

INDEX

The references are to the pages

- Abel's great paper, involving investigation of genus of a curve, 59; theorem for a sum of algebraic integrals, 51, 54; converse of, 144, 171, 176; theorem of interchange of argument and parameter, 172
- Adjoint polynomial for expression of rational function, 60, 62; adjoint ϕ -curves may have common point not on original curve, 72; may have common part, 72
- Albanese, elimination of multiple points of a plane curve, 31
- Alexander, on Castelnuovo's reduction of a Cremona transformation, 45
- Algebraic series of sets of points, 3
- Babbage, on a curve defined by a special series, 98
- Bacharach, and Cayley, theorem for intersection of plane curves, 99
- Bath, Canonical curve of genus six on Del Pezzo surface, 239
- Benoist, *see* Clebsch, Lindemann-Benoist
- Bertini, Cremona transformation of pure adjoint system, 72; theorem as to reducible linear system of curves, 72; equivalence of points of a set of a linear series, 77; postulation of the complete intersection of primals, 101; on the method of loops for periods, 119; on lowest order of a manifold of given dimension in given space, 241
- Berzolari, on Weierstrass points, in *Enzykl. Math. Wiss.*, 90; article in *Pascal's Repertorium*, 213
- Birational transformation of a curve in general terms, 51
- Branch of a curve, 35, 184
- Branch place on a Riemann surface, 122
- Brill and Noether, Report on theory of algebraic functions, 45, 78; fundamental paper, 78
- Brill, on number of special series, 92
- Bronowski, on canonical forms, 109
- Canonical form for the equation of a manifold, 107
- Canonical series on a curve, 77, 79, 82; canonical curve, representing non-hyperelliptic curve, 81; canonical series determined from Jacobian series, 84; canonical series on curve in space, 226, 239
- Castelnuovo, reduction of Cremona transformation to quadratic transformations, 45; on fundamental curve as part of adjoint system, 72; and Enriques, number of conditions which a surface can satisfy, 96; memoir on curves and surfaces, 224; maximum genus for curve of given order, 234
- Cayley, sextactic points, 21; intersection of branches of a curve, 32; integration of a differential equation involving elliptic integrals, 56; and Bacharach, theorem for intersection of plane curves, 99; formulae for a curve in ordinary space, 191; deduced from general principles, 192; and Zeuthen, formulae for curve by projection and section, 197; use of term monoid, 214
- Cell, in triangulation of a surface, 125
- Chisini, *see* Enriques-Chisini
- Clebsch, Lindemann-Benoist, theory of ternary cubic form, 21; and Gordan, treatise on Abelian theory, 78; on method of loops for integrals, 119
- Clifford, theorem for special series, 32, 80, 82; extended, for general curve, 90; suggestion for minimum order of manifold of given dimension in given space, 241
- Complementary special series, 82
- Complete linear series, 65
- Conditions, number which can be satisfied by a curve, 95, 96
- Contact ϕ -curves, 95
- Coresidual sets on a curve, 65; theorem of coresiduality, 67
- Cross line, on a Riemann surface, 122; cross cut (Querschnitt), 127

- Cubic curve, theorem of coresiduation, 19; investigation of points of inflexion, three methods, 19, 20; sextactic points, 21; Salmon's theorem of relation with Hessian, 22; covariant expression of finite integral thereon, 22
- Curve, linear system of curves contained in a given system, 25; with two infinitely near triple points, representation in space, 34; curve systems on a surface, topological characters, 132; enumerative properties of curves in ordinary space, 182; definition of stall, cusp, inflexion, 186; notation used, 189; in higher space, enumerative formulae, 199; in ordinary space, which are complete intersections, 201; which are partial intersections, 208; expressed as intersection of manifolds, 182, 211; simplest cases, 212; on a quadric surface, 213; on a cubic surface, 214; curve intersection which is composite, 215; curve on a ruled surface, 216; on a manifold generated by linear spaces, 179
- Cycle of values of one coordinate on a curve, 36
- Dedekind, and Weber, modular treatment of integral algebraic functions, 59, 147
- Dickson, equation for inflexions of plane cubic curve, 21
- Difference of two complete linear series, 67
- Dimension of an integral algebraic function, 150
- Discriminant of a system of integral functions, 157
- Dixon, equation of plane curve by symmetrical determinant, 110
- Double planes which are rational, 110
- Elliptic curve, 11, 13, 14, 15, 17, 18; Halphen's theorem of linear pencil, 23
- Elliptic functions, character of, order of, 16
- Enriques and Castelnuovo, conditions for a surface, 96; memoir on curves and surfaces, 224
- Enriques-Chisini, *Teoria geometrica*, sextactic points, 22; multiple points, 45; number of moduli, 95; degeneration of a curve in space, 209; curve requiring four surfaces to define it, 211; on special series, 238
- Enriques, quadrics containing the canonical curve, 96
- Equivalence of a curve for surfaces through it, 210
- Equivalent sets of points on a curve, 65
- Euler's identity for a polyhedron, 133
- Fields, theory of algebraic functions, 177
- Finite integral, expression of, 64, 160
- Freedom of a linear series, 3, 24
- Fricke, *see* Klein-Fricke
- Function, rational, *see* Rational
- Fundamental theorem for residues of a rational function, 47
- Galois, group invariants, 67; periods of algebraic integral, 116
- Gap theorem, due to Weierstrass, 86, 89
- Genus of a curve, 59, 77; definable by minimum order of rational function with arbitrary poles, 82; definable by winding index, 83, 86; by modular expression of rational function, 157, 161; of a composite curve, 209, 215; maximum possible for curve of given order, 234
- Gergonne, on intersections of curves, 224
- Gordan, *see* Clebsch and Gordan
- Grade of a linear series, 3, 24, 78
- Halphen, a pencil of elliptic curves, 23; theory of branches of a curve, 187; chords to curve of intersection of two surfaces, 204; memoir on curves, 213; curves on a quadric surface, 214; treatise on elliptic functions, 23
- Hensel, on fundamental integral functions, 176; Hensel-Landsberg, theory of modular expression for algebraic functions, 176
- Hesse, plane quartic curve expressed by a symmetrical determinant, 110; equation of osculating plane of curve in space, 206
- Hessian of a pencil of plane cubic curves, 21

Index

245

- Hurwitz, minimum number of Weierstrass points, 90
- Hyperelliptic curve, 27, 28; in standard form, analysis of multiple point, 33, 45; represented on a ruled surface, 33; characterised by existence of rational function of order two, 50, 79; reducibility of adjoint curve, 72; fundamental integrals for, 177
- Independence of multiple points of a curve for adjoint curves, 72
- Index of an algebraic series, 4
- Inflexions of a plane cubic curve, 21
- Integral, everywhere finite, expression of, 64, 160; periods, 111, 141; various kinds of, 136; elementary of the third kind, 137, 164; of the second kind, 137; elementary normal of the third kind, 143; periods, 141, 144; interchange of argument and parameter, 144, 171; modular expression of, 147; everywhere finite, used to transform a curve, 178; on curves in space, 231
- Integral functions, fundamental system for, 149; properties of system, 151; fundamental matrix relation for, 155
- Integration of total differential equations, 56
- Interchange of argument and parameter, 144, 171
- Inversion theorem, Jacobi's, 145
- Involution on a rational curve is rational, 4
- Jacobi, on intersection of curves, 224
- Jacobian series of a linear series, 83, 85
- Klein-Fricke, quartic curve with maximum number of collineations, 32; definition of canonical curve, 240
- Krazer, treatise on theta functions, 146
- Kronecker, memoir on algebraic functions, 67; modular treatment of integral functions, 147; elimination of multiple points, 157; prime function for algebraic functions, 172; algebraic definition of a manifold, 182; elimination from two binary forms, 202
- Lasker, criterion for a canonical form, 109
- Laurent's theorem, history of, 42
- Lindemann, edition of Clebsch's lectures, 21
- Linear series, 24, 59; complete, 65; sum and difference, 67; notation for, 78; on a curve in space, 217
- Loops on a plane, for periods of algebraic integrals, 111, 113; loop cut on a Riemann surface, 128
- Lüroth, on method of loops for periods, 119; reducibility of linear systems, 72
- Macaulay, postulation of a manifold, 101
- Manifold, expressed by intersection of primals, 182
- Milne, on contact adjoint curves, 95
- Mittag-Leffler, history of Laurent's theorem, 42
- Modular theory of rational functions and integrals, 147
- Moduli of a curve, in general, 94
- Moebius, curve system on a surface, 132
- Molk, exposition of Kronecker's methods, 182
- Monogeneity of algebraic function, 44
- Multiple points, elimination of, 24; maximum number for plane curve of given order, 10; minimum number for curve of general moduli, 93
- Netto, equation for inflexions of plane cubic curve, 21; on an algebraic theorem, 202
- Neumann, on Riemann's theory, 78, 132
- Neutral set of points, 25
- Newton's polygon for the analysis of a multiple point, 46
- Noether, procedure for description of a multiple point, 45, 46; theorem for plane curves, for theorem of coresiduation, 67; and Brill, fundamental paper on theory of linear series, 78; Report on algebraic functions, 78; on number of conditions a curve can satisfy, 96; on composite curves, 100; and Severi and Bertini, theorem for postulation of a manifold, 101; chords to curve of intersection of two sur-

- Noether** (*cont.*)
 faces, 204, 219, 224; memoir on theory of curves, 213; theorem for canonical series on a curve, 218; greatest genus of a curve on a surface, 240
- Normal curve** defined, 81; conditions for, 98
- Olivier**, theorem for the intersection of curves, 107
- Order** of a rational function on a curve, 46, 49
- Oriented cell** on a Riemann surface, 125
- Oval cut** on a Riemann surface, 123, 128
- Palatini**, on canonical forms, 109
- Parametric representation** of a branch of a curve, 39; deducible from non-singular space representation, 44
- Pascal's** *Repertorium*, article by Berzolari, 213
- Periodic function**, multiply, 146
- Periods** of algebraic integrals, 111, 136, 141; for everywhere finite integrals, array of, 141
- Pezzo**, Del, surface defined, 97, mentioned, 96, 98; paper referred to, 241
- Picard-Simart**, genus of a composite curve, 209, 215
- Pick**, covariant form for elliptic integral, 22
- Pinhole boundary**, on a Riemann surface, 127
- Place**, a point of a curve as centre of a branch, 35
- Pliable linear system** of curves, defining a simple linear series, 25
- Postulation** of a manifold for primals, 101
- Prime function**, Weierstrass's, for algebraic functions, 174
- Puiseux**, expression of branch of curve by a parameter, 43
- Pure adjoint system** of a curve, 72
- Quadrics** containing the canonical curve, 96, 238
- Quartic plane curve**, 13, 177
- Rank**, in topological theory of a surface, 127
- Rational curve**, 2, 5, 6, 7, 8, 13, 79, 197
- Rational function**, order of, 46, 49; fundamental theorem for residues of, 47; explicit expression of, 57; by adjoint polynomials, 63; minimum order of, 82, 92; condition for poles of, 86; expression by integrals, 139; fundamental integral, 140; expression, modular, 147
- Rational series** of sets of points, 2
- Reciprocal functions** from fundamental integral functions, 157, 164, 169
- Reduction** of linear system by contained system, 26, 29, 30
- Riemann surface**, 121; topology of, 124, 134; fundamental formula, 132; example, 134
- Riemann-Roch formula**, for series and functions, 68, 78, 170; Riemann on moduli, 94; normal elementary integrals, 143; relations for periods, 145
- Roch**, with Riemann, formula, 68, 78, 170
- Room**, number of conditions which a Veronese, or a Del Pezzo surface, can satisfy, 96
- Salmon-Cayley**, formulae for a curve in ordinary space, 191; deduced from general principles, 192
- Salmon**, chords to curve of intersection of two surfaces, 204; equivalence of a curve of intersection, 210
- Scheibner**, elimination from two binary forms, 202
- Scorza**, on canonical forms, 109
- Scott**, reduction of a certain curve, 32
- Segre**, sextactic points, 22; representation of a hyperelliptic curve on a ruled surface, 33; on Noether reduction of a multiple point, 45, 46; on minimum number of Weierstrass points, 90; Segre and Zeuthen, invariant of a surface, 135; relation for a curve lying on a scroll, 179; algebraic definition of a manifold, 182; formulae for curve in higher space, 200; on space in which rational ruled surface is normal, 235
- Series**, linear, on a curve in space, 217
- Severi**, treatise on algebraic geometry (1927), 31; Severi-Löffler, Algebraic

Index

247

- Severi (*cont.*)
 geometry (1921), on number of moduli of a curve, 95; on loops for periods of algebraic integral, 119; on reduction of period system for multiply-periodic function, 146; degenerate forms of a general curve, 209; completeness of series on curve intersection, 226; canonical series on a curve in space, 219, 239
- Sextactic points on plane cubic curve, 21
- Simple linear series, 77, 83, 79
- Special set and linear series on a curve, 77, 78, 81, 90, 92, 96, 97, 180, 236, 177, 238
- Stall, point of stationary osculating plane of a curve, 186
- Stationary point (cusp) of a curve, 186
- Steiner, inflexions of a plane cubic curve, 21
- Stiff linear system of curves defining a non-simple linear series, 25
- Sum of two complete linear series, 67
- Surfaces, Riemann, 121; topology of, 124, 134; fundamental formula, 130; example, 134
- System of curves, topological characters, 132
- Tact invariant of a curve, 86
- Terracini, canonical forms for equation of quadrics, 108, 109
- Theta function, construction of, 145; zeros of Riemann's, 145
- Todd, cubic curves satisfying twelve conditions, 98; rational quartic curves, 98
- Topology of a Riemann surface, 124; fundamental formula, 130
- Transformation of a curve by a linear system, 26, 29, 83, 93; of non-hyper-elliptic curve, 82
- Traverse, on a Riemann surface, 127
- Ursell, conics and quadrics satisfying eight and nine conditions, 98
- Vahlen, curve requiring four surfaces for its definition, 211
- Valentiner, memoir on curves in space, 213; chords to curve of intersection of two surfaces, 204
- Veronese, formulae for curve in higher space, 200; Veronese surface, 96, 98
- Wakeford, a criterion for a canonical form, 109
- Weber, inflexions of a plane cubic curve, 21; modular treatment of algebraic functions, 147
- Weierstrass, preparatory theorem, 36; on Laurent's theorem, 42; gap theorem, 86, 89; on periods of algebraic integrals, 119; prime function for algebraic functions, 174; normal form for a plane curve, 181; Weierstrass points on a curve in higher space, 201
- Welchman, rational quartic curve, 98
- White, on rational quartic curve, 98; a theorem for plane curves, 107
- Winding index at a branch place, 44, 83, 156
- Zeuthen, Text-book on enumerative geometry, the postulation of a particular set of points, 107; Zeuthen-Segre invariant, 135; and Cayley, formulae for curve in space, 197