Index

Abbe, Cleveland, 496, 497
Abbot, C. G., 140, 145
ABC of Electricity, 356
ABC of X ray, 356
Acheson, Edward G., 330
Acyclic dynamo, 87
Adams, Comfort, 118, 119, 137
Adams, W. S., 468, 473
Advertising signs, outdoor, 147
Aerodrome, 347
Aerodromic experiments, 61, 62
Aerodynamic experiments, 61
Air, blast device, 518
blast switch, 425
bubble and quartz mirror, 256, 257
conditioning apparatus, 193
drill, electric, 427
liquefying, 22
Albany Medical College, 19
Albedo, 117, 119
Alcohol, tax on, 97, 100
Alexander (of Lynn), 39-40, 158, 161
Allegheny College, 20
Alloy, ferro, 244, 245
heat resistant, 152
Heusler, 246
magnetic, 536
nonhysteretic, 88
steel, 117, 119
heat resistant, 165
rust resistant, 165
shock resistant, 165
Alternating current regulators, 427
Alternating Current Transformer, 236
Amateur radio observers, 142
American Academy of Arts and Sciences, 26
American Chemical Society, 49
American Electric Company, 64, 420
American Institute of Electrical Engineers, 49, 328, 331, 346
American Philosophical Society, 49
fund raising, 221
American Welding Society, 158
Amici (roof angle) prisms, 469-473
Ammeter, 21
Ampere, 102, 125
formerly, Weber, 177
Amphipleura pellucida, 312
Amplification, of delicate electrical impulses, 540
of sound, 144
Analysis of Meteor Crater ore, 40
Anderson, John A., 284, 285, 288, 289, 489
Anecdotal History of Sound, 379
Annealing, auto, 120
Anthracite cooker, 190, 191
Anti-gas fan, 17
Apolytic force, 149
Application of Induced Currents, 236
Applied Science School, joint Harvard and MIT, 414-416
Applied Science, School of, Harvard University, 415-416
Arc, divided, 203, 204
generator, Thomson-Houston, 425
lamp, 198
light system, gold medal for, 208
lighting, Gütcher system, 199
welding, 162-165, 167
Argon and other rare gases
(composition of atmosphere), 422-424
Armature, spherical, 207
two coil, 207
Arnold, Professor, 123
Aron wattmeter, 8, 427
Arrester, lightning, 427
multi-gap, 426
Artillery, fire control of, 469
Asphaltum, Trinidad, 110, 111
Association. See Institute; Society
Association Island, 336, 337
Asteroid MT, 1911 (Albert, 719), 397, 398
Astrologer, 313
Astronomical Society of France, 476
Astrophysical Journal, 252
Atmosphere, 38, 45
acquired by planets, 145
Atomic, circuit, 125
hydrogen in welding, 163, 165
Atomic Theories of Radiation, 539
Atophan, 406, 408
Atrocities, war, 526
Auriga, 344
Autochrome, 315
plates, Lumière, 132
Auto-annealing, 120
Automatic adjustment (Thomson), 518
Automobile, electric, 113, 421
INDEX

Automobile, electric (continued)
engine, patent for, 84
four-cylinder engine, 99
street congestion due to, 152
Ayrton, and Perry, 16
Hertha Marks, 16, 17
William E., 5, 203, 206
Bakelite, 182, 477, 478
Balance of payments, 393, 394
Baldwin Locomotive Works, 318
Ball, Sir Robert, 24
Barium, crown glass, 511
platinio-cyanide, 370
Barker, George F., 19
Barlow wheel, 12, 13
Barnard, Professor, 458
Barringer, Daniel M., 26
Battery, electric, 75, 124, 126, 173,
174, 226, 228, 229, 331
Barus, Carl, 120, 121
Bell, Alexander G., 377
Bell, Russian, electric welding of, 532
Bell Telephone Company, 342
Bends, 542
Benecke (photographer), 443
Bennett, E. J., 33
Berger and Jones, 317
Berry Transformer Company, 190
Bikini test, 78
Billings, (of Carnegie Institution), 257,
264, 265
Bioscope, 228
Bitumen, 110
Blake, C. G., 319
Blériot, Louis, 508, 509
Blow-out magnetic, 425, 428
Boiler, flash, 97-99
Bolometer, 62, 261
Bolton, Sir Francis, 194
Boston Evening Transcript, 503
Boston Herald, 131, 430
letter by Thomson, 430
Boucherot, 118
Bradford Corporation, 15
Bragg, William H., 47
Bragg, William L., 47
Bramwell, Sir Frederick, 235, 236
Branly coherer, 324, 327
Brashhear, John, 53, 131, 140, 141, 469
British Standards Institution, 83
British Thomson Houston Co., 10
Broadcasting stations, sets, 146
Brockett, Paul, 318
Brockie, James, 522
Brown, H. P., 69, 70
Browne, John C., 314
Bruce, Catherine W., 441
Bruce doublet, 438
Bruggencate, Paul, 490
Brush, Charles F., 23, 170-171, 175,
176, 199, 200
Brush Company, 194
Bryan, William J., 154
Bubble-free quartz surface, 516
Bucky, 79
Bulletin de la Société Astronomique de
France (Ritchey-Chrétien Telescope), 480
Bunsen voltameter, 11
Bureau of Standards, United States,
493, 510, 512, 535
Bureau of Weights, United States, 496
Bürkan dynamos, 82
Burlington College, 306
Burrell, E. P. (of Warner and Swasey),
284
Business depression, 1930s, 344
Cables, underground, for distribution
of power, 173
Calcium tungstate, 366
California Electric Light Co., 171
Cambric, varnished, 91
Campbell, William W., 56, 57, 58, 61,
260, 453, 455
Canada's Great Telescope (Plaskett),
62
Canyon Diablo, 31, 37
Canyon, Grand, 31
Capella (goat), 344
Carbolic acid in tooth, 548
Carboloy, 181, 182
Carbon, dioxide, 422
electrode, 200, 201, 206, 210
filament, 183
monoxide discharge, 95, 98
rods. See Carbon electrode
Carbonized paper, 183, 185
Carnegie, Andrew, 53
Foundation, 413
Institution, 257-262, 264, 266, 470,
481, 528
Carty, John J., 175, 276
Casement, mirror, 59, 282, 283
telescope, 59, 434, 449, 454
Cater and Eaton, 356
Cathode, ray, 81
rotating, 368
side, 367-369
two-cup, 367
Caustic soda, 424
INDEX

Cautery, 286
Cavendish, Henry, 231, 232
Celestial cobblestones, 35
Celestial photography, 446
Cemented-plate cellular mirrors, 267, 284, 445, 446, 447, 452, 478, 479
Central heating, 190
Central High School, Philadelphia, 148, 149, 320-324, 501
Centrifugal, creamer, 67, 428
high-speed, 340
machinery, 99
Centrifuge, 340
Century of Electricity, 372
Chamberlain and Hootcham, 10-12
Change of Color Produced in Certain Chemical Compounds by Heat (Thomson), 140-142
Charging condensers in multiple, 370
Chicago, Congress of 1893, 332, 333
overhead wires, 216
Chrétien, Henri, 444, 459
Chromium, 117
Cincinnati, Exposition, 374, 375
test, 207, 212, 213
Cincophen, 405, 410, 412
Circuit, atomic, 125
Citrus fruits, cultivation, 471-473
City and Guilds of London Institute, 5
City and Guilds Technical College, 517
Clark, Alvin, 140, 141
Clerk, Dugald, 92, 93, 96, 98, 99, 132, 136
Clock control of telescope movement, 530
Cloud, cirrus, 140
layers, 86
Cluster of Hercules, 57, 59
Cobalt, 117, 124, 126, 128
Cobblestones, celestial, 35
Cooelostat, 258, 440, 441
Coffin, Charles A., 64, 67, 72, 354, 421
Coherer, Branly, 324, 327
Coil, interrupter, 21
loading, 88
reactive, 426
Ruhmkorff, 318, 322, 358
telephone (loading), 88
Tesla, 249, 427
Colchicine, 405
Collected papers of Elihu Thomson, 526
Color, change in, when compounds heated, 141, 142
Color, photography, 135
"Coma," 444
Commission, United States Electrical, 493, 496
Commutator, 87
Compensated field arrangements in generators, 428
Compton, Arthur, 344
Comte, August, 483
Condensers, charging in multiple, 370
for high voltage, 87
Conference of Engineering, Tokyo, 404
Constant current, machine electromagnet for, 519, 523
regulator, 425
transformer, 426, 520
Constellation, Hercules, 438, 443, 453
Orion, 303, 304
Trianguli, 443
Control, of telescope movement (electric), 530
systems, railroad, 427, 428
Converse, 208
Cooke, Conrad, 504, 505, 508
Cooker, anthracite, 190, 191
Coolidge, William D., 78, 175, 535, 538, 548
X-ray tube, 78
coon Butte, 45
Copernicus, lunar crater, 38, 41, 42, 253
Cordite, 236
Core, rotating, 521
Corn, preservation of flavor and sugar, 153, 154
Corona, 39, 145
Correspondence of Naval Consulting Board with Professor Elihu Thomson, 388
Cosmic, dust, 38, 42, 46
rays, 387
Counter electromotive force, 235
Cowper-Coles, Sherard, 508
Cramer "Crown" plate, 443
Crater, impact, 41
lunar, 38, 42, 45
Cream-separator, centrifugal, 340, 428
Crocker, 57
Crompton, Colonel Rookes, E., 48, 49, 50, 82, 201
and Company, 82
Crookes tube, 364, 514
Cross, 461
Crown glass, barium, 511
"C-tube" detector, 388
Curtis, steam turbine, 64

555
INDEX

Curved photographic plates, 448-450
Curved space, 187
Cut-outs, 425
film, 425
Cutter, George, 194-196
Cutting tool, 132, 141, 182

Daily Gleaner, 346
Dale, Sir Henry H., 342
Darrow, Clarence, 154
Davis, Manual of Magnetism, 14
Dayton, Tenn., 152
Decentralization of industry, 82-83
Dedham circuit, 73, 74
Delegates to International Electrical Congress, 332

De Magnete, Magneticisque Corporibus, 524
Dercum, Francis X., 218, 408, 409
Deutzalcohol engine, 97
Devitrification, 120, 122
Dewar, Sir James, 232, 235-237, 521
Diablo Canyon, 31, 37
Diamonds, at Meteor Crater, 26, 29, 30 sorting by adhesion, 109
Dianol, 315, 316
Diatoms, 312

Dictionary of Applied Physics, 148
Dialectic strength, 237
Diesel cycle, 92
Diffraction grating, 53, 259, 442
Dina Optical Laboratory, 476
Direct photography, with double slide plate carrier, 445
Disc armature, 10
Distortion of astronomical mirror by changes in temperature, 529, 530
Distribution, three wire system, dc, 173
Divided arc, 203, 204
Double slide plate holder, 434, 445
Drawing fine wire, jewels for, 537
Drilling at Meteor Crater, 45
Drop of Potential at Carbons of Electric Arc, 17
Dunham, Theodore, 290, 291
Dunlop, John B., 131
Dunn, Gano, 284, 285
Dust, cosmic, 38, 42, 46 pollution, control of, 95, 96
Dynamicables, 151

Dynamo, 424-429
acyclic, 87
Bürran, 87
Edison, 12
Edison-Hopkinson, 195

homopolar, 87, 90
electric machines, half-century celebration of, 170, 175, 176
static machine for x-ray tube, 357
unipolar, 87
Dynamo-Electric Machinery, 518
Dynamometer, 61
transmission and absorption, 5

Ear, tophus in, 403, 412
Eastman, George, 133
Eclipse, 56-57, 58, 60, 61, 168
expedition to Russia, 531
of Zeta in Auriga, 344
solar, 168, 169
solar, weather probabilities during, 533, 534

Eddington, Sir Arthur S., 491
Edgar, C. L., 152, 155
Edison, A Boy's Life of, 356
Edison, Decorative and Miniature Lamp Department (General Electric Company), 358
dynamo, 12
Electric Illuminating Company, 356
General Electric Company, 64, 147, 225, 328, 420
His Life and Inventions, 354, 356
Hopkinson dynamo, 195
Illuminating Company of Boston, 152, 155
lamp, 195
medal, 175, 420
method for measuring current (amperage), 8
storage battery, 226, 228, 229
Thomas A., 70, 149, 160, 183, 224, 245, 318-320, 322, 328, 331, 347, 350, 432, 510
Educational Observatory, 451
Eglin, William C. L., 175, 497
Eickemeyer, Rudolph, 431
Einstein, Albert, 135, 166, 271, 272, 379, 383, 384
Einsteinism, 273, 334
Electric, air drill, 427
arc, mechanism of, 18
arc welds, 153, 161-163
automobile, 113, 421
circuit indicator, 88
furnace resistance, 429
heater, 163
lamps, miniature, 356
lighting, 112
railways, trolley, 112
refrigerator, 135, 156, 169-170
INDEX

Electric, (continued)
Supply Company, 7
tucks, 178
Vehicle Company, 75
washing machine, 156
welding, 135, 426
welding of Russian bell, 532
Electric Arc Lighting, 201, 522
Electric Arc, The, 17
Electrical, Conference (Franklin Institute, (1884), 497
Congress, 19
Engineers Institution of, 83
Exhibition, Philadelphia, 1884, 102
Electrical Engineer, 346, 359, 370
Electrical Papers (Heaviside), 160
Electrical Phenomena (Thomson), 150, 326
Electrical Progress and Its Unsolved Problems, 504
Electrical Resistance, Approaching Absolute Zero, 237
Electrical World, 237, 324, 346, 359
Electricity and Animation, 547
Electro-asepsis, O’Neil, 248, 250
Electrocution, 69, 70
Electrodes, carbon, 200, 201, 206, 210
Forest City, 200
Hardtmuth, 201
sheathed, 164-165
Electrolyser, to produce hydrogen from water, (Siemens Brothers), 423, 424
Electromagnet for constant current machine, 518, 519, 523
Electromagnetic induction, 318, 319
repulsion, 233-235, 240
waves, 318, 319
Electromagnetic regulator, 518
Electromotive force, counter, 235
Electron, 387
magnetic whirls, 81
Electrostatic Voltmeter, 9, 12
Electrotechnical, Commission, 100-102
Commission International, 83
Elements of Physical Manipulation, 396
Ellis, A., 286, 288, 290-295, 298, 336, 489
Ellis, Mrs. A., 41
Energy, wireless transmission of, 113, 115, 143
Engineering (journal), 194, 195
Engine, alcohol, 97
automobile patent for, 84
cooling, 99
Deutzalcohol, 97
gas, 92
oil, 98
reciprocating, 90
Willans, 82
wobbler-crank, 90
Ether, 85
Ether drift, 166-167, 383
Etheric force, 149, 224, 318, 320
Europe, war clouds over, 215
Evershed Ohmmeter, 9
Evershed, Sydney, 125, 126, 129, 504
Evolution, 154, 187
Ewing, Sir James A., 125
Exhibition, International Inventions, 194
Expanding universe, 491
Expansion method (for liquefying air), ??
Experiments, jointly with Thomson, 241
Explosion, steam, 29, 31-33
Exposition, Cincinnati, 374, 375
Exposition, International, 1881, 82
Eyeglasses, fused quartz, 391
Fairbanks, Director, Boston Art Museum. 376
Fall of a Meteorite (Thomson), 37
Faraday, Centenary, 48, 49, 50, 184
Medal, 51, 52, 86, 159, 160
Michael, 184, 185, 224
Farwell, Justice, 15, 16
Father of Electrical Science, 524
“Father of Protective” grounding, 70
Fauces, 411
Fear for future, 548
Ferranti, Sebastian Z., 160, 161
Ferro alloys, 244, 245
Figure (defined), 136
Filament, carbon, 183
platinum-iridium, 183
Film cut-out, 425
Finsbury Technical College, 5
Fire-control instruments, for artillery, 469
“First electrical machinery tests of all time” (Franklin Institute, 1877), 172, 375
First Principles of Physics or Natural Philosophy (Silliman), 14
Fish, Frederick P., 12, 69, 76, 360, 414, 431
Fish, Walter C., 75, 76, 421, 422
Fitz-Clark telescope, 55
“Fixed, vertical, Universal telescope”
INDEX

Galli-Curci, Amelita, 354, 355

Gardens, vegetable, in war, 114, 125

Garrett, G. S., 67

Gases, free expansion of, 387

Geissler tube, 513, 514

General Electric Company, 64, 72, 74, 75, 134, 135, 225, 292, 295, 328, 414, 426, 477, 503, 504, 535

General Electric Review, 323

Hawkins article in, 546

Generator, automatic adjustment, 518

Gramme, 82

homopolar, 87

Thomson Houston, 424-429, 519, 523

Geological Survey, United States, 31-33

“Ghost” matter, 307

Gilbert, Grove K., 31-33, 36

Gilbert, William, 517, 524

Given, R. D., 167

Glass, crown Barium, 511

lead, bulbs, 363

optical, 59, 62, 134, 470

polishing, 148

Glass Giant of Palomar, 434

Glazebrook, Sir Richard T., 148

Glow lamp, 7, 10

Goldsmith, Alfred N., 296

Gout, 403-411, 545

Llewellyn on, 410

Grace, Sergius P., 318

Graham, Thomas, 542

Gramme, generator, 82

ring, 209

Grand Canyon, 31

Graphite furnace, 435

Grating, ruled platinum plated, 529

Gravitational attraction, velocity of propagation of, 273

Gravitometer, 26

Gray, Elisha, 378

Greeks and Trojans, 306

Greene, Dana, 21

Greene, William H., 241

Grounding, for safety, 426

safety electrical, 501

of secondary, 173

Guiding, wireless, 135

Gültcher system of arc lighting, 195, 199

Hale, George E., 180, 251, 441, 459, 468, 473-475, 534

Halley’s Comet, 309, 453

Handbuch der Angewandte Optik, 300, 302
INDEX

Hardtmuth carbons, 201
Harmful Preventable Noise, Its Cost, 502
Hartmann test, 57, 58
Harvard, Astronomical Station in Jamaica, 399
School of Applied Science, 415, 416
Haskins, Caryl D., 22
Hawkins, L. A., in General Electric Review, 547
Hayes, 24
Heater, lamp, 190
Heating, central, 190
Heat resistant steel alloys, 165
Heaviside, Oliver, 160, 328
Helicopter, 509
Helium, 542
in respiration, 541, 543
Helium in Deep Sea Diving, 543
Hemispherical test, 200, 201
Henry, Joseph, 149, 150, 224, 318, 319
Hercules, cluster in constellation, 57, 59, 438, 443
Hertz, Heinrich, 319, 324
Heusler alloy, composition of, 246
Hewitt, George W., 299
High frequency, experiments on animals, 428
induction, 336
papers by Thomson, listed, 337
transformer, ironless, 427
wave, guided by ocean water, 143
High-tension transmission, 173, 177
Hilgard, Julius E., 496, 497
Hissing of the Electric Arc, 17
History of Radio, Telegraphy and Telephony, 204
Hobart, H. M., 158
Hoedi (the kids), 344
Holsinger, 28, 31-33
Holtz machine, 364-366
Homopolar dynamo, 87, 90
Hooker, John D., 441
Horned toad, 544
Horse-drawn vehicles, 112
Horseless carriage (electric automobile), 74-76, 421
Houston, Edwin J., 64, 65, 66, 67, 68, 149, 176, 320-323, 328, 496
Hughes, David E., 203, 204, 205, 500-505
Hughes, Arthur, 344
Hunt for a Great Meteor and Its Lesson (Thomson), 37
Hussey, of the Lick Observatory, 261
Hydro-electric stations, 177
Hydrogen by electrolysis of water, 423, 424
Hysteresis, 86, 88
Ice, made in Thomson home, 156
Illuminating Engineering Society, 329
Impact, crater, 41
parasitic, 38
theory, 31, 33, 34
Incandescent, lamp, 422
high voltage, 172
Induction, balance (Hughes), 501
electromagnetic, 318, 319
high frequency, 336
Induction of Electric Currents, 236
Inductorium, 367
Industry, government regulation of, 344
Infinite universe, 187
Influenza, 101, 103
Institute, Carnegie. See also, Carnegie Institute
City and Guilds of London for history of science and civilization, 482
Franklin. See Franklin Institute of Radio Engineers, 329
of Technology, Massachusetts. See Massachusetts Institute of Technology
Institution, British Standards, 83
Carnegie, 257-262, 264, 266, 470, 481, 528
of Electrical Engineers, 48, 83, 159, 169
Smithsonian, 270
Insulators, 87
Insulin, 342
Insull, Samuel, 146-147
Instrument laboratory at Mt. Wilson Observatory, 436
Interference test, 515
Interferometer telescope, 274, 275
International, Astronomical Union, 252
Electrical Congress, 102, 265, 328-331, 332
Electrotechnical Commission, 83, 100, 102, 104, 105, 124, 127, 129, 151, 175, 329
Exposition, 1881, 82
Inventions Exhibition, 194
relations, 392, 393
Interrupter, coil, 21
INDEX

Interrupter, coil (continued)
  Wehnelt, 370
Introduction to the History of
  Science, 481
  "Invar," 450
Inventions, Researches and Writings of
  Nikola Tesla, 354
Inventor of the Valve, 240
  Inventors, recognition, humility, 184
  Iodine, 410, 411
  Iodocincophen, 410, 411
  Ionized particles, from solar activity, 140
  Ionosphere, 160
  Iridium at Meteor Crater, 26-27
  target, 370
Iron, arc, smoke in rotating field, 138, 139
  at Meteor Crater, 45
  ore, magnetic concentration of, 40
  passivity, 344
  shale, 45
Isis, 481, 486
  Isochromatic plate, 435
  Iso-electric point, 342, 343
Is the Heaviside Theory Valid?
  (Thomson and Lodge), 160
Jablochkoff candle, 195
  Jackson, Chevalier, 220
  Japanese mirror effect, 267
  Jaspar lamp, 208, 209
  Jazz, 147
  Jeans, Sir James H., 491
  Jenkin, Fleeming, 493
Jet propulsion, 387
  Jewels for drawing fine wire, 537
  Johnson, Alba B., 318
  Johnson and Philips, 522
  Joule-Thomson effect, 22, 23
  Observatory, 396
  Astronomische Nachrichten, 397
  Daily Gleaner, 346
  Electrical Engineer, 346, 359, 370
  Electrical World, 324, 346, 359
  Engineering, 194, 195, 203
  Franklin Institute, 320-322
  General Electric Review, 323
  New England Magazine, 324
  New York World, 225, 228
  Philadelphia Ledger, 22
  Philosophical Magazine, 236
  Popular Astronomy, 400
  The Mirror, 242, 323
  "Jovian Year," 488

Juvisy Observatory, 506
Kant, Immanuel, 482
  Keller, Harry F., 241, 248, 250
  Kelvin, Lord, 5, 21, 82, 100, 101, 102,
  103
  medal, 391
  Kennelly, Arthur E., 102, 103, 126,
  160, 328, 526
  "Kennelly-Heaviside layer," 160, 328
  Kinetoscope, 228
  Knott, L. E., Company of Boston, 361
  Kohlrausch ampere-meter, 11
  Krakatoa, 29, 42
  Krupp (steel works), 181
  Laing, Wharton, and Down, 194
  Lamme, Benjamin G., 377
  Lamp, Edison, 195
  heaters, 190
  incandescent, 422
  incandescent, high voltage, 172
  Jablochkoff, 195
  Jaspar, 208, 209
  mercury arc, 422, 423
  miniature electric, 356
  Swan, 82, 195, 199
  tantalum, 88
  Thomson '93 alternating, 522
  Varley, 196, 199
  Langley, Samuel P., 60, 62, 261,
  346-349
  Langmuir, Irving, 335, 342, 538, 541
Large Bulb, Lamps as Secondary
  Standards of Light, 239
Laws of Mines and Mining (Barringer),
  36
  Lead glass bulb, 363
  Lead glass, for X-ray tubes, 364
  League of Nations, 130, 430
  Le Conte, 261-263
  Lectures, by Ritchey, 479
  Le Maistre, Charles, 106, 115-121,
  145, 157
  Lemp, Hermann, 421, 422
  Lens, rock salt, 60-61, 64
L'évolution de l’astrographie et les
  grands télescope de l’avenir, 480
  Lick Observatory, 56-58, 463
  Lick telescope, 439
  Lieb, John W., 157, 174, 178, 325,
  354
  Life on the moon, 400
  Light, deflection of, 270
  Light, effect of, in promoting growth
  of plants, 546, 547
INDEX

Light Emitted by the Continuous-Current Arc, 17
Lighting, electric, 112
Lightning, 91
arrester, 427
beam, 86
globular, 86
Thomson's ideas on, 86, 89
Lilly, Eli, Company, 342
Lime light, 199, 200
Limestone, Laibab, 26
red, 26
Linde, Carl, 22, 23
Liquid air, 22, 236-238
oxygen from, 423
to produce vacua, 422-424
Liquid Air as an Insulator, 237
Lithium silicate, 276
Little Moose, 340
Living, cost of, rents and taxes, 146, 157
Llewellyn on gout. 410
Load, curve, 88
factor, 88
Loading coil, 88
telephone, 417
Lodge, Sir Oliver, 166, 168
Loeb, Jacques, 540
Long-distance transmission, transformer for, 187
Low temperatures, 236, 237
Low-voltage distribution, 151
Lumbago, 545
Lumière autochrome plates, 132
Lunar and Hawaiian Physical Features Compared, 399, 400
Lunar, crater, 253-255, 400
system of naming, 255
marking, 253
Lundin, Carl A. R., 533
Lynn Gas and Electric Company, 155
Magic mirror, Japanese, 267
Magie, William F., 29, 30, 39
Magnet, permanent, 126, 128, 129
physiological action, 525
strength of field with varying loads, 202
Magnetic, alloys, 536
blow-out, 425, 428
concentration of iron ore, 40
hysteresis, 89
lines, 86
whirls (electron), 81
Magnetism, 125
Manual of, Davis, 14

terrestrial, 86, 89
Magneto, 124, 126
motive force, 86
optics, 86, 89
Magneto-Optical Effect, communication on, 89
Magnetometer, 26
Magnitude of a star, 440
Mahler, Gustave, 316, 317
Mailoux, C. O., 118, 127, 129
Mallet, 242, 253
Mallinckrodt body recovered from water, 341
Mallinckrodt, Edward, 339
Manual of Telephony, 207
Marconi Fund, 355
Marconi, Guglielmo, 149, 232, 239, 240, 319, 324, 346, 354, 355
Mars, map of, 400
opposition of, 533, 534
Martin, Thomas C., 324, 325, 346, 524
Mascart, E. E. N., 100-102
Mason, Max, 293, 294
Massachusetts Institute of Technology, 124, 125, 133, 414, 415, 510, 535
Thomson, acting president of, 124, 125
Mass-measurement, 119, 121
Mather & Platt Co., 201
Maxwell, James Clerk, 142, 146, 148, 224, 232, 321, 326
Maxwellian waves, 318, 319, 321, 323
McDowell, James B., 58, 61
McGill University, 20
McManus, John A., 503, 514, 515
McPherson, Dean, Ohio State University, 376
Meadowcroft, William H., 356
Meares, J. W., 92
Measuring current (amperage), 8
Measuring instruments, electrical, 21
Mechanical, Thermal and Optical Properties of Fused Quartz (Thomson), 154, 181
Mechanism of the Electric Arc, 18
Mechanism of Life, 219
Mendenhall, Thomas C., 372
“Mercurial Year,” 488
Mercury, arc lamp, 422, 423
flotation, 439
Mercury, perihelion of, 271, 272
Meridian photometer, 396
Messen 13, 57
Metallic oxides, effect of heat upon color of, 140-142

561
INDEX

Meteor Crater, 26, 36-37
Exploration and Mining Company, 26
ore, analysis of, 40
Meteor Crater, Paper read before
National Academy of Sciences, 30
Meteor Shower of 1867 (Thomson), 43
Meteorite, 29
fall of, 106
Meter, direct current, 87
Metoxinone, 316
Metric system, 329
Michelson, Albert A., 510, 529
Michelson interferometer telescope,
274, 275
Michelson and Morley experiment,
168, 333, 379
Michigan University Observatory, 292
Microphone, 501, 504
Milky Way, 487
Miller, Dayton C., 166, 379
Milikan, Robert A., 506, 538, 539
Minerals of Commercial Value
(Barringer), 36
Mining law, 32
Mirror, built up, (rib and plate
cemented), 445, 447, 452, 478,
479
Cassegrainian, 282, 283
interchangeable, 479
magic, Japanese, 267
Newtonian, 282, 283
nondistorting, 134
quartz, 223
quartz, 200-inch, 179, 223
sextant, 59
stellite, 79
Mitchell, General "Billy," 513
Modern Photographic Telescope and
the New Astronomical
Photography, 448
Molybdenum, 117, 123
"Monkey trial," 154
Monoidocincophen (Farastan), 410
Moon, face of, 38, 45
life on, 400
temperature of surface, 144
vegetation on, 140
Morday, W. M., 504, 508, 509
Morgan, Charles L., 390
Morgan, J. P., 72
Morton, Henry, 362
Moscow, 210
Mosquito eradication, 433
Motor, motors and motoring, 501
motorcycles, 159
induction, 426
over-excitation of, to advance current
phase, 521
polyphase, 426
repulsion, 426
variable speed, 88
Mt. Palomar Observatory, 251, 298
Mt. Whitney, 261, 262
Mt. Wilson Observatory, 56, 57, 131,
134, 180, 251, 261, 276, 277, 290,
298, 438-441, 461, 464
Muffler (silencer), 429
Multi-gap arrester, 426, 427
Multiple arc distribution, transformer,
428
Munro, John, 504, 505
Museum, National, 486
Muybridge, Eadweard, 218
Mysterious Universe, 491
National Academy of Sciences, 19, 26,
31, 49, 485
Board of Standards, 330
Electric Light Association, 183, 325,
351-354
Research Council, 270, 468, 485
Nature and Origin of Volcanic Heat,
255
Naval Consulting Board, U.S., 535, 540
Navicula rhomboides, 312
Nebulae, 435, 438-440
Neocincophen, 406-410
New Background of Science, 491
Newcomb, Simon, 496, 497
"New curve" telescope, 444, 446,
448-460, 454, 458, 459, 461. See
also, Telescope, new short type
New England Magazine, 324
New Form of Wehnelt Interrupter, 370
Newton Bi-Centenary, 166 66
Newton, Sir Isaac, 59
Newtonian, mirror, 59, 282, 283
telescope, 59, 434, 449, 454, 461,
479
New York, Academy of Sciences,
Thomson invited lecture, 418
Edison Company, 364
New York World, 225, 228
Nice Observatory, 446
Nichols, Ernest F., 146
Nickel at Meteor Crater, 29, 41, 43
Nitric acid, 388
Nitroglycerin, 46
Node, 381, 382
Noise Age and Nervous Torture, 502
Noise, preventable, 499, 502
Norman Bridge Laboratory, 387

562
INDEX

Plaskett, J. S., 57, 58, 59, 60
Plate, carrier, 443
curved, 448-450
holder, double-slide, 434
isochromatic, 435
Platinum, 41
at Meteor Crater, 26, 29
iridium filament, 183
iron alloy, 245
metals, 40, 41
seals, substitute for, 87, 89
Platt Company, 201
Pleurosigma angulatum, 312, 313, 314
"Plumbago," 546
Pluto, 205
Pneumatic tire, 129, 131
Pogson’s scale, 438-441
Pole, shaded, motor, 426
Polishing, optical, 148
Pollution, dust, control of, 95, 96
Porter, Russell, 284, 285
Possible Means of Cutting Down the Mosquito Population, 433
Possibilities of Liquid Air in Electrical Work, 237
Potassium hydroxide, 361, 362, 364, 367, 369
Potter, Hollis, 79
Power, distribution, 5
wireless transmission of, 325
Pratt, Joseph H., 402
Preece, Sir William, 205, 207
Présentation du premier modèle de télescope aplanatique, 480
Principles of Electric Wave Telegraphy, 239
Prism, rock salt, 60-61, 63
roof-angle, 302
Pritchett, Henry S., 413
Prix Janssen, 476
Producer gas, 93
Professor Thomson’s Electro-Magnetic Induction Experiments, 234
Profiteering, 124, 125
Propagation of Electric Waves, 239
Protons, Thomson’s thoughts on, 81
Puffer, William L., 17
Pulsation theory, 487
Pupin, Michael I., 160, 417
Pyrex disks, 275, 284, 297
Pyrogenerator, 244, 245
Quartz. See Fused quartz
Quartz mirror, 12-inch, 153
200-inch, 223
large, 255-257
Quartz work by Ritchey, 435, 436
Radio, 224; See also, Wireless; amateur observer, 142
Corporation of America, 296
Engineers, Institute of, 329
preventive of demoralization, 147
telephone, 143, 146
broadcasts, 143, 146
waves, 498
Radioactive bodies, 20
Radiation, pressure, 333
solar, 140
Railroads, electric, 112
Railway control system, 427, 428
Ray, cathode, 81
cosmic, 387
Rayleigh, Lord (John W. Strutt), 380
Rayton lens, 298
Reactive coil, 426
Rectifiers, 87
Red Beds at Meteor Crater, 29, 37, 45
Refrigerators, electric, 135, 156,
169-170
Regulators, alternating current, 427
canstant current, 425
of industry by government, 344
Reis, Philipp, 378
Relativity, 270, 333, 491
Reorganization of Massachusetts Institute of Technology and Harvard, “Provisional Memorandum” on joint school, 414-416
Report in Matter of Units of Electrical Measurement, 333
Report of Board of Commissioners of Eleventh Cincinnati Industrial Exposition, 1883, 207
Report of Committee on Dynamo Electric Machines (Thomson), 80
Report on Mars, 400
Repulsion, electromagnetic, 233, 235, 240
motor, 426
Resistance, furnace, electric, 429
for high temperatures, nonoxidizing, 88
Rheumatism, 186
Rice, Calvin W., 137
Rice, Edwin Wilbur, Jr., 73, 76, 206, 420, 535, 545
Richards, Theodore W., 330, 414, 416
Richmond, Va., 306
Rigel, 303, 304
Right ascension and declination. 54, 55
INDEX

Ring, Gramme, 209
Ring Nebula in Lyra, 298
Ring Theater (fire in), 82
Ritchey-Chrétien telescope, 479, 480
Ritchey, George W., 131, 253, 266-269, 284, 310, 311, 434
Ritchey (George W.) and Development of Celestial Photography, 446
Road building, 95, 98, 106, 107, 108-109, 111
Roberts, Lord, 15
Rock salt prisms and lenses, 60-61, 63
Rockefeller, Foundation, 251, 284, 790
grant of six million dollars, 284, 290
Institute, 540
Roentgen, photography, stereoscopic, 7 papers by Thomson, listed, 371
ray burns, 247
Society, 523
Roentgenology paper on early days of (Thomson), 51
Roentgen Rays Act Strongly on the Tissues, 247
Rogers, William A., 496, 497
Rohrer, A. L., 213
Roof-angle prisms, 302, 469-473
Roosevelt-Hoover election, 393
Roots, James, 90
Rotating, cathode, 368
core, 521
Rowland, Henry A., 53, 290, 496, 497
Royal Institution of Great Britain, 20, 48, 49, 235, 236
Royal Society, 233, 236
Ruhmkorff coil, 318, 322, 358
Ruled grating, platinum plated, 529
Russell, Henry N., 35, 36
Russian customs, 213-214
Rust resistant steel alloys, 165
Rutherford, Sir Ernest, 388
Safety electrical grounding, 501
St. Gobain Glass Works, 445, 476
Sampson, R. A., 458-461
Sandstone, Coconino, 26
Santos-Dumont, A., 349
Sarton, George A., 481
plan for history of science, 482
Satellites, origin of, 36
School of Applied Science at Harvard, 415, 416
Schwarzschild, Karl, 448-450, 479
Science and the Unseen World. 491
Science, history of, 482
"Scientific and Literary Society," 241
"Scientific Wounds" (Thomson’s X-ray burns), 371
Scientists, (names of), endorsing
Sarton’s Institute for History of Science, 484
Scopes, John T., 154
Screw threads, 136
Gauge Committee, 121
standardizing, 114
Standards Committee, United States, 117
Standards International, 117
Seal, platinum, substitute for, 87, 89
Semenza, Guido, 151, 154
Separator (ore), 40
Sextant mirrors, 59
Shaded pole motor, 426
Shale, ball, 28, 35
ball iron, 35, 40
Shapley, Harlow, 463, 487
Shears, quartz, 423
Sheathed electrodes, 164-165
Shielded arc welding, 162, 165
Ship propulsion, turbo-electric, 429
Shock resistant steel alloys, 165
Shunt box, universal, 5
Side-arms in X-ray tubes, 367-369
Siemens Company, 210, 212
Sights, panoramic, 60
Silencer, Maxim, 429
Silica Glass or Fused Quartz (Thomson), 228
Silicides, 246
Silliman, Benjamin, 19
Silliman’s Physics, 14
Sky, black, 145
Slag in welding, 164
Sleeping sickness, 547
Slip-ring, 87, 88, 523
Smith, Michael Holroyd, 508, 509
Smithsonian Institution, 270
Report, 1913, 325
Smoke of iron arc, rotating field in, 138, 139
Smuts, Sir Jan Christiaan, 190, 191
Snow, Helen, 441
telescope, 440
Snyder, Monroe B., 149, 150, 321, 323, 326, 493
Sodium urate, 186, 403, 407-409, 411, 412, 545
Sodium vapor lamp, 546
Solar, constant, 145
eclipse, 1914, 532
Norway, 1927, 168
radiation, 140

565
INDEX

Sound-waves, photograph of, 380, 385
*Sound Waves, Shape and Speed*, 379
Space, curved, 187
Spark ignition, 88
*Snarks, Lightning, Cosmic Rays*, 379
Spectroheliograph, 251
Spectrograph objective, f/0.36, 298
Spectrometer, lenses and prisms, 278
Spectrum photographs, 60
Speculum, 267, 530
of fused quartz, 153
Spherical armature, 207
Spherometer, 305, 306
Spiritualism, 241
Spooner, Henry J., 499
Sprague, General Electric Train Control, 428
Spraying melted quartz, 516
Sprengel pump, 183, 184, 185
Square holes, 114
Standard Iron Company, 32, 33
Standards, Association, American, 118
Institution, British, 83
Stanley, William, 361
*Stars and Atoms*, 491
Star cluster in Hercules, 438, 443
Starr, Thomas, 314
Static machine for X-ray tubes, 357
Stations, generating, 177
Steam, car, 509
explosion, 29, 31-33, 42
turbine, 64, 87, 99
Steel, hardening of, 121, 122
high-speed, 123-128
loss of temper with age, 120, 122
tempering, 121, 122
Steinheil, Adolph, 300
Steinmetz, Charles P., 370, 422-424, 431, 432, 535
Stellite, composition of, 79
mirror, 79
Stereoscope, 79
Stereoscopic, Roentgen photography, 7, 429
X-Ray, 79, 366
Stern and Sprengel pump, 185
Stockly, George, 171
Stokowski, Leopold, 316
Storage batteries, 75, 173, 174
*Story of Electricity*, 174, 351-354
Street congestion, automobiles, 152
*Street Railways, Their Construction, Operation and Maintenance*, 217
Striae, 516
Submarine, Committee National Research Council, 387, 388
defense, 540
Sullivant, Joseph, 376
Medal, 376
Sulphur dioxide, refrigerators, 135
Sun Lamp and Power Company, 195
Sun, effect of heat and light on fine particles, 39
Sundh, August, 77
litigation, 77
Surface tension, 107, 109
Surirella gemma, 312
Swan, Sir Joseph, 183, 185
lamp, 82, 195, 199
Swinton, A. A. C., 361
tube, 361
Swasey, Ambrose, 53, 56-58, 515
Swinburne, James, 185, 186
Swindon (town), 205
Switch, air blast, 425
oil, 425
time limit, 429
Swope, Gerard, 182, 279, 293, 295
Tanks, giant, 464-468
Tantalum lamp, 88
tape, standard, 117
Tar, 111
Taylor, Franklin, 244
Taylor, Taylor and Hobson, 130, 131
Telegraph Supply Co., 171
*Telegraphy*, 207
Telephone, Greene and Thomson, 243
loading coil, 88, 417
long distance, 88, 90
Telephony, ocean cable, 88, 89
Telescope, Bruce, 438
Cassegranian, 434, 449, 454
clock control of, 530
horizontal, 447
interferometer, 274, 275
Lick, 439
mirror, quartz, 153
“new curve,” new short type, 444, 448-450, 454, 458, 459, 461
Newtonian, 434, 449, 454, 461, 479
100-inch, 435, 440-442, 445, 446, 453, 457-459, 464, 474-476, 479
60-Inch, 290-294, 435, 438-440, 442, 443, 447, 452, 474, 476, 478, 479
Snow, 440
200-inch, 251, 280-287, 290-293, 296, 297
Temper, in steel, loss with age, 120, 122
566
<table>
<thead>
<tr>
<th>Index Term</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminator (defined)</td>
<td>253, 255</td>
</tr>
<tr>
<td>Terrestrial magnetism</td>
<td>86, 89</td>
</tr>
<tr>
<td>Tesla, coil</td>
<td>249, 427</td>
</tr>
<tr>
<td>Nikola</td>
<td>346, 352, 354, 526</td>
</tr>
<tr>
<td>Test, 527</td>
<td></td>
</tr>
<tr>
<td>Cincinnati, 207</td>
<td></td>
</tr>
<tr>
<td>Franklin Institute, 424</td>
<td></td>
</tr>
<tr>
<td>hemi-spherical, 200, 201</td>
<td></td>
</tr>
<tr>
<td>Testing sets, ohmmeter generator and magneto generator, 12, 13</td>
<td></td>
</tr>
<tr>
<td>Thames River, E.M.P. of, 231</td>
<td></td>
</tr>
<tr>
<td>Thaw, William, 53</td>
<td></td>
</tr>
<tr>
<td><em>The Electrical Manufacturers</em>, 362</td>
<td></td>
</tr>
<tr>
<td><em>The Electric Motor and Its Applications</em>, 354</td>
<td></td>
</tr>
<tr>
<td>Thermionic valve, 232, 239</td>
<td></td>
</tr>
<tr>
<td>Thermite, 536</td>
<td></td>
</tr>
<tr>
<td><em>Thermoelectric Powers of Metals, between Boiling Point of Water and Liquid Air</em>, 237</td>
<td></td>
</tr>
<tr>
<td>Thermometer, furnace, 435</td>
<td></td>
</tr>
<tr>
<td><em>The Story of Electricity</em>, 354</td>
<td></td>
</tr>
<tr>
<td>Thompson, Silvanus P., 93, 319, 324, 507, 517</td>
<td></td>
</tr>
<tr>
<td>Thomson, Sir William, Lord Kelvin, 5</td>
<td></td>
</tr>
<tr>
<td>Thomson, Elihu, and Ball patent, on construction of valves, 84</td>
<td></td>
</tr>
<tr>
<td>attitude toward physicians, 402</td>
<td></td>
</tr>
<tr>
<td>collected papers of, 526</td>
<td></td>
</tr>
<tr>
<td>defense of Langley against Santos-Dumont, 349</td>
<td></td>
</tr>
<tr>
<td>Donald (son), 512, 513</td>
<td></td>
</tr>
<tr>
<td>Electric Company, 245</td>
<td></td>
</tr>
<tr>
<td>fear of world developments, 548</td>
<td></td>
</tr>
<tr>
<td>Houston arc generator, 425</td>
<td></td>
</tr>
<tr>
<td>Houston Company, name of, 245</td>
<td></td>
</tr>
<tr>
<td>Houston Electric Company, 64, 65, 66, 68, 172, 194, 225, 236, 504</td>
<td></td>
</tr>
<tr>
<td>Houston Company, name of, 245</td>
<td></td>
</tr>
<tr>
<td>Houston System, 194</td>
<td></td>
</tr>
<tr>
<td>invited, head of Electrical Engineering Department, M.I.T., 414</td>
<td></td>
</tr>
<tr>
<td>to join Whitney, 538, 539</td>
<td></td>
</tr>
<tr>
<td>to lecture at New York Academy of Sciences, 418</td>
<td></td>
</tr>
<tr>
<td>laboratory, 134</td>
<td></td>
</tr>
<tr>
<td>Malcolm (son), 512, 513</td>
<td></td>
</tr>
<tr>
<td>'93 alternating lamp, 522</td>
<td></td>
</tr>
<tr>
<td>prediction of military use of airplane, 349</td>
<td></td>
</tr>
<tr>
<td>recommends lead shield against X rays danger, 364</td>
<td></td>
</tr>
<tr>
<td>regrets failure to complete large mirror, 297</td>
<td></td>
</tr>
<tr>
<td>sons, 114, 115, 116</td>
<td></td>
</tr>
<tr>
<td>Stuart (son), 355, 513</td>
<td></td>
</tr>
<tr>
<td>universal double focus tube, 358</td>
<td></td>
</tr>
<tr>
<td>watthour meter, 8</td>
<td></td>
</tr>
<tr>
<td>wattmeter, 427</td>
<td></td>
</tr>
<tr>
<td>Thomson, J. J., 160, 161, 336</td>
<td></td>
</tr>
<tr>
<td>Thomson, Robert W., 131</td>
<td></td>
</tr>
<tr>
<td>Thorkelson, H. J., 280</td>
<td></td>
</tr>
<tr>
<td>Three-coil armature, 207</td>
<td></td>
</tr>
<tr>
<td>Three-hundred inch mirror, 277</td>
<td></td>
</tr>
<tr>
<td>Three-phase generator, 67, 424-429</td>
<td></td>
</tr>
<tr>
<td>Three wire distributive system, dc, 173</td>
<td></td>
</tr>
<tr>
<td><em>Through Time and Space</em>, 491</td>
<td></td>
</tr>
<tr>
<td>Thunder storm discharges, 86</td>
<td></td>
</tr>
<tr>
<td>Thyatron, 187</td>
<td></td>
</tr>
<tr>
<td>Tidal wave, 42</td>
<td></td>
</tr>
<tr>
<td>Tilghman, B. C., 31, 33, 34</td>
<td></td>
</tr>
<tr>
<td>Time, 297</td>
<td></td>
</tr>
<tr>
<td>Time-limit switch, 429</td>
<td></td>
</tr>
<tr>
<td>Third rail, 87</td>
<td></td>
</tr>
<tr>
<td>Tire, pneumatic, 129, 131</td>
<td></td>
</tr>
<tr>
<td>&quot;Toad&quot; (horned), 544</td>
<td></td>
</tr>
<tr>
<td>Todd, David, 528</td>
<td></td>
</tr>
<tr>
<td>Tokyo, World Conference of Engineering, 404</td>
<td></td>
</tr>
<tr>
<td>Tool, cutting, 132</td>
<td></td>
</tr>
<tr>
<td>Tophus, defined, 403, 409</td>
<td>in ear and foot, 403, 412</td>
</tr>
<tr>
<td>Traffic, consideration of, 174</td>
<td></td>
</tr>
<tr>
<td>Transformer, constant current, 426</td>
<td>with grounded secondary, 426</td>
</tr>
<tr>
<td>high-frequency, 427</td>
<td>long-distance transmission, 187</td>
</tr>
<tr>
<td>low potentials in secondary, high in primary, 426</td>
<td></td>
</tr>
<tr>
<td>multiple arc distribution, 428</td>
<td>oil immersed, 428</td>
</tr>
<tr>
<td>stations, 236</td>
<td>step-down, 426</td>
</tr>
<tr>
<td>water-cooled, 429</td>
<td>Transmigration, 432</td>
</tr>
<tr>
<td>Transmission, high tension, 173, 177</td>
<td>lines, protection of, 88</td>
</tr>
<tr>
<td>wireless, 143, 149, 224, 320-325</td>
<td>Transmutation of elements, 86, 89</td>
</tr>
<tr>
<td>Trapezium, 303, 304</td>
<td>Triangulum, 443, 445</td>
</tr>
<tr>
<td>Tripler, Charles E., 22, 238</td>
<td>Trolley, electric railways, 112</td>
</tr>
<tr>
<td>Trotter, Alexander P., 521, 522</td>
<td>Trucks, electric, 178</td>
</tr>
<tr>
<td>Tube, blue, 365</td>
<td>Crookes, 364</td>
</tr>
<tr>
<td>Geisler, 513, 514</td>
<td>single focusing, 363, 366, 370</td>
</tr>
<tr>
<td>Swinton, 361</td>
<td>vacuum, adjustable, 364</td>
</tr>
</tbody>
</table>
INDEX

Tungsten, 124, 126, 152, 173, 361, 535
Tunnel for locating iron (Meteor Crater), 43, 44
Turbine, steam, 99
Turner, (Oxford University), 460
Turtles, 548
Two-cathode X-ray tube, 367
Tycho (lunar crater), 38, 42, 253
Typhoid fever, 548

Uniflow engine, 75, 421
Unipolar dynamo, 87
United States, Bureau of Standards, 493, 510, 512, 535
Electric Lighting Company, 375
Electrical Commission, 493, 496
Geological Survey, 31-33
Naval Consulting Board, 535
Universal vacuum tube (Thomson), 358-363

Universe, expanding, 491
infinite, 187

Uranium target, 370
Urate of Sodium, 186, 403, 407-409, 411, 412, 545

Vacuum, adjuster, 366
jacket, 237
by liquid air, 422-424
tube, adjustable, 364
universal, 358-363

Valve, thermionic, 232, 239

Variations in Electrical Resistance of Bismuth, 237

Varley, flexible carbon lamp, 196, 199
Viscosity meter, 107

Vodges, Edward W., 245
“Voicing” of organ pipe, 385, 386

Volt, 177
determination of, 332
Volta, Alessandro, 170
medal, 169-170

Voltage, low, distribution, 151
Voltmeter, 8, 21
electrostatic, 12

Volz, merchant, Canyon Diablo, 31

Wahl, William H., 248, 250
Wallace-Farmer Co., 172
War, atrocities, 526
clouds over Europe, 215

Ward Motor Electric Co., 178
Washing machine, electric, 156
Water-cooled transformer, 429

Wattmeter, 427; See also Thomson

Wave, electromagnetic, 318, 319
Maxwellian, 318, 319, 321, 323
theory, Clark Maxwell, 150

trains, continuous, 86

Weather probabilities during solar eclipse, 533, 534

Webber, equivalent of ampere, 176

Wehnelt Electrolytic Interrupter, 370

Welding, electric, 135, 153, 158, 161-165, 167, 426

atomic hydrogen, 163, 165
pipe, 162

Russian bell, 532

shields arc, 162, 165

ships, 389

Society of America, 158

Welsh, William H., 270

Westinghouse Company, 69, 75, 143

Weston Company, 200

Wheatstone stereoscope, 79

Wheeler, entomologist, 376

“Whirling table,” 61

Whitish streaks on lunar craters, 38, 42

Whitney, Willis R., 535

Why the 200-Inch Telescope?
(Thomson), 181

Wightman, J. M., 19

Wiley, Harvey, 172

Williams engine, 82

Wilson, Woodrow, 130, 132

Wireless transmission, 143, 149, 224, 318, 320-325, 500, 501

of energy, 113, 115

Wires, along roadway, for propelling cars, 113
fine, 537

Wobbler-crank engine, 90

Work in the First Decade of Roentgenology (Thomson), 51

World Conference of Engineering, Tokyo, 404

World, “small,” 142

Wormley, Theodore G., 242, 243

Wurtz, Adolphe, 241

X Ray, 356, 360, 361, 371, 387, 417, 421, 429, 535

X-Ray, burns, 247
spectrometer, 47

stereoscopic picture, 79, 366, 429

Thomson’s warning of danger, 247, 364
tube, Coolidge, 78
INDEX

Yerkes, Charles T., 251
Yerkes Observatory, 434, 438-440

Zeta in Auriga, eclipse of, 344
Zonal test, 57