 5/3 areas. There are pores on the 5/3 surfaces that border the cracks. These streaks in the cracks go to about 36 inches and are at 2 to 4 foot intervals. Each funnel does not have an equally long streak. Under 20 powers it is noted that .1 mm pores are common. The material is dense and clay flows are fairly common.
Bx2 55526	24 to 48 inches. Reddish brown (5Y 5/3 dry) mottled with manganese dioxide stains of very dark brown to olive brown (10YR 2/2, 2/5Y 4/4 moist) sticky plastic channery light clay loam. There is practically no mottling below the funnels between the domes. The only mottling is along the cracks. Clay flows are visible and the material is very firm and massive. There is perhaps some indication that clay flows tend to be horizontal. Under 20 powers it is noted that the pores are partially filled with clays. Clay flows were common and glazing also. The material is not especially porous.
Bx3 55527	48 to 54 inches. This material is about the same as that in the horizon above. The sample was taken from the bottom of the ditch at a depth of about 48 to 54 inches. The material is still very firm.

Notes: Colors are for moist soil unless indicated otherwise.

[1/] This pedon is a taxadjunct because the clay content in the control section is too high. The Mardin series is in the coarse-loamy family particle size class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiochrept; fine-loamy, mixed, mesic

SOIL Mardin taxadjunct SOIL Nos. S54NY-55-2 LOCATION Tompkins County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 55512-55515, 55517-55520

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 < 76 Pct.	2 – 19	19 – 76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm														Pct. of < 76mm		
1/2-3/4	A12	34.1	56.1	9.8	9.3	5.8	3.4	7.3	8.3	22.8	33.3	35.5	25.8			6		
3/4-1	A21	23.6	62.2	14.2	4.2	3.4	2.3	5.7	8.0	21.3	40.9	32.9	15.6			9		
1-2	A22	18.8	65.6	15.6	3.4	2.4	1.8	4.4	6.8	23.4	42.2	32.9	12.0			23		
2-16	B	17.3	59.0	23.7	3.8	2.8	1.7	3.7	5.3	19.3	39.7	26.9	12.0			30		
16-24	A'2x	34.5	52.2	13.3	9.1	7.2	3.8	7.8	6.6	20.7	31.5	32.1	27.9			34		
24-34	B'x1	31.4	49.0	19.6	7.5	6.1	3.4	6.6	7.8	17.0	32.0	28.9	23.6			33		
34-42	B'x2	32.1	47.7	20.2	7.4	6.6	3.7	6.8	7.6	15.8	31.9	27.4	24.5			46		
42-52	C	27.2	48.7	24.1	6.2	5.9	3.0	5.6	6.5	15.0	33.7	24.8	20.7			36		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.	4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
1/2-3/4	7.6		27			1.0											4.0
3/4-1	3.01		20			1.1											4.0
1-2	1.30		14			1.0											4.2
2-16	0.92		10			1.7											4.4
16-24	0.26		5			0.9											4.7
24-34	0.24		4			1.1											4.8
34-42	0.14		2			1.3											5.1
42-52	0.19		3			1.3											5.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
1/2-3/4	1.8	0.6	0.1	0.2	2.7	21.7	24.4					2.49	0.10				11	
3/4-1	0.6	0.4	0.1	0.1	1.2	17.4	18.6					1.31	0.08				6	
1-2	0.2	0.3	0.1	0.1	0.7	14.1	14.8					0.95	0.06				5	
2-16	0.6	0.2	0.1	0.1	1.0	15.0	16.0					0.68	0.07				6	
16-24	0.6	tr.	0.1	0.1	0.8	5.6	6.4					0.48	0.07				12	
24-34	1.5	0.1	0.1	0.1	1.8	8.1	9.9					0.50	0.06				18	
34-42	6.6	1.9	0.1	0.1	8.7	5.6	14.3					0.71	0.06		3		61	
42-52	3.3	10.7	0.1	0.1	14.2	4.3	18.5					0.77	0.05				77	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						DTA 7A3		
1/2-3/4									
3/4-1									
1-2									
2-16			xxxx	xx		x	xx		
16-24									
24-34		xx	x	xxxx		x	xxx		
34-42									
42-52									

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiochrept; fine-loamy, mixed, mesic
Soil: Mardin taxadjunct[1]
Soil No.: S54NY-55-2
Location: Tompkins County, New York. Mt. Pleasant Farm, Cornell Agricultural Experiment Station.
Vegetation and land use: Deciduous forest consisting of beech, red oak, sugar and red maple, and ash.
Slope and land form: Slightly less than 3 percent slope; elevation between 1,750 and 1,800 feet; till plain.
Parent material: Olive-colored, medium-textured till.
Sampled by and date: W. H. Lyford, October 20, 1954.

Horizon and Beltsville Lab. No.	
A12 55512	1/2 to 3/4 inch. Dark brown (10YR 3/3) silt loam, gray (10YR 5/1) when dry; weak, fine, granular structure; very friable; matted with fine roots.
A21 55513	3/4 to 1 inch. Dark brown (10YR 4/3) silt loam; very weak, thin, platy structure; weakly matted with mycelium.
A22 55514	1 to 2 inches. Brown (10YR 5/3) channery silt loam; weak, very thin, platy structure; friable; abundant, fine roots; discontinuous silt coats on some peds; abrupt, smooth boundary.
B 55515	2 to 16 inches. Dark yellowish brown (10YR 4/4) channery silt loam; moderate, coarse, subangular blocky, breaking readily to moderate, fine, subangular blocky structure that crushes to weak, fine, granular peds; firm; roots plentiful; pores evident.
A'2x 55517	16 to 24 inches. Olive (5Y 5/3) and light olive brown (2.5Y 5/4) channery silt loam; common, fine, faint mottles of olive brown (2.5Y 4/4); weak, thick, platy structure; very firm, weakly brittle; abrupt, wavy boundary.
B'x1 55518	24 to 34 inches. Olive brown (2.5Y 4/4) channery loam; common, coarse, prominent and faint mottles of dark yellowish brown (10YR 4/4), strong brown (7.5YR 5/6), and olive (5Y 5/3); moderate, very coarse, prismatic structure; extremely firm, brittle; few roots; prominent mottles border the prisms, faint mottles are inside the domed prisms; abrupt, smooth boundary.
B'x2 55519	34 to 42 inches. Olive brown (2.5Y 4/4) channery loam; weak, very coarse, prismatic structure; prisms about 12 inches in diameter; extremely firm; roots only between prisms; few, medium (1 mm), clay-lined pores; outsides of prisms are olive colored (5Y 5/3), but under the surface is a thin layer of strong brown, which gives broken prisms the appearance of being streaked vertically and horizontally; clear, smooth boundary.
C 55520	42 to 52 inches. Olive (5Y 4/3) channery loam; massive; very firm, dense; very few pores; clay films evident in pores.

Notes: Colors are for moist soil unless indicated otherwise.

[1] This pedon is a taxadjunct because the clay content in the control section is too high. The Mardin series is in the coarse-loamy family particle size class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Dystrochrept; loamy-skeletal, mixed, mesic

SOIL Chenango gravelly loam SOIL Nos. 854NY-54-6 LOCATION Tioga County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 55534 - 55540

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 < 76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	23.5	63.8	12.7	0.9	3.5	3.7	5.4	10.0	31.1	32.7	44.0	13.5			tr.		
7-12	A2	21.1	67.8	11.1	0.7	2.8	3.5	4.7	9.4	34.5	33.3	46.4	11.7			tr.		
12-20	B1	26.4	63.3	10.3	1.0	4.6	4.8	6.0	10.0	33.2	30.1	46.2	16.4			4		
20-30	B21	41.5	46.7	11.8	3.7	11.9	9.1	8.1	8.7	23.3	23.4	35.8	32.8			10		
30-72	B22	68.0	20.9	11.1	4.7	24.3	23.3	12.0	3.7	6.3	14.6	14.3	64.3			8		
72-90	C1	66.3	16.5	17.2	11.5	31.0	13.0	7.5	3.3	5.0	11.5	11.1	63.0			19		
90-120	C2	89.0	8.0	3.0	3.9	34.2	29.2	17.5	4.2	3.6	4.4	14.2	84.8			5		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	3.14					1.1												5.3
7-12	0.70					1.1												5.1
12-20	0.46					1.2												5.1
20-30	0.25					1.6												5.1
30-72	0.17					1.3												5.4
72-90	0.05					1.5												7.0
90-120	0.10					0.5												7.6

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay CEC Sum	Ext Iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	5.6	0.8	tr.	0.1	6.5	15.6	22.1					1.74	0.09				29	
7-12	1.3	0.3	0.2	0.1	1.9	10.8	12.7					1.14	0.10				15	
12-20	1.3	0.3	0.3	0.2	2.1	8.4	10.5					1.02	0.12				20	
20-30	1.7	0.3	0.3	0.2	2.5	6.2	8.7					0.74	0.14				29	
30-72	3.3	0.7	0.3	0.2	4.5	6.8	11.3					1.02	0.12				40	
72-90	-	-	0.1	0.1	0.2	3.4	-						0.09				-	
90-120	-	-	tr.	0.1	0.1	tr.	-						0.17				-	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi	Int	Qtz.	Kl.	Gibbsite
	7A2 X-ray						DTA 7A3	
0-7								
7-12								
12-20								
20-30			xxx	xxx			xx	
30-72								
72-90								
90-120								

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Dystrochrept; loamy-skeletal, mixed, mesic
Soil: Chenango gravelly loam
Soil No.: S54NY-54-6
Location: Tioga County, New York. 3 miles north of Owego.
Parent Material: Glaciofluvial valley train deposit heading in the Valley Heads Moraine. The material was originally calcareous throughout but has now leached of carbonates to a depth of about 7 feet.
Sampled by and date: W. H. Lyford, July 26, 1954.

Horizon and Beltsville Lab. No.	
Ap 55534	0 to 7 inches. Very dark grayish brown (10YR 3/2) friable loam with 10 to 20 percent rounded pebbles. Moderate medium granular structure except where heavy ditch digging machinery has caused compaction — then the structure is weak very coarse platy. (22.1 percent by weight greater than 1/4 inch diameter.)
A2 55535	7 to 12 inches. Dark yellowish brown (10YR 4/4) very friable loam, 10 to 20 percent rounded pebbles about 1 inch in diameter, mostly gray fine grained sandstone and siltstone. Weak thin platy structure. There is considerable intermixed Ap caused by the rather numerous earthworms. Light gray very fine sand occurs on the surfaces of freshly broken peds and is also scattered throughout the mass. Distinctly paler in color than the horizon below or above. (20.0 percent by weight greater than 1/4 inch in diameter.)
B1 55536	12 to 20 inches. Dark yellowish brown (10YR 4/4) friable gravelly loam with 40 to 50 percent coarse skeleton with many pebbles in the 2 to 4 inch range and some 6 or 8 inches. Very weak 1/2 inch subangular blocky structure. The lower boundary is wavy and varies from about 16 to 24 inches in depth with an average of about 20 inches. (57.2 percent by weight greater than 1/4 inch diameter.)
B21 55537	20 to 30 inches. Brown (7.5YR 4/4) firm gravelly loam, weak-moderate 1 inch subangular blocky structure. Surface of peds are darker than those in the B1 and have discontinuous 1/8 inch clay coated areas. The horizon as a whole is slightly darker and firmer than the B1. No ghosts of former limestone pebbles were noted. There is a 1 to 2 inch border between the wavy horizons above and below. (61.2 percent by weight greater than 1/4 inch diameter.)
B22 55538	30 to 72 inches. Dark yellowish brown, very dark grayish brown and brown (10YR 4/4-3/2-4/3) dominantly with numerous strong brown (7.5YR 5/6) and very dark grayish brown (10YR 3/2) ghosts. Very gravelly material, the fine earth portions of which on weak pressure gives the impression of a sandy loam; with greater pressure and working a clay loam, silty clay loam or clay in a few spots. Very loose in place. Ghosts occupy at least 20 percent by volume; 1/8-1/4 inch channels and pores between the touching pebbles are common. Roots are common. (71.3 percent by weight greater than 1/4 inch diameter.)
C1 55539	72 to 90 inches. Very dark grayish brown (10YR 3/2) very friable to loose silty clay loam or clay loam gravel. Cobbles 6 to 8 inches are common but most are in the 1 to 6 inch range. Carbonates occur on the bottom of many pebbles and there are some clayey surfaced 2 to 4 inch dark pebbles with carbonate interiors. There are fewer ghosts in this horizon than in the horizon above and there are more ghosts just in the process of formation. The fine material is sticky when moist. (67.8 percent by weight greater than 1/4 inch diameter.)
C2 55540	90 to 120 inches plus. A fresh sample of unleached gravel was obtained about 200 feet away from the remainder of the sample in a fresh borrow pit bordering the railroad on the same terrace at a depth of about 10 feet. This is very dark grayish brown (2.5Y 3/2) loose coarse sandy pebbly and cobbly calcareous gravel, cemented with carbonate to a conglomerate in places. The depth to carbonate on this particular terrace varies because of the waviness of the underlying horizon from about 6 to 10 feet with the average probably about 7 feet. (76.1 percent by weight greater than 1/4 inch diameter.)

Notes: Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Dystrochrept; coarse-loamy, mixed, mesic

SOIL Unadilla taxadjunct SOIL Nos. S61NY-37-9 LOCATION Orleans County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61625 - 61640

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	90.6	7.5	1.9	-	-	0.9	18.5	71.2	6.6	0.9	93.7	19.4		1.00	tr.		
7-10	B21	86.0	12.0	2.0	-	-	0.5	14.4	71.1	8.9	3.1	92.6	14.9		1.00	tr.		
10-14	B22	87.9	12.1	-	-	-	0.8	13.2	73.9	9.6	2.5	95.0	14.0		1.00	tr.		
14-22	B23	90.0	9.8	0.2	-	-	1.0	14.1	74.9	8.4	1.4	95.5	15.1		1.00	-		
22-29	B31	90.6	9.2	0.2	-	tr.	0.8	14.4	75.4	7.6	1.6	95.8	15.2		1.00	-		
29-32	B32	92.1	7.5	0.4	-	0.1	1.1	19.7	71.2	6.1	1.4	94.0	20.9		1.00	-		
32-32½	B'24	91.5	7.8	0.7	tr.	0.1	0.6	15.8	75.0	6.3	1.5	95.3	16.5		1.00	tr.		
32½-38	B33	92.6	7.1	0.3	-	0.1	0.6	15.1	76.8	3.9	3.2	93.9	15.8		1.00	tr.		
38-38½	B'25	93.5	5.9	0.6	-	0.7	1.7	20.5	70.6	3.1	2.8	90.5	22.9		1.00	tr.		
38½-52	B34	93.6	6.0	0.4	0.1	0.3	1.6	22.0	69.6	4.4	1.6	91.9	24.0		1.00	tr.		
53-61	B'26	92.8	6.2	1.0	tr.	0.3	1.5	21.6	69.4	4.9	1.3	92.1	23.4		1.00	tr.		
61-63	B'27	88.2	6.9	4.9	-	0.4	1.8	21.1	64.9	6.1	1.8	87.4	23.3		1.00	tr.		
63-80	B36	93.5	4.7	1.8	0.1	0.5	2.3	25.8	64.8	3.3	1.4	88.8	28.7		1.00	tr.		
80-90	B37	91.4	5.5	3.1	tr.	0.2	1.6	24.2	65.4	3.9	1.6	88.6	26.0		1.00	-		
90-108	C2	95.9	3.2	0.9	tr.	0.8	5.4	40.8	48.9	1.8	1.4	78.9	47.0		1.00	tr.		
	B'27	89.9	4.8	5.3	tr.	0.2	2.5	26.3	60.9	1.9	2.9	83.2	29.0		1.00	tr.		

Depth (in.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1b Air dry	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content: 4B1c 1/10 bar	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in	KCl	H_2O
0-7	1.01	0.085	12			0.4	1.35				12.8	7.1	4.2		0.04	4.6	5.1
7-10	1.79	0.104	17			0.7	1.19				20.8	11.9	6.9		0.06	4.9	5.5
10-14	1.22	0.070	17			0.6	1.28				15.2	8.5	5.1		0.04	4.7	5.3
14-22	0.56	0.030	19			0.4	1.34				11.2	5.4	3.1		0.03	4.8	5.3
22-29	0.29					0.4	1.40				9.4	3.7	1.8		0.03	4.7	5.3
29-32	0.15					0.4	1.52				8.4	3.8	1.8		0.03	5.3	5.5
32-32½	0.22					0.4	1.59				10.2	4.8	2.3		0.04	4.9	5.7
32½-38	0.09					0.3	1.53				8.4	2.2	0.9		0.02	4.8	5.5
38-38½	0.18					0.5	1.58				9.5	4.7	2.6		0.03	5.1	5.5
38½-52	0.06					0.4	1.54				8.0	2.3	0.9		0.02	4.8	5.4
53-61	0.04					0.4	1.46				7.6	2.5	0.9		0.02	4.5	5.3
61-63	0.08					0.5	1.47				10.6	5.1	2.6		0.04	4.5	5.3
63-80	0.02					0.4	1.44				7.3	2.7	1.2		0.02	4.5	5.3
80-90	0.05					0.5	1.46				9.8	4.2	1.9		0.03	4.5	5.6
90-108	0.02					0.4	1.47				6.2	2.3	0.9		0.02	4.4	5.3
	0.04					0.6	1.48				11.8	5.6	2.9		0.04	4.1	5.4

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-7	1.4	0.5	tr.	0.1	2.0	7.6	9.6		0.6								21	
7-10	4.0	0.6	tr.	tr.	4.6	14.6	19.2		0.2								24	
10-14	1.7	0.7	tr.	tr.	2.4	11.4	13.8		0.4								17	
14-22	0.7	0.3	tr.	tr.	1.0	6.4	7.4		0.6								14	
22-29	0.5	0.2	tr.	tr.	0.7	3.5	4.2		0.4								17	
29-32	0.4	0.2	tr.	tr.	0.6	3.2	3.8		0.3								16	
32-32½	0.6	0.1	tr.	tr.	0.7	4.2	4.9		0.3								14	
32½-38	0.2	0.1	tr.	tr.	0.3	1.7	2.0		0.2								15	
38-38½	0.7	0.2	tr.	0.1	1.0	4.0	5.0		0.3								20	
38½-52	0.2	0.2	tr.	tr.	0.4	1.3	1.7		0.2								24	
53-61	0.5	0.2	tr.	tr.	0.7	1.1	1.8		0.1								39	
61-63	1.3	0.5	tr.	0.1	1.9	1.7	3.6		0.1			0.73	0.10	0.53			53	
63-80	0.8	0.4	0.1	0.1	1.4	0.8	2.2		0.1								64	
80-90	1.0	0.6	tr.	0.1	1.7	1.1	2.8		0.1			0.90	0.16	0.61			61	
90-108	0.4	0.4	tr.	tr.	0.8	0.8	1.6		0.1								50	
	1.4	0.7	tr.	0.1	2.2	1.8	4.0		0.1			0.75	0.11	0.55			55	

Pedon Classification: Typic Dystrochrept; coarse-loamy, mixed, mesic
Soil: Unadilla taxadjunct[1/]
Location: Orleans County, New York. New York State Conservation Department tree nursery.
Sampled by and date: B. Brasher and D. Bohrer, October 13, 1961.

Soil No.: S61NY-37-9
Vegetation and land use: Dense bluegrass sod.
Slope and land form: 5 percent.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 61625	0 to 7 inches. (10YR 4/3) loamy fine sand; friable; (10YR 2/1) horizontal streaks and spots that appear to be remnants of 02; many fine roots; abrupt smooth boundary. 7 inches thick.
B21 61626	7 to 10 inches. (1.5YR 4/4) loamy very fine sandy; very weak; very fine granular structure; friable; many fine roots; few 1/4 inch holes; gradual wavy boundary. 2 to 4 inches thick.
B22 61627	10 to 14 inches. (7.5YR 5/5) loamy fine sand; very weak; very fine granular structure; friable; common fine roots; few 1/8 inch dead medium roots which look like equisetum; gradual smooth boundary. 3 to 5 inches thick.
B23 61628	14 to 22 inches. (10YR 5/4) loamy fine sand; very weak, very fine granular structure; friable; common fine roots; few medium roots like those in B22; gradual wavy boundary. 7 to 9 inches thick.
B31 61629	22 to 29 inches. (10YR 5/3) fine sand or loamy fine sand; massive to very weak, very fine granular structure; slightly firm in place but very friable to crush; common fine roots; few medium roots; clear wavy boundary. 5 to 10 inches thick.
B32 61630	29 to 32 inches. Discontinuous horizon consisting of 70 percent (10YR 5/3) fine sand, 30 percent (10YR 4/3) loamy fine sand in spots from 1/8 to 1/2 inch in diameter and in wavy horizontal and diagonal bands mainly less than 1/16 inch wide; ranges from massive to very weak, very fine granular structure few fine roots; extension of the B31 interrupts the horizon in one 4-inch section in 2 feet; abrupt slightly wavy boundary. 0 to 6 inches thick.
B'24 61631	32 to 32-1/2 inches. Band of loamy fine sand, mainly (10YR 4/3) with very thin intermittent horizontal bands and 1/4-inch spots of (7.5YR 4/3) occupying 10 percent of band; firm in place; brittle and slightly firm to crush; reddest parts most firm; irregular shaped very thin bands and small spots of (10YR 5/3) loose fine sand are enclosed by darker parts. Few fine roots; abrupt, slightly wavy macro boundary. 1/2 to 1 inch thick.
B33 61632	32-1/2 to 38 inches. (10YR 5/3) fine sand; massive, slightly firm in place; friable to loose to crush; random diagonal cleavage planes spaced 1/2 to several inches apart are (10YR 8/2) treadlike lines on the face of the firmest part of the horizon; few fine roots; abrupt wavy boundary. 5 to 11 inches thick
B'25 61633	38 to 38-1/2 inches. Band of loamy fine sand mainly (7.5YR 4/3) but with inclusions of very thin horizontal bands of (10YR 4/3); the band branches to enclose elliptical bodies of loose brown fine sand; massive; firm in place; brittle and slightly firm to crush; at lower boundary same microstructures described under B'24 occur. Few fine roots; abrupt wavy macro boundary. 1/4 to 3/4 inch thick.
B34 61634	38-1/2 to 52 inches. 95 percent (10YR 5/3) fine sand with about 5 percent (7.5YR 4/4) very thin bands in an intricate pattern, and irregular shaped spots of similar material; matrix is very friable; abrupt wavy boundary; no roots. 6 to 14 inches thick.
B'26 No bag	52 to 53 inches. Very thin bands of (7.5YR 4/3) loamy fine sand and fine sandy loam intermingled with equally thin bands of material like that of B34. massive except for banding; no roots; abrupt wavy boundary. 1/2 to 1-1/2 inches thick.
B35 61635	53 to 61 inches. (10YR 5/2) fine sand with few thin bands and few 1/2 to 1 inch spots of (10YR 4/3-5/3) fine sand; structureless; very friable to loose; no roots. 6 to 23 inches thick.
B'27 61636	61 to 63 inches. Very irregular (7.5YR 4/3) loamy fine sand including 40 percent (10YR 4/3-5/3) sand in bodies a fraction to more than an inch across; reddest parts firm in place, brittle, slightly firm to crush. 10YR parts massive and friable; several 1/8 inch roots that look like equisetum. Horizon extends halfway across end of pit sampled as a 2 inch band but expands halfway to an irregular shaped body 14 inches horizontally and 20 inches vertically. Band was sampled where 2 inches thick under this number. Expanded part of horizon sampled separately under B'27.
B36 61637	63 to 80 inches. (10YR 5/2) fine sand with few faint slightly darker spots and very thin bands; extremely weak tendency to platy cleavage along faint lines of lamination; otherwise massive and very friable to loose; few medium sized dead roots like thos in B'27 extend vertically to bottom of horizon; clear wavy boundary. 15 to 35 inches thick.
B37 61638	80 to 90 inches. 40 percent (10YR 5/3) fine sand, 50 percent (10YR 4/3), and 10 percent (7.5YR 4/3) loamy fine sand in an irregular pattern. Reddest parts are slightly more coherent than the matrix; mass ranges from loose to very friable; medium roots believed to be equisetum present; abrupt wavy boundary. 5 to 14 inches thick.
C2 61639	90 to 108 inches. (10YR 5/2) fine sand with few (10YR 5/4) 1/8 inch bands along very faint laminae. Sands are slightly coarser than in B37 (from auger the material below 108 to 144 inches is like this but lacks the banded mottling. Saturated at 120 inches.)
B'27 61640	Expanded part under horizon B'27.

Notes: Colors refer to moist soil.

1/This pedon is a taxadjunct because its family particle size class is coarse-loamy as opposed to coarse silty for the Unadilla series.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Eutrochrept; loamy-skeletal, mixed, mesic
SOIL Chenango taxadjunct SOIL Nos. S58NY-12-1 LOCATION Cortland County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59349 - 59354

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: (0.05-0.02)	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76[a] Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	48.8	38.3	12.9	10.9	22.2	6.3	4.1	5.3	15.8	22.5	23.0	43.5			47		
7-13	B21	66.2	22.4	11.4	16.5	36.9	7.7	2.8	2.3	7.5	14.9	11.0	63.9			56		
13-24	B22	73.4	16.4	10.2	10.0	44.2	12.7	4.5	2.0	4.8	11.6	8.4	71.4			75		
24-38	B23	71.0	20.8	8.2	22.0	30.4	9.6	5.5	3.5	6.5	14.3	12.4	67.5			83		
38-56	C1	63.6	27.4	9.0	18.2	28.2	7.9	5.0	4.3	0.1	27.3	6.6	59.3			89		
56-72	C2	62.8	28.1	9.1	17.3	27.0	8.1	5.5	4.9	10.7	17.4	18.3	57.9			94		

Depth (In.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct.	C/N		6E1a Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	Water content: 4B1a ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-7	2.74	0.252	11			1.5				34.0	23.8	9.4					5.4
7-13	0.69	0.100	7			1.4				19.2	16.3	7.9					5.5
13-24	0.54	0.080	7			1.5				16.5	15.2	8.4					5.4
24-38	0.59	0.074	8			1.5				19.2	16.4	5.9					5.4
38-56	0.31				5.8	1.5				18.8	15.1	5.4					7.6
56-72	0.30				29.9	1.5				19.8	15.7	4.8					7.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC: 5A1b[b] NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	5.7	0.8	0.1	0.2	6.8	15.6	22.4	18.5				1.74	0.12	0.73			30	
7-13	2.4	0.3	tr.	0.1	2.8	9.6	12.4	11.9				1.08	0.12	0.69			22	
13-24	1.9	0.4	tr.	0.1	2.4	11.0	13.4	11.4				1.31	0.15	0.82			18	
24-38	1.9	0.3	tr.	0.1	2.3	9.6	11.9	10.1				1.45	0.18	0.72			19	
38-56	Calcareous							9.8					0.17	0.60				
56-72	Calcareous							9.8					0.16	0.53				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int. Mi. Vm.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
0-7	-	x	xxx	x	x	-		
7-13	-	-	-	-	-	-		
13-24	-	x	xx	xx	-	-		
24-38	-	tr.	x	xx	-	-		
38-56	-	-	-	-	-	-		
56-72	-	x	tr.	xxx	-	-		

[a]Entire soil sieved in field. These values are total gravel content by weight.
[b]Determined at Cornell University.

Mt = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts. blank = not determined, dash = not detected, tr = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Eutrochrept; loamy-skeletal, mixed, mesic
Soil: Chenango taxadjunct [1]
Soil No.: S58NY-12-1
Location: Cortland County, New York. From the junction of Highways 13 and 281 south of Cortland, go 0.35 mile north on Highway 281 to a small restaurant. The sampling site is 200 yards northeast of this point in the edge of a freshly dug gravel pit.
Vegetation and land use: Idle and covered mainly with timothy and a great variety of herbaceous weeds.
Slope and land form: 3 percent.
Physiographic position: Gently undulating glacial outwash valley train.

Horizon and Beltsville Lab. No.	
Ap 59349	0 to 7 inches. Dark brown (10YR 3/3) gravelly loam; moderate medium and fine granular; friable; many fine roots of herbaceous plants and grasses; pH 5.4; clear smooth boundary. 6 to 8 inches thick.
B21 59350	7 to 13 inches. Yellowish brown to dark yellowish brown (10YR 5/4-4/4) gravelly coarse sandy loam; moderate to weak fine granular; friable; common fine roots; pH 5.6; clear wavy boundary. 4 to 7 inches thick.
B22 59351	13 to 24 inches. Dark brown (7.5YR 4/4) very gravelly coarse sandy loam; moderate fine granular; friable; common fine roots; pH 5.6; clear irregular boundary. 9 to 25 inches thick.
B23 59352	24 to 38 inches. Dark brown (7.5YR 3/4) very gravelly coarse sandy loam; very weak fine and medium subangular blocky; friable; sticky; slightly plastic; common fine roots; pH 5.8; common very dark grayish brown (10YR 3/2) dark brown (10YR 4/3), and reddish brown (5YR 4/3) clayey remnants of weathered gravel; clear irregular boundary. 12 to 20 inches thick.
C1 59353	38 to 56 inches. Dark brown (10YR 3/3) sand and gravel coated with fines. The sand among the gravel is free of carbonates but carbonates coat the underside of gravel and larger stones; single grain; loose; fine roots present; few soft weathered gravel and stone remnants; gradual boundary. 12 to 20 inches thick.
C2 59354	56 to 72 inches plus. Dark brown (10YR 3/3) calcareous gravel and sand with thin silt and clay coats; the lower surfaces of gravel and stones have thick deposits of light gray carbonates and the soil mass effervesces; single grain; loose; no roots.

Notes: Colors refer to moist soil.

[1] The Chenango soils are Dystrochrepts. This pedon is a taxadjunct because it has carbonates in the C horizon.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aquic Eutrochrept; coarse-loamy, mixed, mesic

SOIL Amenia silt loam[a] SOIL Nos. 857NY-25-2 LOCATION Lewis County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58486 - 58490

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	22.9	63.8	13.3	1.0	2.6	2.7	5.8	10.8	28.3	35.5	42.3	12.1		1.00			
8-14	B21	17.6	73.0	9.4	0.4	1.3	1.6	3.9	10.4	30.5	42.5	43.3	7.2		1.00			
14-22	B22	36.9	49.0	14.1	1.7	4.5	5.8	11.2	13.7	23.2	25.8	43.4	23.2		1.00			
22-28	IIB23	54.8	35.6	9.6	2.6	7.9	9.3	17.9	17.1	17.2	18.4	44.4	37.7		1.00			
28-34	IIC	58.6	31.7	9.7	5.7	10.6	10.0	17.9	14.4	12.7	19.0	36.8	44.2		1.00			

Depth (In.)	6A1a Organic[b] matter Pct.	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1d 1/10 bar Pct.	4B1d ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	5.8	0.274	12			1.3	1.14				1.14	33.2	11.1		0.25		6.8
8-14	1.8	0.120	9			1.1	1.27				1.27	25.0	7.4		0.22		7.1
14-22	1.2	0.065	11			1.3	1.39				1.39	20.5	12.9		0.11		7.2
22-28	0.5	0.033				0.7	1.38				1.38	13.8	8.6		0.07		7.8
28-34	0.2	0.030				0.4	1.72				1.72	10.3	2.4		0.14		8.1

Depth (In.)	Extractable bases 5B1a[b]: 6N2 Ca	6O2 Mg	6P2 Na	6Q2 K	Sum	6H2a Ext.[b] acidity	CEC: 5A3a Sum[b] cations	5A1b[b] NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	17.2	0.4	0.1	tr.		6.5	24.2	22.2				1.82	0.10	0.83			73	
8-14	8.6	0.1	0.1	tr.		3.8	12.6	14.4				1.34	0.12	0.79			70	
14-22	8.7	0.2	0.1	tr.		3.4	12.4	13.0				0.88	0.10	0.91			73	
22-28	13.0	0.2	0.1	tr.		0.6	13.9	7.6				1.45	0.10	0.90			96	
28-34	Calcareous							3.7					tr.	0.25			-	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	tr.	xxx	x	-	-			
8-14	-	tr.	xxx	x	-	-			
14-22	-	tr.	xxx	x	-	-			
22-28	-	tr.	xxx	x	-	-	tr.	-	
28-34	-	tr.	xx	x	-	-			

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined at Cornell University.

Pedon Classification: Aquic Eutrochrept; coarse-loamy, mixed, mesic
Soil: Amenia silt loam
Soil No.: S57NY-25-2
Location: Lewis County, New York. Go to junction of Highways 410 and 26 west of Castorland. Measure toward Castorland 0.5 mile on Highway 410. On south side of road is an excavation for borrow material, and a pasture fence jogs south to exclude this excavation. Pace about 50 feet from fence corner at the east and toward Highway 26, turn southward and pace 50 feet from the fence.
Vegetation and land use: Bluegrass, timothy, and white clover.
Slope and land form: 3 percent.
Physiographic position: Undulating.

Horizon and Beltsville Lab. No.	
Ap 58486	0 to 8 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate medium and fine granular; friable; many fine roots; very dark brown (10YR 2/2) when uncrushed; pH 6.8; clear smooth boundary. 7 to 9 inches thick.
B21 58487	8 to 14 inches. Brown (10YR 4.5/3) silt loam; weak very fine granular; friable; many 1/8 to 1/4 inch vertical channels filled with very dark grayish brown (10YR 3/2) material like Alp; many fine roots; common vertical 1/4 to 1/10 mm holes; few 1/8 inch spherical cavities; pH 6.8; clear wavy boundary. 4 to 11 inches thick.
B22 58488	14 to 22 inches. Brown (10YR 4/3.5) uncrushed, yellowish brown (10YR 5/4) crushed, loam; moderate medium subangular blocks; slightly firm; about 1/2 of ped faces have very thin discontinuous clay films; few fine and medium roots; pH 7.0; gradual wavy boundary. 5 to 11 inches thick.
IIB23 58489	22 to 28 inches. Grayish brown (10YR 4/2) gravelly fine sandy loam; very weak thin platy; common medium dark yellowish brown (10YR 4/4) mottles; slightly firm; few fine roots; pH 7.2; abrupt wavy boundary. 4 to 8 inches thick.
IIC 58490	28 to 34 inches plus. Grayish brown (10YR 5/2) gravelly fine sandy loam; moderate medium and thick platy breaking to angular blocks; compact in place; slightly firm to crush; no roots; estimated 50 percent coarse fragments; calcareous.

Notes: The solum through IIB22 is believed to be in aeolian material while IIB23 and IIC are in till. Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Haplaquoll; sandy, mixed, mesic

SOIL Granby taxadjunct SOIL Nos. S58NY-35-1 LOCATION Ontario County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59336 - 59340

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-10	Ap	76.0	17.4	6.6	0.3	1.8	9.4	40.0	24.5	9.5	7.9	57.1	51.5			0		
10-14	C1g	85.3	11.5	3.2	0.2	0.8	10.6	54.1	19.6	7.1	4.4	54.9	65.7			0		
14-20	C2g	71.9	23.8	4.3	0.2	0.9	6.0	35.7	29.1	15.0	8.8	67.6	42.8			0		
20-30	C3g	80.9	16.9	2.2	0.2	0.4	2.4	34.2	43.7	12.0	4.9	81.7	37.2			0		
30-40	C4g	89.1	9.7	1.2	0.1	0.2	5.0	55.7	28.1	6.9	2.8	70.2	61.0			0		

Depth (in.)	6A1e Organic carbon Pct	6B2a Nitrogen Pct.	C/N		6E1a Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	2.55	0.205	12			0.1					29.8	15.3	7.1					7.2
10-14	0.26				2.6	0.1					10.2	4.5	1.4					7.6
14-20	0.19				12.9	0.1					15.0	6.5	1.7					7.9
20-30	0.11				21.1	0.1					14.6	4.0	1.1					8.1
30-40	0.08				24.2	0.1					8.3	2.1	0.8					8.1

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6N2a Ext. acidity	CEC: 5A3a Sum cations	5A1b NH_4OAc[a]	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-10	16.2	2.0	0.1	0.1	18.4	1.7	20.1	16.4				3.04	0.02	1.08	8		92	
10-14		0.8	tr.	0.1				2.8					0.03	0.44				
14-20		2.3	0.1	tr.				2.8					0.05	0.40				
20-30		0.7	0.1	tr.				2.0										
30-40		0.5	tr.	tr.				1.3										

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-10	-	x	xx	x	-	-			
10-14	-	xx	tr.	xx	-	-			
14-20	-	xx	x	xxx	-	-			
20-30	-	xx	xx	xxx	-	-			
30-40	-	xx	tr.	xx	-	-			

[a] Determined at Cornell University.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Haplaquoll; sandy, mixed, mesic
Soil: Granby taxadjunct 1/
Soil No.: S58NY-35-1
Location: Ontario County, New York. From Geneva, New York, go west on U.S. 20 3.7 miles west of the junction of U.S. 20 and N.Y. 14 to the junction of County Road No. 5 with U.S. 20. Go south on County Road No. 5 0.15 mile. The sampling site is 75 feet west of the center of the road.
Vegetation and land use: Permanent pasture having mainly red top, timothy, small reeds, and sedges as cover.
Slope and land form: Nearly level, less than 1 percent.

Horizon and Beltsville Lab. No.	
Ap 59336	0 to 10 inches. Black (10YR 2/1) fine sandy loam; very weak fine subangular blocky; very friable; many roots; abrupt smooth boundary. 9 to 12 inches thick.
C1g 59337	10 to 14 inches. Dark gray (10YR 4/1) loamy fine sand; few vertical cylinders, 1/2 to 1 inch across, of black (10YR 2/1) material like A1; single grain; loose; few roots; clear smooth boundary. 3 to 5 inches thick.
C2g 59337	14 to 20 inches. Dark gray (10YR 4/1) fine sandy loam with common yellowish brown and brown (10YR 5/4-4/3) mottles; single grain; loose; no roots; abrupt wavy boundary. 4 to 8 inches thick.
C3g 59338	20 to 30 inches. Dark gray (10YR 4/1) loamy fine sand with common medium brown and dark yellowish brown (10YR 4/3-4/4) mottles; single grain; loose; moderately calcareous; no roots; gradual boundary.
C4g 59339	30 to 40 inches. Dark gray (10YR 4/1) varied medium and fine sand with few lenses of very fine sand; common dark yellowish brown (10YR 3/4) and few brown (7.5YR 4/4) medium mottles; single grain; loose; saturated with water when sampled; strongly calcareous.

Notes: Ap, C2g, and C4g horizons were also sampled for the Bureau of Public Roads. Colors are for moist soil.

1/ Soil reaction of upper 30 inches is outside of series limits.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiaquod ; coarse-loamy, mixed, frigid

SOIL Camroden taxadjunct SOIL Nos. 857NY-25-3 LOCATION Lewis County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58491 - 58498

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76[b] Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-7	Ap	15.0	62.6	22.4	2.1	2.1	1.4	2.8	6.6	24.7	37.9	32.9	8.4		0.94	19		
7-13	B2g	13.1	68.6	18.3	1.1	1.8	1.4	2.7	6.1	27.4	41.2	35.0	7.0		1.00			
13-15	A'2g	30.1	62.2	7.7	2.0	4.0	4.0	7.3	12.8	38.0	24.2	55.1	17.3		1.00			
15-27	B'x1	32.5	58.0	9.5	3.8	5.8	4.6	8.4	9.9	25.3	32.7	40.0	22.6		0.87	22		
27-40	B'x2	35.5	53.5	11.0	5.9	7.0	4.7	8.8	9.1	16.9	36.6	31.1	26.4			26		
40-47	B'x3	44.0	46.3	9.7	7.1	11.3	7.4	10.4	7.8	14.6	31.7	28.2	36.2			42		
47-62	C1	38.1	51.9	10.0	6.0	8.8	5.6	9.3	8.4	15.5	36.4	29.1	29.7			37		
62-67	C2	28.9	49.5	21.6	5.6	6.6	4.1	6.8	5.8	12.1	37.4	21.8	23.1			31		

Depth (in.)	6A1a Organic[b] matter Pct	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1a ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	8.2	0.027	18			1.9	0.77										5.4
7-13	4.7	0.125	22			1.8	0.85										5.3
13-15	2.0	0.097	12			1.2	1.16										5.4
15-27	0.4	0.048				1.3	1.44										6.5
27-40	0.3	0.040				1.0											7.8
40-47	0.2	0.024				1.0											7.1
47-62	0.3	0.024				1.0											7.9
62-67	0.3	0.030				1.0											7.8

Depth (in.)	Extractable bases 5B1a[b]: Ca	Mg	Na	K	Sum	6H2a Ext.[b] acidity	CEC: 5A3a Sum[b] cations	5A1b NH_4OAc[b]	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	6.4	0.4	tr.	0.2	7.0	20.6	27.6	24.1			1.23	0.08				25	
7-13	2.7	0.2	tr.	0.2	3.1	20.7	23.8	22.9			1.30	0.10				13	
13-15	1.6	0.2	tr.	0.2	2.0	12.8	14.8	13.4			1.92	0.16				13	
15-27	7.8	0.8	tr.	0.1	8.7	4.0	12.7	11.4			1.34	0.14				68	
27-40	18.1	0.4	tr.	0.1	18.6	0.6	19.2	8.7			1.74	0.09				97	
40-47	7.1	0.4	tr.	0.1	7.6	2.6	10.2	8.7			1.00	0.10				75	
47-62	12.2	0.4	tr.	0.1	12.7	1.4	14.1	8.7			1.41	0.10				90	
62-67	Weakly	calcareous						9.3				0.05					

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-7	-	-	xxxx	-	-	-			
7-13	-	tr.	xxx	tr.	-	-			
13-15	-	tr.	xxx	tr.	-	-			
15-27	-	-	-	-	-	-			
27-40	-	tr.	xx	xx	-	-			
40-47	-	-	-	-	-	-			
47-62	-	-	-	-	-	-			
62-67	-	x	x	xxx	-	-			

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined at Cornell University.

Pedon Classification: Typic Fragiaquod; coarse-loamy, mixed, frigid
Soil: Camroden taxadjunct [1]
Soil No.: S57NY-25-3
Location: Lewis County, New York. Follow Highway 177 west to Barnes Corners. Turn northeast on Highway 194 toward Copenhagen and go 1.5 miles to corner of a road to left that makes a T with 194. Pace 90 feet northwestward along this road and 60 feet to the right parallel to Highway 194.
Vegetation and land use: Pine seedlings, grass, weeds, and orchard grass.
Slope and land form: 2 percent.

Horizon and Beltsville Lab. No.	
Ap 58491	0 to 7 inches. Dark brown (10YR 3/3) silt loam; moderate medium, fine, and coarse granules in a mat of roots; friable; pH 5.4; few small stones; crushed color is 10YR 4/2; abrupt smooth boundary. 6 to 8 inches thick.
B2g 58492	7 to 13 inches. Brown (10YR 4.5/3) silt loam with common medium pale brown to yellowish brown (10YR 6/3-5/6) mottles; weak fine subangular blocky; friable; many fine roots; few small stones; pH 5.2; clear wavy boundary. 5 to 6 inches thick.
A'2g 58493	13 to 15 inches. Pale brown (10YR 6/3) gravelly silt loam in weak thin plates; many to common yellowish brown (10YR 5/4-5/6) mottles; few horizontal bands of similar color 1/8 inch wide; friable; common fine roots; pH 5.2; abrupt wavy to irregular boundary. 2 to 4 inches thick.
B'x1 58494	15 to 27 inches. Gravelly silt loam in prisms 6 to 15 inches across separated by 1/4 to 1/32 inch of pale brown (10YR 6/3) coarse silt and bounded by 1/16 to 1/4 inch silt loam bands colored strong brown (7.5YR 5/6); within prisms are very weak very thick plates that fracture to weak medium angular blocks; interiors of peds are 2.5Y 5/2 with common medium and fine yellowish brown (10YR 5/6) mottles; very firm; locally clay flow; roots only between prisms; pH 5.5; gradual smooth boundary. 10 to 18 inches thick.
B'x2 58495	27 to 40 inches. A gravelly silt loam in prisms 18 to 30 inches across coated with light brownish gray (2.5Y 6/2) coarse silt. Cleavage planes between prisms disappear with depth. Prism interiors are very weak fine angular blocky to massive with light olive brown (2.5Y 5/3) base colors and common to few fine faint mottles; clay skins around stones; fine gravel hard but weathered; firm to very firm; no roots; pH 5.8; diffuse smooth boundary. 10 to 15 inches thick.
B'x3 58496	40 to 47 inches. Light olive brown (2.5Y 5/3) gravelly silt loam with weak discontinuous widely spaced vertical cleavage. Very weak very coarse blocks coated grayish brown (2.5Y 5/2); interiors mottled light olive brown (2.5Y 5/4); firm; no roots; many hard fine apparently unweathered gravel; few soft weathered gravel; pH 6.2; diffuse smooth boundary. 6 to 10 inches thick.
C1 58497	47 to 62 inches. Light olive brown (2.5Y 5/3) silt loam; very weak fine angular blocks, crudely arranged in very weak medium plates; firm; no roots; pH 7.0+; many dark hard fine gravel; clear slightly wavy boundary. 13 to 18 inches thick.
C2 58498	62 to 67 inches plus. Light olive brown (2.5Y 5/3) gravelly loam in moderate medium and thin crude plates; firm; many hard dark fine gravel; calcareous.

Notes: This is State land reforested about 1953 and idle prior to that. Colors refer to moist soil.

[1] This pedon is a taxadjunct because the clay content in the A'2g horizon is less than 18 percent. The Camroden series is in the fine-loamy family particle size class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiaquod; coarse-loamy, mixed, frigid

SOIL Camroden taxadjunct SOIL Nos. S63NY-25-2 LOCATION Lewis County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63432 - 63436

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 <76 Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm														Pct of < 76mm		
2-0	02														1.00	tr.		
0-1	A1	19.0	55.4	25.6	1.8	3.0	2.8	5.3	6.1	18.0	37.4	27.0	12.9		1.00	tr.		
1-3	B21	18.3	59.5	22.2	0.5	2.2	2.5	5.4	7.7	17.9	41.6	28.5	10.6		1.00	2		
3-7	B22	23.1	62.4	14.5	0.7	2.1	2.5	6.8	11.0	21.1	41.3	36.3	12.1		0.99	4		
7-13	B3	20.5	64.1	15.4	1.3	2.1	2.1	5.7	9.3	20.7	43.4	33.4	11.2		0.98	7		
13-17	A'2	Not sampled																

Depth (in.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct	C/N		Carbonate as $CaCO_3$ Pct	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
2-0	40.	1.668	24			0.9							66.2			a/3.0	a/4.0
0-1	8.8	0.339	26			1.2							24.6			2.9	3.4
1-3	6.4	0.312	20			2.8		0.60	0.72	0.06		67.4	19.2		0.29	3.2	3.6
3-7	6.1	0.280	22			2.6		0.75	0.83	0.03		51.6	18.1		0.25	3.7	4.0
7-13	6.0	0.314	19			2.0		0.60	0.66	0.03		62.6	16.8		0.27	3.6	3.9
13-17																	

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
2-0	4.9	1.8	0.1	0.7	7.50	79.7	87.2		6.3								9	
0-1	0.4	0.4	0.1	0.1	1.00	46.8	47.8		15.9			1.87	0.05	0.96			2	
1-3	0.3	0.3	tr.	0.1	0.70	68.1	68.8		22.8			3.10	0.13	0.86			1	
3-7	0.2	0.3	0.1	0.1	0.70	66.5	67.2		14.7			4.63	0.18	1.25			1	
7-13	0.2	0.2	0.1	0.1	0.60	62.9	63.5		10.6			4.12	0.13	1.09			1	
13-17																		

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
2-0								
0-1	xxx	-	xx	-	-	-		
1-3	xx	-	xx	tr.	-	-		
3-7	-	-	xx	tr.	-	-		
7-13	-	-	xx	tr.	-	-		
13-17								

a/ 1:2 soil-water ratio.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts. blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Pedon Classification: Typic Fragiaquod; coarse-loamy, mixed, frigid
Soil: Camroden taxadjunct [1]
Soil No.: S63NY-25-2
Location: Lewis County, New York. One mile northeast of Mohawk Hill on Highway 26, thence 1-3/8 miles southeastward on surfaced road to town line road between Turin and Leyden, 200 yards southwestward along road, 100 feet to the southwest.
Vegetation and land use: Hemlock and beech vegetation is concentrated on knolls and the few level areas.
Slope and land form: Small nearly level area within a complex of microrelief consisting of knolls 2 to 3 feet higher than intervening network of connected depressions.
Drainage: The area would be one drainage class wetter than S63NY25-1 if it were cleared and leveled.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 18, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
O1 Not sampled	3 to 2 inches. Litter of Hemlock with some leaves of sugar maple and American beech. The topmost 1/4 inch appears relatively fresh. The lower 3/4 inch is a fermentation zone filled with fungi and fine roots in older litter whose vegetative form is still identifiable; abrupt smooth boundary.
O2 63432	2 inches to 0. Black (10YR 2/1) organic material held in a network of fine and medium roots; mainly weak very fine granular but includes about 1/2 inch units that break into medium block-like fragments without apparent structure; no apparent clean sand grains; many fine roots; pH 3.8; filled with 1 inch animal burrows; abrupt wavy boundary. 1 to 4 inches thick.
A1 63433	0 to 1 inch. Very dark grayish brown (10YR 3/2) silt loam grading in spots to dark grayish brown (10YR 4/2) silt loam; massive; very friable; common clean white sand grains on broken faces; common 1/2 mm pores with smooth linings; many fine roots; pH 4.0; abrupt wavy boundary. 0 to 1-1/2 inches thick.
B21 63434	1 to 3 inches. Dark reddish brown (5YR 3/4) in the uppermost 1/4 inch, grading with depth to dark brown to brown (7.5YR 4/4); silt loam; breaks to slightly coherent irregular fragments without distinct pressure faces; very friable to very weak very fine granules; very porous; no coatings; pH 4.4; many fine medium and coarse roots but less fine roots than horizon above; clear wavy boundary. 2 to 3 inches thick.
B22 63435	3 to 7 inches. Dark brown to brown (7.5YR 4/2) silt loam; crumbles to irregular medium and fine fragments without pressure faces, which are very friable to very weak very fine granules; common 1/2 mm tubular pores with slightly rough interiors without cutans; many fine and medium roots; pH 4.6; gradual wavy boundary. 3 to 6 inches thick.
B3 63436	7 to 13 inches. Dark brown to brown (10YR 4/3) silt loam; breaks to irregular very weak medium and fine block-like aggregates having about 25 percent discontinuous pressure faces without cutans; common 1 mm tubular pores with smooth interiors but without cutans; common fine roots; pH 4.8; abrupt wavy boundary. 5 to 8 inches thick.
A'2 Not sampled	13 to 17 inches. Grayish brown (2.5Y 5/2) silt loam with common medium (10YR 5/3 and 5/4) mottles; massive; slightly firm; slightly brittle; few fine roots; few 1/2 mm tubular pores with smooth interiors but without cutans; pH 5.0. This is in the silty surficial mantle and rests on a fragipan in shaly till.

Notes: pH values are by Bromcresol Green. The sampled pedon represents the most common condition on those knolls that lack evidence of the uprooted trees that made them, as well as that of the nearly level areas. It is a "thick siltmantle phase" of Camroden silt loam; the upper sequum is comparable to that of the most silty soils of the Belgrade associate of Hartland. It was sampled for comparison with the apparently less spodic pedon of S63NY25-1, which was only 200 feet away. The soil in the associated depression has a very dark (10YR 3/2-3/4) B horizon under a thick A1, or is so hydromorphic that gray colors are dominant. Colors are for moist soil.

[1] This pedon is a taxadjunct because the family control section is slightly below 18 percent clay. The Camroden series is in the fine-loamy family particle size class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiorthod; coarse-loamy, mixed, frigid

SOIL Pinckney silt loam SOIL Nos. 863NY-25-1 LOCATION Lewis County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63481 - 63485

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
½-0	02																	
0-1	A1	8.9	63.4	27.7	tr.	2.3	1.6	2.4	2.6	26.5	36.9	30.3	6.3			0		
1-3	B21	15.6	59.6	24.8	1.4	2.4	2.2	3.8	5.8	21.2	38.4	29.0	9.8		0.95	7		
3-10	B22	18.1	64.7	17.2	tr.	2.8	2.5	4.4	8.4	24.9	39.8	35.6	9.7		0.97	10		
10-14	B3	19.0	65.0	16.0	1.1	2.4	2.4	4.5	8.6	26.9	38.1	38.1	10.4		0.93	15		
14-18	A'2	Not sampled																

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1a ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
½-0	26.	1.121	23			1.3							49.6			3.4	4.5
0-1	13.	0.718	18			1.8							25.2			3.6	4.8
1-3	4.5	0.282	16			3.0		0.80	0.97	0.06		50.1	16.8		0.57	3.6	4.6
3-10	2.88	0.144	20			2.3		0.84	0.90	0.02		44.7	13.5		0.25	3.9	4.7
10-14	1.70	0.147	12			2.0		1.15	1.12	0.00		30.4	10.3		0.21	4.0	4.8
14-18																	

Depth (in.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
½-0	6.0	1.3	0.4	0.9	8.6	72.2	80.8		5.3								11	
0-1	1.1	0.5	0.3	0.4	2.3	49.3	51.6		9.8			1.86	0.06	0.91			4	
1-3	0.6	tr.	0.2	0.1	0.9	45.4	46.3		12.1			1.87	0.12	0.68			2	
3-10	0.3	0.4	0.5	0.1	1.3	32.1	33.4		4.7			1.94	0.13	0.78			4	
10-14	0.1	0.3	0.2	0.1	0.7	21.6	22.3		3.2			1.39	0.12	0.64			3	
14-18																		

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
½-0									
0-1	-	-	xxx	-	-	-			
1-3	-	tr.	x	x	-	-			
3-10	-	tr.	xx	tr.	-	-			
10-14	-	x	xx	tr.	-	-			
14-18									

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Fragiorthod; coarse-loamy, mixed, frigid
Soil: Pinckney silt loam
Soil No.: S63NY-25-1
Location: Lewis County, New York. One mile northeast of Mohawk Hill on Highway 26, thence 1-3/8 miles southeastward on secondary surfaced road to town line road between Turin and Leyden, 200 yards southwestward along road, 100 yards to the southwest.
Vegetation and land use: Mainly sugar maple and American beech overstory, with a ground cover of seedling beech and maple along with ferns and herbaceous plants.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 18, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
O1 Not sampled	1-1/2 inches to 1/2. Undecomposed litter of maple and beech leaves resting on a 1/4 inch layer of decomposing leaves filled with fungi and fine roots; lower layer seems to represent last year's leaf fall; abrupt boundary, about 1 inch thick.
O2 63481	1/2 inch to 0. Black (10YR 2/1) organic material held together in a mass of fine roots; common clean white sand grains throughout the horizon; weak fine and very fine granules; very friable; a mass of 1 inch rodent channels running horizontally throughout the horizon; these extend to the top of the horizon and into A1 below; pH 4.2; abrupt wavy boundary. 1/2 to 3/4 inch thick.
A1 63482	0 to 1 inch. Very dark grayish brown (10YR 3/2) silt loam; very weak medium and fine granular; very friable; many fine roots; pH 4.4; clear wavy boundary; 1/2 to 1-1/2 inches thick.
B21 63483	1 to 3 inches. Dark brown to brown (7.5YR 4/4) silt loam; apparently structureless in place but digs out in irregular medium and fine blocks having discontinuous pressure faces without clay coatings, these crumble to weak fine and very fine granules; very friable; common fine roots but strikingly less than in horizon above; common 1/2 mm tubular pores with smooth interiors but without clay skins; pH 4.7; clear wavy boundary. 2 to 4 inches thick.
B22 63484	3 to 10 inches. Brown to dark brown (10YR 4/3) silt loam; weak fine and medium subangular blocks with distinct pressure faces are very friable to yield weak medium and fine granules, all with discontinuous distinct pressure faces; no clay skins; common fine roots; common 1/2 to 1 mm tubular cavities with smooth interiors but without cutans; pH 4.8; gradual wavy boundary. 6 to 8 inches thick.
B3 63485	10 to 14 inches. Brown to dark brown (10YR 4/3) silt loam with few coarse yellowish brown (10YR 5/4) mottles; weak fine subangular blocks are very friable to yield weak medium and coarse granules; both kinds of peds have distinct pressure faces but lack cutans; common 1/2 to 1 mm tubular cavities that have smooth interiors but lack cutans; common fine roots; pH 4.8; abrupt wavy boundary. 4 to 5 inches thick.
A'2 Not sampled	14 to 18 inches. Brown (10YR 5/3) loam with many medium and fine (10YR 5/4-5/6) and (2.5Y 5/2-6/2) mottles; massive; slightly firm; slightly brittle; common 1/2 to 2 mm tubular pores with smooth interiors but without cutans; few fine roots; abrupt wavy boundary.

Notes: The pH values recorded are by bromcresol green and chlorphenol red indicators. The Hellige kit gave the following comparisons:

Horizon	Single Indicators	Hellige
O2	4.2	5.3
A1	4.4	5.3
B21	4.7	5.5
B22	4.8	5.5
B3	4.8	5.5

This pedon was sampled to compare a relatively weakly expressed spodic-like horizon having weak but distinct blocky and granular structure under hardwoods with pedon No. S63NY25-2, which had a more distinctly spodic horizon under Hemlock in a slightly wetter position about 200 feet nearer the road. The spodic part of both is in a surficial mantle of silt loam low in clay over a fragipan in shaly till of the character found under Pinckney and Canroden soils. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Fragiorthod; coarse-loamy, mixed, frigid
SOIL: Potsdam fine sandy loam SOIL Nos. 863NY-45-1 LOCATION St. Lawrence County, New York

SOIL SURVEY LABORATORY: Beltsville, Maryland LAB. Nos. 63495 - 63501

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2-19 Pct. of < 76mm	19-76 Pct. of < 76mm
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
1½-0	O22															tr.		
0-1½	A2	59.2	32.3	8.5	1.9	8.4	12.6	21.9	14.4	13.3	19.0	39.0	44.8			7		
1½-7	B21	57.4	30.2	12.4	3.0	7.5	11.2	20.8	14.9	12.7	17.5	38.7	42.5			11		
7-13	B22	57.9	32.3	9.8	2.9	7.1	11.1	20.4	16.4	12.8	19.5	40.5	41.5		0.92	16		
13-20	B3	58.4	31.9	9.7	3.2	7.4	11.2	19.8	16.8	12.8	19.1	40.4	41.6		0.91	16		
20-28	IIA'2x	67.2	26.7	6.1	3.6	8.8	13.8	23.8	17.2	10.7	16.0	41.3	50.0		0.85	19		
28-42	IIB'x	66.3	25.9	7.8	3.0	8.3	13.6	24.3	17.1	11.4	14.5	41.3	49.2		0.89	15		

Depth (In.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O
1½-0	23.	1.206	19			0.5							51.0				4.4	5.2
0-1½	2.16	0.176	12			0.6							7.3				3.7	4.9
1½-7	2.34	0.127	18			1.4							9.8				3.9	4.8
7-13	1.50	0.094	16			1.1		1.26	1.28	0.00		15.8	7.0		0.10		4.1	4.9
13-20	0.81	0.074	11			0.9		1.35	1.37	0.00		14.1	5.2		0.11		4.3	5.0
20-28	0.12					0.6		1.92	1.92	0.00		7.4	2.3		0.08		4.2	5.3
28-42	0.13					0.6		1.85	1.85	0.00		8.6	3.1		0.09		4.2	5.5

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct
	meq/100 g																	
1½-0	22.6	4.2	0.1	1.0	27.9	45.2	73.1		-								38	
0-1½	2.8	0.7	tr.	0.3	3.8	11.6	15.4		1.0			1.81	0.07	0.86			25	
1½-7	1.6	0.3	0.1	0.1	2.1	25.4	27.5		2.8			2.22	0.11	0.79			8	
7-13	1.5	0.1	0.2	0.1	1.9	18.5	20.4		1.6			2.08	0.11	0.71			9	
13-20	1.0	0.1	0.1	tr.	1.2	12.6	13.8		1.2			1.42	0.09	0.54			9	
20-28	0.6	0.1	0.1	tr.	0.8	3.8	4.6		0.7			0.75	0.10	0.38			17	
28-42	1.2	0.4	0.1	tr.	1.7	3.2	4.9		0.6			0.63	0.08	0.40			35	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
1½-0									
0-1½	-	-	xxx	-	-	-			
1½-7	-	-	xx	-	-	-			
7-13	-	x	tr.	-	-	-			
13-20	-	x	tr.	-	-	-			
20-28	-	x	tr.	x	-	-			
28-42	-	x	-	x	-	-			

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Pedon Classification: Typic Fragiorthod; coarse-loamy, mixed, frigid
Soil: Potsdam fine sandy loam
Soil No.: S63NY-45-1
Location: St. Lawrence County, New York. Canton Agricultural and Technical Institute Farm, 5 miles southeast of Canton, 1 mile north of Brick Chapel; westward, then southward, along field road from gate where hardtop road makes right angle bend; near crest of low till ridge.
Vegetation and land use: Cutover woodland: sugar maple and few American beech larger than 18 inches d.b.h.; understory 2-6 inch saplings of hop hornbeam, American beech, and black ash, with scattered sugar maple, paper birch, and hemlock.
Slope and land form: 8 percent southward slope near crest of till ridge; cradle-knolls and depressions (40 percent) alternate with smooth areas 40 feet or less in diameter (60 percent); sample site is a smooth area.
Parent Material: Till, with low-lying lacustrine deposit nearby.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 17, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
O1 Not sampled	3-1/2 to 2-1/2 inches. 3/4 inch layer of undecomposed leaves resting on apparently older 1/4 inch layer of decomposing leaves permeated by many fine roots but retaining original leaf form; a few mouse burrows extend upward to bottom of layer; abrupt boundary. 1 to 1-1/2 inches thick.
O21 Not sampled	2-1/2 to 1-1/2 inches. Intimately mixed very dark brown (10YR 2/2) and black (10YR 2/1) medium and coarse granules hold in an open very porous fabric by dense network of fine and very fine roots; abrupt smooth boundary. 1/2 to 1-1/2 inches thick.
O22 63495	1-1/2 to 0 inches. Black (10YR 2/1) organic material with many white (10YR 8/1) fine and very fine sand grains; moderate medium and coarse granules and weak fine subangular blocks adhere to network of fine roots; many 1 inch rodent burrows; much variation in organic: inorganic ratio, in spots approaching A1; pH 4.6.
A2 63496	0 to 1-1/2 inches. Brown (7.5YR 5/2) moist; loamy very fine sand; extremely weak very fine granular; very friable; many fine and medium roots; no burrows, although some material has been translocated; pH 4.6; no stones; abrupt wavy boundary. 0 to 3 inches thick.
B21 63497	1-1/2 to 7 inches. Dark brown to brown (7.5YR 4/4) very fine sandy loam; colors grade from 7.5YR 3/3 in upper part to 10YR 4/4 in lower part; very weak, very fine granular; very friable; few fragments coarser than 3 inches; pH 4.6; gradual, wavy boundary. 5 to 9 inches thick.
B22 63498	7 to 13 inches. Dark yellowish brown (10YR 4/4) very fine sandy loam; breaks out in fragile medium and fine fragments which crush to very weak, very fine granules; very friable; many medium and fine roots; few fragments coarser than 3 inches; pH 5.0; diffuse, wavy boundary. 4 to 9 inches thick.
B3 63499	13 to 20 inches. Dark yellowish brown (10YR 4/4) very fine sandy loam; breaks out in irregular fine to medium fragments, some being incipient peds which crush to very weak very fine granules; slightly firm to friable; common fine roots; 3 inch fragments slightly more than above; common tubular voids less than 1 mm diameter; pH 5.2; abrupt, wavy boundary. 5 to 11 inches thick.
IIA'2x 63500	20 to 28 inches. Brown to dark brown (10YR 4/3) crushed and moist; broken faces grayish brown (10YR 5/2) decked with (10YR 6/2) (10YR 7/2) sand grains; loamy fine sand; massive; very firm in place; very firm and brittle to crush; common 1/2 mm tubular cavities with light gray silt (?) linings; very few roots; pH 5.4; clear wavy boundary. 5 to 11 inches thick.
IIB'x 63501	28 to 42 inches plus. Brown to dark brown (7.5YR 4/2) moist and crushed; fine sandy loam distinctly more cohesive than horizon above; broken faces (7.5YR 4/2) to (10YR 4/2); 7.5YR portions are most cohesive; breaks crudely into very coarse plates with discontinuous pressure faces; plates fracture into angular medium and fine blocks with less pressure faces; clean sand grains coat broken 10YR 4/2 faces, absent on 7.5YR 4/2; common 1/2 mm tubular pores have smooth linings that may be clay; common dark brown fragments of weathered sandy limestone; firm in place; firm and moderately brittle to crush; few fine roots; pH 5.8.

Notes: pH by bromcresol green and chlorphenol red. Some ant burrows at bottom of fermentation zone. Network of small burrows (chipmunks, mice, moles) in top 2 inches of humus layer—most numerous on knolls, numerous on smooth areas, and absent in lowest depressions. Much mixing of organic and mineral materials. Definitely spodic B generally present, best developed on smooth areas (where A2 is common) but thin on knolls. Depressions have thickest A1 horizons. Differences in horizon thickness associated with relief cause considerable variation of color in plowed fields. Colors are for moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aquic Fragiorthod; coarse-loamy, mixed, frigid
SOIL Empeyville stony loam[a] SOIL Nos. S57NY-17-2 LOCATION Franklin County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58512 - 58519

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 <25[c] Pct.	2 - 19	19 - 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-6	Ap	51.5	39.5	9.0	3.9	8.2	7.9	14.6	16.9	17.9	21.6	43.4	34.6		0.90	22[b]		
6-10	B2ir	44.6	48.4	7.0	2.2	6.5	5.8	10.2	19.9	23.6	24.8	49.6	24.7					
10-15	B3	68.1	27.9	4.0	5.7	12.9	11.9	20.0	17.6	13.6	14.3	42.6	50.5					
15-20	A'2	67.7	29.4	2.9	5.1	12.8	11.8	20.7	17.3	13.6	15.8	42.5	50.4					
20-36	B'x1	64.9	27.5	7.6	4.9	13.1	12.0	19.8	15.1	11.9	15.6	37.8	49.8			23[b]		
36-49	B'x2	59.4	26.5	14.1	3.4	10.8	11.0	19.3	14.9	11.8	14.7	37.5	44.5					
49-58	C1	65.3	25.2	9.5	4.7	13.4	12.5	20.2	14.5	11.5	13.7	36.7	50.8					
58-78	C2	73.4	21.0	5.6	5.2	16.1	15.2	22.9	14.0	10.0	11.0	30.9	59.4			22[b]		

Depth (in.)	6A1a Organic[c] matter Pct.	6B1a Nitrogen[c] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A3a Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1d 1/10 bar Pct.	4B1d ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-6	9.6	-				1.0	1.02				32.9	28.3	12.8		0.14			5.6
6-10	7.5	0.188	23			1.6	0.66				58.5	44.0	17.6		0.17			5.1
10-15	1.8	0.058	18			0.5	1.10				24.6	18.0	5.9		0.13			5.2
15-20	0.3	0.026				0.4	1.40				11.7	8.3	2.2		0.09			5.3
20-36	0.4	0.025				0.6												5.1
36-49	0.1	0.024				0.7												4.9
49-58	0.1	0.017				0.6												5.1
58-78	0.1	0.012				0.4												6.2

Depth (in.)	Extractable bases 5B1a[c] Ca	Mg	Na	K	Sum	6H2a Ext.[c] acidity	CEC 5A3a[c] Sum cations	5A1b[c] NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct	5C1 NH_4OAc Pct
	meq/100 g																	
0-6	6.5	0.7	-	0.1	7.3	19.2	26.5	23.1				2.94	0.11	1.42			28	
6-10	1.4	0.2	-	0.1	1.7	32.5	34.2	28.6				4.88	0.23	2.51			5	
10-15	0.2	0.0	-	0.1	0.3	10.6	10.9	9.4				2.72	0.12	1.48			3	
15-20	0.0	0.0	-	0.1	0.1	3.4	3.5	3.7				1.21	0.14	0.76			3	
20-36	0.4	0.0	-	0.1	0.5	3.4	3.9	4.6				0.51	0.08				13	
36-49	1.3	0.5	-	0.2	2.0	4.9	6.6	7.0				0.47	0.05				26	
49-58	0.9	0.3	-	0.1	1.3	3.1	4.4	4.7				0.46	0.06				30	
58-78	1.1	0.3	-	0.1	1.5	1.1	2.6	3.1				0.46	0.07				58	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
0-6	-	tr.	xxx	x	-	-		
6-10	-	tr.	xxx	-	-	-		
10-15	-	tr.	xx	xx	-	-		
15-20	-	-	-	-	-	-		
20-36	-	x	xx	xxx	-	-		
36-49	-	-	-	-	-	-		
49-58	-	-	-	-	-	-		
58-78	-	tr.	x	xxx	-	-		

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Estimated 15 and 25 percent fragments greater than 1 inch were discarded from B'x1 and C1 respectively at sampling.

[c]Determined at Cornell University.

Pedon Classification: Aquic Fragiorthod; coarse-loamy, mixed, frigid
Soil: Empeyville stony loam
Soil No.: S57NY-17-2
Location: Franklin County, New York. Go to Brainardsville on Highway 374 south of Chateaugay near the Clinton County line. Go west on hard surfaced, unnumbered road toward Malone 1.1 mile to crossroad with a house located on the southeast corner of the road intersection. Sampled in the hayfield in southwest corner of the road intersection 150 feet west and 100 feet south of the fence corner.
Vegetation and land use: Hay.
Slope and land form: 5 percent.
Physiographic position: Undulating to rolling till plain adjacent to an "over-fit" glacial channel.

Horizon and Beltsville Lab. No.	
Ap 58512	0 to 6 inches. Very dark grayish brown (10YR 3/2) stony loam; moderate medium granular; friable; many fine roots; pH 6.2; abrupt smooth boundary. 6 to 7 inches thick.
B2ir 58513	6 to 10 inches. Yellowish brown (10YR 5/6-5/4) stony loam; very weak very fine granular; very friable; many fine roots; pH 5.0; clear wavy boundary. 3 to 7 inches thick.
B3 58514	10 to 15 inches. Light yellowish brown (2.5Y 6/4) stony sandy loam with many medium and fine yellowish brown (10YR 5/4-5/6) mottles; moderate thin platy; firm; brittle; fine roots common; pH 5.4; clear wavy boundary. 3 to 5 inches thick.
A'2 58515	15 to 20 inches. Grayish brown (2.5Y 5.5/2) (crushed) very stony sandy loam; broken faces light gray (2.5Y 7/2) with few medium distinct mottles; weak thin and very thin platy; very firm; brittle; few fine roots; pH 5.4; abrupt very irregular boundary. 4 to 12 inches thick.
B'x1 58516	20 to 36 inches. Dark grayish brown to grayish brown (10YR 4/2-5/2) very stony sandy loam; very weak medium blocky to massive. Within the horizon are local vertical extensions of A'22 material colored light gray (2.5Y 7/2) 1/4 to 1 inch wide as well as discrete pockets of similar material 1/2 to 3 inches in diameter. In a crude fashion very thin bands of light gray (2.5Y 7/2) sand, apparently randomly oriented, form a network enclosing the darker colored more clayey matrix. Very firm; brittle; very few roots; pH 5.2; gradual irregular boundary. 12 to 20 inches thick.
B'x2 58517	36 to 49 inches. Brown (10YR 4/3) extremely stony sandy loam; few discontinuous cleavage faces coated with light gray (10YR 7/2) very fine sand; massive; very firm but less brittle than the horizon above; no roots; pH 5.2; diffuse boundary. 10 to 14 inches thick.
C1 58518	49 to 58 inches. Brown (8YR 4/3) extremely stony sandy loam; few faint mottles; massive; very firm; no roots; pH 5.4; gradual wavy boundary. 8 to 12 inches thick.
C2 58519	58 to 78 inches plus. Brown (7.5YR 4/2) extremely stony sandy loam; weak to moderate medium platy; firm; no roots; pH 5.6.

Notes: In a road cut nearby calcareous platy basal till was found at a depth of about 10 feet. Colors are for moist soil unless indicated otherwise.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Entic Fragiorthod; coarse-loamy, mixed, mesic

SOIL Paxton loam SOIL Nos. S63NY-18-2 LOCATION Fulton County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63491 - 63494

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	42.3	42.9	14.8	2.2	5.9	7.7	12.9	13.6	20.3	22.6	40.8	28.7			5		
8-13	B21	38.2	47.1	14.7	1.8	4.8	5.9	10.5	15.2	23.3	23.8	44.3	23.0		0.94	11		
13-16	B22	40.1	46.2	13.7	1.7	5.4	6.3	11.9	14.8	21.4	24.8	42.6	25.3		0.93	13		
16-23	IIA'21	59.0	30.2	10.8	3.6	9.4	11.7	19.1	15.2	13.4	16.8	38.9	43.8		0.96	6		
23-28	IIA'22x	Not sampled																

Depth (In.)	6A1a Organic carbon Pct	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.45	0.222	11			1.4							10.1			4.5	5.0
8-13	0.63	0.078	8			1.5		1.34	1.37	0.01		25.5	7.8		0.22	4.3	5.5
13-16	0.51	0.056	9			1.5		1.40	1.44	0.01		22.9	7.1		0.21	4.3	5.4
16-23	0.36	0.058	6			1.0		1.60	1.61	0.00		16.6	5.2		0.18	4.4	5.5
23-28																	

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	4.5	0.6	0.1	0.2	5.4	16.6	22.0		0.2			1.49	0.09	0.68			24	
8-13	1.1	0.3	0.1	tr.	1.5	11.6	13.1		0.3			0.89	0.10	0.53			11	
13-16	1.0	0.3	0.1	tr.	1.4	10.0	11.4		0.6			0.83	0.11	0.52			12	
16-23	1.0	0.3	tr.	tr.	1.3	7.7	9.0		0.6			0.83	0.09	0.48			14	
23-28																		

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-8	-	-	xx	tr.	-	-			
8-13	-	-	x	tr.	-	-			
13-16	-	-	x	tr.	-	-			
16-23	-	-	tr.	x	-	-			
23-28									

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Entic Fragiorthods; coarse-loamy, mixed, mesic
Soil: Paxton loam[1/]
Soil No.: S63NY-18-2
Location: Fulton County, New York. 2-1/4 miles east on Highway 29 from its junction with 30A, take right onto a private gravel road for 0.3 miles to Fagan farmstead, 250 feet south of barn.
Vegetation and land use: Harvested hay field supporting mainly timothy and quackgrass with some birdsfoot trefoil.
Slope and land form: 7 percent slope to the north.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 20, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
Ap 63491	0 to 8 inches. Dark grayish brown (10YR 4/2) loam high in coarse silt; moderate, fine and medium granular; friable; many fine roots; 1/2 inch spots of slightly darker zone at bottom of horizon appear to be remnants of original A1 or O; pH 5.6; abrupt smooth boundary. 8 inches thick.
B21 63492	8 to 13 inches. Yellowish brown (10YR 5/6) crushed or broken and moist; loam high in coarse silt; very weak fine platy in the upper part, possibly due to compaction by traffic; breaks to very weak, medium, subangular blocks having pressure faces on 25 percent of surfaces; friable or very friable to very weak very fine granules; many 1/2 mm tubular pores with smooth interiors; no clay skins on peds or in pores; many fine roots; few large earthworm channels; pH 5.6; diffuse boundary. 5 inches thick.
B22 63493	13 to 16 inches. Yellowish brown (10YR 5/4) on broken faces; yellowish brown (10YR 5/6) crushed; moderate, medium and fine subangular blocks having pressure faces on most surfaces; friable; many 1/2 mm tubular pores; no clay skins in pores or on peds; a few spherical cavities have smooth linings that might be very thin clay skins; many fine roots; pH 5.6; clear wavy boundary. 3 to 4 inches thick.
IIA'21 63494	16 to 23 inches. Dark grayish brown (10YR 4/2) moist and broken; brown to dark brown (10YR 4/3) moist and crushed; loam higher in sand than horizon above; very weak thick platy; plates have smooth surfaces with few small patches that may be clay skins; sprinkling of clean sand grains on horizontal cleavage faces; slightly firm; slightly brittle; many fine pores, mainly tubular, with smooth linings, some possibly clay films; common fine roots but less than horizons above; pH 5.8; abrupt wavy boundary. 5 to 9 inches thick.
IIA'22x Not sampled	23 to 28 inches. This is similar to the IIA'2 described for profile S63NY-18-1.

Notes: Pedon is from one end of pit, the main part of which is described under S63NY-18-1, and identified as Broadalbin. This pedon sampled as Potsdam which is a common inclusion in Broadalbin areas as mapped. An attempt in 1957 to map the Potsdam series in Fulton County proved fruitless—the acreage that could be mapped consistently was so small that the unit was combined with Broadalbin as inclusions.

Potsdam represents areas where the silty surficial mantle is thicker than normal. In this instance, local wash of Ap material into a depression appears to have buried a complete B horizon before it was plowed up, preserving it in its entirety. Hence, the higher chroma in the upper part of the B is preserved.

This profile represents the minimal thickness of surficial silt mantle allowed in the Potsdam series. No fragments larger than 3 inches anywhere in profile.

Colors are for moist soil.

[1/] Although sampled in 1963 as a representative of the Potsdam series, this pedon has in the spodic horizon too little organic matter and chroma too high for the Typic subgroup of which Potsdam is a member. Also, this location is now recognized as in the mesic temperature zone whereas Potsdam is in the frigid.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Typic Haplorthod; coarse-loamy, mixed, frigid
SOIL Hermon taxadjunct SOIL Nos. S63NY-21-2 LOCATION Hamilton County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 63437 - 63438

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-2	A1																	
2-5	B21	74.1	21.1	4.8	6.9	12.7	13.5	23.6	17.4	10.0	11.1	40.0	56.7			10		
5-10	B22																	
10-15	B23	74.3	20.8	5.2	6.2	13.2	13.3	24.4	16.9	10.2	10.6	40.4	57.4			17		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-2																	
2-5	3.06					1.8						8.8				3.9	4.5
5-10																	
10-15	2.18	0.154	14			1.5						7.3				4.8	4.7

Depth (in.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3e Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-2																		
2-5	0.5	0.1	0.1	0.1	0.8	34.3	35.1		3.2			7.31	0.38	1.83			2	
5-10																		
10-15	0.4	-	0.1	tr.	0.5	29.2	29.7		1.0			5.71	0.29	1.40			2	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	
0-2								
2-5	-	-	xx	-	-	-		
5-10								
10-15	-	-	xx	x	-	-		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Typic Haplorthod; coarse-loamy, mixed, frigid
Soil: Hermon taxadjunct [1]
Soil No.: S63NY-21-2
Location: Hamilton County, New York. On west side of Highway 30 about 2 miles south of Lewey Lake Campsite.
Vegetation and land use: Rich hardwood consisting of beech and sugar maple.
Slope and land form: East-facing 18 percent slope.
Sampled by and date: J. G. Cady, D. F. Flora, D. P. Franzmeier, F. Z. Hutton, R. C. Marshall, and E. J. Pedersen. July 21, 1963.
Described by: M. G. Cline.

Horizon and Beltsville Lab. No.	
A1 Not sampled	0 to 2 inches. Very dark brown (10YR 2/2) loam or very fine sandy loam; many clean white sand grains; very weak very fine and fine granular; very friable; very porous; many fine roots; spots of relatively dark A2 are present locally; clear boundary.
B21 63437	2 to 5 inches. Dark brown (10YR 3/3) loam or very fine sandy loam; very weak very fine granular; very friable; gradual boundary.
B22 Not sampled	5 to 10 inches. Dark yellowish brown (10YR 4/4) loam or very fine sandy loam; very weak very fine granular; very friable; gradual boundary.
B23 63438	10 to 15 inches. Yellowish brown (10YR 5/4) loam or very fine sandy loam; digs out in irregular pieces that appear to have some pressure faces; very friable to yield very weak very fine granules; common roots. Not studied below this depth except to note that colors become lighter and lower in chroma; and textures become coarser with depth, grading to fine sand.

Notes: Sampled for comparison of the dark upper part of the B in this site, which has a mull humus layer, with the reddish B of S63NY21-1 under a mor. This is the "Brown Podzolic" soil studied in Dr. Cady's thesis.

[1] The pedon is a taxadjunct because of slightly lower sand and much lower gravel content than the Hermon series which is in a sandy-skeletal family particle size class.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aquic Haplorthod; sandy, mixed, frigid

SOIL Croghan sand[a] SOIL Nos. S57NY-25-1 LOCATION Lewis County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58478 - 58485

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2-19	19-76
		Pct. of < 2 mm															Pct. of < 76mm	
0-7	Ap	89.1	7.9	3.0	1.3	13.9	24.2	36.6	13.1	3.2	4.7	34.6	76.0		1.00			
7-13	B21	94.2	5.5	0.3	1.6	13.7	25.6	40.2	13.1	3.1	2.4	36.0	81.1		1.00			
7-13	B2h	94.6	4.5	0.9	1.8	14.1	24.7	40.4	13.6	2.5	2.0	36.0	81.0		1.00			
13-25	B22	96.3	3.1	0.6	2.3	17.1	26.8	39.0	11.1	1.7	1.4	31.2	85.2		1.00			
25-36	B23	97.1	2.6	0.3	1.1	13.0	27.7	43.7	11.6	1.5	1.1	34.3	85.5		1.00			
36-53	B24	98.8	0.0	1.2	1.7	18.6	33.1	38.4	7.0	-	0.0	22.3	91.8					
53-67	A'2	99.7	0.2	0.1	3.5	26.2	39.0	28.6	2.4	?	0.8	10.5	97.3					
67-72	B'2g	94.6	1.4	4.0	11.6	44.2	24.5	12.8	1.5	0.4	1.0	5.6	93.1					
72-75	Cg	Not sampled																

Depth (In.)	6A1a Organic matter[b] Pct.	6B1a Nitrogen[b] Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1d 1/10 bar Pct.	4B1d ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1e (1:1) H_2O
0-7	4.6	0.137	20			1.0	1.24				26.2	16.9	6.9		0.12		6.0
7-13	3.0	0.057	31			0.6	1.04				16.8	12.4	4.0		0.09		5.2
7-13	6.0	0.119	32			0.6	1.50				8.1	4.2	0.5		0.06		5.2
13-25	0.5	0.025				0.5	1.35				12.1	7.5	0.5		0.09		5.4
25-36	0.2	0.176				0.2	1.60				8.0	5.7	0.7		0.08		5.6
36-53	0.1	0.172				0.3											5.7
53-67	0.1	0.009				0.1											5.7
67-72	0.2	0.010				2.9											5.4
72-75	Not sampled																

Depth (In.)	Extractable bases 5B1a[b]: Ca	Mg	Na	K	Sum	6H2a Ext.[b] acidity	CEC: 5A3a Sum cations	5A1b[b] NH_4OAc	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	6.2	0.2	0.1	0.3	6.8	15.1	21.9	16.6				7.30	0.33	2.30			31	
7-13	0.5	-	-	-	0.5	17.0	17.5	14.2									9	
7-13	0.9	0.1	-	0.2	1.2	31.0	32.2	26.2									4	
13-25	0.1	-	-	0.1	0.2	3.3	3.5	3.4									6	
25-36	0.1	-	-	0.1	0.2	2.1	2.4	1.8									13	
36-53	0.1	-	-	0.1	0.2	1.1	1.3	1.1									15	
53-67	0.1	-	-	-	0.1	0.4	0.5	0.7									20	
67-72	0.1	0.1	-	-	0.2	2.7	2.9	2.3				0.72	0.72				7	
72-75	Not sampled																	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		
0-7	-	-	x	-	-	-			
7-13	-	tr.	x	-	-	-			
7-13	-	-	x	-	-	-			
13-25	-	-	x	-	-	-			
25-36	-	-	-	-	-	-			
36-53	-	-	-	-	-	-			
53-67	-	-	-	-	-	-			
67-72	-	-	-	-	-	-			
72-75	Not sampled								

[a]Additional data are published in Physical and Chemical Characteristics of New York Soils, Cornell University Department of Agronomy Mimeo Series No. 60-3, 1960.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

[b]Determined by Cornell University.

Pedon Classification: Aquic Haplorthod; sandy, mixed, frigid
Soil: Croghan sand
Soil No.: S57NY-25-1
Location: Lewis County, New York. Follow Highway 26A east of Lowville to the Hamlet of New Bremen. Just after crossing railroad on outskirts turn sharply north and cross railroad again. Go 0.6 mile north on this road to a prominent knoll by gate to pastured field on east side of road. 37 paces southeastward from center of road along crest of this knoll to a point where knoll begins to flatten. Sampled about midway between the two low areas at either side.
Vegetation and land use: Grass.
Slope and land form: Low ridge about 300 feet wide and 5 to 8 feet higher than adjacent low-lying areas.
Drainge: Poorly drained.
Physiographic position: Gently undulating sand plain.
Ground water: 58 inches below surface after a summer of above average rainfall.

Horizon and Beltsville Lab. No.	
Ap 58478	0 to 7 inches. Dark brown (7.5YR 3/2) sand; weak fine granular; very friable; many fine roots; abrupt smooth boundary. 7 to 8 inches thick.
B21 58479	7 to 13 inches. Strong brown (7.5YR 5/6-5/8) sand; weak fine granular; very friable to slightly firm locally within the horizon; surrounds dark reddish brown (5YR 3/2-3/4) sand discontinuous B2h as spheres 1/2 to 2 inches in diameter and as elipsoids 1/4 to 1/2 inch wide and 2 to 4 inches long. These are firm to very firm and massive. Fine roots common; clear wavy boundary. 6 to 10 inches thick.
B2h 58480	The B2h portion of B21 described above.
B22 58481	13 to 25 inches. Yellowish brown (10YR 5/6) sand; estimated 10 percent 1/4 to 1/2 inch red (2.5YR 4/6) firm to very firm nodules, locally 1/4 inch bands up to 8 inches long; matrix firm in place; friable to slightly firm to crush when removed; locally very firm; few fine roots; clear irregular and broken boundary. 0 to 27 inches thick.
B23 58482	25 to 36 inches. Brown (10YR 5/3) sand; very weak fine granules; friable; locally contains 1/8 to 1/4 inch bands of red (2.5YR 4/8-5/6) firm loamy sand in intricately curved shapes; few roots. This horizon locally replaces B22 described above and locally lies below sections of B22 up to 14 inches thick; clear wavy broken boundary. 0 to 23 inches thick.
B24 58483	36 to 53 inches. Pale brown (10YR 6/3) sand with few 1/16 to 1/8 inch horizontal bands of concentrated dark minerals (10YR 2/1), which appear to be depositional segregation. Matrix has common medium and large red (2.5YR 4/8) mottles. Single grain to very weak fine granular; loose; no roots; clear smooth boundary. 10 to 20 inches thick.
A'2 58484	53 to 67 inches. Grayish brown (10YR 5/2) sand with 15 percent black (10YR 2/1) 1/4 inch bands in which dark minerals are concentrated. Single grain; loose; saturated at the time of sampling; abrupt smooth boundary. 13 to 15 inches thick. (This could be considered C horizon except for the horizon below.)
B'2g 58485	67 to 72 inches. Strong brown (7.5YR 5/8) loamy sand. Firm and slightly cemented in place but easily crushed when removed. This was in water and when the material was disturbed strong brown fines dispersed and colored the water. Boundary clear but not seen except on material removed.
Cg Not sampled	72 to 75 inches plus. Gray (10YR 5/1) fine sand. A gleyed material seen only on the tip of the shovel.

Notes: A0, A2, and part of the B are incorporated in the plowed layer. Colors refer to moist soil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PEDON CLASSIFICATION: Aquic Haplorthod; sandy, mixed, frigid, ortstein
SOIL Wallace taxadjunct SOIL Nos. 858NY-45-1 LOCATION Saint Lawrence County, New York

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58418 - 58425

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2-19	19-76
		Pct. of < 2 mm														Pct. of < 76mm		
4-0	O2																	
0-12	A2	97.3	2.3	0.4	0.2	7.6	33.9	51.6	4.0	1.3	1.0	22.6	93.3			0		
12-14	B21h	93.9	3.3	2.8	0.5	6.8	31.0	50.6	5.0	0.9	2.4	24.7	88.9			0		
14-17½	B22irm	94.1	4.7	1.2	0.6	7.1	32.6	49.4	4.4	1.8	2.9	23.8	89.7			0		
17½-24	B23ir	97.0	1.8	1.2	0.4	10.6	36.4	46.8	2.8	0.5	1.3	19.6	94.2			0		
24-40	B3	98.3	1.1	0.6	0.2	5.9	34.8	52.8	4.6	0.0	1.2	23.5	93.7			0		
40-58	C1	98.2	1.1	0.7	0.1	6.3	32.4	51.9	7.5	0.7	0.4	28.3	90.7			0		
58-65	C2	95.5	3.2	1.3	0.0	0.1	0.3	49.0	46.1	2.4	0.8	95.0	49.4			0		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O
4-0	13.10	0.550	24			0.1												4.1
0-12	0.17	0.008	21			tr.												4.4
12-14	1.73	0.060	29			0.8												4.3
14-17½	1.33	0.044	30			0.8												5.2
17½-24	1.22					0.4												5.8
24-40	0.14					0.1												5.8
40-58	0.08					tr.												5.6
58-65	0.05					0.3												5.4

Depth (in.)	Extractable bases 5B1e 6N2d Ca	6O2b Mg	6P2e Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations	CEC	6Q1d Ext. Al			Ratios to clay CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g.																	
4-0	6.8	1.9	tr.	0.41	9.11	34.5	43.6								4		21	
0-12	0.3	tr.	tr.	tr.	0.3	0.8	1.1										27	
12-14	0.8	0.5	tr.	tr.	1.3	30.1	31.5										4	
14-17½	0.4	0.1	tr.	tr.	0.5	26.7	27.2										2	
17½-24	0.1	tr.	tr.	tr.	0.1	5.7	5.9										3	
24-40	0.1	tr.	tr.	tr.	0.1	2.7	2.9										7	
40-58	0.2	tr.	tr.	tr.	0.2	1.2	1.5										20	
58-65	0.3	tr.	tr.	tr.	0.3	0.6	1.0										40	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Pedon Classification: Aquic Haplorthod; sandy, mixed, frigid, ortstein
Soil: Wallace taxadjunct 1/
Soil No.: S58NY-45-1
Location: Saint Lawrence County, New York. Brasher Township, on the north side of Brasher Center to Brasher Iron Works Road, 230 feet east of intersection with Brasher Center to Brasher Falls Road, and 36 feet north of road center.
Vegetation and land use: White pine and white birch, with some of the former over 2 feet in diameter.
Slope and land form: 0 to 2 percent.
Described by: Klaus Flach and Robert Grossman.

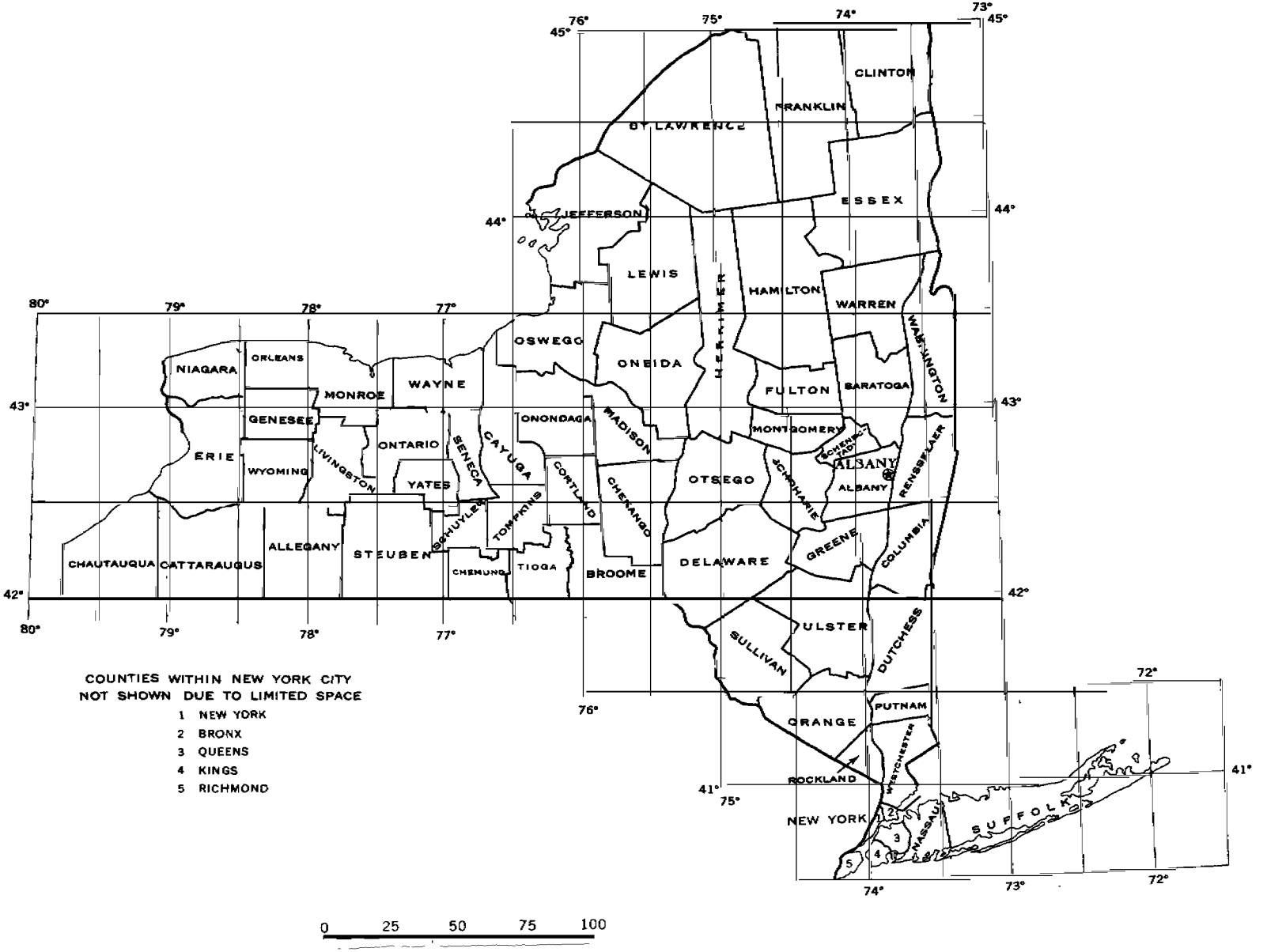
Horizon and Beltsville Lab. No.	
O1 Not sampled	5 to 4 inches. Mainly undecomposed white pine needles and birch leaves.
O2 58418	4 to 0 inches. Black mucky sand; weak coarse crumb structure; lower boundary abrupt and wavy; grains of A2-like material common throughout.
A2 58419	0 to 12 inches. Gray (5YR 5/1) fine sand in upper 3 inches with diffuse boundary to light gray (5YR 6/1) in the rest of the horizon; single grain structure; lower boundary abrupt and wavy.
B21h 58420	12 to 14 inches. Dark reddish brown (2.5YR 2/4) fine sand; single grain structure; very friable; lower boundary abrupt and wavy.
B22irm 58421	14 to 17-1/2 inches. Yellowish red (5YR 4/8) fine sand with upper inch and tongues throughout of dark reddish brown (2.5YR 2/3) massive; extremely firm and cemented ; lower boundary abrupt and smooth.
B23ir 58422	17-1/2 to 24 inches. Strong brown (7.5YR 5/6) fine sand with weakly cemented zones of dark reddish brown (5YR 3/4) and common distinct to faint common coarse yellowish red and light brownish gray mottles; single grain and massive portions; loose with extremely firm portions; lower boundary gradual and wavy.
B3 58423	24 to 40 inches. Yellowish brown (10YR 5/6) fine sand with faint common coarse strong brown and pale brown mottling; single grain; loose; lower boundary gradual wavy; pockets of dark brown (7.5YR 4/4) weakly cemented material occur throughout.
C1 58424	40 to 58 inches. Brown (10YR 5/3) fine sand with many prominent extremely coarse dark brown and grayish brown mottlings; single grain with more reddish-hued weakly cemented portions throughout; lower boundary clear, smooth, and marked by a discontinuous weakly cemented zone.
C2 58425	58 to 65 inches. Reddish brown (5YR 5/3) fine sand with common distinct coarse yellowish brown mottling; single grain and nonsticky water table at 60 inches.

Notes: Strong lateral root proliferation in the Bb; very few roots below Bcm; many roots in O2, sand in C2 contains numerous black mineral grains. Colors are for moist soil.

1/This pedon is a taxadjunct because it has mottles in the spodic horizon and, therefore, deviates at the subgroup level. The Wallace series is in the Typic subgroup.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1974 O - 551-001

NEW YORK


CLINTON
FRANKLIN
ST. LAWRENCE
ESSEX
JEFFERSON
LEWIS
HERKIMER
HAMILTON
WARREN
WASHINGTON
OSWEGO
ONEIDA
FULTON
SARATOGA
NIAGARA
ORLEANS
MONROE
WAYNE
GENESEE
ONONDAGA
MADISON
MONTGOMERY
SCHENECTADY
ALBANY
RENSSELAER
ERIE
WYOMING
LIVINGSTON
ONTARIO
SENECA
CAYUGA
CORTLAND
CHENANGO
OTSEGO
SCHOHARIE
YATES
SCHUYLER
TOMPKINS
GREENE
COLUMBIA
CHAUTAUQUA
CATTARAUGUS
ALLEGANY
STEUBEN
CHEMUNG
TIOGA
BROOME
DELAWARE
ULSTER
SULLIVAN
DUTCHESS
ORANGE
PUTNAM
ROCKLAND
WESTCHESTER
NEW YORK
NASSAU
SUFFOLK
COUNTIES WITHIN NEW YORK CITY
NOT SHOWN DUE TO LIMITED SPACE
1 NEW YORK
2 BRONX
3 QUEENS
4 KINGS
5 RICHMOND
0 25 50 75 100