

ENGINEERS AND ARCHITECTS,

1036 Drexel Building.

Philadelphia, May 15, 1896.

THE WILLIAMS SCIENCE BUILDING,

UNIVERSITY OF VERMONT.

LIST OF APPARATUS ON WHICH HAS BEEN BASED AN ESTIMATE
OF ULTIMATE COST FOR EQUIPMENT OF \$30,000.

-:+) = 0 = (+:-

DEPARTMENT OF ELECTRICAL ENGINEERING.

FITTINGS FOR DYNAMO ROOM.

1: A: <u>Thompson-Houston Arc Light Machine:</u>				
Now the property of the University, - - - - -				
Pulley 8" diam. Belt 4". Needs a new pulley with rim overhung 4" to allow belt to be shifted from tight to loose pulley, - - - - -				
Cost of removal from present location and of re-establishing, - - - - -				50 00
2: B: <u>Prof. Pupin's High Frequency Alternator:</u>				
Armature, winding shaft, bearings and base from Crocker Wheeler Mfg. Co., being their regular 1 H.P. motor parts, but provided with collec- tor rings, pulley 4", belt 2", - - - - -	50	00		
Controlling rheostat for fields; capacity 1 am- pere and resistance 100 ohms in ten sections, switches for fields and for armature circuit, - -	50	00		
Cost of delivery to Dressler & Bro., - - - - -				
Alternating 16-pole field attachment similar to one made for Dr. Pupin of Columbia, - - - - -	130	80		
Sending apparatus to the University, - - - - -	45	00		
Getting up, etc., - - - - -			275	00
NOTE: Instruments repeated, see I.				
3: C: <u>Westinghouse 30 H.P. 3-phase motor:</u>	563	00		
Two 15 H.V. transformers, - - - - -	300	00		
3-pole 50-ampere switch and cut-out, - - - - -	15	00		
Belt, - - - - -	20	00		
Pulley, - - - - -	10	00		
Freight and setting up, - - - - -	50	00	1000	00
NOTE: If Dr. Williams does not care specially to purchase of Westinghouse, Prof. Storms prefers for experimental, etc., purposes, General Elec-				
			1325	00

trio Co's motor which he is confident could be purchased for quite as favorable prices.

N. B. Dr. Williams prefers dealing with Westinghouse, Jos. M. Wilson.

In addition to this add:—

A. C. Whitney ammeter

or

Westinghouse Station Current Indicator,
Weston voltmeter,

4: D: LaRoche Alternator 5 K.W.:—
including Exciter (D')

Volt-meter, Ammeter,

Rheostat, Switch and Cut-out,

R. P. M. 1500, pulley 8" D. 4" face)

Special pulley with rim overhang 4"

Freight and setting up,

Belt,

Framed oak switch-board,

420 00

18 00

40 00

6 00

15 00

2 2

500 00

100 00

500 00

NOTE: Instruments repaired, see K.

5: E: Westinghouse Direct Current ^{Dynamo} X, letter type, 7½ K.W.:—

R. P. M. 1400; pulley 8" diam. 5" face,

Special pulley with rim overhang 5", belt, etc.—

Freight, setting up, etc.,

325 00

Westinghouse say this is an old type. See S.

NOTE: There are 2 "P's" on Spec'n. 1 on plan.

6: F: The Emerson Power Scales:—

(Dynamometer for measuring power to machines)

Freight, setting up, etc.,

Belts, etc.,

250 00

250 00

7: Fa: Two Westinghouse 20 H.P. 500 Volt Railway Motors:—

Reduction gearing replaced by 28" pulley with 5" face on armature shaft,

Rope Prony friction brake to each,

Freight, setting up, belts, etc.,

900 00

8: F': Westinghouse series multiple controller:—

Voltmeter 0 to 600,

Ammeter 200,

Recording meter 500 volt,

500 00

Westinghouse say no such thing as Recording Meter asked for.

Freight, setting up, etc.,

300 00

9: G: Western Electric Co's Multipolar Dynamo:—

850 R. P. M. 120 volts, 9 K. W.

Setting up,

Belt,

Freight, etc.,

New pulley,

400 00

400 00

10: H: Direct Current Machine:—

Speed 1450, pulley 8", face 4", 5 K.W.

University now owns this,

Setting up, etc.,

25 00

4025 00

11: I: <u>Switch-board:=</u>	Instruments for 3-phase motor. - C. - - - - -	28 80	
	2 - 15 K.W. transformers, - - - - -	92 00	
	3-pole 50 ampere switch and cut-out, - - - - -	10 00	
	A. C. Whitney Ammeter or Westinghouse Station	4 50	
	Current Indicator, - - - - -	24 00	
	Weston Voltmeter, - - - - -	32 70	700 00
	Also for:=		
	5 H.P. motor circuit in workshop and circuit		
	for experiments with 3-phase current.		
	Switches, - - - - -		
	Cut-outs, - - - - -		
	Bus-bars and other connection, - - - - -		
	Setting up, etc., - - - - -		
	Cost of board itself, - - - - -		500 00
12: J: <u>Bank of 50 incandescent lamps</u>	used as non-inductive resistance on alternate		
	currents, - - - - -		
	Construction of switch by Prof. Storrs (see K)-		100 00
	Drawers and closets, - - - - -		6500 00
13: K: <u>Switch-board:=</u>	for Alternator "D" to contain:=		
	Voltmeter, - - - - -		
	Ammeter, - - - - -		
	Rheostat, - - - - -		
	Switch and cut-out, - - - - -		
	Circuit to lamp-board J. See J.		
	Circuit to bank of transformers on rails N,		
	two 50-ampere switches and cut-outs, - - - - -		
	two pilot lamps, - - - - -		
	Bus-bars, - - - - -		
	Cost of board, - - - - -		250 00
	Setting up, etc., - - - - -		
14: L: See furniture.			
15: M: " "			
16: N: " "			
17: O: " "			
18: P: " "			
19: Q: " "			
20: R: <u>Switch-board</u> for lights for building, - - - - -			500 00
21: S: <u>Switch-board</u> for Dynamo E and storage battery:=			
	Direct current voltmeter 0 - 150 volts, - - - - -		
	and 0 - 5 " - - - - -		
	Direct current ammeter 0 ± 100 amp. - - - - -		
	These arranged to be plugged into any current		
	on board.		
	Rheostat as usually furnished with E, - - - - -		
	Automatic circuit breaker for battery charging		
	circuit (University has this), - - - - -		
	Main switch and cut-out 100 amp., - - - - -		
	Four 50 ampere double-pole switches and cut-		
	outs for distributing circuits from battery,-		400 00

22: T:	Shaft 28' x 1 ¹⁵ / ₁₆	10	00	
	Hangers, eight (8" drop),	28	80	
	Friction clutch couplings, two N. H. Batts,	90	00	
	Extra for fitting couplings to shaft,	10	00	
	Collars, six - 1-15/16,	4	50	
	Erection, 2 men 4 days,	24	00	
	Incidentals,	32	70	700 00
	Pulleys, tight and loose,			
23: V:	Switch-board, for making connection between S. and H. small plug, now owned by the University,			
27: B:	Water Rheostat, " " " "			
	Car Rheostat, " " " "			
	Setting up, etc.,			
	Painting, mats, black-boards, etc., see furni- ture,			
	(a) Large precision photometer N 476 (William G. P.,	310	00	5975 00
	(b) Large precision photometer N 476 (William G. P.,			6500 00

Pay

PHOTOMETER ROOM.

24: A:	See Furniture, also		
	3 Bunsen burners, - - - - -		
	1 Oxyhydrogen blow-pipe with foot bellows, - - -		
	Mercury air-pump capable of exhausting lamp		
	bulbs to 1 millionth part, - - - - -		150 00
25: B:	See furniture, - - - - -		
26: C:	Ammeter, 100-ampere, 0 to 100, (Weston) S. No. 05	31 00	
27: D:	Volt meter direct current 0 to 150 (Weston, S. No. 05)	25 00	
28: E:	See "Furniture", - - - - -	25 00	335 00
29: F:	"		
30: G:	" also		
	(a) large precision photometer N 476 (Willyoung)	310 00	
	C. P., - - - - -		
	(b) Lummer Brodhun screen N 480 (Willyoung) in-		
	cluded under (a), - - - - -		
	(c) carriage for standard lamp, included un-	72 00	
	der (a), - - - - -	7 00	
	(d) lamp holder N 479 (Willyoung) C. P., - - -	6 50	85 00
	(e) Methven standard screen N 488 B (Willyoung)	90 00	
	C. P., - - - - -		
	(f) Three standard lamps, 2, 10, 30 C.P.,	90 00	380 00
	N 493 A (Willyoung) C. P., - - - - -	15 00	
	Circuit #8 wire from battery switch-board S to	Pay	565 00
	Photometer table, - - - - -		
	Switch and cut-out, 10-amperes, - - - - -		
	Weston double scale voltmeter No. 211 (30 to 150		
	and 60 to 30) for alternating and direct cur-		
	rent, C. P., - - - - -	80 00	
	This should be No. 21?		
	Whitney double scale ammeter alternating and di-		
	rect #1041, C. P., - - - - -	60 00	150 00
		Pay	

LABORATORY APPARATUS FOR BIOLOGICAL DEPARTMENT.

100 00
276 16

NOTE: Professors Perkins and Jones stated that the following list includes all that is really necessary for the equipment of all the Biological Laboratories. It contains nothing which is not of immediate use, and it has been their design to ask only for those things which seemed to them required for a moderately full equipment of such laboratories:—

43:	15	microscopes, Continental, B 3,	506	25	1276 16
44:	1	" " " C C 4,	106	25	612 50
45:	5	dissecting microscopes, W,	55	00	
46:	10	" " " T,	25	00	1300 00
47:	1	bullseye condenser,	10	00	
48:	2	double nose-pieces, 1680,	10	00	
49:	2	Bunsen burners,	3	50	
50:	6	" " "	2	40	
51:	1	gas burner, 2490,	4	90	
52:	1	Polariscope, 1725,	22	00	
53:	20	- 10 gr. pkges. Anilins,	6	25	
54:	1	- 2 in. objective, 1070,	8	00	
55:	1	scales, 3750,	8	00	
56:	1	Naples water bath,	23	00	
57:	5	Abbe' condensers, 1485, for B. Cont.	50	00	
58:	1	Camera Lucida,	11	00	
59:	10	Continental eye-pieces assorted #1300,	33	00	
60:	20	eye-piece Micrometers for Cont. microscopes,	30	00	
61:	12	eye shades,	6	00	
62:	1	warm stage, 1629,	8	00	
63:	1	mounting stage, 1790,		80	
64:	24	compressors, 1810,	9	60	
65:	1	knife, 2040,	3	25	
66:	2	razors, 2075,	3	20	
67:	1	hone, 2100,	3	00	
68:	1	" 2105,		90	
69:	1	strop,	1	25	
70:	1	Bow strop, 2115,	2	00	
71:	2	imbedding boxes, 2170,	9	00	
72:		Miscellaneous glassware, etc.,	25	00	
		25 % discount,	364	95	
			91	23	

273 72
300 00

FOR PHYSIOLOGICAL BOTANY.

73:	1	Springer torsion balance,	35	00	
74:	1	Bunsen siphon barometer,	8	00	
75:	1	Clinostat,	52	50	
76:	2	Pfeffer leaf eudiometers,	4	00	
77:	2	Torreliian tubes,	4	50	
78:	1	Arthur's centrifugal motor,	25	00	
79:	1	respiration apparatus,	30	00	
80:	1	Golden Auxanometer,	25	00	
81:	2	Darwin's hygrometers,		00	
82:	2	Engleman's gas chambers,		00	
83:	2	glass slides for binding posts,	2	00	
84:	20	lbs. mercury,	15	00	211 00
85:	1	water motor,			
86:		Copper drying oven,			
87:		Air pump,			
88:	12	assorted Bell jars,			
89:	6	Sachs double Bell jars,			
90:		Carbon Dioxide generator,			
91:		Hydrogen generator,			
92:		Aspirator,			
93:		Induction coil,			

40 marks
23 "
50 "
50 "
78 "
10 "
12.50 "
7 "
22 "

292.50 a 274

2074
78 94

APPARATUS FOR MINERALOGICAL LABORATORY.

- 106: 24 anvils and mortar combined, Prof. Lead's form, -
- 107: 26 agate mortars and pestles 1 1/2" diameter, - - - -
- 108: 26 trays for coal and dirt, - - - - -
- 109: 26 hammers, Plattner style faces 1/2", - - - - -
- 110: 46 Finker improved burners, regulator for gas and air, - - - - -
- 111: 23 caps for same to produce a fish-tail flame for blow-pipe work, - - - - -
- 112: 156 feet rubber tubing for lamp burner connections, 25 00 725 00
- 113: 26 retort stands, 2 rings, - - - - -
- 114: 16 Test tube stands (12 tubes) with pins for drying, -
- 115: 26 - 2 oz. salt mouth bottles with NaNH4H2PO4 - -
- 116: 26 " " " " " " Na2B4O7 - - - -
- 117: 26 " " " " " " Flux - - - -
- 118: 26 " " " " " " Na2CO3 - - - -
- 119: 26 - 4 " tincture " " H2SO4 - - - -
- 120: 26 " " " " " " NH4OH - - - -
- 121: 26 " " " " " " HCl - - - -
- 122: 26 " " " " " " HNO3 - - - -

123: 26 1/2" glass above marks to be blown in the glass.
 size and type 1/4" x 1/2" 2/8" 7/8" and 1 1/8"
 124: Set 2 with glass lips and also set 100000 1/16 00
 5/16" 3/8" 7/16" 1/2" 5/8" and 3/4"
 The above are the "Blowing" glass plates made by
 Wiley & Russell Mfg. Co.
 125: Also 1 adjustable tap wrench size 3/8" and 1/2"
 Made by Park Bros.

5 50
 225 00
 16 00
 3 00
 28 50
 Probable discount 8 00

WORKSHOP OF PHYSICAL AND ELECTRICAL ENGINEERING DEPTS.

SOUTH BASEMENT.

- 123: 1 Dover band saw (John A. White & Co., Dover, N.H.) 105 00
- 124: 1 Hendry Norton 12" x 5" lathe fitted with Pratt & Whitney combination 3 jaw chuck and almond drill chuck to hold drills up to 1/2" - - - - 295 00
 (Hendry Machine Co., Torrington, Conn.)
- 125: 1 No. 4 Brainard Standard Universal Milling Machine with vise and universal centers and assortment of cutters, - - - - 300 00
 (Brainard Milling Machine Co., Hyde Park, Mass.)
- 1 set of Carpenter's tools, including:
- 126: 1-18" Stanley iron fore plane 2 1/2" blade #6
- 127: 1-15" " " jack " 2" " #5
- 128: 1-9" " " smooth " 2" " #4
- 129: 1-6" " " block " 1 1/2" " #3
- 130: 1-24" #7 Disston rip saw 6 teeth
- 131: 1-24" #7 " cross-cut saw 8 " "
- 132: 1-20" #7 " " " 10 " "
- 133: 1-12" " " back " "
- 134: 1 mallet
- 135: 1 ratchet bit brace
- 136: 1-8" try-square,
- 137: 1 scratch gauge
- 138: 1 mortise " "
- 139: 1 pawl " "
- 140: 1 screw driver
- 141: 1 nail set
- 142: 1 bevel
- 143: 1 framing square
- 144: 1 pair 6" dividers
- 145: 1 Maydole hammer
- 146: 1 German bit ea. 1/8" and 3/16"

105 00
 105 00
 295 00
 300 00
 65 00
 285 00
 75 00
 90 00

Carpenter's tools continued:

- 147: 1 R. Jennings bit ea. 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" and 3/4"
- 148: 1 extension bit
- 149: 1 socket firmer chisel ea. 1/4" 1/2" 7/8" 1 1/2"
- 150: 1 framing chisel ea. 1/2" and 3/4"
- 151: 1 screw-driver bit
- 152: 1 countersunk
- 153: 1 draw shave 12"

Files:

- 154: 10" hand bastard (Nicholson or Black Diamond)
- 155: 10" " second-cut "
- 156: 10" half-round bastard "
- 157: 8" hand smooth "
- 158: 8" square bastard "
- 159: 7" " second-cut "
- 160: 8" round bastard "
- 161: 6" half-round dead smooth "
- 162: 8" mill bastard (for filing in lathe) "

Taps and Dies:

- 163: Set No. 0 with taps and dies stock and tap wrench, dies and taps 1/8" 5/32" 3/16" 7/32" and 1/4" -
- 164: Set B with stock taps and dies as follows: 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" and 3/4" -
- The above are the "Lightning Screw Plates" made by Wiloy & Russell Mfg. Co.
- 165: Also 1 adjustable tap wrench size #3 - Made by same firm.

25 00	725 00
5 50	
16 00	
21 00	
13 00	
24 50	
probable discount 8 00	16 50

- 166: 5 H.P. 3-phase 220 volt Westinghouse motor to drive the shaft which extends through the electro-metallurgy room, - - - - -
- 167: On wall above motor the main switch and cut-out? -

250 00	250 00
	993 50

MEASURING INSTRUMENTS AND APPARATUS FOR EXPERIMENTAL WORK.

- 168: Portable tachometer 3 scales - See price-list of Schaffer & Rudenberg, Brooklyn, N. Y.
- 169: Chloride of silver testing battery, Western Electric Co., Thams & Greenwich Sts., N.Y.
- 170: Sir William Thompson's electrostatic voltmeter - reading to 8000 volts, see Jas. G. Biddle or Queen & Co., Philada. or Willyoung & Co. Cat. p. 102 # W 26.
- 171: Brachett "Cradle" Dynamometer, Queen & Co., Philada. Catalogue p. 94-95.
- 172: Westinghouse "Pony" alternator, Designed for laboratory use including also the Westinghouse Series Motor for 110 volts, Manchester type (see catalogue p. 12). With this motor and the "pony" alternator it would be possible to get alternating currents of various frequencies, very desirable for experimental work.
- 173: 2 Westinghouse 5 K.W. transformers for showing Scott's method of transforming from three phases to two and for other experiments.
- 174: 1 Bradley 5 K.W. transformer for transforming from single phase to two or three phase, Pt. Wayne Elec. Co., Balt. Md.

60 00	
35 00	
65 00	
250 00	
200 00	
75 00	
90 00	775 00

1 set of following tools for each dynamo room:

- 175: 2 Monkey wrenches 6", 3" and 12" - - - - -
- 176: 3 screw drivers 4", 6" and 8" - - - - -
- 177: 1 hammer, - - - - -
- 178: 1 iron bench vise, - - - - -
- 179: 3 Bunsen burners, - - - - -
- 180: 1 gasoline torch, - - - - -
- 181: 2 copper oil cans, - - - - -
- 182: Contact maker, Qusen & Co. see Cat. #1339, p.53 - -

150 00

DRAWING ROOM, THIRD FLOOR, NORTH ROOM, REAR WING.

APPARATUS.

- 183: The Muret collection of models in descriptive geometry and stone cutting, - - - - - *undetermined*
- 184: The Schroeder models in stereotomy, 37 models, - - 1 00 00
- 185: Models of right and oblique arches, 37 models, - - 5 50 00
- 186: Models of stone stairways, 45 models, - - - - - 21 00 00
- 187: The Oliva models, - - - - - *undetermined*

2750 00

Day

3000 00

LECTURE APPARATUS --- PROF. SLOCUM.

Max Kohl, Chemnitz.

- 188: 24, Air Pump plate,
- 189: 26, 5 Meters rubber tubing,
- 190: 282, Free fall apparatus,
- 191: 999, Hipp chronoscope,
- ~~192: 292, Loewy's apparatus,~~
- 192: 292, Loewy's apparatus,
- 193: 302, Inclined plane,
- 194: 308, Friction plate,
- 195: 385, Centrifugal machine,
- 196: 394, Revolving rings,
- 197: 399, Separator,
- 198: 412, Siren disk,
- 199: 414, Wave siren,
- 200: 416, Savarts wheels,
- 201: 424, Oscillating prism,
- 202: 431, Puluj's apparatus,
- 203: 434, Arago's disk,
- 204: 436, Rotating magnet,
- 205: 465, Elasticity apparatus,
- 206: 463, Adhesion plates,
- 207: 470, Pressure in liquids,
- 208: 477, Pressure with depth,
- 209: 544, Fall of potential apparatus,
- 210: 573, Cohesion plates,
- 211: 581, Capillary tubes,
- 212: 587, Capillary plates,
- 213: 595, Colloidum balloons,
- 214: 601, Open manometer,
- 215: 603, 3 Barometer tubes,
- 216: 624, Reading telescopes,
- 217: 719, Fall in vacuo,
- 218: 734, Rubber bag with cock,

- 219: 756, Clement & Desormes apparatus.
 220: 775 & 776, Diff. & Exp. of gases.
 221: 782, Wave tank.
 222: 785, Loaded chord.
 223: 841, Wind chest.
 224: 846, Singing flames.
 225: 1040, Weinhold's goniometer.
 226: 1089, Intensity of reflection.
 227: 1078, Glass tank.
 228: 1140, Mack's apparatus.
 229: 1022, Optical bench.
 230: 1024 (Argand), 1026, 1027 & 1028,
 231: 1107, Polyprism.
 232: 1112, Liquid polyprism.
 233: 1118, Achromatic prism apparatus.
 234: 1260, Mitscherlich's tubes.
 235: 1254, Terquem's burner.
 236: 1268, Stand for spectrum tubes.
 237: 1264, Delachanal & Mermet tube.
 238: 1279, Spectrum reagents.
 239: 1284, Na. line inverting appar.
 240: 1300, Fluorescence cubes.
 241: 1312, Barium-platino-cyanide.
 242: 1314, Phosphorescing substances.
 243: 1550, Micrometer slit.
 244: 1555, Billet's lense.
 245: 1344, Mirror stereoscope.
 246: 1363, Color contrast.
 247: 1566, Glass grating 3200 to Cm.
 248: 1779, Tyndall's apparatus.
 249: 1781, Heating stand.
 250: 1794, Cylinder with ice band.
 251: 1798, 3 thermometers, alcohol, etc.
 252: 1816, Demonstration thermometers.
 253: 1817, 10 thermometer tubes.
 254: 1820, Ice ~~box~~ bath.
 255: 1821, Steel and zinc strip.
 256: 1839, Air thermometer.
 257: 1853, Exp. of air constant pres.
 258: 1858, Surfusion thermometer.
 259: 1867, Mousson's apparatus.
 260: 1870, Regelation moulds.
 261: 1877, Saturated and superheated vapor.
 262: 1879, Vapor of salt solutions.
 263: 1883, Saturated vapor pressure.
 264: 1892, Melting points.
 265: 1910, Andrews press.
 266: 1915, Mercury freezer.
 267: 1923, Critical temperature app.
 268: 1936, Double calorimeter.
 269: 1937, Specific heat balls.
 270: 2025, I & H₂S bulb.
 271: 2082, Regnault's hygrometer.
 272: 2123, Lamellar magnet.
 273: 2125, 2 magnet needles and stands, 2127.
 274: 2133, 24 small magnets.
 275: 2166, Glass rod.
 276: 2168, Hard rubber rod.
 277: 2172, Brass rod, glass handle.
 278: 2173, Electric pendulum.
 279: 2174, Att. & Rep. apparatus.
 280: 2202, Faraday's net.
 281: 2203, Electric curtain roller.
 282: 2209, Electrophorus.
 283: 2260, Glass perforator.
 284: 2263, Mascart Ins'l stand.

- 285: 2264, Point and plate discharger,
 286: 2273, Dem. Leyden jar,
 287: 2276, Leyden jar battery,
 288: 2281, Lane's unit jar,
 289: 2283, Riess's spark micrometer,
 290: ~~2288~~ 2289, Kohlrausch condenser,
 291: 2307 & 2308, Zn. & Cu. plates,
 292: 2315, Water battery,
 293: 2319, Edelmann's electrometer,
 294: 2331, Bunsen's element,
 295: 2332, Daniel's element,
 296: 2333, Groves element,
 297: 2334, Grenet's ~~cells~~ cells,
 298: 2336, Leclanche cell,
 299: 2339, Gassner's dry cell,
 300: 2347, Pachytrope,
 301: 2363, 2 Dubeis Reymond switches,
 302: 2366, Bertin's commutator,
 303: 2384, Bunsen's voltmeter,
 304: 2395, Cooper voltmeter,
 305: 2517, Foster's apparatus,
 306: 2528, Electric endoscope,
 307: 2553, Electro-magnet,
 308: Accessories 1, 2, 3, 6 & 7,
 309: 2621, Amperes stand,
 310: 2475, Pole determiner,
 311: 2029, Melloni's bench,
 312: 372, Foucault's pendulum,
 313: 2767, Absolute vacuum tube,
 314: 2781, Phosphorescing lamp,
 315: 2782, Goldstein's tube,
 316: 2772a, Crooke's tubes, #5, #7, #9, #11, #14 & #21,
 317: 2306, Pile electrometer,
 318: 2765, Holtz's tube,

SOCIETE GENEVOISE.

- 319: 106, Parallelogram law apparatus,
 320: 111, Parallel force apparatus,
 321: 57, Spherometer,
 322: 69, Cathetometer,
 323: 398, Porte-lumiere,

ERNICKE, BERLIN.

- 324: 39, 2 vertical scales,
 325: 401, Cartesian diver,
 326: 443, Plateaus figures,
 327: 446, Plateaus apparatus,
 328: 499, Mariotte's App. & Dem. Bar.
 329: 1641, Steam bath,

RUDOLPH KOENIG, PARIS.

- 330: 27, Double siren,
 331: 38b, Tuning forks,
 332: 55, Universal resonators,
 333: 38e, Tuning Fork Ut.
 334: 83, Pressure regulator,
 335: 87, Kundt's pipe,
 336: 104, Open pipe,
 337: 105, Closed pipe,
 338: 113, 8 open pipes,
 339: 127, Sonometer,
 340: 128, Clamp bridges,
 341: 249a, Melde's apparatus,

C. & E. FEIN, STUTTGART.

- 342: 19c, Dynamo (Continuous, alternating and Three-phase attachments.
- 343: 68, Resistance, 0-25 Ohms.
- 344: 201, Simple transformer.
- 345: 204, Three-phase transformer.

HARTMANN & BRAUN.

- 346: 379c, Ammeter, 0-20.
- 347: 381c, Voltmeter, 0-30, Quad. Cell.
- 348: 373, Lecture room galvanometer with thimble magnet.
- 349: 2000 ohm coil.
- 350: 391, Kohlrausch universal bridge.
- 351: 391.2, Telephone differential.

STUHL, BERLIN.

- 352: Dr. Rapp's improved automatic mercury air pump.

RUEPRECHT, WIEN.

- 353: 44, Demonstration balance.
- 354: 131b, Set of weights.

DUCKETT & LEJEUNE, PARIS, FRANCE.

- 355: 317, CO₂ apparatus.
- 356: 404, Gas receiver, D.
- 357: 401, Cooling apparatus.
- 358: 418, Alcohol thermometer, 105°.
- 359: 2796, Tesla's transformer.
- 360: 2798bis, Oil transformer.

QUEEN & CO., PHILADELPHIA.

- 361: Pharos lamp, condenser, plate holder and objective.
- 362: Lamp for absorption spectra with iron case.
- 363: Diaphragm, slit and adapter.
- 364: Thollon prism, 70mm. face.
- 365: Stand for thollon.
- 366: Polariscopes.
- 367: Glass pile analyzer with reflector fitted to the side.
- 368: Stauroscope.
- 369: Vertical attachment.
- 370: Vertical projection tank, \$6.00; Horizontal tank \$2.50
- 371: Non-inductive resistance.
- 372: Rowland photographs of solar spectrum.
- 373: Crews photographs of metallic spectra.

Total say

- 374: Ruhmkorff Coil,

say

- 375: Prof. Slocum's estimate for apparatus, first year students (as per his letter of March 20th).
- 376: Prof. Slocum's estimate for apparatus, advanced laboratory (as per his letter of March 20th)

3300	00
120	00
4000	00
4000	00

SUMMARY FOR APPARATUS.

1.	Department of Electrical Engineering (p. 4)	- - - - -	\$6,500.00
2.	Photometer room, (p.5)	- - - - -	865.00
3.	Electro-metallurgy, (p.6)	- - - - -	330.00
4.	Storage battery, (p.7)	- - - - -	800.00
5.	Workshop, south basement, and tools, (p.p.10,11)	- - - - -	993.50
6.	Measuring instruments and apparatus for experimental work, (p.11)	- - - - -	775.00
7.	Tools, (p.12)	- - - - -	150.00
8.	Physical lecture apparatus, Prof. Slocum, (p.p.12,15)	- - - - -	3,300.00
9.	Prof. Slocum's estimate for apparatus, first year students, not yet listed,	- - - - -	4,000.00
10.	Prof. Slocum's estimate for apparatus, advanced laboratory, not yet listed,	- - - - -	4,000.00
11.	Ruhmkorff coil,	- - - - -	120.00
	Total, Physics and Electricity,	- - - - -	<u>\$21,835.50</u>
12.	Laboratory apparatus, Biological department, including Physiological Botany, total Biology,		1,300.00
13.	Mineralogical and Petrological room,	- - - - -	500.00
14.	Mineralogical laboratory,	- - - - -	<u>225.00</u>
	Total for Mineralogical Department,	- - - - -	725.00
15.	Chemistry, no list of apparatus or estimate given as yet by University authorities,	- - - - -
16.	Drawing, (p.12)	- - - - -	3,000.00
17.	General lecture room, no list or estimate yet given,	- - - - -
	Total estimate on lists as furnished,	- - - - -	<u>26,908.50</u>
	Add to this probably required for		
	Chemistry, 6/30 of \$30,000	- - - - -	6,000.00
	General lecture room, 2/30 of \$30,000	- - - - -	<u>2,000.00</u>
			<u>3,000.00</u>
			<u>\$34,908.50</u>

APPROXIMATE ESTIMATE FOR SCIENCE BUILDING FURNITURE.

PROF. LOOMIS' DEPARTMENT.

Mineralogical Laboratory, see blue-prints 23888, 23890.

- 1: 2 iron frame tables, 12'0"x3'0"x2'6" high, Alberene stone tops.
- 2: 2 " " " 12'0"x6'0"x2'6" " " " "
- 3: 1 " " " 6'0"x3'0"x2'6" " " " "
- 4: 2 porcelain sinks for tables,
- 5: 1 " " " hood,
- 6: 1 hood 8'0"x9'2"x2'0" deep, lower part closets with 3 pr. hinged doors, upper part sash at front hung with weights; water and gas supplied to tables and hood.
- 7: 2 cases of drawers 6'0"x4'3"x2'6" deep, 20 drawers each,
- 8: 4 " " " 2'6"x1'6"x1'0" " 8 " "
- 9: 1 cabinet 6'10"x6'7"x2'1" deep, lower part drawers, upper part movable shelves with sliding sash door,
- 10: 1 table 3'0"x2'0"x4'0" high, Alberene stone top,
- 11: 26 chairs.

Mineralogical and Petrological Room, see blue-prints 23888, 23897.

- 12: 1 shelf 10'7"x2'4"x5'4" high on 4 paneled brackets extending to floor.
- 13: 1 cabinet 4'5"x2'5"x2'2" deep with hinged glass door,
- 14: 1 " 6'10"x4'7", lower part 6 drawers 21" deep, upper part 40 drawers 14" deep,
- 15: 2 tables 4'0"x2'0"x2'6" high,
- 16: 2 chairs, \$1,338.00

PROF. BARBOUR'S DEPARTMENT.

Drawing Room, see blue-prints 23888, 23889.

- 17: 1 case of drawers 5'4-3/4"x4'9 1/2"x37" deep, containing 13 drawers,
- 18: 2 cases of drawers 5'4-3/4"x3'3 1/2"x27" " " 15 drawers each,
- 19: 1 case 6'10"x8'2 1/2"x22" deep, movable shelves and sliding glass doors,
- 20: 2 cases 6'10"x8'2 1/2"x15" deep, " " " sliding glass doors,
- 21: 30 iron frame drawing tables with movable tops,
- 22: 30 wooden drawing boards 2'6"x1'10"
- 23: 1 professor's table and swinging chair,
- 24: 2 slate blackboards 4'0"x4'0" with chalk rest,

Hat and Coat Room #1, see blue-prints 23888, 23899.

- 25: 2 hat and coat bracket shelves 18'2" long 14" wide,
- 26: 1 double hat and coat rack for center of room 15'3" long 6'10" high 27" wide,

Room #2, see same blue-prints.

- 27: 1 hat and coat bracket shelf 18'2" long 14" wide,
 - 28: 1 " " " " 8'10" " 14" " 1,006.00
- Carried forward, \$2,344.00

PROP. PERKINS' DEPARTMENT.

Private Laboratory, see blue-prints 23888, 23895.

- 29: 1 wardrobe and card catalogue case combined 6'10" x 5'9 3/4" x 17" deep.
- 30: 1 book-case 6'10" x 8'0" x 15" deep, movable shelves and sliding glass doors.
- 31: 1 professor's table and swinging chair and 6 regular chairs.
- 32: 1 wash-stand with hot and cold water.
- 33: 1 laboratory table 7'6" long 2'6" high 5'6" wide at one end and 3'0" wide at other, drawers on sides to floor and two drawers at end.

Store Room, see blue-prints 23888, 23894.

- 34: 2 table 6'0" x 2'9" x 2'6" high with three drawers on side.
- 35: 1 case 6'10" x 9'6" x 21" deep, movable shelves and sliding glass doors.
- 36: 1 case 6'10" x 8'6" x 15" deep, movable shelves and sliding glass panel doors.
- 37: 1 case 6'10" x 4'0" x 15" deep, movable shelves and sliding glass doors.

Biological Laboratory #2, see blue-prints 23888, 23893.

- 38: 1 sink 5'0" x 1'10" x 2'6" high, porcelain sink, Alberene Stone top, drawers and closet under.
- 39: 4 laboratory tables 7'6" long 2'6" high, 5'6" wide at one end, 3'0" wide at the other, eight drawers on sides to floor, and two drawers at end.
- 40: 1 table 6'0" x 3'0" x 3'2" high, 34 drawers on one side, 5 drawers and closets with movable shelves and sliding doors on other side.
- 41: 1 blackboard 4'0" x 4'0" with chalk rest and 20 regular chairs.

1,256.00

PROP. JONES' DEPARTMENT.

Biological Laboratory #3, see blue-prints 23900, 23903.

- 42: 2 laboratory tables 7'6" long 2'6" high, 5'6" wide at one end and 3'0" wide at the other, 8 drawers on sides to floor and 2 drawers at end.
- 43: 2 tables 5'0" x 2'9" x 2'6" high, 3 drawers in each.
- 44: 1 work-bench 5'0" x 2'0" x 2'10" high with drawers and vise
- 45: 1 case 6'10" x 6'0", lower part 23" deep, upper part 13" deep, containing drawers and closets with movable shelves and sliding doors.
- 46: 1 sink.
- 47: 14 chairs.

Greenhouse, see blue-prints 23900, 23901, 23893.

- 48: 1 propagating case 4'0" x 2'0" x 3'0" high in two compartments, with copper sand and water pans, &c.
- 49: 3 water plant tanks 3'8" x 2'0" x 32" high, iron frame and Alberene stone tanks

Carried forward,

\$3,600.00

Dark Room, see blue-prints 23888, 23896.

- 76: 1 Alberene stone sink 9'0" x 21", made into 3 compartments,
- 77: 1 electric-light pocket in wall with ruby and orange glass sliding sash, 1' x 5' x 22" high, 3 shelves on shelves on brackets on three walls,
- 78: 1 case 6'10" x 4'0", lower section 23" deep, upper section 13" deep, containing drawers and closets with movable shelves and sliding doors,
- 79: 1 case 6'10" x 4'0", lower section 23" deep, upper section 13" deep, containing drawers and closets with movable shelves and sliding doors,
- 80: 2 sliding sash and light-proof curtain to outside window,

Record Room, see blue-prints 23888, 23898.

- 81: 1 case 6'0" x 5'0" x 13" deep, movable shelves and sliding glass doors,
- 82: 1 case of drawers 3'0" x 3'4" x 3'6" deep, containing 8 drawers,
- 83: 2 cases 5'0" x 2'0" x 17" deep, each containing 2 drawers and closet with movable shelf and hinged doors, 3,282.00
- 108: 1 case 5'15" x 2'0" x 17" deep, with movable trays for glass tubes,

PROF. MERRILL'S DEPARTMENT.

THIRD FLOOR.

Store Room, see blue-prints 23888, 23921.

- 84: 1 case 15'0" x 12'5" x 2'4" deep, lower part 56 drawers, two upper parts movable shelves and 6 pr. sliding glass doors,
- 85: 1 case 16'0" x 12'5", lower part 2'4" deep, movable shelves and sliding glass doors, two upper parts 15 1/2" deep with movable shelves,
- 86: 1 laboratory table 9'0" x 5'3" x 38" high, drawers and closets under, and 1 sink,
- 87: 1 special hood 4'0" x 3'0" x 6'0" high,

Spectrum Analysis, see blue-prints 23888, 23948.

- 88: 1 bench 18'2-3/4" x 3'0", supported on brackets, 12 drawers under, and sliding sash,
- 89: 1 table 18'2-3/4" x 2'8", drawers and closets under, 1 sink,
- 90: 1 case of shelves 18'2-3/4" x 2'0" x 12", deep, with sliding glass doors,
- 91: 1 shelf 18'2-3/4" x 10", supported on brackets,

Stench Room, see blue-prints 23888, 23906.

- 92: 1 hood 15'4" x 9'5" x 22" deep in 3 compartments,
- 93: 1 " 7'9 1/2" x 9'5" x 24" "
- 94: 1 sink hood 6'5" x 9'5" x 24" deep, drawers and sliding glass doors,
- 95: 1 shelf Chemical Laboratory, see blue-prints 23888, 23903.
- 96: 1 professor's table with swiveling chair,
- 97: 8 laboratory tables 15'0" x 4'6" x 38" high with 3 shelves above on brass standards, 24 drawers and 16 closets under and two sinks each,
- 98: 1 steam bath and drying hood 10'0" x 9'5" x 24" deep,
- 98: 1 hood 6'0" x 9'5" x 24" deep,
- 98: 2 sink hoods 4'0" x 9'5" x 24" deep,
- 99: 6 hoods 3'9" x 9'5" x 24" deep,
- 100: 3 black-boards 4'0" x 4'0" with chalk rests,

SECOND FLOOR.Laboratory for Analytical Chemistry, see blue-prints 23903, 23924, 23938.

- 100: 6 laboratory tables 10'0" x 5'3" x 32" high, 3 shelves on top supported by brass standards, each table containing 12 drawers, 8 closets and 2 sinks,
- 102: 1 hood 10'0" x 9'5" x 24" deep,
- 103: 1 " 6'0" x 9'5" x 24" deep,
- 104: 7 " 4'0" x 9'5" x 24" deep,
- 105: 2 " 4'0" x 9'5" x 24" deep, with sliding blackboards in front,
- 106: 2 sink hoods 4'0" x 9'5" x 24" deep,

Store Room, see blue-prints 23938, 23925.

- 107: 1 case 14'0" x 12'10", lower part 2'4" deep with 48 drawers, two upper parts 22" deep with movable shelves and 6 pr. sliding glass doors,
- 108: 1 case 6'10" x 5'9" x 14" deep, with movable trays for glass tubes,

Water Analysis, see blue-prints 23938, 23932.

- 109: 1 hood 8'10" x 9'5" x 22" deep,
- 110: 1 bench 9'4-1/4" x 24" on iron brackets with 6 drawers under,
- 111: 1 set of shelves 9'4-1/4" x 2'0" x 9" deep, supported on brackets,
- 112: 1 bench 13'1-3/4" x 24" x 37" high, 12 drawers and 6 closets under,
- 113: 1 set of shelves 13'1-3/4" x 14" x 10" deep on brackets with sliding glass doors,
- 114: 3 chairs,

Balance Room, see blue-prints 23931, 23938.

- 115: 1 book-case 6'10" x 8'0" x 15" deep, drawers and sliding glass doors,
- 116: 1 Alberene stone shelf 18'2-1/4" x 2'9" on iron brackets with 12 drawers under,
- 117: 1 professor's table and swinging chair,
- 118: 6 chairs,

Combustion Room, see blue-prints 23926, 23938.

- 119: 1 hood 7'9-1/4" x 9'5" x 24" deep,
- 120: 1 hood 5'7" x 9'5" x 24" deep,
- 121: 1 bench 15'4" x 2'6" x 36" high, drawers and closets under,

Private Office, see blue-prints 23951, 23938.

- 122: 1 bookcase 6'10" x 8'0" x 15" deep, drawers and sliding glass doors,
- 123: 1 shelf 9'0" x 2'9" on iron brackets with drawers under,
- 124: 1 professor's table with swinging chair,
- 125: 2 chairs,

FIRST FLOOR.Balance Room, see blue-prints 23942, 24016.

- 126: 1 Alberene stone shelf 18'1-3/4" x 2'9", on brackets with 12 drawers under,
- 127: 1 book-case 6'10" x 8'0" x 15" deep, drawers and sliding glass doors,
- 128: 1 professor's table and swinging chair,
- 129: 6 chairs,

Store Room, see blue-prints 23942, 24012.

- 130: 1 case 6'10" x 5'9" x 14" deep, with movable trays for glass tubes,
- 131: 3 cases 5'0" x 11'6", lower part 2'4" deep with 24 drawers each, 2 upper sections 20" deep with movable shelves,
- 132: 1 case 4'0" x 4'0" x 20" deep with movable shelves,

Laboratory for Organic Chemistry, see blue-prints 23903, 23942, 23945.

- 133: 1 laboratory table 16'4" x 5'3" x 38" high, drawers and closets under,
- 134: 2 laboratory tables 13'6" x 5'3" x 38" high, drawers and closets under,
- 135: 3 cases 6'10" x 4'0" x 9" deep, with movable shelves,
- 136: 1 set of shelves 6'10" x 30'0" x 8" deep,
- 137: 2 Alberene stone sinks 3'0" x 2'10" x 6" deep,
- 138: 1 steam bath and drying hood 6'8" x 9'5" x 24" deep,
- 139: 1 sink hood 4'6" x 9'5" x 24" deep,
- 140: 2 hoods 4'4" x 9'5" x 24" deep,

Chemical Recitation Room, see blue-prints 23942, 23011, 23903.

- 141: 1 tile-top lecture table 15'6" x 3'6" x 2'9" high,
- 142: 1 sink hood 4'6" x 9'5" x 24" deep, with sliding blackboard in front,
- 143: 1 hood 5'4" x 9'5" x 24" deep, with sliding blackboard in front,
- 144: 1 blackboard 35'0" x 4'0" with chalk rest,
- 145: 77 chairs with wide arm for writing on,

Preparation Room, see blue-prints 23942, 24013.

- 146: 1 case 10'0" x 11'6", lower part 24" deep, upper part 16" deep,
- 147: 1 laboratory table 15'0" x 2'9" x 38" high, drawers and closet under, shelves above,
- 148: 1 laboratory table 9'0" x 5'3" x 38" high, drawers and closet under and 1 sink,
- 149: 1 sink hood 6'5" x 9'5" x 24" deep,
- 150: 1 case 6'10" x 3'9" x 16" deep, movable shelves and hinged glass doors,

ATTIC.Spectroscope and Spectrometer Room, see blue-prints 24043, 24049.

- 151: 2 cases 5'0" x 3'3" x 36" deep, drawers and closets,
- 152: 1 table 8'0" x 3'0" x 27" ~~high~~ high,
- 153: 1 " 9'0" x 3'6" x 27" high,
- 154: 1 " 6'0" x 3'0" x 29" "
- 155: 6 chairs,

PROF. SLOCUM'S DEPARTMENT.

ATTIC.Dark Room, see blue-prints 24048, 24049.

- 156: 1 Alberene stone sink 2'8" x 2'0" x 6" deep, on iron legs,
- 157: 2 drain boards 4'10" x 2'5" on iron brackets,
- 158: 4 shelves 4'6" x 12" on brackets,

Rowland Grating Room, see blue-print 24049.

- 159: 1 shutter to darken twin window and transom,

SECOND FLOOR.Physical Laboratory, see blue-prints 23937, 23938.

- 160: 8 laboratory tables 12'0" x 4'0" x 39" high, 24 drawers and 6 closets in each,
- 161: 1 case 6'10" x 9'6" x 24" deep, 44 drawers and 1 closet in lower part, movable shelves and sliding glass doors in upper part,
- 162: 1 case 4'6" x 1'2" x 8" deep, plate glass door and side lights,
- 163: 4 iron heliostat frames on brackets with slate slides,
- 164: 1 Alberene stone shelf 32'4" long 2'6" wide, with 4 sinks in same,
- 165: 1 shelf 43'0" x 2'6" on iron brackets,
- 166: 1 " 32'4" x 2'6" " " " "
- 167: 1 sink,

Instrument room, see blue-prints 23922, 23938.

- 168: 1 case 12'0" x 12'8", lower sections 2'9" deep, upper sections 2'1" deep, movable shelves and nine pair sliding doors,
- 169: 1 case 9'4" x 12'8", lower sections 2'9" deep, upper sections 2'1" deep, 36 drawers, movable shelves and four pair sliding doors,
- 170: 1 table 8'0" x 4'0" x 30" high,

Balance Room, see blue-Print 23938.

- 171: 1 shelf 17'8" x 2'0" x 27" high, on iron brackets, drawers under,

FIRST FLOOR.Cathetometer and engine dividing room, see blue-prints 23940, 23942.

- 172: 1 shelf 11'0" x 2'0" on iron brackets,
- 173: 1 case 6'10" x 5'6" x 2'3" deep, 12 drawers and 1 pair sliding doors,
- 174: 1 table 5'0" x 3'0" x 27" high,
- 175: 1 roll-top type-writer desk,
- 176: 1 wash-basin,

Instrument room, see blue-prints 23942, 23944.

- 177: 1 case 12'0" x 11'6" x 2'9" deep, movable shelves and 9 pr. sliding doors,
- 178: 1 case 9'4" x 11'6" x 2'9" deep, movable shelves and 6 pr. sliding doors,
- 179: 1 case 5'0" x 4'0" x 2'1" deep, containing 17 drawers,
- 180: 1 table 8'0" x 4'0" x 3'3" high changeable to 2'5" high,
- 181: 1 work-bench 5'0" x 2'0" x 2'10" high, drawers and vise,

Calorimeter Room, see blue-prints 23942, 23943.

- 182: 1 shelf 18'2" x 2'6" on iron brackets, sink at one end,
- 183: 1 " 18'2" x 2'6" " " " "
- 184: 1 " 9'0" x 2'6" " " " "
- 185: 1 " 4'0" x 11" " wooden " "
- 186: 1 case 6'10" x 6'0" x 2'3" deep, 12 drawers and 1 pr. sliding doors,
- 187: 1 table 8'0" x 4'0" x 2'5" high,
- 188: 6 chairs,

Physical Laboratory, see blue-prints 23939, 23942.

- 189: 1 case 6'10" x 10'0" x 2'6" deep, drawers, closets and movable shelves,
- 190: 1 case 6'10" x 12'0" x 20" deep, sliding doors and racks for jars,
- 191: 1 shelf 20'0" x 2'6" on iron brackets,
- 192: 1 Alberene stone shelf 13'6" x 2'6" with sink at one end,
- 193: 3 shelves 3'10" x 11" on brackets,
- 194: 2 tables 6'0" x 3'0" x 39" high, changeable to 29" high,
- 195: 1 table 6'0" x 3'0" x 29" high,
- 196: 2 tables 2'10" x 2'10" x 42" high,
- 197: 3 tables 2'10" x 2'10" x 29" high,
- 198: 2 Alberene tops 20" x 20" x 3" thick,
- 199: 2 Alberene tops 20" x 20" x 5" thick,

Lecture Room,Physical Laboratory, see blue-prints 23942, 24029.

- 200: 1 lecture table 15'6" x 3'6" x 2'9" high,
- 201: 1 lantern platform 6'0" x 5'0" x 6" high,
- 202: 1 calcined screen 10'0" x 10'0",
- 203: 1 black-board 18'0" x 4'0" with chalk rest,
- 204: 1 blackboard 8'0" x 4'0" with chalk rest,
- 205: 3 iron heliostat frames on brackets with slate slides,
- 206: 1 sink,
- 207: 71 chairs with wide arm for writing on,

6,779.00

PROF. STORR'S DEPARTMENT.

SECOND FLOOR.Photometer Room, see blue-prints 23936, 23938.

- 208: 1 table 10'4" x 2'6" x 37" high, 3 shelves above on brass standards, drawers and closets with movable shelves and sliding doors below,
- 209: 1 instrument case 6'10" x 5'0" x 27" deep, movable shelves and sliding doors,

Carried forward,

\$29,323.00

Dark Room, see blue-prints 23935, 23938.

- 210: 1 sliding sash in brick wall 5'4" x 3'0"
 211: 1 Alberene stone sink and top for same on iron brackets,
 212: 1 case of drawers 3'7" x 3'2" x 2'6" deep, 3 shelves on
 brass standards above,
 213: 1 bench 12'0" x 2'6" x 36" high, slides and shelves under,
 -214: 1 instrument case 6'10" x 5'0" x 27" deep, movable
 shelves and sliding doors,
 215: 1 set of 6 shelves 4'0" long 16" wide,

FIRST FLOOR.Professor's Room, see blue-prints 23942, 24015.

- 216: 1 wardrobe and closet 6'10" x 4'0" x 26" deep,
 217: 1 instrument closet 6'10" x 4'0" x 20" deep,
 -218: 1 Alberene stone shelf 8'0" x 2'6" set on iron brackets,
 219: 1 draughting table hinged to wall,
 220: 1 rolling-top desk and swinging chair,
 221: 4 chairs,

Dynamo Room, see blue-prints 23942, 24014.

- 222: 1 bench 29'0" x 2'4" x 32" high, closets and drawers under,
 223: 1 bench 10'0" x 2'4" x 32" high, closets and drawers under,
 224: 1 case 3'4" x 3'4" x 26" deep, containing closets and 4
 drawers,
 225: 1 instrument closet 6'10" x 4'0" x 20" deep, movable
 shelves and sliding doors,
 226: 1 instrument closet 3'6" x 4'0" x 16" deep, inclined shelves
 and hinged doors,
 227: 1 blackboard 4'0" x 5'0" with chalk rest,

BASEMENT.Dynamo Room, see blue-prints 24017, 24050.

- 228: 1 bench 16'0" x 2'4" x 36" high, 18 drawers and 2 clos-
 ets under,
 229: 1 bench 10'0" x 2'4" x 36" high, 9 drawers and 2 clos-
 ets under,
 230: 1 instrument closet 6'10" x 4'0" x 20" deep, movable
 shelves and sliding doors,

Electro-Metallurgy Room, see blue-prints 24034, 24050.

- 231: 1 bench 23'10" x 2'6" x 30" high, 16 drawers and 6
 closets under,
 232: 1 case 2'6" x 2'6" x 30" deep, hinged glass doors,
 233: 1 set of tanks 10'5" x 2'4" x 36" high,
 234: 1 set of 4 shelves 15'0" x 2'6" x 8" wide, set on
 brackets,

Store Room, see blue-print 24039.

- 235: 1 set of shelving 14'0" x 10'10" x 36" deep, 1 pr. of doors,
 236: 1 rack for coils of wire 14'0" x 2'6",

Storage Battery Room, see blue-print 24050.

- 237: 1 corner closet 6'10" x 5'0" x 24" deep,

Carried forward,

2,059.00
\$31,382.00

GENERAL ROOMS.Class Room, Third Floor, see blue-print 23883.

- 238: 48 chairs with wide arm for writing on,
 239: 1 professor's table with swinging chair,
 240: 1 blackboard 16'8" x 4'0" with chalk rest,
 241: 2 blackboards 8'0" x 4'0" " " "

Class Room, Second Floor, see blue-print 23938.

- 242: 36 chairs with wide arm for writing on,
 243: 1 professor's table with swinging chair,
 244: 2 blackboards 12'0" x 4'0" with chalk rest,

Library, Second Floor, see blue-prints 23923, 23938.

- 245: 2 cases 16'8" x 6'10", lower section 21" deep, upper section 13" deep,
 — 246: 1 card catalogue case 4'4" x 1'6" x 17" deep, 8 drawers,
 247: 2 library tables 7'0" x 4'0" x 2'6" high,
 248: 16 library chairs,

Main Lecture and Preparation Room, see blue-prints 23938, 24011.

- 249: 1 tile-top lecture table 20'0" x 3'6" x 33" high,
 250: 2 sink hoods 4'0" x 9'5" x 24" deep,
 251: 1 hood 4'0" x 9'5" x 24" deep,
 252: 1 bench 17'4" x 2'0" x 36" high, drawers and closets under,
 253: 1 set of shelves 17'4" x 16" x 9" deep on brackets,
 254: 1 case 6'10" x 8'0", lower section 30" deep, upper section 24" deep,
 255: 1 case 6'10" x 6'0", lower section 30" deep, upper section 20" deep,
 256: 1 wash-basin,
 257: 1 laboratory table 8'0" x 5'0" x 38" high, 1 sink, drawers and closets under,
 258: 170 chairs with arm for writing on,
 259: 1 blackboard 13'0" x 4'0" with chalk rest,
 260: 1 blackboard 4'0" x 4'0" with chalk rest,

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- 261: 1 bench 7'0" x 2'0" x 30" high, 2 drawers, 2 shelves and sliding doors,
 262: 1 carpenter's bench 10'0" x 3'0" x 30" high, 3 drawers and vise,
 263: 1 instrument closet 6'10" x 4'0" x 20" deep, movable and sliding doors,
 264: 1 bench 6'0" x 2'8" x 36" high, with drawers under,