

GLOSSARY

The following list includes for the most part only terms actually employed in the text. Many obsolete terms included in former editions have been omitted; those still mentioned are enclosed in brackets. Wherever convenient the derivation of each term, with its author and date of first use, are given; but no attempt at completeness in this respect has been made. Most of the derivations are from the Greek.

- Achromatin** (see **Chromatin**), (*a*, without; *chroma*, color), originally applied to the non-staining or oxyphilic components of the nucleus, including especially the linin or plastin and nucleolar substance, but sometimes applied also to the enchylema or the membrane. (FLEMMING, 1879.)
- Acidic** (originally "acid"), applied by Ehrlich to dyes (in particular coal-tar colors) in which the color-determining radical plays the part of an acid. They are in general "plasma-dyes" (eosin, light-green, orange G, etc.).
- Acroblast** (*akros*, tip; *blastos*, bud, germ), a body or group of bodies in the spermatid, derived from the substance of the idiozome and Golgi-bodies, from which arises the acrosome. Variouslly called "idiosome," "sphere," "archoplasm," etc. (KING, '07-'08.)
- Acrosome** (*akros*, tip; *soma*, body), the apical body or "perforatorium," situated at the anterior tip of the sperm. Originally applied to a granule within the acroblast from which the acrosome arises. (LENHOSSÉK, 1897.)
- Alecithal** (*a*, without; *lekithos*, yolk), applied to eggs having little or no yolk. (BALFOUR, 1880.)
- Allelomorph** (*allelon*, one another; *morphe*, form), one of a pair of alternative hereditary units or characters. (BATESON and SAUNDERS, 1902.)
- Alloplasmatic or alloplasmic formations** (alloplasm), specially differentiated elements of the cell such as the neurofibrils and myofibrils, not forming autonomous organs, but arising as special transformations of the cell-substance for the performance of special functions; contrasted with "protoplasmatic formations" (plastids, chromosomes, centrosomes) which form autonomous organs capable of division. (MEYER, 1896.)
- Allosomes** (*allos*, other; *soma*, body) = **Heterochromosomes**, *q. v.*, special kinds of chromosomes distinguished from the ordinary chromosomes or *autosomes* by certain peculiarities of behavior. (MONTGOMERY, 1906.)
- [**Allotypical**] (*allos*, other), applied to the special types of mitosis (heterotypical or homeotypical) concerned in meiosis. (STRASBURGER, '1905.)
- Amitosis** (*a*, without); (in contradistinction to **Mitosis**, *q. v.*), direct or amitotic nuclear division; mass-division of the nucleus without the formation of spireme, chromosomes or spindle-figure. (FLEMMING, 1882.)
- Amphiaster** (*amphi*, both; *aster*, a star), the achromatic figure in mitosis, comprising two asters connected by a spindle. (FOL, 1887.)

- Amphikaryon** (*amphi*, both; *karyon*, nut, nucleus) (*cf.* **Hemikaryon**), a diploid nucleus containing two haploid groups of chromosomes or their descendants. (BOVERI, 1905.)
- Amphimixis** (*amphi*, both; *mixis*, mingling), the union or association of paternal and maternal elements by syngamy. (WEISMANN.)
- Amphinucleolus** (*amphi*, both), a double nucleolus consisting typically of a basophilic and an oxyphilic component in close association.
- [**Amphipyrenin** (*amphi*, both), see **Pyrenin**], the substance of the nuclear membrane. (SCHWARZ, 1887.)
- Amphitene** (= **Zygotene**, **Synaptene**, *q. v.*) (*amphi*, both; *tænia*, band, ribbon), the synaptic stage of meiosis in which the nucleus contains thin spireme-threads (*leptotene*) uniting two by two to form thick threads (*pachytene*). (JANNSSENS, 1905.)
- Amyloplasts** (*amylum*, starch; *plastos*, formed), the colorless starch-forming plastids of plant-cells. (ERRERA, 1882.)
- Anachromasis** (see **Katachromasis**) (*ana*, up, up along), the sum total of the prophasic transformations of the nucleus by which arise the spireme-threads and chromosomes. (VEJDOVSKÝ, 1907.)
- Anaphase** (*ana*, up, up along; *phasis*, appearance), the period of mitosis following the metaphase, during which the daughter-chromosomes are passing towards the poles. (STRASBURGER, 1884.)
- Anaschistic** (*ana*, as in anaphase; *schistein*, to cleave) (= *Eumitotic*), applied to bivalents or tetrads that undergo two longitudinal divisions in meiosis and are typically split longitudinally in the anaphases of the heterotypic division. Correlative, *Diaschistic*. (FARMER and MOORE, 1905.)
- Androcytes** (*aner*, man; *kytos*, hollow, cell), the equivalent of *spermatid* in the case of the sperm-producing cells of plants. (ALLEN, 1912.)
- Androgenesis** (*aner*, man), development of the egg with only chromosomes and nuclei of paternal origin. Correlative to *Gynogenesis*.
- Androgonia** (*aner*, man; *gonos*, offspring), the earlier cell-generation from which arise the androcytes and sperm-cells of plants. (ALLEN, 1912.)
- Anisogamy** (see **Isogamy**) (*a*, not; *isos*, equal; *gamos*, union), in general, the condition in which the gametes are unlike. More specifically, a condition characterized by a size-difference between gametes which are otherwise of similar type.
- Anisotropy** (see **Isotropy**) (*a*, not; *isos*, equal; *trepein*, to turn), having a pre-determined axis or axes (as applied to the egg). (PFLÜGER, 1883.)
- Antherozoids** (see **Spermatozoid**, **Sperm**) (*anthos*, flower; *zoön*, animal; *eidos*, resemblance), the microgametes (usually motile) in heterogamous plants, *e. g.*, in algae, bryophytes or pteridophytes.
- Antipodal cone**, the cone of astral rays opposite the spindle. (VAN BENEDEN, 1883.)
- Antithetic** (as applied to alternation of generations), alternation between haploid (gametophyte) and diploid (sporophyte) generations, which are usually of different structural type; opposed to *homologous* alternation.
- Apogamy** (*apo*, away; *gamos*, marriage, union), the production of a sporophyte from the gametophyte by a vegetative process, without the formation or union of gametes. (DE BARY, 1878.)
- Apospory** (*apo*, away; *sporos*, seed, spore), the production of a gametophyte from

the sporophyte by a vegetative process (budding or the like) without spore-formation or meiosis. (BOWER, 1887.)

Apparato reticolare = the *Golgi-apparatus* or the *Golgi-bodies* collectively, specific formed components of the cytosome, distinct from the chondriosomes. (GOLGI.) See p. 48.

Apyrene (*a*, without; *pyren*, fruit-stone, nucleus), pathological sperms occurring in certain animals (Lepidoptera) and characterized by the absence of a nucleus, contrasted with *eupyrene*, *oligopyrene*, *q. v.* (MEVES, 1903.)

Archiplasm or **Archoplasm** (*archi*, first; *archon*, ruler; *plasma*, a thing formed), the substance of which consist, or from which arise, the spindle-fibers and astral rays; believed by Boveri to constitute a specific material; nearly equivalent to **Kinoplasm** (*q. v.*). Originally written *archoplasm* (1888), later changed to *archiplasm* (1901). (BOVERI, 1888.)

[**Arrhenokaryon** (**Arrhenokaryotic**)] (*arrenos*, male; *karyon*, hollow, nucleus), the sperm-nucleus. The arrhenokaryotic organism arises from an egg (or egg fragment) having only paternal nuclei. (BOVERI, 1905.)

Aster (*aster*, a star). 1. The radiating, star-like structure surrounding the central body, during mitosis or in the vegetative condition of the cell. (FOL, 1877.) [2. A star-shaped group of chromosomes seen in mitosis (see **Karyaster**, both terms in this sense obsolete). (FLEMMING, 1892.)]

[**Astrocenter**], the central body. (FOL, 1891.)

Astrosphere (see **Centrosphere**). 1. The central mass of the aster exclusive of the rays, equivalent to the attraction-sphere of Van Beneden, the centrosphere of Strasburger, or the centrosome of Boveri. (FOL, 1891.) [2. The entire aster exclusive of the centrosome, equivalent to the "astral sphere" of Mark. (BOVERI, 1895)].

[**Attraction-sphere**] (see **Sphere**, **Centrosphere**, **Centrosome**), the central mass of the aster from which the rays proceed; also the mass of "archiplasm," supposed to be derived from the aster, by which the central bodies are surrounded in the "resting" cell. In this sense often equivalent to *idiozome*. (VAN BENEDEN, 1883.)

Atelomitic (*a*, not; *telos*, end; *mitos*, thread), non-terminal, as applied to the attachment of chromosomes to the spindle, in contradistinction to *telomitic* or terminal. (CAROTHERS, 1917.)

[**Autoblast**] (*autos*, self; *blastos*, bud, germ), applied to bacteria and other minute organisms conceived as independent solitary "bioblasts." (ALTMANN, 1890.)

Axial filament, the central filament, probably contractile, of the sperm-flagellum. (EIMER, 1874.)

Autogamy (*gametes*, spouse), originally, self-fertilization; more recently often used to denote the conjugation of closely related cells or (in Protista) karyogamy within a single cell.

Autosomes (*autos*, self; *soma*, body), the typical or ordinary chromosomes as distinguished from the specially modified heterochromosomes or allosomes. Synonymous with *euchromosomes*. (MONTGOMERY, 1906.)

Auxocyte (*auxein*, to grow or increase; *kytos*, hollow, cell), the cyte (spermatocyte, oöcyte, or sporocyte) during the growth-period. (BOLLES LEE, 1897.)

Auxospireme (*auxein*, to grow; *spireme*), a term somewhat vaguely applied to the spireme of the auxocytes. (JANSSENS, 1905.)

Basic (dyes), a term applied primarily to the coal-tar colors, in which the color-

determining radical plays the part of a base (used in contradistinction to *acidic dyes*, *q. v.*), *e. g.*, safranin, methyl green, or Bismarck brown. Basic dyes are in general "nuclear" as distinguished from "plasma" staining agents. (EHRlich.)

Basichromatin (see **Chromatin**) (*L. basis*, base; *chroma*, color), equivalent to "chromatin" in the older sense. The basophilic part of the nuclear substance which is deeply stained by basic dyes (*q. v.*), in contradistinction to *Oxychromatin*. (HEIDENHAIN, 1894.)

Basophilic (**Basiphilic**, **Basophilous**) (*philein*, to love), having a special affinity for basic dyes. Used in contradistinction to *Oxyphilic* (*q. v.*).

[**Bioblasts**] (*bios*, life; *blastos*, bud, germ), hypothetical, ultimate vital units (equivalent to *plasomes*, *biophores*, *pangens*, etc.) and identified as granules, visible or invisible, having the power of growth and division. (ALTMANN, 1890.)

Biogens (**Biogenes**) (*bios*, life; *-gen*, producing), hypothetical large molecules or molecule-complexes, of which "living matter" is composed, and in the properties of which lies the source of the protoplasmic or "vital" activities. (VERWORN, 1895.)

Biophores (*bios*, life; *pherein*, to carry), hypothetical, ultramicroscopical, supra-molecular vital units (equivalent to *pangens* of De Vries, *plasomes* of Wiesner, etc.). (WEISMANN, 1893.)

Bioplasm (*bios*, life; *plasma*, a thing formed), nearly equivalent to *protoplasm* in the wider sense. The active, "living," "formative" or "germinal" part of the cell-substance; perhaps equivalent to *hyaloplasm* (*q. v.*). (BEALE, 1870.)

Bioplast (*bios*, life; *plastos*, formed) (see **Protoplast**, **Energid**), nearly equivalent to *cell*, applied especially to the sum-total of the active "bioplasm." (BEALE, 1870.)

Bivalent (see **Univalent**) (*bis*, twice; *valere*, to be worth), having a double value. Applied to double chromosomes or "gemini" formed by the coupling of two chromosomes, especially in the process of synapsis. (HAECKER, 1892.)

Blepharoplast (*blepharis*, an eye-lash; *plastos*, formed), the basal body from which a cilium or flagellum grows forth. In many cases identical with a centriole. (WEBBER, 1897.)

Bouquet, the polarized stage of synapsis in which the spireme-threads, commonly loop-shaped, are polarized towards one pole of the nucleus near which the central bodies lie. (EISEN, 1900.)

Canalicular apparatus, a term employed by those who consider the Golgi-apparatus to be essentially a system of intra-cellular canals. (HOLMGREN.)

Caryotin (see **Karyotin**), the substance of the nuclear reticulum, including both "chromatin" (basichromatin) and "linin" (oxychromatin) in the ordinary sense. (LUNDEGÅRDH, 1910.)

Cell-plate (see **Phragmoplast**, **Mid-body**), a protoplasmic lamella arising as a series of thickenings of the spindle-fibers in the equatorial plane which fuse to form a continuous plate. This splits into two layers between which the new partition-wall is formed. (STRASBURGER.)

Cell-sap = **Enchylema**, **Cytochylema**, etc.

Central Bodies, a vague term designating the structures at the center of the aster, during mitosis. They include the minute *centriole* at the focus of the aster, and a larger *centrosome* by which it is surrounded. It is often difficult

to determine whether a central body represents one or the other or both of these structures.

- Central spindle**, the primary spindle by which the central bodies are connected, as opposed to the "contractile mantle-fibers" by which it is surrounded. (HERMANN, 1891.)
- Centriole** (see **Central Body**), (diminutive of *centrum*, center), a minute body, commonly surrounded by the centrosome (*q. v.*), lying at the center of the aster. It is often regarded as an autonomous cell-organ arising only by the growth and division of a preëxisting centriole. (BOVERI, 1895.)
- Centrodasmus, Centrodasmose, Centrodasm** (*kentron*, center; *desmos*, band), the primary connection between the centrioles from which the central spindle has been assumed to arise. See **Paradasmose**. (HEIDENHAIN, 1894.)
- Centrolecithal** (*kentron*, center; *lekithos*, yolk), applied to that type of ova in which the yolk is mainly accumulated in the central region. (BALFOUR, 1880.)
- [**Centromere**] (*kentron*, center; *meros*, part), that part of the sperm containing the central bodies; especially the neck-region. See **Karyomere, Cytomere**. (WALDEYER, 1903.)
- [**Centronucleus**], a nucleus that contains a central body or which itself plays the part of a division-center. (BOVERI, 1901.)
- Centrophormium** (*kentron*, center; *phormis*, a basket), a form of the Golgi-apparatus which appears in the membrane of Descemet as a basket-like hollow sphere. (BALLOWITZ, 1900.)
- Centroplasm** (*kentron*, center; *plasma*, as in protoplasm), the substance of the centrosome. (ERLANGER, 1897, more precisely defined by BOVERI, 1901.)
- Centrosome** (*kentron*, center; *soma*, body). 1. Originally, the central body lying at the astral center, and constituting an autonomous cell-organ; the division-center or dynamic center of the cell. (BOVERI, 1888.) 2. Subsequently, in a more specific sense, the larger central body, composed of *centroplasm*, within which lies the much smaller *centriole*. (BOVERI, 1895, 1901.)
- Centrosphere** (see **Sphere**, etc.), a relatively large central body lying at the center of the aster during mitosis, but assumed to persist in many cases in the vegetative state of the cell; equivalent to the "attraction sphere" of Van Beneden, and in many cases to the centrosome of Boveri. (STRASBURGER, 1893.)
- Centrotheca (Idiozome or Idiosome, q. v.)** (*kentron*, center; *theke*, a case or box). (MEVES, 1902.)
- Centrum** (see **Central Body, Centrosome, Centrosphere**), often used as equivalent to *central body* (*q. v.*). A term of somewhat vague meaning applied to the division-center of the cell.
- Chiasmotype (Chiasmotypy)** (*chiasma*, two crossed lines, like an X-figure), the supposed cytological process of "crossing over" by torsion of the synaptic mates, fusion at certain points, and recombination. (JANSSENS, 1909.)
- Chloroplastids** (*chloros*, green) green plastids which possess chlorophyll and have the power of forming starch by photosynthesis. (SCHIMPER, 1883.)
- Chondriocent** (*cf. Chondriomites*) (*chondrion*, granule), chondriosomes (*q. v.*) in the form of homogeneous rods or fibrillae. (MEVES, 1907.)
- Chondrioma** (*chondrion*, granule), a collective term for the entire chondriosome-system of the cell. (MEVES, 1908.)

- Chondriomere = Plastomere** (*q. v.*) (MEVES, 1918), (*chondrion*, granule; *meros*, part).
- Chondriomite** (*cf.* **Chondriocent**) (*chondrion*, granule; *mitos*, thread), chondriosomes (*q. v.*) having the form of linear series of granules (mitochondria), in contradistinction to homogeneous **chondriocent**s. (MEVES, 1900.)
- Chondriosomes** (*chondrion*, granule; *soma*, body), a generic term including all forms of mitochondria, chondriocent, chondriomites and other cytoplasmic bodies of the same nature. (BENDA, 1904.)
- Chondriosphere**, a chondriosome having the form of a sphere. (BENDA.)
- Chromatid**, each of the four parts (univalent chromosomes) of which a meiotic tetrad is composed. (McCLUNG, 1900.)
- Chromatin** (*chroma*, color), equivalent to *basichromatin* in the modern sense. Originally applied to the basophilic part of the nuclear substance which forms the most conspicuous part of the nuclear network and the chromosomes, and stains deeply with the "nuclear" or basic dyes. (FLEMMING, 1879.)
- Chromatoid bodies** (chromatin, *eidōs*, form), intensely staining cytoplasmic bodies of unknown function found in the spermatocytes and passed on to certain of the spermatids. They are probably always cast out of the sperm.
- Chromatophore** (*chroma*, color; *pherein*, to bear), a general term applied to color-producing plastids, including chloroplasts and chromoplasts. (SCHAARSCHMIDT, 1880, SCHMITZ, 1882.)
- Chromidia** (*chroma*, color), minute granules of chromatin supposed to be derived from the nucleus or constituting a scattered chromidial system lying in the cytoplasm, appearing in the form of separate granules or forming a chromidial network. (R. HERTWIG, 1902.)
- Chromiole**, the smallest visible organized parts of the chromosomes, grouped to form chromomeres (*q. v.*) (EISEN, 1900.)
- Chromomeres** (*chroma*, color; *meros*, part.) 1. First employed as equivalent to *chromosomes* but in this sense obsolete. (FOL, 1891.) 2. The serially aligned granules of the spireme-threads of chromosomes; equivalent to "Pfitzner's granules" or Weismann's "ids," believed in many cases to be composed of smaller *chromioles*. (WILSON, 1896.)
- Chromonema** (*chroma*, color; *nema*, thread), a fine basichromatic thread from which arises the spireme-thread. (VEJDOVSKÝ, 1912.)
- Chromoplasts** (*chroma*, color; *plastos*, formed) 1. Pigment-producing plastids, other than the chloroplasts (originally written **Chromoplastids**). (SCHIMPER, 1883.) 2. The large, basichromatic nucleolus or nucleoli of the pre-synaptic nuclei. (EISEN, 1900.)
- Chromosomes** (*chroma*, color; *soma*, body; in allusion to their intense staining-capacity), separate, deeply staining basophilic bodies, commonly rod-shaped or loop-shaped, into which the substance of the nuclear network resolves itself during mitosis, and which split lengthwise in the course of this process. (WALDEYER, 1888.)
- Cleavage-nucleus**, the primary nucleus of the egg which gives rise by division to all the nuclei of the embryo. In the fertilized egg it is the zygote-nucleus, in the parthenogenetic egg, the egg-nucleus.
- Cœnocyte** (*koinos*, common; *kytos*, hollow, cell), a syncytial plant-body, as in various algæ and fungi.

- Cœnogamete** (*koinos*, common) a multinucleate gamete. (DAVIS, 1900.)
- Crossing over**, the recombination of genes or Mendelian units by interchange between homologous linkage-groups or synaptic mates. (STURTEVANT, 1912.)
- Cyanophilous** (*kyanos*, blue; *philein*, to love), having an especial affinity for certain blue or green dyes as opposed to red. See **Erythophilous**. (AUERBACH.)
- Cytaster** (*kytos*, as in cytoplasm; *aster*, a star). 1. The same as *aster* (*q. v.*), in contradistinction to *karyaster*. (FLEMMING, 1882.) 2. An aster not associated with chromosomes; commonly employed as equivalent to "accessory aster" or supernumerary aster. (*Cytoaster*, MOTTIER, 1897, *Cytaster*, WILSON, 1901.)
- [**Cytoblast**] (*kytos*, as in cytoplasm; *blastos*, bud, germ). 1. The cell-nucleus. (SCHLEIDEN, 1838.) 2. One of the hypothetical vital units (bioblasts or "granula") of which the cell was assumed to be built up. (ALTMANN, 1890.)
- [**Cytoblastema**] (*kytos*, as in cytoplasm; *blastema*, bud), the formative material from which cells were supposed to arise by "free cell-formation." (SCHLEIDEN, 1838.)
- Cyte** = **Auxocyte** (*kytos*, hollow, *i. e.*, cell.)
- Cytocentrum** = **Centrum**, *q. v.*
- Cytochylema** = **Enchylema** (*kytos*, as in cytoplasm; *chylos*, juice). (STRASBURGER, 1882.)
- [**Cytode**] (*kytos*, as in cytoplasm; *eidos*, form), a supposedly non-nucleated cell. (HAECKEL, 1866.)
- Cytodieresis** = **Mitosis** (*kytos*, as in cytoplasm; *diairesis*, division). (CARNOY, 1885.)
- Cytohyloplasm** (see **Hyaloplasm**). (STRASBURGER, 1882.)
- Cytolysis, Cytolytic** (*kytos*, as in *cyte* = cell; *lysis*, loosening), cell-disintegration or disorganization.
- Cytolymph** (*kytos*, as in cytoplasm; *lymph*, water), cell-sap, the cytoplasmic enchylema, or ground-substance. (HAECKEL, 1891.)
- Cytokinesis** (*kytos*, as in cytoplasm; *kinesis*, change, movement), the changes of the cytoplasm during mitosis, meiosis and fertilization. Opposed to *karyokinesis* = the nuclear changes. (WHITMAN, 1891.)
- Cytomere** (composed of cytoplasmic and *meros*, part) = **Plastomere** or **Chondriomere**, that part of the sperm formed of cytoplasm only; especially the flagellum. (WALDEYER, 1903.)
- Cytomicrosomes** (see **Microsomes**), cytoplasmic microsomes in contradistinction to those of nuclear origin. (STRASBURGER, 1882.)
- Cytomitome** (*kytos*, as in cytoplasm; *mitos*, thread), the cytoplasmic threadwork in contradistinction to the nuclear threadwork. (FLEMMING, 1882.)
- Cytomorphosis** (*kytos*, as in cytoplasm; *morphosis*, shaping), the transformation of the cell-substance during development, especially that involved in differentiation and regarded as a cause of senescence. (MINOT.)
- Cytoplasm** (*kytos*, hollow, cell; *plasma* = protoplasm). 1. The protoplasm or substance of the cytosome (cell-body) in contradistinction to the substance of the nucleus (*karyoplasm* or *nucleoplasm*). (STRASBURGER, 1882.) 2. By earlier writers sometimes employed as equivalent to *hyaloplasm*. (KÖLLIKER), or to *protoplasm* as used by MOHL, REMAK, SCHULTZE or DE BARY.
- Cytoreticulum** = **Cytomitome** (*q. v.*).

- Cytosome** (*kytos*, as in *cytoplasm*; *soma*, body), the cell-body or cytoplasmic mass, in contradistinction to the nucleus. (HAECKEL, 1891.)
- [**Determinants**], hypothetical units of the germ-plasm formed by the aggregation of "biophores" and determining the development of a single cell or independently variable group of cells. (WEISMANN, 1891.)
- Deutobroch** (*deuteros*, second; *brochos*, mesh of a network, see **Protobroch**). The second stage (b) of the presynaptic auxocyte-nuclei as they begin to prepare for the leptotene-formation.
- Deutoplasm** (*deuteros*, second; *plasma*, as in *protoplasm*), a general term applied to passive or "lifeless" protoplasmic components in contradistinction to those which are active or "living." Equivalent to *metaplasmic* or *paraplastic*, but applied especially to reserve food-stuffs such as yolk. (VAN BENEDEN, 1870.)
- Diakinesis** (*dia*, through; *kinesis*, change, or movement), stage *j* of meiosis, including the later prophases in the auxocytes. During this stage the bivalents gradually assume their definitive forms and commonly lie on or near the nuclear membrane. (HAECKER, 1897.)
- Diarch** (*dis*, twice; *arche*, beginning), a type of anastral spindle in higher plants that is bipolar from the beginning. See **Polyarch**. (STRASBURGER, 1900.)
- Diaschistic** (*dia*, through; *schistein*, to cleave), undergoing one transverse and one longitudinal division in meiosis. Correlative, *Anachistic*, *q. v.* (FARMER and MOORE, 1905.)
- Diastema, Diastem** (*diastema*, severance), a structural modification of the cytoplasm in the equatorial plane through which the cytosome divides.
- Digametic** (*dis*, twice; *gametes*), (= **Heterogametic**), having gametes of two classes, in particular a male-producing and a female-producing class. (WILSON, 1911.)
- Diploid** (*diploos*, double), applied to the zygotic or fundamental somatic number of chromosomes (double the *haploid* or gametic number). (STRASBURGER, 1907.)
- [**Diplokaryon**] (*diploos*, double; *karyon*, as in *karyokinesis*), a tetraploid nucleus; i. e., one with twice the normal diploid number of chromosomes; used in contra-distinction to *Amphikaryon* (*q. v.*). (BOVERI, 1905.)
- Diminution** (not to be confused with *Reduction*), the elimination of a portion of the nuclear substance in the formation of the primordial germ-cells or at a later point in the germ-line.
- Diplosome** (*diploos*, double; *soma*, body). 1. Any small double body in the cell, e. g., a pair of centrioles. [2. Applied by MONTGOMERY (1904), to the paired "chromatin-nucleoli" (m-chromosomes and XY-pair), in contradistinction to the unpaired X-chromosome or *monosome* (*q. v.*)]
- Diplotene** (*diploos*, double; *tænia*, band, ribbon), adjective form of *diplonema* (*q. v.*). Applied to Stage *h* of meiosis in which the auxocyte-spireme is longitudinally double. WINIWARTER, 1900.)
- Diplonema** (*diploos*, double; *nema*, thread), substantive form of *diplotene*.
- Diplophase** (see **Haplophase**) (*diploos*, double), that phase of the life-history, particularly in the antithetic alternation of generations, in which the nuclei are haploid, as in the sporophyte. (GOEBEL.)
- [**Directive bodies**] = *Polocytes*, the English equivalent of *Richtungskörper*; now obsolete. (F. MÜLLER, 1848.)

- Dispermy** (see **Polyspermy**) (*dis*, twice), the entrance of two sperms into the egg.
- Dyad** (*dyas*, two), a double chromosome; especially used in contradistinction to a quadripartite *tetrad*, particularly in the meiotic divisions.
- [Dyadocyte = Homeocyte]**, (*dyas*, two; *kytos*, as in *cytoplasm*) a second spermatocyte or auxocyte containing dyads. Correlative *tetradocyte*. (GRÉGOIRE, 1905.)
- [Dyaster]** (*dyas*, two; *aster*, a star). 1. The double group formed by the anaphase chromosomes in mitosis. (FLEMMING, 1882.) 2. Sometimes used as equivalent to *amphiaster* (*q. v.*).
- Ectoplasm (Exoplasm)** (*ektos*, outside; *plasma*, as in *protoplasm*), in general, the cortical or peripheral protoplasmic layer of the cytosome in contradistinction to *endoplasm*; often used in more specific senses. Originally applied to Protozoa. (HAECKEL, 1873.)
- Ectosomes** (*ektos*, outside; *soma*, body), specific cytoplasmic granules characteristic of the primordial germ-cells and stem-cells in copepods. A form of "germ-cell determinant." (HAECKER, 1897.)
- Elaioplast** (*elaion*, oil; *plastos*, formed), a fat-producing plastid. (WAKKER, 1888.)
- Electosomes** (*eklegein*, pick out or select, *soma*, body), a general term applied to chondriosomes (mitochondria) considered as centers of specific chemical action. (REGAUD.)
- Enchylema** (*en*, in; *chylos*, juice). 1. Originally applied to the cell-sap or cytolymph. (HANSTEIN, 1880.) 2. The inter-filar substance, cytolymph or ground-substance, of protoplasm as opposed to the reticulum. (CARNOY, 1884.) 3. The alveolar substance of protoplasm. (RHUMBLER, 1896.)
- Endoplasm or Entoplasm** (*endos*, within; *plasma*, as in *protoplasm*), the inner or medullary substance of the cytosome as opposed to ectoplasm. Originally applied to Protozoa. (HAECKEL, 1873.)
- [Endoplast]** (*endos*, within; *plastos*, formed), the cell-nucleus. (HUXLEY, 1853.)
- Energid** (*en*, in; *ergon*, work), nearly equivalent to **Protoplast**, (*q. v.*), the cell-nucleus together with the cytoplasm lying within its sphere of influence. (SACHS, 1892.)
- Equatorial Plate**, the plate formed by the metaphase-chromosomes lying at the equator of the spindle. (VAN BENEDEN, 1875.)
- Ergastic** (*ergazomai*, to work), applied to relatively passive formed products of protoplasmic activity such as starch or cellulose. Nearly equivalent to *metoplasmic* or *paraplastic*. Cf. *alloplasmatic*. (A. MEYER, 1896.)
- Ergastoplasm** (see **Ergastic**), a supposed specific protoplasmic material from which arise various fibrillar formations, *e. g.*, in gland-cells. Related to the *kinoplasm* of Strasburger. Later writers have greatly extended the meaning of the term. (GARNIER, 1897.)
- Erythrophilous** (*erythros*, red; *philein*, to love), having an especial affinity for red dyes as opposed to blue or green. Cf. **Cyanophilous**. (AUERBACH.)
- Erythroblasts** (*erythros*, red; *blastos*, bud, germ), the cells from which arise the *erythrocytes* or red corpuscles.
- Euchromosome = Autosome** (*eu*, well, good), a chromosome of the ordinary or typical kind, in contradistinction to *heterochromosome* or *allosome*. (McCLUNG, 1914.)
- [Eumitotic]** (*eu*, well, good; *mitosis*) = *Anaschistic*; applied to bivalents or tetrads

- which undergo two longitudinal cleavages in the course of the meiotic divisions. Correlative, *pseudomitotic*, *q. v.* (KORSCHOLT and HEIDER, 1903.)
- Eupyrene** (*eu*, well, good; *pyren*, fruit-stone, nucleus), the normal type of sperms (*e. g.*, in gastropods or Lepidoptera) in contradistinction to the *oligopyrene* or *apyrene* (*q. v.*). (WALDEYER, 1903.)
- Fertilizin**, a soluble substance produced by the egg and assumed to play an essential part in fertilization as a chemical link between egg and sperm. (F. R. LILLIE, 1913.)
- Gametes** (*gametes*, spouse), the germ-cells that unite by syngamy in the processes of conjugation and fertilization.
- Gametocyte** (*gamete* plus *kytos*, cell), a cell by the division of which are produced gametes, *e. g.*, the spermatocyte or oöcyte.
- Gametophyte** (*gametes*, as in gamete; *phyton*, plant), the haplont or haploid, gamete-producing plant in the antithetic alternation of generations, *q. v.* Correlative, *sporophyte*.
- [**Gemmule**] (*gemma*, a bud), hypothetical germs assumed to be thrown off by the somatic cells, and stored in the germ-cells, and to determine the development of particular characters. (DARWIN, 1868.)
- Gene** (*-gen*, produce or producing), the unit of Mendelian heredity; an hypothetical elementary entity that is essential to, or determines the development of, a particular character. (JOHANSEN.)
- [**Genoblasts**] (= *gen*, producing; *blastos*, bud, germ), the mature germ-cells. (MINOT, 1877.)
- Germ Plasm**, equivalent to idioplasm, *q. v.* (WEISMANN.)
- Germinal Spot**, the nucleolus of the egg-nucleus. (PURKINJE, 1825.)
- Germinal Vesicle**, the egg-nucleus before formation of the polar bodies. Often restricted to the later stages in which this nucleus is much enlarged, and often in a net-like condition. (PURKINJE, 1825.)
- Gonad** (*gone*, seed), the gamete-producing gland; ovary, testis or an equivalent structure.
- Gonia**, a general term for *spermatogonia* or *oögonia* (*q. v.*).
- Gonocyte** (*gone*, as in gonad; *kytos*, cell), a gamete-producing cell.
- Gonomery** (*gone* as in gonad; *meros*, part). The condition in which paternal and maternal chromosomes remain in two separate groups in the products of the zygote (see p. 431.)
- Gonotokont** (*gone*, as in gonad; *tokos*, bringing forth), equivalent to *auxocyte* (*q. v.*). (LOTSY, 1904.)
- Gynogenesis** (*gyne*, woman, female), development of an egg activated by the sperm but lacking the paternal chromosomes.
- Haploid** (*haploos*, single), applied to the reduced or gametic number of chromosomes (*i. e.*, of a single group), in contradistinction to *diploid*. (STRASBURGER, 1907.)
- Haplophase** (*haploos*, as in *haploid*), that phase of the life-history, particularly in the antithetic alternation of generations in plants, in which the nuclei are *haploid*. Used in contradistinction to *Diplophase*. (GOEBEL.)
- Hemikaryon** (*hemi*, half; *karyon*, nucleus), a nucleus containing the haploid number of chromosomes. (BOVERI, 1905.)
- Heterochromosomes** (= **Allosomes**) (*heteros*, other), chromosomes distinguished by special peculiarities of behavior, form or size, in contradistinction to

- autosomes* or *euchromosomes*. Often used (erroneously) as synonymous with sex-chromosomes. (MONTGOMERY, 1904.)
- Heterogametic** (= **Digametic**) (*heteros*, different; *gam-*, as in *gamete*), having gametes of more than one kind, especially as applied to sex-production. Correlative, *Homogametic*. (WILSON, 1910.)
- Heterogamy** (*heteros*, other; *gamos*, as in *gamete*), a condition in which the gametes are unlike, commonly used to designate differences of both size and structure.
- Heterokinesis** (*heteros*, other), that meiotic division in the course of which the sex-producing gametes become separated by differential distribution of the sex-chromosomes. (GUTHERZ, 1906.)
- Heterolecithal** (*heteros*, different; *lekithos*, yolk), having unequally distributed deutoplasm (applied to both centrolecithal and telolecithal eggs). (MARK, 1892.)
- Heteromorphic** (*heteros*, other, different; *morphe*, form), applied to synaptic mates, whether separate or united to form bivalents or tetrads, that differ in size, form or structure; in contradistinction to **Homomorphic**, *q. v.* (CAROTHERS, 1917.)
- Heteromorphosis** (*heteros*, different; *morphe*, shape) the production, by regeneration or otherwise, of a structure not normal to the place in which it arises, as in case of a head in place of a tail, etc. (LOEB.)
- Heteropycnosis** (*heteros*, as in *heterochromosome*; *pyknos*, dense), condensation of a chromosome (in general a heterochromosome) to form a chromosome-nucleolus during the "resting-stage" or interphase, especially in the gonias or cytes. (GUTHERZ, 1906.)
- Heterotypic** (**Heterotypical**) (*heteros*, different; *typus*, type), applied to the first meiotic division, in contradistinction to the second or *homeotypic*; in the former the chromosomes, and sometimes also the achromatic figure, differ in certain characteristic ways from those of the somatic divisions. (FLEMMING, 1887.)
- Hologamy** (= **Macrogamy**) (*holos*, whole; *gam*, as in *gamete*), a condition in which the gametes are of same size and structural type as the vegetative cells.
- Homeotypic** (or **Homeotypical**) (*homoiios*, same; *typus*, type), applied to the second meiotic division (in contradistinction to the first or *heterotypic*), which approaches more nearly to the ordinary somatic type. (FLEMMING, 1887.)
- Homogametic** (*homos*, alike; *gam-*, as in *gamete*), having gametes of but one class in respect to sex-production, in contradistinction to *digametic* or *heterogametic*. (WILSON, 1910.)
- Homolecithal** = *alecithal* (*homos*, alike; *lekithos*, yolk), having equally distributed and often little or no deutoplasm. (MARK, 1892.)
- Homomorphic** (*homos*, like; *morphe*, form), applied to synaptic mates of similar size and form. Correlative, *Heteromorphic*. (CAROTHERS, 1917.)
- Hyaloplasm** (*hyalos*, glass; *plasma*, as in *protoplasm*). 1. The clear ground-substance of protoplasm as distinguished from the granules or microsomes (HANSTEIN, 1880) or from the *spongioplasm* or *reticulum*. (LEYDIG, 1885.) 2. The exoplasm or peripheral layer of the cytoplasm in plant cells. (PFEFFER). 3. The clear, homogeneous substance of the protoplasmic framework (whether cytoplasmic or nuclear and whether alveolar or reticular) in which are suspended *cytomicrosomes* or *karyomicrosomes*, while the interstices of

- the framework are occupied by the *enchylema* or *cell-sap* (*cytochylema* or *karyochylema*). In harmony with this, as applied to the cytoplasm, is the more recent usage of Rhumbler, Wilson and many others. (STRASBURGER, 1882.)
- Idiochromatin** (*idios*, as in *id*), chromatin concerned especially with the reproductive functions (chromosome-formation, etc.) as distinguished from the nutritive or "somatic" *trophochromatin*. (LUBOSCH, 1902.)
- Idiochromidia** (*idios*, as in *id*), chromidia derived from *Idiochromatin* (*q. v.*), which are of predominantly generative functions, and may enter into the formation of gamete-nuclei. (MESNIL, 1905.)
- Idiochromosome = Sex-chromosome**, *q. v.* (*idios*, peculiar), originally applied to sex-chromosomes of the XY-type, later to sex-chromosomes in general. (WILSON, 1905.)
- Idioplasm** (*idion*, the characteristic of a species; *plasma*, as in *protoplasm*), equivalent to *germ-plasm*, identified by many writers with "chromatin." That which constitutes the physical basis of heredity. (NÄGELEI, 1884.)
- Idiosome** (*idios*, as in *id*; *soma*, body) [1. The same as *idioblast*, *plasome*, *pangen*, etc. (WHITMAN, 1893.) 2. The same as *idiozome*. (REGAUD, 1910.)
- Idiozome (Idiosome)** (*idios*, as in *id*; *zoma*, a girdle) = *Centrotheca*, a spheroidal cytoplasmic body in the early auxocytes, particularly in the spermatocytes, variously called by earlier writers the "attraction-sphere," "archoplasm-sphere," "sphere," etc. It surrounds the centrioles and is itself surrounded by the Golgi-apparatus (of which it may form a part) and often also by chondriosomes. (MEVES, 1896.)
- [**Ids**] (*idios*, distinct or peculiar; *idion*, the characteristic property of a species), hypothetical structural units of the nucleus resulting from the successive aggregation of biophores and determinants, and assumed to be represented by the *chromomeres*. (WEISMANN, 1891.)
- Interfilar substance** (*inter*, between; *filum*, thread), the ground-substance or *enchylema* as opposed to the fibrillar substance or *mitome*. The *paramitome*. (FLEMMING, 1882.)
- Interkinesis** (*inter*, between), originally the stage between the first and second meiotic divisions, now often applied to the "resting" or "vegetative" stage of nuclei generally. (GRÉGOIRE, 1905.) (*Interphase* of LUNDEGÅRDH, 1912.)
- Interzonal fibers** (*filaments réunissants*), the connecting fibers of the mitotic spindle that extend between the two daughter-groups of chromosomes during the anaphases and telophases. (MARK, 1881.)
- Isogamy** (*isos*, equal; *gam-*, as in *gamete*), similarity of the gametes in size and structure.
- Isotropy** (*isos*, equal; *trepein*, to turn), without predetermined axes, especially as applied to the egg.
- Interphase = Interkinesis.**
- Karenchyma** (*karyon*, as in *karyokinesis*; *enchyma*, infusion), the nuclear sap or *karyochylema*. (FLEMMING, 1882.)
- Karyochylema (Nucleochylema, Karyenchyma)** (*karyon*, as in *karyokinesis*; *chylos*, juice), the nuclear sap or ground-substance. (FLEMMING, 1882.)
- Karyogamy** (*karyon*, as in *karyokinesis*; *gamos*, union), the conjugation of nuclei in contradistinction to *plastogamy*.

- Karyokinesis** (*karyon*, nut, nucleus; *kinesis*, change, movement) (= **Mitosis**), indirect nuclear division, involving the formation and longitudinal splitting of spireme-threads and chromosomes, and of an achromatic spindle (see **Cytokinesis**); often applied to indirect division of the cell as a whole. (SCHLEICHER, 1878.)
- Karyolymph** (*karyon*, as in *karyokinesis*; *lymph*, water), = karyochylema or "nuclear sap." (HAECKEL, 1891.)
- [**Karyolysis**] (*karyon*, as in *karyokinesis*; *lysis*, loosing), the apparent disappearance of the nucleus during mitosis. Karyokinesis in the modern sense. (AUERBACH, 1874.)
- Karyomere** (*karyon*, as in *karyokinesis*; *meros*, part). 1. Originally used as nearly equivalent to chromomere (*q. v.*). (FOL, 1896.) 2. By most later writers applied to the chromosomal vesicles formed in the telophases of certain types of mitosis. 3. The anterior region or head of the sperm containing the nucleus. See **Centromere**, **Cytomere**. (WALDEYER, 1903.)
- Karyomerites** (*karyon*, as in *karyokinesis*; *meros*, part), by some writers used as equivalent to *karyomeres* (see GRÉGOIRE and WYGAERTS, 1904); by others to designate partial nuclei, whether formed from one or several chromosomes. (See GOLDSCHMIDT, 1902.)
- [**Karyomicrosome = Nucleomicrosome**] (*karyon*, as in *karyokinesis*), nuclear microsome (see **Microsome**). (STRASBURGER, 1882.)
- [**Karyomitome**] (*karyon*, as in *karyokinesis*, the nuclear as opposed to the cytoplasmic fibrillar formations. See **Mitome**. (FLEMMING, 1882.)
- Karyomitosis** (= **Karyokinesis**). (FLEMMING, 1882.)
- [**Karyon**] (*karyon*, nut, nucleus), the cell-nucleus. (HAECKEL, 1891.)
- Karyoplasm (Nucleoplasm)** (*karyon*, as in *karyokinesis*; *plasma*, a thing formed or moulded), the nuclear substance in contradistinction to the cytoplasmic. (FLEMMING, 1882.)
- [**Karyoplast**] (*karyon*, as in *karyokinesis*; *plastos*, formed), the cell-nucleus as opposed to *protoplast = cytosome*. (STRASBURGER, 1905.)
- Karyosome** (*karyon*, as in *karyokinesis*; *soma*, body). 1. A chromatin-nucleolus or net-knot, in contradistinction to plasmosome. (OGATA, 1883.) 2. Commonly applied to the large karyosphere of Protista from which may arise many or all of the chromosomes. 3. The same as chromosome. (PLATNER, 1886.) 4. The cell-nucleus. (WATASÉ, 1894.)
- Karyotin (Caryotin)** (*karyon*, nucleus), the substance of the nuclear framework whether basichromatic or oxychromatic. (LUNDEGÅRDH, 1910.)
- Katachromasis** (*kata*, down; *chroma*, color), the sum total of the telophasic transformations by which the daughter-chromosomes reconstruct the daughter-nuclei. See **Anachromasis**. (VEJDOVSKÝ, 1907.)
- Kinetonucleus** (*kinein*, to move), a body found in flagellates in connection with the basal apparatus of the flagellum, and by some earlier observers called the *blepharoplast*, by others *kinetonucleus* in the belief that it represents a second nucleus especially concerned with the kinetic functions (movement, division). Probably identical with the cytoplasmic *parabasal body* (*q. v.*). (WOODCOCK, 1906.)
- Kinetosome** (*kinein*, to move; *soma*, body), granular or rod-like bodies often aggregated to form plate-like bodies, which occupy the spindle-poles in the sporogenetic mitoses of mosses. (ALLEN, 1912.)

- Kinoplasm** (*kinein*, to move; *plasma*, a thing formed), a supposedly specific type of cytoplasmic substance, from which arise fibrillar and other structures (mitotic fibrillæ, etc.); nearly equivalent to *archiplasm*. See **Trophoplasm**. (STRASBURGER, 1892.)
- [**Kinosphere**] (*kinein*, to move), the astral system surrounding the central bodies. Nearly equivalent to *aster*. (BOVERI, 1901.)
- Leptonema** (*leptos*, slender; *nema*, thread), substantive form of *Leptotene* (q. v.). (GRÉGOIRE, 1907.)
- Leptotene** (*leptos*, fine or thin; *tænia*, ribbon, band), applied to the fine spireme-threads of Stage *e* of meiosis just before their union in synapsis. (WINIWAR-TER, 1900.)
- Leucoplasts** (**Leucoplastids**, see **Plastids**) (*leukos*, white; *plastos*, formed), colorless plastids from which may arise the more specialized forms such as *chloroplasts*, *chromoplasts*, etc. (SCHIMPER, 1883.)
- Limosphere**, a rounded cytoplasmic body formed in the androcytes (spermatids) of bryophytes, apparently comparable to the *acroblast* in animals, from which arises an "apical body." (M. WILSON, 1911.)
- Linin** (*linum*, flax, thread). 1. The oxyphilic (formerly called "achromatic") portion of the nuclear framework. (SCHWARZ, 1887.) 2. The structureless clear substance in which are suspended granules of basichromatin and oxychromatin. (HEIDENHAIN, 1894.)
- Macrosome** (**Megasome**) (*makros*, *megas*, large; *soma*, body), applied to the larger bodies or alveolar spheres in alveolar protoplasm, in contradistinction to the small *microsomes*. (CHAMBERS, 1917.)
- Matriclinous**, **Matroclinous** (*mater*, mother), inclined in heredity towards the maternal side. Correlative **patriclinous**.
- Maturation**, the "ripening" or final stages in the formation of the germ-cells. Though often applied only to the nuclear changes (meiosis, reduction) it properly includes also the cytoplasmic.
- Megaspore**, **Macrospore** (*megas*, large), a spore of the large type in the hetero-sporous higher plants. In the seed-plants gives rise to the embryo-sac. Correlative to *microspore*.
- Meiosis** (**Maiosis**) (*meiosis*, reduction), the process by which is effected the reduction of the chromosome-number from diploid to haploid. (FARMER and MOORE, 1905.)
- Meristic** (*meros*, a part), relating to the component parts of a larger structure or aggregate.
- Merocytes** (**Merocyte-nuclei**) (*meros*, part; *kytos*, as in *cyte*), the nuclei derived from supernumerary sperm-nuclei which have failed to conjugate with the egg-nucleus in cases of physiological polyspermy. (RÜCKERT, 1899.)
- Merogamy** (= **Microgamy**) (*meros*, part; *gamos*, union), a condition in which the gametes are smaller than the vegetative cells, often of different structure, arising by division from the *gametocytes*.
- Merogony** (*meros*, part; *gone*, generation), the development of a non-nucleated egg-fragment upon its fertilization by a sperm. (DELAGE, 1899.)
- [**Metakinesis**] (= **Metaphase**) (*meta*, after; *kinesis*, change, movement). (FLEM-MING, 1892.)
- Metaphase** (*meta*, beyond, *i. e.*, further), the middle stage of mitosis, when the chromosomes are grouped in the equatorial plate. (STRASBURGER, 1884.)

- Metaplasm** (*meta*, after, beyond; *plasma*, as in *protoplasm*), a term collectively applied to the so-called lifeless inclusions (deutoplasm, starch, etc.) in protoplasm as opposed to the living substance. (HANSTEIN, 1868.)
- Metasyndesis** (*meta*, after; *syndesis*, binding together) [= **Telosynapsis**] end-to-end union in synapsis. Correlative, *Parasyndesis*. (HAECKER, 1907.)
- Micellæ** (dim. of *mica*, morsel), hypothetical ultimate supra-molecular units of the cell. (NÄGELI, 1884.)
- Microcentrum**, the centrioles or group of centrioles, united by a "primary centrodesmus," and forming the center of the astral system. (HEIDENHAIN, 1894.)
- Micropyle** (*mikros*, small; *pyle*, gate), the aperture in the egg-membrane through which the sperm in many cases enters. (First applied by Turpin, in 1806, to the opening through which the pollen-tube enters the ovule.)
- Microsome** (*mikros*, small; *soma*, body), originally the granules as opposed to the ground-substance of protoplasm; now used in a more specific sense for certain types of small granules (p. 32). (HANSTEIN, 1880.)
- Microchromosomes** (= *m*-chromosomes) (*mikros*, small), originally, a pair of very small chromosomes in coreid Hemiptera characterized by long delayed synapsis. (WILSON, 1905.) Later often applied to any chromosomes of unusually small size irrespective of their behavior.
- [**Microsphere**] = **Centrosome**, the central region of the aster (centrosphere) at the center of which lie the centrioles. (KOSTANECKI and SIEDLECKI, 1896.)
- Microspore** (see **Megaspore**). A spore of the small type in the heterosporous plants. In seed-plants = the pollen-grains.
- Mid-body** ("Zwischenkörper"), a body or group of granules, probably comparable with the cell-plate in plants, formed in the equatorial region of the spindle during the anaphases of mitosis. (FLEMMING, 1890.)
- Middle-piece** (= **Connecting-piece**), a term of vague meaning applied to the middle region of the sperm, lying between the head and the main part of the flagellum. (SCHWEIGGER-SEIDEL, 1865.)
- Mitochondria** (= **Plastochondria**) (*mitos*, a thread; *chondrion*, grain, granule), a specific form of granule, belonging to the general class of *chondriosomes*, *q. v.* (BENDA, 1897.)
- [**Mitokinetism**] (*mitoma*, thread; *kinesis*), a supposed special form of energy involved in the formation and action of the mitotic figure. (HARTOG, 1914.)
- Mitome** (*mitoma* from *mitos*, a thread), the reticulum or thread-work as opposed to the ground-substance of protoplasm. (FLEMMING, 1882.)
- Mitosis** (*mitos*, thread), indirect nuclear division involving the formation of a spindle, conversion of the chromatin into threads (spireme), and longitudinal splitting of the threads. (FLEMMING, 1882.)
- Mitosome** (*mitos*, a thread; *soma*, body), a cytoplasmic body supposed to be derived from the spindle-fibers of the preceding mitosis = Spindle-remnant. (PLATNER, 1889.)
- Mixochromosome** (*mixis*, mingling), the chromosomes (pachytene-threads) formed by a supposedly complete fusion of the synaptic mates (leptotene-threads) in parasynapsis. (WINIWARTER and SAINTMONT, 1909.)
- Monaster** (*monos*, alone; *aster*, star), a single aster, formed in monocentric mitosis, which does not ordinarily give rise to an amphiaster. (WILSON, 1901.)
- Monosome** (*monos*, alone; *soma*, body), the X-chromosome when unpaired (in

the digametic sex) particularly when in the condition of a chromosome-nucleolus during the growth-period of the spermatocytes. (MONTGOMERY, 1904.)

[**Morphoplasm**] (*morphe*, form; *plasma*, as in *protoplasm*), the substance of the protoplasmic framework (reticulum), in contradistinction to the ground-substance (*enchylema*). (HIS, 1899.)

Mycetocytes (see **Mycetoma**) (*mykes*, fungus; *kytos*, cell).

Mycetoma (= **Pseudo-vitellus** of HUXLEY), a group of follicle-cells (mycetocytes) by which the oöcyte, in aphids, is infected with intracellular symbiotic organisms. (BUCHNER, 1912.)

Myofibrillæ (*mys*, muscle), the intra-cellular fibrils of the muscle-cell.

Myonemes (*mys*, muscle; *nema*, thread), minute, supposedly contractile fibrillæ in Protista.

Nebenkern (German *neben*, beside; *kern*, nucleus) (*Paranucleus*), the chondriosome-body or chondriosome-sphere of the animal spermatid formed by the aggregation of mitochondria or chondrioconts, and ultimately drawn out to form the envelope of the axial filament in the flagellum. The word has been incorrectly used in many other senses. (BÜTSCHLI, 1871.)

Net-knot, a chromatin-nucleolus formed as a local aggregation of basichromatin and often irregular in shape. (FLEMMING, 1882.)

Neurofibrillæ (*neurou*, nerve), the elementary intracellular fibrillæ of the nerve-cell. (APÁTHY, 1897.)

Nuclear sap, the ground-substance or *enchylema* of the nucleus. *Karyochylema*.

Nucleolo-centrosome, an intra-nuclear division center simulating a nucleolus, especially in Protista.

Nucleochylema (= **Karyochylema**) (*chylos*, juice), the nuclear sap or ground-substance of the nucleus as opposed to that of the cytoplasm. (STRASBURGER, 1882.)

Nucleohyaloplasm (see **Hyaloplasm**), the achromatic substance (linin) in which the chromatin-granules are suspended. (STRASBURGER, 1882.)

Nucleolinus, a minute deeply staining granule contained in the nucleolus, and said in some cases to divide regularly in the course of mitosis. (HAECKEL.)

Nucleomicrosomes (see **Microsome**), the nuclear (chromatin) granules as opposed to those of the cytoplasm. (STRASBURGER, 1882.)

Nucleoplasm (see **Karyoplasm**). (STRASBURGER, 1882.)

Nucleoplasmic or Karyoplasmic Ratio (**Kernplasmarelation**). The ratio of nuclear to cytoplasmic volume. (R. HERTWIG, 1903.)

Oligopyrene (*oligos*, few; *pyren*, stone of a fruit, *i. e.*, relating to the nucleus) applied to abnormal forms of sperms, in which only a part of the normal chromosome group enters the nucleus. See **Apyrene**, **Eupyrene**. (MEVES, 1902.)

Oöcyte (**Ovocyte**) (*oön*, egg), the egg-cell prior to completion of the maturation-process (BOVERI, 1891.)

Oögenesis (**Ovogenesis**) (*oön*, egg), genesis of the egg (oöcyte) after its origin by division from the mother-cell (*oögonium*). Often used more specifically to denote meiosis in the female.

Oögonium (*oön*, egg; *gonos*, offspring), cells which by their continued division give rise to the oöcytes or egg-cells. (BOVERI, 1891.)

Oökinesis (*oön*, egg; *kinesis*, change, movement), the mitotic phenomena in the egg-cell during maturation and fertilization. (WHITMAN, 1887.)

- Oöplasm** (*oön*, egg; *plasma*, as in *protoplasm*), the cytoplasm of the egg or oöcyte.
- Oötid (Ovotid)** (*oön*, *ovum*, egg), the egg or polocyte subsequent to meiosis; one of the four products of the meiotic divisions in the female. Correlative, *Spermatid*, *q. v.*
- Oösome** (*oön*, egg; *soma*, body), the so-called "germ-cell determinant"; a cytoplasmic body or group of bodies in the mature ovum that passes into the primordial germ-cells or stem-cells. (SYLVESTRI, 1914.)
- Oöcenter (Ovocenter)**, the division-center of the egg. (FOL, 1891.)
- Oxychromatin** (*oxys*, sharp, acid; *chroma*, color), that portion of the nuclear framework that stains with acidic dyes; correlative, *Basichromatin*. Equivalent to *linin* in the older sense, *q. v.* (HEIDENHAIN, 1894.)
- Oxyphilic** (*oxys*, sharp, acid; *philein*, to love) having a special affinity for acidic dyes, *e. g.*, *oxychromatin*.
- Pachynema** (*pachys*, thick; *nema*, thread), the post-synaptic spireme, consisting of thick threads, often longitudinally double (*diploonema*). (GRÉGOIRE, 1907.)
- Pachytene** (*pachys*, thick; *tænia*, band, ribbon), adjective form of *pachynema*. (WINIWARTER, 1900.)
- Pangen** (*pan*, all; *gen*, producing, as in *gene*), hypothetical, ultimate unit of the cell, originally intra-nuclear, ultimately cytoplasmic. See **Biophore**, **Idiosome**, **Plasome**, etc. (DE VRIES, 1889.)
- Pangenes** (*pan*, all; = *gen*, producing), the theory of "gemmules" (pangens) conceived as germs or determiners of hereditary characters. (DARWIN, 1868.)
- Panmeristic** (*pan*, all; *meros*, part), applied to the conception of protoplasm and the cell as aggregates of more elementary bodies.
- Parabasal Body** (*para*, beside) (probably = **Kinetonucleus**, *q. v.*), a cytoplasmic body connected with the basal apparatus of the flagellum in many flagellates, supposed to be an accessory part or "kinetic reservoir" of the motor apparatus. (JANICKI, 1910.)
- [**Parachromatin**] (*para*, beside), the achromatic nuclear substance (linin of SCHWARZ) from which the spindle-fibers arise. (PFITZNER, 1883.)
- Paradesmose (Paradesmus)** (*para*, beside; *desmos*, band), an extra-nuclear filament connecting the division-centers in the mitosis of flagellates. (KOFOLD and SWEZY, 1915.)
- [**Paramitome**] (see **Mitome**), the ground-substance or interfilar substance of protoplasm, opposed to mitome. (FLEMMING, 1892.)
- Paranuclein**, see **Nuclein**, the substance of true nucleoli or plasmosomes. Pyrenin of SCHWARZ. (O. HERTWIG, 1878.) Applied by Kossel to "nucleins" derived from the cytoplasm. These are components of protein bases with "paranucleic" acid which yields no xanthin-bodies.
- Paranucleus**, see **Nebenkern**.
- Paraplasm, Paraplastic** (*para*, beside; *plasma*, as in *protoplasm*; *plastos*, formed), the less active portion of the cell-substance. Originally applied to the cortical region of the cell (exoplasm). In its adjective form now commonly used as equivalent to *metaplasmic* or *ergastic*, *q. v.* (KUPFFER, 1896.)
- Parasynapsis (=Parasyndesis)** (*para*, beside), side-by-side union of the chromosomes in synapsis. (WILSON, 1912.)
- Parasyndesis (=Parasynapsis, q. v.)** (*para*, beside). (HAECKER, 1907.)

- Parthenogenesis** (*parthenos*, virgin), the development of an egg without activation by a sperm. Correlative, *Fertilization*. (OWEN, 1849.)
- Patriclinous, Patroclinous** (*pater*, father), inclined in heredity towards the paternal side.
- Pellicula (Pellicle)**, often applied to the surface-film of "naked" cells or protoplasmic masses; the plasma-membrane.
- Percnosome**, a small granule in the androcytes (spermatids) of bryophytes, possibly comparable either to a chromatoid body or an acrosome-granule (M. WILSON, 1911.)
- Perforatorium**, the acrosome. (WALDEYER, 1906.)
- [Periplast]** (*peri*, around; *plastos*, formed or moulded). 1. The peripheral part of the cell, including those parts outside the nucleus or "endoplast." (HUXLEY, 1853). 2. A term somewhat vaguely applied to the attraction-sphere or the centrosome (VEJDOVSKÝ, 1888.)
- [Perisphere]** (*peri*, around), a term applied to the outer region of the attraction-sphere in nerve-cells, in contradistinction to an inner "centrosphere." (LENHOSSÉK, 1895.)
- Phragmoplast** (*phragma*, a fence; *plastos*, formed or moulded), the enlarged connecting spindle, barrel-shaped or greatly broadened, in the later phases of anastral plant-mitoses, within which is formed the cell-plate.
- Plasma** (*plasma*, a thing formed, as in *protoplasm*), often used as the equivalent of *Protoplasm*, or *Cytoplasm*. (HAECKEL, KÖLLIKER, 1866.)
- Plasmodesms (Plasmodesmus)** (*plasma*, as in *protoplasm*; *desmos*, band), the cytoplasmic filaments or bridges by which in many tissues adjoining cells are connected.
- Plasmodium** (*plasma*, as in *protoplasm*; *eidos*, form), a syncytium, especially in the case of Protista.
- [Plasmosphere,]** the same as **Perisphere**.
- Plasmolysis** (*plasma*, as in *protoplasm*; *lysis*, dissolution), the withdrawal of water from the cell by altered osmotic pressure.
- Plasmosome** (*plasma*, as in *protoplasm*; *soma*, body). 1. the true nucleolus, typically staining with acidic or "plasma" dyes. (OGATA, 1883.) 2. Minute cytoplasmic granules or microsomes, in general connected by fibrillæ and supposed to be fundamental units of protoplasmic structure. (ARNOLD, 1898.)
- Plasmogamy** (*plasma*, as in *protoplasm*; *gamos*, as in *gamete*), cytoplasmic as distinguished from nuclear fusion. See **Karogamy**.
- [Plasome]** (*plasma*, as in *protoplasm*; *soma*, body) hypothetical, ultimate supra-molecular vital units. See **Biophore**, **Pangen**, etc. (WIESNER, 1890.)
- Plastid** (*plastos*, formed or moulded). 1. A cell or cytode. (HAECKEL, 1866.) 2. Cytoplasmic bodies, multiplying by growth and division, the seat of specific chemical activities, and believed to be persistent structures arising by division. See **Chloroplast**, **Leucoplast**, **Amyloplast**, etc. (SCHIMPER, 1883.)
- Plastidome** (*plastos*, as in *plastid*), the sum-total of plastid-content in the cell. Parallel to *chondriome*, etc. (DANGEARD, 1919-20.)
- Plastin** (*plastos*, formed or moulded), often used as equivalent to *linin*, but originally applied also to the substance of the cytoplasmic framework. (REINKE and RODEWALD, 1881, CARNOY, 1885.)
- Plastochondria** (*plastos*, as in *plastid*; *chondria*, grains, granules) = *Mitochondria*. (MEVES, 1910.)

- Plastocont = Chondriocent** (*plastos*, formed). (MEVES, 1910.)
- Plastogamy (Plasmogamy)** (*plastos*, formed; *gamos*, union), cytoplasmic fusion as opposed to nuclear (*karyogamy*).
- Plastosome** (*plastos*, formed; *soma*, body) = Chondriosome. (MEVES, 1910.)
- Plastomere** (*plastos*, formed; *meros*, a part), that part of the sperm containing the chondriosomes (plastosomes). See **Cytomere**. (MEVES, 1918.)
- [**Plastidule**,] the ultimate supra-molecular vital unit of protoplasm. (ELSSBERG, 1874; HÄCKEL, 1876.)
- Plurivalent** (*plus*, more; *valere*, to be worth), applied to chromosomes that are multiples, *i. e.*, have the value of more than one univalent chromosome. (HÄCKER, 1892.)
- Polar Bodies (Polar Globules) = polocytes**, two minute cells segmented off from the ovum before union of the pronuclei. (Disc. by CARUS, 1824; named by ROBIN, 1862.)
- Polar Rays**, a term sometimes applied to all of the astral rays as opposed to the spindle-fibers, sometimes to the group of astral rays opposite to the spindle-fibers (=antipodal cone).
- Pole-plates (Polar-plates)**, condensed plate-like bodies at the ends of the spindle in certain forms of mitosis. (R. HERTWIG, 1877.)
- Polocyte = Polar Body** (*polos*, axis; *kytos*, cell). (WALDEYER, 1898.)
- Polyarch** (*polys*, many; *arche*, beginning), a type of anastral spindle in higher plants that is multipolar from the beginning. (STRASBURGER, 1900.)
- Polyspermy** (*polys*, many), the entrance into the ovum of more than one sperm, whether normally or pathologically.
- Post-heterokinesis** (*post*, after; *heteros*, other; *kinesis*, change, movement), differential distribution of the sex-chromosomes in the second meiotic division. Correlative, *Pre-heterokinesis*. (GUTHERZ.)
- Post-reduction**, chromosome-reduction in the second meiotic division. Correlative, *Pre-reduction*. (KORSCHULT and HEIDER, 1903.)
- Precession**, passage of the undivided X-chromosome in the heterokinesis to one pole in advance of the other chromosomes. (WILSON.)
- Pre-heterokinesis** (see **Post-heterokinesis**), segregation of the sex-chromosomes in the first meiotic division. (GUTHERZ.)
- Pre-reduction**, chromosome-reduction in the first instead of the second meiotic division. See **Post-reduction**. (KORSCHULT and HEIDER, 1903.)
- [**Prochromatin = Paranuclein** of O. HERTWIG, or **Pyrenin** of SCHWARZ] (*pro*, before), the substance of true nucleoli or plasmosomes. Later "pseudochromatin." (PFITZNER, 1883, 1886.)
- Prochromosomes** (*pro*, before), separate masses of basichromatin in the "resting" nuclei, or in the presynaptic stages, supposed to be forerunners of the definitive chromosomes or centers for their formation. (OVERTON, 1909.)
- Promitosis** (*pro*, before), a primitive type of mitosis in Protista in which the whole process is intranuclear, asters are absent, and a large "karyosome" is present. (NÄGLER, 1909.)
- Pronucleus** (*pro*, before), a gamete-nucleus (egg-nucleus or sperm-nucleus) during fertilization = *germ-nucleus* of O. HERTWIG. (VAN BENEDEN, 1875.)
- Protoblast** (*protos*, first; *blastos*, bud or germ), a blastomere of specific promorphological significance to which is traceable the origin of a particular organ or group of structures. (WILSON, 1892.)

- Protobroch** (*protos*, first; *brochos*, mesh of a network). Stage *b* of meiosis, in which the auxocyte-nucleus is net-like; the "resting-stage." (WINIWARTER, 1900.)
- Protoplasm** (= **Bioplasm** of BEALE) (*protos*, first; *plasma*, a thing formed), "living matter," the "physical basis of life." Specifically: 1. The active or "living" substance of the cytosome exclusive of the nucleus. (PURKINJE, 1840; VON MOHL, 1846.) 2. The active or living substance of the cell as a whole, comprising *cytoplasm* and *karyoplasm*. (STRASBURGER, 1882.)
- Protoplast** (*protos*, first; *plastos*, formed), the protoplasmic portion of the cell, including nucleus and cytoplasm, regarded as a unit. Nearly equivalent to the *energid* of SACHS. (HANSTEIN, 1880.)
- [**Pseudochromosomes** = **Archoplasmic loops** of HERMANN], an early name for the "batonettes" or rod-like Golgi-bodies of the spermatocytes. (HEIDENHAIN, 1900.)
- [**Pseudomitotic**] (= **Diaschistic** of FARMER), a type of meiosis showing one longitudinal and one apparently transverse division of the bivalents or tetrads. Correlative, *Eumitotic*, *q. v.* (KORSCHULT and HEIDER, 1903.)
- [**Pseudonucleolus**] (*pseudos*, false) = **Karyosome**, **Net-knot**, **Chromatin-nucleoli**. (ROSEN, 1894.)
- Pseudoreduction**, the apparent halving of the chromosome-number by synapsis. (RÜCKERT, 1894.)
- Pyrenoid** (*pyren*, the stone of a fruit; like a nucleus), rounded bodies, formed within the chromatophores (chloroplasts) of algæ, and acting as centers of starch-formation. (SCHMITZ, 1883.)
- Quartet**, the group of four cells, whether spores, spermatids or egg-polocytes, produced by the two maturation-divisions; contrast *Tetrad*.
- Reduction** = **Meiosis**, the change of chromosome-number from diploid to haploid (halving of the number) during maturation or meiosis.
- Sarcode** (*sarx*, flesh) the protoplasm of Protista. (DUJARDIN.)
- Sertoli cells**, supporting and nutritive cells of the testis to which the sperms are attached by their heads at an early period. (v. EBNER, 1871.)
- Sex-chromosome** (see **Idiochromosome**), a particular pair or group of chromosomes having a special relation to sex-determination. They are commonly designated as X- and Y-chromosomes (WILSON, 1906.)
- Skein** = **Spireme**.
- Sperm** (**Spermium**) (*sperma*, seed). The *spermatozoön*, *spermatosome* or sperm-cell of the male.
- Spermatid** (*sperma*, seed), one of the final generation of cells which, without further division, is metamorphosed into a sperm. (LA VALETTE ST. GEORGE, 1886.)
- Spermatocyte** (*sperma*, as in sperm; *kytos*, cell), one of the cells to which the spermatogonia give rise and which divide twice to produce the spermatids; they are distinguished as *primary* (before their division) and *secondary* (after their first division). (LA VALETTE ST. GEORGE, 1876.)
- Spermatogenesis** (*sperma*, seed; *genesis*, origin), the phenomena involved in the production of the sperms. Often used more especially to denote the process of reduction or meiosis in the male.
- Spermatogonium** ("Ursamenzelle") (*sperma*, seed; *gone*, generation), one of the descendants of the primordial germ-cells in the male. Each ultimate

spermatogonium becomes a primary spermatocyte (auxocyte) and typically gives rise to four sperms. (LA VALETTE ST. GEORGE, 1876.)

Spermatozoid = Antherozoid (see **Sperm**), the ciliated paternal gamete in plants.

The word was first used by VON SIEBOLD as synonymous with sperm.

Spermioteleosis, Spermateleosis = Spermiogenesis (*sperm*, as in sperm; *teleios*, finished), the metamorphosis of the spermatid into the sperm. (GATENBY, 1918.)

Spermiogenesis 1. = **Spermioteleosis**, metamorphosis of the spermatid into the sperm. (WALDEYER, 1903.) 2. = **Spermatogenesis**. (BENDA and LENHOSSÉK, 1905.)

Spermatozöon = Sperm (*sperma*, seed; *zoön*, animal), the male gamete of animals. (LEEUWENHOEK, 1677.)

Sperm-nucleus, the nucleus of the sperm especially applied to it after entrance into the egg before its union with the egg-nucleus. In this sense equivalent to the "male pronucleus" of VAN BENEDEN. (O. HERTWIG, 1875.)

[**Sphærosome**] (*sphaira*, globe; *soma*, body), the envelope of the "statosphere" or idiozome, formed by the Golgi-bodies. (KUSCHAKEWITSCH, 1913.)

Spireme (*speirema*, a thing wound or coiled; a skein), the skein or "Knäuel" stage of the nucleus in mitosis, during which the chromatin appears in the form of a thread, continuous or segmented. (FLEMMING, 1882.)

Spongioplasm (*spongia*, sponge; *plasma*, as in *protoplasm*), the cytoplasmic framework. (LEYDIG, 1885.)

Sporophyte (*sporos*, spore; *kytos*, cell), the asexual, spore-producing diplont or diploid generation of plants in the antithetic alternation of generations. See **Gametophyte** (=the haplont).

[**Statosphere**] (= **Idiozome** or **Centrotheca**). (KUSCHEKEWITSCH, 1913.)

Strepsinema (*streptos*, pliant, easily twisted; *nema*, a thread), substantive form of *strepsitene*. (GRÉGOIRE, 1907.)

Strepsitene (*streptos*, pliant, easily twisted; *tænia*, band, ribbon), the twisted form of diplotene during meiosis. (DIXON, 1900.)

Synaptene (= **Zygotene** or **Amphitene**) (*synapsis* and *tænia*, band), the synaptic stage in meiosis while the chromosomes (leptotene-threads) are conjugating two by two. (WINTWARTER, 1900.)

Syncytium (*syn*, together; *kytos*, cell), a multinucleate mass of protoplasm. See **Plasmodium**. (HAECKEL.)

Synapsis (*synapto*, to fuse together), the conjugation or union in pairs of homologous chromosomes (synaptic mates), respectively of maternal and paternal origin, to form bivalents; the primary step in reduction or meiosis. Often erroneously applied to the contraction-figure or synizesis that is its frequent accompaniment. (MOORE, 1895.)

Syndesis = Synapsis (*syndesis*, a binding). See **Metasyndesis**, **Parasyndesis**. (HAECKER, 1907.)

Syngamy (*syn*, with; *gamos*, marriage, union), union of the gametes in fertilization or conjugation.

Synizesis (*synizesis*, a collapse), the contraction-figure often seen at the time of synapsis, with the chromatin massed towards the center or one side of the nucleus. Often called "*synapsis*" *q. v.* (McCLUNG, 1905.)

Synkaryon (*syn*, with; *karyon*, nucleus), a nucleus resulting from the union of two nuclei; in general, the zygote-nucleus.

- [**Synmixis, Synmixia**] (*syn*, with; *mixis*, mingling), a supposed exchange of chromosome-parts during the second meiotic division in copepods. (HAEC-KER, 1904.)
- Teloblast** (*telos*, end; *blastos*, bud or germ), large cells situated at the growing end of the embryo (in annelids, etc.), which bud forth rows of smaller cells. (WHITMAN, WILSON, 1887.)
- Telokinesis** (*telos*, end; *kinesis*, change or movement), certain movements of the central bodies, nuclei and spindle accompanying or following the telophases of mitosis. (HEIDENHAIN, 1894.)
- Telolecithal** (*telos*, end; *lekithos*, yolk), that type of ovum in which the yolk is mainly accumulated in one hemisphere. (BALFOUR, 1880.)
- Telomitic** (*telos*, end; *mitos*, thread), terminal attachment of the chromosomes to the spindle-fibers. Correlative, *Atelomitic*. (CAROTHERS, 1917.)
- Telophases** (*telos*, end), the closing phases of mitosis, during which the daughter-nuclei are re-formed and the cytosome divides. (HEIDENHAIN, 1894.)
- Telosynapsis = Metasyndesis** (*telos*, end; *synapsis*, union), end-to-end union of the chromosomes (synaptic mates) in synapsis. (WILSON, 1912.)
- Tetrad** (*tetras*, four), the quadruple group of chromosomes (chromatids) formed by the bivalent chromosomes in the later stages of meiosis.
- Tetraploid, Polyploid** (*tetras*, four; *polys*, many), having the value of four or many gametic or haploid chromosome-groups; often applied to the organism having chromosomes of double (or a higher multiple of) the typical number.
- [**Thelykaryon**] (*thelys*, female; *karyon*, nucleus), a maternal gamete-nucleus or its descendant. Correlative, *Arrhenokaryon*. See *Hemikaryon*. (BOVERI, 1905.)
- Tonoplasts** (*tonos*, tension; *plastos*, as in plastid), plastids which are supposed to produce vacuoles in plant-cells. (DE VRIES, 1885.)
- Trophochromatin** (*trophe*, food), chromatin assumed to be concerned especially with the vegetative or nutritive functions of the cell. Correlative, *Idiochromatin*, *q. v.* (LUBOSCH, 1902.)
- Trophochromidia** (*trophe*, food), chromidia arising from *trophochromatin* (*q. v.*) and of predominantly vegetative or nutritive functions. See **Chromidia, Idiochromidia**. (MESNIL, 1905.)
- Trophoplasm** (*trophe*, food; *plasma*, as in *protoplasm*). 1. The nutritive or vegetative substance of the cell, as distinguished from the *idioplasm*. (NÄGELI, 1884.)
2. The active substance of the cytoplasm other than the "kinoplasm" or archiplasm. (STRASBURGER, 1892.)
- Trophoplast** (*trophe*, food; *plastos*, formed) = **Plastid**. (A. MEYER, 1882-83.)
- Trophospongium** (*trophe*, food; *spongia*, sponge), a system of intracellular canals identified by some observers with the Golgi-apparatus, by others with ingrowths of surrounding cells. (HOLMGREN.)
- Yolk-nucleus = Vitelline Body**, a cytoplasmic body in the young oöcyte, which serves as a center for the yolk-formation in many forms. In many cases it is traceable to the idiozome and its associated structures. (CARUS, 1850.)
- Zygote** (*zygotes*, yoked), the cell formed by union of the gametes; the fertilized egg, zygospore, etc.
- Zygotene (= Synaptene, Amphitene)** (*zygon*, yoke; *tania*, band, ribbon), the synaptic stage during which occurs the side-by-side conjugation of spireme-threads. (GRÉGOIRE, 1907.)

GENERAL LITERATURE LIST

The following list makes no approach to completeness. It includes for the most part titles of works referred to in the text and certain others which for one reason or another it has seemed desirable to refer to. For more complete bibliography the reader is referred to the literature-lists in the special works cited, among others the following. For reviews of the early history of the cell-theory see Remak's *Untersuchungen* ('50-'55), Huxley on the *Cell-theory* ('53), Sach's *History of Botany* and Tyson's *Cell-doctrine* ('78). An exhaustive review of the earlier literature on protoplasm, nucleus, and cell-division will be found in Fleming's *Zellsubstanz* ('82), and a later review of theories of protoplasmic structure in Bütschli's *Protoplasma* ('92) and in Fischer's *Fixierung, etc., des Protoplasmas* ('99). The earlier work on mitosis and fertilization is thoroughly reviewed in Whitman's *Clepsine* ('78), Fol's *Hénogénie* ('79), and Mark's *Limax* ('81). For more recent reviews see among others the following works cited in the chapter-lists, as indicated. Delage, '03 (Intr.), Haecker, '99 (Intr.), Heidenhain, '07 (Intr.), Henneguy, '03 (Intr.), O. Hertwig, '06, '10, '12, '20, '23 (Intr.); Lillie, '19, Strasburger, '07, Agar, '20, Buchner, '15, Doncaster, '20, Prenant, Bouin, Maillard, '04, Sharp, '21 (I); Brachet, '11, '17 (XIV); Jenkinson, '09 (XIV); Morgan, '19, Morgan, Sturtevant, Bridges and Muller, '23 (XII); Korschelt-Heider, '03 (V), Gelei, '22; Waldeyer, '06 (IV), etc.

The titles are arranged in alphabetical order, according to the system originally adopted in Minot's *Human Embryology*. Each author's name is followed by the date of publication (the first two digits being omitted, except in case of works published before the nineteenth century), and this by a letter to designate the paper, in case two or more works were published in the same year. For example, **Boveri, Th.**, '87b, denotes the second paper published by Boveri in 1887. In order to avoid repetition titles that have already been given in the special lists are here referred to only by name and date with the number of the chapter-list in which they will be found in full indicated by Roman numerals in brackets; for example, **Boveri, Th.**, '04 (IX). In many cases titles have been more or less shortened by the omission of certain words, as indicated in general by "etc." or a series of dots; and titles of purely preliminary papers have often been omitted unless for special reasons. For the sake of further economy of space titles of journals and other publications most often referred to have been abbreviated as much as possible, in accordance with the following list.

ABBREVIATIONS

- A. A., Anatomischer Anzeiger. (*Jena*).
- A. A. M., Archives de l'anatomie microscopique (*Paris*).
- A. A. P., Archiv für Anatomie und Physiologie (*Leipzig*).
- A. B., Archives de Biologie (*Liège and Paris*).

- A. Bot.*, Annals of Botany (*London*).
A. Entom., Archiv für Entwicklungsmechanik (*Berlin*).
A. I. B., Archives Italiennes de Biologie (*Pisa*).
A. Z. I., Archivio Zoologico Italiano.
A. J. A., American Journal of Anatomy (*Philadelphia*).
A. J. B., American Journal of Botany (*Brooklyn*).
A. J. P., American Journal of Physiology (*Baltimore*).
A. M. A., Archiv für Mikroskopische Anatomie (*Bonn*).
A. N., American Naturalist (*Garrison's, New York*).
An. B., L'Année Biologique (*Paris*).
An. Hf., Anatomische Hefte (*Munich and Wiesbaden*).
Ark. B., Arkiv för Botanik (*Stockholm*).
A. P., Archiv für Protistenkunde (*Jena*).
A. Ph., Archiv für die gesammte Physiologie (*Berlin*).
A. R., Anatomical Record (*Philadelphia*).
A. S. N., Annales des Sciences Naturelles (*Paris*).
A. Z. E., Archives de Zoologie Expérimentale (*Paris*).
A. Z., Acta Zoologica (*Stuttgart*).
A. Zf., Archiv für Zellforschung (*Leipzig*).
- B.*, Biometrika (*Cambridge, Univ. Press*).
B. A. B., Bulletin de l'Académie Royale de Belgique (*Brussels*).
B. B., Biological Bulletin (*Woods Hole, Mass.*).
B. B. F. B. (see *B. S. F. B.*)
B. C., or *B. Z.*, Biologisches Centralblatt (or Zentralblatt) (*Leipzig*).
B. G., Botanical Gazette (*Chicago*).
B. D. B. G., Berichte der Deutschen Botanischen Gesellschaft (*Berlin*).
B. M. Z., Bulletin of the Museum of Comparative Zoölogy, Harvard (*Cambridge, Mass.*).
B. S. F. B., Bulletin Scientifique (later Biologique) de la France et de la Belgique (*Paris*).
B. S. Z., Bulletin de la Société Zoologique de France (*Paris*).
B. Z., Botanische Zeitung (*Berlin*).
- C. R.*, Comptes Rendus de l'Académie des Sciences (*Paris*).
C. R. S. B., Comptes Rendus des Seances de la Société de Biologie (*Paris*).
- E. A. E.*, Ergebnisse der Anatomie und Entwicklungsgeschichte (Merkel and Bonnet, Anatomische Hefte, 2te Abtheilung) (*Wiesbaden*).
E. P., Ergebnisse der Physiologie (*Wiesbaden*).
- G.*, Genetics. *Menaska, Wisconsin* (*Brooklyn Bot. Garden*).
- H. Nw.*, Handwörterbuch der Naturwissenschaften (*Fischer, Jena*).
- J. A. P.*, Journal de l'Anatomie et de la Physiologie (*Paris*).
J. C. S., Journal of the College of Science, Imperial Univ. (*Tokyo*).
J. E. Z., Journal of Experimental Zoölogy (*Philadelphia*).
J. G., Journal of Genetics (*Cambridge, England*).

- J. G. P., Journal of General Physiology (*New York*).
 J. H., Journal of Heredity (*Washington, D. C.*).
 J. M., Journal of Morphology (*Philadelphia*).
 J. P., Journal of Physiology (*London, Cambridge Univ. Press*).
 J. R. M., Journal of the Royal Microscopical Society (*London*).
 J. W. B., Jahrbuch für Wissenschaftliche Botanik (*Leipzig*).
 J. Z., Jenaische Zeitschrift für Medicin und Naturwissenschaft (*Jena*).

L. C., La Cellule (*Louvain*).

- M. J., Morphologisches Jahrbuch (*Leipzig*).
 M. Z. S., Mittheilung aus der Zoologischen Station zu Neapel (*Naples*).

- N. P., The New Phytologist (*London*).
 N. S., Natural Science (*London*).

- P. A. A. A. S., Proceedings of the American Academy of Arts and Sciences (*Boston*).
 P. C. I., Publications of the Carnegie Institution of Washington (*Washington*).
 P. N. A., Proceedings of the National Academy of Sciences (*Philadelphia*).
 P. R. B., Progressus Rei Botanicae (*Jena*).
 P. R. S., Proceedings Royal Society (*London*).
 P. S. B. M., Proceedings of the Society for Experimental Biology and Medicine (*New York*).
 P. T., Philosophical Transactions of the Royal Society (*London*).
 P. S. M., Popular Science Monthly. *New York* (see S. M.).

Q. J., Quarterly Journal of Microscopical Science (*London*).

R. B., Revue Biologique du Nord de la France (*Lille*).

- S. B. G. M. P., Sitzungs-Berichte der Gesellschaft für Morphologie und Physiologie (*München*).
 S. B. P. M. G., Sitzungs-Berichte der Physikalisch-Medicinisch Gesellschaft zu Würzburg (*Würzburg*).
 S. M., Scientific Monthly (formerly Popular Science Monthly). *New York*.
 S. P., Science Progress (*London*).
 Sci., Science (*New York and Garrison*).

- V. A. G., Verhandlungen der Anatomischen Gesellschaft (*Jena*).
 V. D. Z. G., Verhandlungen der Deutschen Zoologischen Gesellschaft (*Berlin*).
 V. P. M. G., Verhandlungen der Physikalische-medizinischen Gesellschaft zu Würzburg (*Würzburg*).

W. H. L., Woods Hole Biological Lectures (*Woods Hole, Mass.*).

- Z., Zoologica (*Stuttgart*).
 Z. A., Zoologischer Anzeiger (*Leipzig*).
 Z. A. V., Zeitschrift für Induktive Abstammungs-und Vererbungslehre (*Leipzig*).
 Z. B., Zeitschrift für Botanik (*Jena*).

Z. C., Zoölogisches Centralblatt (*Leipzig*).

Z. J., Zoölogische Jahrbücher (*Jena*).

Z. W. M., Zeitschrift für Wissenschaftliche Mikroskopie (*Leipzig*).

Z. W. Z., Zeitschrift für Wissenschaftliche Zoölogie (*Leipzig*).

ABDERHALDEN, EMIL, '09, '14. (VIII). — **Acton, E.**, '14. Observations on the Cytology of the Chroococcaceae: *A. Bot.*, XXVIII. — **Adami, J. G.**, '08. (VIII). — '18. Medical Contributions to the Study of Evolution: *London*. — **Adler, Leo**, '16. Untersuchungen über Entstehung der Amphibienneotenie: *A. Ph.*, 164. — '17. Metamorphosentudien an Batrachierlarven: *A. Entw.*, XLIII. — **Agar, W. E.**, '11. (VI). — '12. Transverse Segmentation and Internal Differentiation of Chromosomes: *Q. J.*, LVIII. — '14. Parthenogenetic and Sexual Reproduction in *Simocephalus*, etc.: *J. G.*, III. — '20. (I). — **Agassiz and Whitman**, '84. On the Development of some Pelagic Fish Eggs: *P. A. A. S.*, XX. — **Albrecht, E.**, '98. Untersuchungen zur Structur des Seeigeleies: *S.-Ges. Morph. Phys. München*, III. — **Alexeieff, A.**, '16a. Mitochondries chez quelques protistes, etc.: *C. R., Soc. Biol.*, LXXX. — '17a. Sur les mitochondries à fonction glycoplastique: *Ibid.* — '17b. Nature mitochondriale du corps parabasal des Flagellés: *Ibid.* — '17b. Mitochondries et rôle morphogène du noyau: *Ibid.* — **Allen, B. M.**, '06. The Origin of the Sex-cells of *Chrysemys*: *A. A.*, XXIX. — '07. An important Period in the History of the Sex-cells of *Rana pipiens*: *Ibid.*, XXXI. — '09. The Origin of the Sex-cells of *Amia* and *Lepidosteus*: *A. R.*, III. — **Allen, C. E.**, '01. On the Origin and Nature of the Middle Lamella: *B. G.*, XXXII. — '04. Chromosome Reduction in *Lilium*: *B. G.*, XXXVII. — '05a. Nuclear Division in the Pollen Mother Cells of *Lilium*: *A. Bot.*, XIX. — '05b. Das Verhalten der Kernsubstanz der Synapsis in den Pollenmutterzellen von *Lilium*: *J. W. B.*, XLII. — '05. Die Keimung der Zygote bei *Coleochaete*: *B. D. B. G.*, XXIII. — '12. Cell Structure Growth, and Division in the Antheridia of *Polytricum*: *A. Zf.*, VIII. — '17. (IV). — '19. The Basis of Sex Inheritance in *Sphaerocarpos*: *Proc. Am. Phil. Soc.*, LVIII. — **Allen, Edgar** '23 (IV). **Allen, Ezra**, '16. Studies on Cell-Division in the Albino Rat: *A. R.*, X. — '16. Experiments in Technique: *A. R.*, X. — '18. Spermatogenesis in the Albino Rat: *J. M.*, XXXI. — '19. A Technique which preserves the normal cytological Conditions, etc.: *A. R.*, XVI. — **Allen, R. F.**, '11. Studies on Spermatogenesis and Apogamy in Ferns: *Trans. Wis. Acad. Sci.*, XVII. — **Altmann, R.**, '86, '90, '94. (I). — '92. Ueber Kernstruktur und Netzstrukturen: *A. A. P.* — '93. Die Granulattheorie und ihre Kritik: *A. A. P.* — **Alverdes, F.**, '12. Die Kerne in den Speicheldrüsen der *Chironomus*-Larve: *A. Zf.*, IX. — **Amelung, E.**, '93. Ueber mittlere Zellengrößen: *Flora*, LXXVII. — **Amici, G. B.**, '30. Note sur le mode l'action du pollen sur le stigmat: *A. S. N.*, I, XXI. — **Amma, K.**, '11. (IV). — **Ancel, P.**, '03. Histogénèse et structure de la gland hermaphrodite d'*Helix*: *A. B.*, XIX. — **Andrews, E. A.**, '98. Filose Activities in Metazoan Eggs: *Zool. Bull.*, II, 1. — '98. Activities of Polar Bodies of *Cerebratulus*: *A. Entw.*, VI, 2. — **Andrews G. F.**, '97. The Living Substance as Such and as Organism: *J. M.*, XII, 2, Suppl. — **Apáthy, S.**, '97. Das leitende Element des Nervensystems, etc., *M. Z. S.*, XII. — '08. Fixierbarkeit und Färbbarkeit, etc.: *Akad. Wiss. Budapest*, XIX. — '12. Neuere Beiträge zur Schneidetechnik: *Z. W. M.*, XXIV. — **Arber, A.**, '14. On Root Development in *Stratiotes aloides L.*, etc.: *Proc. Camb. Phil. Soc.*, XVII. — **Armbruster, L.**, '13. Chromosomenverhältnisse bei der Spermatogenese soli-

tärer Apiden: *A. Zf.*, XI. — **Armbruster, Nachtsheim and Roemer**, '17. Die Hymenoptera als Studienobjecte, etc.: *Z. A. V.*, XVII. — **Arnold, G. A.**, '08. The Nucleolus and Microchromosomes in the Spermatogenesis of *Hydrophilus*: *A. Zf.*, II. — '09. The Prophase in the Ovigogenesis and Spermatogenesis of *Planaria*: *Ibid.*, III. — '12. The Rôle of the Chondriosomes in the Cells of the Guinea-pig Pancreas: *A. Zf.*, VIII. — **Arnold, J.**, '79. Ueber feinere Struktur der Zellen, etc.: *Virchow's Arch.* — '07. Plasmosomen, Granula, Mitochondrien, Chondriomiten und Netzfiguren: *A. A.*, XXXI. — '08. Supravitale Färbung Mitochondrien und ähnlicher Granula, etc.: *A. A.*, XXXII. — '13. (I). — '14. (IX). — **Artom, C.**, '12a. (XI). — '12b. Le basi cytologiche de una nuova sistemica del genere *Artemia*, etc.: *A. Zf.*, IX, 1. — '21. Il significato delle razze e delle specie tetraploidi, etc.: *Revista de Biologia*, III. — **Asvadourova, Nina**, '13. Recherches sur la formation de quelques cellules pigmentaires et des pigments: *A. A. M.*, XV. — **Auerbach, L.**, '74. (Int.). — '91. Ueber einen sexuellen Gegensatz in der Chromatophilie der Keimsubstanzen: *Sitzb. der Königl. preuss. Akad. d. Wiss Berlin*, XXXV.

BABCOCK AND CLAUSEN, '18. (XII). — **Bachhuber, L. J.**, '16. The Spermatogenesis of the Rabbit: *B. B.*, XXX. — **Baehr, W. de**, '09, '20 (X). — '12. Contribution a l'étude de la caryocinèse somatique, de la pseudoreduction et de la reduction (*Aphis saliceti*): *L. C.*, XXVII. — **Baer, C. E. von**, '28, '37. (XIV). — '34. Die Metamorphose des Eies der Batrachier: *M. A.* — **Bailey, I. W.**, '19. Phenomena of Cell-Division in the Cambium of Arborescent Gymnosperms, etc.: *P. N. A.*, V. — '20a. Size Variations of Cambial Initials in Gymnosperms and Angiosperms: *A. J. B.*, VII. — '20b. The Cambium and its Derivative Tissues, III. A Reconnaissance of Cytological Phenomena in the Cambium: *A. J. B.*, VII. — **Baitsell, G. A.**, '14. A Study of the so-called Life-cycle in *Oxytricha*, etc.: *J. E. Z.*, XVI. — **Balbani, E. G.**, '61. Recherches sur les phénomènes sexuels des Infusoires: *Journ. de la Phys.*, IV. — '81. Sur la structure du noyau des cellules salivaires chez les larves de *Chironomus*: *Z. A.*, — '89. Recherches expérimentales sur la mérotomie des Infusoires ciliés: *Recueil Zoöl. Suisse*. — '93. Centrosome et Dotterkern: *J. A. P.*, XXIX. — **Balfour, F. M.**, '80. Comparative Embryology: I. — **Ballowitz, E.**, '08. Fibrilläre Struktur und Contractilität: *A. Ph.*, XLVI. — Untersuchungen über die Struktur der Spermatozoen, etc.: *Vögel: A. M. A.*, XXXII. — '90. Insekten: *Z. W. Z.*, L. 3. — '90. Fische, Amphibien, Reptilien: *A. M. A.*, XXXVI. — '95. Die Doppelspermatozoa der Dytisciden: *Z. W. Z.*, XLV, 3. — '98. Zur Kenntniss der Zellsphäre: *A. A. P.*, II, III. — '00. Eine Bemerkung zu dem . . . "Apparato reticolare," etc.: *A. A.*, XVIII. — '05. Die Spermien des Batrachiers *Pelodytes punctatus*: *A. A.*, XXVII. — '06. Ueber das regelmässige Vorkommen heteromorph Spermien im reifen Sperma des Grasfrosches: *Z. A.*, XXX. — '07. Zur Kenntniss der Spermien der Cetaceen: *A. M. A.*, LXX. — '13. (IV). — **Baltzer, F.**, '08. Ueber mehrpolige Mitosen bei Seeigeleiern: *Inaug. Diss.* — '09. Ueber die Entwicklung der Echiniden-bastarde, etc.: *Z. A.*, V. — '09. Die Chromosomen von *Strongylocentrotus lividus* und *Echinus microtuberculatus*: *A. Zf.*, II. — '10, '17. (XII). — '13. Ueber die Herkunft der Idiochromosomen bei Seeigeln: *S. B. P. M. G.* — '14. (X). — '14. Die Bestimmung und der Dimorphismus des Geschlechts bei *Bonellia*: *S. B. P. M. G., Würzburg*. — '20. Ueber die experimentelle Erzeugung, etc., vom Triton-Bastarden ohne mütterliches Kernmaterial: *Verh. Schweiz. Naturforsch. Ges.*

- Neuenberg*. — **Bancroft, W. D.**, '14. The Theory of Colloid Chemistry: *Jour. Phys. Chem.*, XVIII. — **Banta, A. M.**, '19. The Extent of the Occurrence of Sex Intergrades in Cladocera: *A. R.*, XV. — **Baranecki, J.**, '80. Die Kernteilung in den Pollen-mutterzellen einiger Tradescantien: *B. Z.* — **Barber, M. A.**, '11a. A Technic for the Inoculation of Bacteria and other Substances into living Cells: *Jour. Infect. Diseases*, VIII. — '11. The Effect on the Protoplasm of *Nitella* of various chemical Substances, etc.: *Ibid.* IX. — '14. The Pipette Method in the Isolation of Single Microorganisms, etc.: *Philip. Journ. Sci.*, IX. — **Barber, H. G.**, '11. The Resurrection of *Thyanta calceata* from Synonymy: *J. N. Y., Ent. Soc.*, XIX. — **Barfurth, D.**, '91-'93, '13. (XIV). — **Barnard, J. E.**, '19. The Limitations of Microscopy: *J. R. M.*, March. — **Barratt, J. O.**, '13. Changes in Chondriosomes occurring in Pathological Conditions: *Q. J.*, LVIII. — **Barry, M.**, '38-'41. Embryological Memoirs in *P. T.*, 128-131. — '43. Spermatozoa observed within the Mammiferous ovum: *Ibid.* — **Bary, H. A. de**, '58. Untersuchungen uber die Familien der Conjugaten: *Leipzig*. — '62. Ueber den Bau und das Wesen der Zelle: *Flora*. — '64. Die Mycetozoa: 2nd. Ed., *Leipzig*. — **Bataillon, E.**, '00. La pression osmotique et les grands problèmes de la biologie générale: *A. Entom.*, XI. — '01. Études expérimentales sur l'évolution des Amphibiens. *Ibid.*, XII. — '04. Nouveaux essais de parthenogénèse expérimentale chez les Vertébrés inférieurs: *Ibid.*, XVIII. — '06. Imprégnation et fécondation: *C. R.*, '09. L'imprégnation hétérogène sans amphimixie nucléaire chez les Amphibiens et les Echinodermes: *A. Entom.*, XXVIII. — '10. L'embryogénèse complète provoquée chez les amphibiens par piqure de l'œuf vierge: *C. R.*, 150. — '10, '12. (V). — '10a. Contribution a l'analyse expérimentale des phénomènes karyocinétiques chez *Ascaris megalocephala*: *A. Entom.*, XXX. — '16. Nouvelle contribution a l'analyse expérimentale de la fécondation par la parthénogénèse: *Ann. Inst. Pasteur*, 1916. — '19. Analyse de l'activation par la technique des œufs nus et la polyspermie expérimentale chez les Batraciens: *Ann. Sc. Nat. Zool.* — **Bateson, W.**, '09, '13. (XII). — '18. Problems of Genetics: *Yale Univ. Press*. — '14. (XIV). — **Bateson and Punnett**, '08. The Heredity of Sex: *Sci.*, XXVII. — '11a. On the Inter-relation of genetic Factors: *P. R. S.*, LXXXIV. — '11b. On Gametic Series involving Reduplication of certain Terms: *J. G.*, I. — **Bateson, Saunders, and Punnett**, '06. *Reports to Evolution Committee of the Royal Society*, III. — **Baumgärtel, O.**, '18. Chromatische Fixierung: *B. D. B. G.* — '20. (IX). — **Baumgartner, W. J.**, '02. Spermatid Transformations in *Gryllus*, etc.: *Kansas Univ. Sci. Bull.*, I. — '04. (XI). **Baur, E.**, '14. (XII). — **Bayliss, W. M.**, '11, '18, '21, '23. (VIII). — **Bayliss and Starling**, '06. — **Beale, Lionel S.**, '61. — (Int.). — '70. Bioplasm and its Degradation: *Q. J.*, XVIII. — **Beard, J.**, '02. (X). — **Béchamp and Estor**, '82. De la constitution élémentaire des tissus: *Montpellier*. — **Bechold, H.**, '12. (VIII). — **Beckwith, C. J.**, '08. Early History of the Egg and Embryo of certain Hydroids: *B. B.*, XVI. — '14. (IV). — **Beer, R.**, '04. (I). — '05. On the Development of the Pollen Grain and Anther of some Onagraceae: *Beih. Bot. Centr.*, XIX. — '09. On Elaioplasts: *Ibid.*, XXIII. — '09. The Development of the Spores of *Equisetum*: *N. P.*, VIII. — '11, '12, '13. Studies in Spore Development: *A. Bot.*, XXV, XXVI, XXVII. — '21. Notes on the Cytology and Genetics of the genus *Fuchsia*: *J. G.*, V, 11. — **Beer and Arber**, '19. On the occurrence of Multinucleate Cells in Vegetative Tissues: *P. R. S.*, XCI. — **Belajeff, W.**, '88, '89. Mittheilung uber Bau und Entwicklung der Spermatozoiden: *B. D. B. G.*, — '92a. Uber den Bau und die

- Entwicklung der Antherozoiden, I., Characcen. — '92b. Ueber die Karyokinesis in den Pollenmutterzellen bei *Larix* und *Fritillaria*: *Sitzb. Warsch. Naturf. Ges.* — '94. (IV). — '94. Zur Kenntniss der Karyokinese bei den Pflanzen: *Flora*, LXXIX, Erg. Heft. 3. — '97a. Ueber den Nebenkern in Spermatogenen Zellen und die Spermatogenese bei den Farnkräutern: *B. D. B. G.*, XV. — '97b. Ueber die Spermatogenese bei den Schachtelhalmen: *B. D. B. G.*, XV. — '97c. Ueber die Aehnlichkeit einiger Erscheinungen in der Spermatogenese bei Thieren und Pflanzen: *Ibid.* — '97d. Einige Streitfragen in den Untersuchungen über die Karyokinese: *Ibid.* — '98. Ueber die Cilienbildner in den spermatogenen Zellen: *B. D. B. G.*, XVI. — '98a. Ueber die Reductionstheilung des Pflanzenkerns: *B. D. B. G.*, XVI. — '99. Ueber die Centrosomen in den spermatogenen Zellen: *B. D. B. G.*, XVII. — **Bélar, K.**, '21. Untersuchungen über Formwechsel von *Actinophrys*: *B. C.*, XLI. — '23. (VII). — **Belling, J.**, '21. The Behavior of homologous Chromosomes in a triploid *Canna*. *P. N. A.*, VII. — '21a. The Behavior of Homologous Chromosomes in Pollen-mother-cells: *A. N.*, LV. — '21b. On counting Chromosomes in Pollen-mother-cells: *Ibid.* — **Belling and Blakeslee**, '22, '24. (XII). — **Benda, C.**, '97. Untersuchungen über den Bau des funktionirenden Samenkanälchens einiger Säugetheire: *A. M. A.*, XXX. — '97. Neuere Mittheilungen über die Histogenese des Säugetierspermatozoon: *Verh. d. Phys. Gesell. Berlin.* — '98. (IV). — '98. Zellstrukturen und Zelltheilungen des Salamanderhodens: *V. A. G.*, — '99a. Weitere Mittheilungen über die Mitochondria: *Verh. d. Physiol. Ges.* — '99b. Weitere Beobachtungen über die Mitochondria und ihre Verhältniss zu Secretgranulationen, etc.: *V. P. G.* — '01. Die Mitochondriärfärbung, etc.: '03, '14 (I). — **Bensaude, M.**, '18. (VII). — **Bensley, R. R.**, '10. On the Nature of the Canalicular Apparatus of Animal Cells: *B. B.*, XIX. — '11. Studies on the Pancreas of the Guinea-pig: *A. J. A.*, XII. — **Berenberg-Gossler, H. v.**, '14. (IV). — **Berezowski, A.**, '10, '11. Studien über die Zellgrösse: *A. Zf.*, V, VII. — **Bergen, F. v.**, '04. Zur Kenntnis gewisser Strukturbilder, etc.: *A. M. A.*, LXIV. — **Berghs, J. B.**, '04. La formation des chromosomes hétérotypiques. II.: *L. C.*, XXI, 2. — '05. La formation des chromosomes hétérotypiques dans la sporogénèse végétale, IV: *L. C.*, XXII. — '06. Le noyau et la cinèse chez le *Spirogyra*: *L. C.*, XXIII. — '09. Les cinèses somatiques dans le *Marsilia*: *L. C.*, XXV. — **Bergh, R. S.**, — '94. (I). — '95. Ueber die relativen Theilungspotenzen einiger Embryonalzellen: *A. Entw.*, I, 2. — **Berliner, E.**, '09. Flagellaten-Studien: *A. P.*, XV. — **Bernard, Claude**, '78, '85. (VIII). — **Berthold, G.**, '86. (XIII). — **Bickford, E. E.**, '94. Notes on Regeneration and Heteromorphosis of Tubularian Hydroids: *J. M.*, IX, III. — **Bigelow, H. B.**, '07. Studies in the nuclear Cycle of *Gonionemus*: *B. M. Z.*, XLVIII. — **Binford, Raymond**, '13. The Germ-cells and the Process of Fertilization in *Menippe mercenaria*: *J. M.*, XXIV. — **Blackburn, J. W. H.**, '21. The Status of the British Rose Forms as determined by their cytological Behavior: *A. Bot.*, XXXV. — **Blackburn and Harrison**, '21. The Status of the British Rose Forms, etc.: *A. Bot.*, XXXV. — **Blackman, F. F.**, '12. (I). — **Blackman, M. W.**, '01. The Spermatogenesis of the Myriapods, I: *Kans. Univ. Quart.*, X. — '03. On the Chromatin in the Spermatocytes of *Scolopendra heros*: *B. B.*, V. — '05. The Spermatogenesis of *Scolopendra heros*: *B. M. Z.*, XLVIII. — '06. On the Spermatocytes of the Myriapods: *Proc. Am. Ac. Arts and Sci.*, XLII. — **Blackman, V. H.**, '98. On the Cytological Features of Fertilization and Related Phenomena in *Pinus*: *P. T.*, CXC. — '04. (VII). — '04a. (V). — '06. On the

- Sexuality and Development of the Ascocarp of *Humaria*: *P. R. S.*, LXXVII. — Blackman and Fraser, '06. Further Studies on the Sexuality of the Uredineae: *A. Bot.*, XX. — Blakeslee, A. F., '04, '06a, '15, '20. (VII). — '06, Zygosporic Germinations in the Mucorineae: *Ann. Mycol.*, IV, 1. — '13. Conjugation in the heterogamic Genus *Zygorhynchus*: *Mycol. Centralbl.*, II. — '21, '22. (XII). — Blakeslee, Belling, Farnham, and Bergner, '22. A Haploid Mutant in the Jimson Weed, *Datura stramonium*: *Sci.*, LV, 1433. — *A. N.*, LV, LVI. — Blakeslee and Farnham, '23. Trisomic Inheritance in the *Poinsettia* Mutant of *Datura*: *A. N.*, LVII. — Blochman, F., '82, '83. (XIII). — '86. Ueber die Eireifung bei Insekten: *B. C.*, VI. — '87. Ueber die Richtungs-Körper bei den Eiern Insekten: *M. J.*, XII. — '00. Ueber das Vorkommen von bakterialähnlichen Gebilden in den Geweben und Eiern verschiedener Insekten: *Centralbl. Bakteriolog.*, XI. — '88. Ueber die Richtungskörper bei Insekteneiern: *M. J.*, XII. — '88. Ueber die Richtungskörper bei unbefruchteten Insekteneiern: *Verh. Naturh. Med. Ver. Heidelberg*, N. F., IV, 2. — '89. Ueber die Zahl der Richtungskörper bei befruchteten und unbefruchteten Bieneneiern: *M. J.* — Böhm, A., '88. Über Reifung und Befruchtung des Eies von *Petromyzon*: *A. M. A.*, XXXII. — '91. Die Befruchtung des Forelleneies: *S. B. G. M.*, VII. — Boll, Fr., '76. Das Princip des Wachstums: *Berlin*. — Bolsius, H., '11. Sur la structure spirale ou discoid d'élément chromatique dans *Chironomus*: *L. C.*, XXVII. — Bonnet, C., 1762. (XIV). — Bonnet, J., '11a. Sur le groupement par paires, etc.: *A. Zf.*, VII. — '12. Recherches sur l'évolution des cellules-nourricières du pollen, etc.: *A. Zf.*, VII. — '14. (VII). — Bonnevie, K., '02. Ueber Chromatin-diminution bei Nematoden: *J. Z.*, XXXVI. — '08. (XI). — '04. Zur Kenntniss der Spermiogenese bei den Gastropoden: *B. C.*, XXIV. — '06. Beobachtungen an den Keimzellen von *Enteraxonos*: *J. Z.*, XLI. — '07. Physiologische Polyspermie bei Bryozoen: *J. Z.*, XLII. — '07. "Heterotypical" mitosis in *Nereis*: *B. B.*, XIII. — '08. Heterotypische Mitose als Reifungscharacter: *A. Zf.*, II. — '10. Ueber die Rolle der Centralspindel etc.: *A. Zf.*, V. — '11. Chromatinreifung in *Allium*: *A. Zf.*, I. — '13. (XI). — Bordás, M., '12. Contribution a l'étude de la spermatogénèse dans le *Sagitta*: *L. C.*, XXVIII. — '21. La profase de reducción en . . . *Dendrocoelum*: *Trab. Mus. Nac. Cienc. Nat.*, XLIV. — Borgert, A., '01. Untersuchungen über die Fortpflanzung der tripyleen Radiolarien, etc.: *A. P.*, XIV, also *Z. J.*, XIV. — Boring, A. M., '07. A Study of the Spermatogenesis of twenty-two Species of the Membracidae, Jassidae, Cercopidae, and Fulgoridae: *J. E. Z.*, IV. — '09. A Small Chromosome in *Ascaris megalocephala*: *A. Zf.*, IV. — Boring and Pearl, '14. (X). — Boring and Morgan, '18. Luteal Cells and Henfeathering: *J. G. P.*, I. — Born, G., '83. Bastardierung zwischen Anurenarten: *A. Ph.*, XXXII. — '85. (XIV). — '94. Die Struktur des Keimbläschens, etc.: *A. M. A.*, XLIII. — '97. Ueber Verwachsungsversuche mit Amphibienlarven: *A. Entw.*, IV. — Bourne, G. C., '95. A Criticism of the Cell-Theory, etc.: *Q. J.*, XXXVIII. — Bourquin, H., '17. Starch Formation in *Zygnema*: *B. G.*, LXIV. — Boveri, M., '03. Ueber Mitosen bei einseitiger Chromosomenbindung: *J. Z.*, XXXVII. — Boveri, Th., '86. Ueber die Bedeutung der Richtungskörper: *S. B. G. M. P.*, München. II. — '87. Ueber den Anteil der Spermatozoen an der Teilung des Eies: *Ibid.*, III. — '87b. Ueber die Befruchtung der Eier von *Ascaris megalocephala*: *Ibid.*, III. — '87. Die Bildung der Richtungskörper bei *Ascaris*: *Jena*. — '87c. Ueber Differenzierung der Zellkerne während der Furchung des Eies von *Ascaris*: *A. A.*

- '88. Die Befruchtung und Teilung des Eies von *Ascaris*: *J. Z.*, XXII. — '88. Ueber partielle Befruchtung: *S. B. G. M. P. München.*, IV. — '89, '01a, '01b, '18. (XIV). — '90. Zellenstudien, Heft III: *J. Z.*, XXIV. — '92a, '95. (V). — '92. Die Entstehung des Gegensatzes zwischen den Geschlechtszellen und den somatischen Zellen bei *Ascaris*: *S. B. G. M. P. München*, VIII. — '95. Ueber die Befruchtungs- und Entwicklungsfähigkeit kernloser Seeigel-eier, etc.: *A. Entwm.*, II, 3. '96. Zur Physiologie der Kern- und Zelltheilung: *S. B. P. M. G., Würzburg.* — '97. Zur Physiologie der Kern- und Zelltheilung: *Ibid.*, IX. — '99. (IV). — '00, '04, '05. (IX). — '02. (XII). — '02. Das Problem der Befruchtung: *Jena, G. Fischer.* — '03. (XIV, XI). — '04a, '07, '14. (XII). — '04b. Protoplasmadifferenzierung als auslösender Faktor für Kernverschiedenheit: *S. B. P. M. G.* — '08. Ueber die Beziehung des Chromatins zur Geschlechtsbestimmung: *S. B. P. M. G.* — '09. (XI). — '09. Ueber "Geschlechtschromosomen" bei Nematoden: *A. Zf.*, IV. — '10. (IV, XIII). — '11. Ueber das Verhalten der Geschlechtschromosomen bei Hermaphroditismus: *V. P. M. G., Würzburg.* — '11. Ueber die Charaktere von Echiniden-Bastardlarven bei Hermaphroditismus: *Ibid.*, XLI. — '14. Ueber die Charaktere von Echiniden-Bastardlarven bei verschiedenem Mengenverhältnis mütterlicher und väterlicher Substanzen: *Ibid.*, XLIII. — **Boveri and Stevens**, '04. Ueber die Entwicklung dispermer Ascariseier: *Z. A.*, XXVII. — **Boveri and Hogue**, '09. Ueber die Möglichkeit, Ascariseier zur Teilung in zwei gleichwertige Blastomeren zu veranlassen: *V. P. M. G., Würzburg.* — **Bowen, R. H.**, '19. New methods for the Analysis of cytoplasmic Structures: *P. S. B. M.*, XVII. — '19. (II, IV). — '20, '22a, '22b, '22c, '22d, '24. (IV), — '22e. Abnormal Mitoses in Spermatogenesis: *B. B.*, XLIII. — '22f. On certain Features of Spermatogenesis in Amphibia, etc.: *A. J. A.*, XXX. — '22g. On the Idiosome, Golgi Apparatus, and Acrosome, etc.: *A. R.*, XXIV. — '23a. The Origin of Secretory Granules: *P. N. A.*, IX. — '23b. On the Nature of Mitochondria: *A. R.*, XXVI. — **Bower, F. O.**, '89-'91, '19. (VII). — '94. A Theory of the Strobilus in Archegoniate Plants: *A. B.*, VIII. — **Brachet, A.**, '05, '11, '17, (XIV). — '06. Recherches expérimentales sur l'œuf non segmenté de *Rana fusca*: *A. Entwm.*, XXII. — '07. Les idées actuelles sur la potentialité des blastomères: *Bull. Soc. Royale Zool. et Malacologique de Belg.*, LXIII. — '08. (XII). — '12. La polyspermie expérimentale dans l'œuf de *Rana fusca*: *A. M. A.*, LXXIX. — '15. Sur l'évolution cyclique du cytoplasme de l'œuf activé: *C. R.* — '22. Recherches sur la fécondation prématurée de l'œuf de *Paracentrotus*: *A. B.*, XXXII. — **Braem, F.**, '10. Die Ungeschlechtliche Fortpflanzung als Vorläufer der Geschlechtlichen: *B. G.*, II. — **Brauer, A.**, '92. Das Ei von *Branchipus* von der Bildung bis zur Ablage: *Abh. Preusse. Akad. Wiss.* — '93. Zur Kenntniss der Spermatogenese von *Ascaris*: *A. M. A.*, XLII. — '93. (V). — '94. Ueber die Encystierung von *Actinosphaerium*: *Z. W. Z.*, LVIII. — **Braun, Alex.**, '50. Betrachtung über die Erscheinung der Verjüngung in der Natur, etc.: *Eng. Trans., Ray Soc.*, '66. — **Bridges, C. B.**, '14. Direct Proof through Non-disjunction that the sex-linked Genes of *Drosophila* are borne by the X-chromosome: *Sci.*, n. s., XL. — '13, '14, '16, '17, '22. (XII). — '17. Duplication: *A. R.*, XV. — '21. Triploid Intersexes in *Drosophila*: *Sci.*, n. s., LIV. — '22a. The Origin of Variations in Sexual and Sex-limited Characters: *A. N.*, LVI. — '22b. Variations due to Changes in Chromosomal Materials: *Proc. Cong. Genet.* — **Bridges and Morgan, T. H.**, '19. The Second Chromosome Group of Mutant Characters: *P. C. I.*, 278, Part II. — **Broman**, '00a. Ueber Riesenspermatiden bei *Bombinator*: *A. A.*, XVII. — '00b.

- Ueber Bau und Entwicklung der Spermien von *Bombinator*: *Ibid.*, XVII. — '02.
 Ueber atypische Spermien, etc.: *A. A.*, XXII. — '02. Ueber gesetzmässige
 Bewegungs- und Wachstumserscheinungen (Taxis- und Tropismenformen) der
 Spermiden, etc.: *A. M. A.*, LIX. — '07. Ueber Bau und Entwicklung der
 Spermien von *Rana*: *Ibid.*, LXX. — **Brooks, W. K.**, '83. The Law of Heredity:
Baltimore. — **Brown, E. D. W.**, '19. Apogamy in *Camptosorus rhizophyllus*:
Bull. Torr. Bot. Club, XLVI. — **Brown, H. H.**, '85. On Spermatogenesis in
 the Rat: *Q. J.*, XXV. — **Brown, Robert**, '33. Observations on the Organs
 and Mode of Fecundation in Orchidae and Asclepiadeae: *Trans. Linn. Soc.* — '66.
 A brief Account of microscopical Observations on the Particles contained in the
 Pollen of Plants, etc.: *Misc. Bot. Works, Ray Soc.* — **Brown, W. H.**, '08. The
 Nature of the Embryo Sac of *Peperomia*: *B. G.*, XLVI. — '09. Nuclear Phenom-
 ena in *Pyronema*: *J. H. U. Circ.*, VI. — '10. The Exchange of material between
 Nucleus and Cytoplasm in *Peperomia*: *B. G.*, XLIX. — **Browne, Ethel N.** (see
 also E. B. Harvey), '10. The Relation between Chromosome-number and Species:
B. B., XX. — '13. (XI). '16a. A comparative Study of the Chromosomes of
 six Species of *Notonecta*: *J. M.*, XXVII. — '16a, '20. (See E. B. Harvey). **Brücke,**
E., '61. Die Elementarorganismen: *Wiener Sitzber.*, XLIV. — **Bruel, L.**, '13.
 (I). — **Brunelli, G.**, '09. La spermatogenesi del *Gryllus desertus* Pall.: *Mem.*
Accad. dei Lincei., V, VII. — '10. La spermatogenesi della *Tryxalis*, I.: *Mem.*
Soc. Ital. del Sci., ser. 33, XVI. — '11. La spermatogenesi della *Tryxalis*, II.
Mem. Acc. d. Lincei, ser. 5a, VIII. — **Brunn, M. v.**, '89. Beiträge sur Kennt-
 niss der Samenkörper und ihrer Entwicklung bei Vögeln und Säugethieren: *A. M.*
A., XXXIII. — **Bryce, T. H.**, '02. Maturation of the Ovum in *Echinus esculen-*
tus: *Q. J.*, XLVI. — **Bruyne, C. de**, '95. La sphère attractive dans les cellules
 fixes du tissu conjonctif: *Bull. Acad. Sc. de Belg.*, XXX. — **Buchner, P.**, '09.
 Das accessorische Chromosom in Spermatogenese und Ovogenese der Orthop-
 teren: *A. Zf.*, III. — '10, '18. (IV). — '10. Ueber die Beziehungen zwischen
 Centriol und Bukettstadium: *A. Zf.*, V. — '11. Die Reifung des Seesterneies bei
 experimenteller Parthenogenese: *A. Zf.*, VI. — '15. (I). — **Buchtien, O.**, '87.
 Entwicklungsgeschichte des Prothalliums von *Equisetum*: *Casse.* — **Buder, J.**,
 '16. Zur Frage des Generationswechsel im Pflanzenreiche: *B. D. B. G.*, XXXIV.
Bugnion, E., '10. Les cellules sexuelles, etc.: *Bull. Soc. Vaud. Sc. Nat.*, LXVI. —
Buller, A. H., '02. (V). — **Buresch, J.**, '12. Untersuchungen über die Zwit-
 terdrüse der Pulmonaten: *A. Zf.*, VII. — **Burgeff, H.**, '14-'15. (VII). — **Bur-**
rows, M. T., '11. Growth of Tissues of the Chick Embryo, etc.: *J. E. Z.*, X. —
Burian, R., '06. (VIII). — **Bury, Janina**, '13. Experimentelle Untersuchun-
 gen über die Einwirkung der Temperatur auf die Entwicklung Echinideneier:
A. Entom., XXXVI. — **Bütschli, O.**, '71a. Vorläufige Mittheilung über Bau
 und Entwicklung der Samenfäden bei Insecten und Crustaceen: *Z. W. Z.*, XXI. —
 '71b. Nähere Mittheilungen über die Entwicklung und der Bau der Samenfäden
 der Insecten: *Z. W. Z.*, XXI. — '73. Beiträge zur Kenntniss der Freilebenden
 Nematoden: *Nova Acta Acad. Car. Leopold*, XXXVI. — '75. Vorl. Mitteilung
 einiger Resultate von Studien über Conjugation der Infusorien und die Zell-
 theilung: *Z. W. Z.*, XXV. — '75. Vorläufige Mittheilungen über . . . die ersten
 Entwicklungsvorgänge im befruchteten Ei von Nematoden und Schnecken:
Z. W. Z., XXV. — '76. (III). — '82. Gedanken über Leben und Tod: *Z. A.*, V. —
 '85. Gedanken über die Morphologische Bedeutung der sogenannten Richtungs-
 körperchen: *B. C.*, IV. — '87-'89. Protozoa III: Bronn's Klassen und Ordnungen

des Tierreichs. — '90. Ueber den Bau der Bakterien und verwandter Organismen: *Leipzig*. — '91. Ueber die sogenannten Centrankörper der Zellen und ihre Bedeutung: *Verh. Naturhist. Med. Ver. Heidelberg*. — '92. Ueber die künstliche Nachahmung der Karyokinetischen Figuren: *Ibid.*, n. s., V. — '92, '94, '08. (I). — '96. Weitere Ausführungen über den Bau der Cyanophyzeen und Bakterien: *Leipzig*. — '01. Meine Ansicht über die Struktur des Protoplasmas und einige ihrer Kritiker: *A. Entwm.*, XI. — '02. Bemerkungen über Cyanophyzeen und Bakteria: *A. P.*

CAJAL, S. R., '08. Les conduits de Golgi-Holmgren du protoplasm nerveux, etc.: *Trab. Lab. Invest. Biol. Univ. Madrid*, VI. — '15. (I). — **Calkins, G. N.**, '98. Mitosis in *Noctiluca*: *J. M.*, XV. — '01, '09. (VII). — '02, '16, '19, '20, '23. (III). — **Calkins and Cull**, '07. The Conjugation of *Paramoecium aurelia* (*caudatum*): *A. P.*, X. — **Calkins and Gregory**. Variations in the Progeny of a single Ex-conjugant of *Paramoecium*: *J. E. Z.*, XV. — **Campbell, D. H.**, '88-'89. On the Development of *Pilularia*: *A. Bot.*, II. — '01. The Embryo Sac of *Pep-eromia*: *A. Bot.*, XV. — '03, '05. Studies on the Araceae: *A. B.*, XVII, XIX. — '05. (VII). — '11a. The Endosperm of Angiosperms: *B. G.*, LII. — '11b. The Embryo Sac of *Pandanus*: *A. B.*, XXV. — **Cannon, W. A.**, '03. Studies in Plant Hybrids. The Spermatogenesis of Hybrid Cotton: *Bull. Torrey Bot. Club*, XXX. — **Carazzi, D.**, '04. Ricerche . . . sull' uovo di *Myzostoma*: *Mon. Zool. Ital.*, XV. — **Carleton, H. M.**, '20. Observations on the Intranuclear Body in Columnar Epithelium Cells of the Intestine: *Q. J.*, LXIV. — '23. Tissue Culture: *Brit. Journ. Exp. Biol.*, I, 1. — **Carnoy, J. B.**, '84. (Int.). — '85. La cytodièrese des Arthropodes: *L. C.*, I. — '86. La vésicule germinative et les globules polaires chez quelques Nematodes: *L. C.*, III. — '86. La cytodièrese de l'œuf: *Ibid.*, III. — '86. La ségmentation de l'œuf chez les Nematodes: *Ibid.*, III. — '97. La fécondation chez *Ascaris megalocephala*: *Ibid.*, XIII. — **Carnoy et Lebrun**, '97, '98, '99. La vésicule germinative et les globules polaires chez les batraciens; I, II, III: *Ibid.*, XII, XIII, XIV, XVII. — **Carothers, E. E.**, '13, '17. (XII). — **Carrol, M.**, '20. An extra Dyad and an extra Tetrad in *Cammula*: *J. M.*, XXXIV. — **Carruthers, D.**, '11. Contributions to the Cytology of *Helvella crispa*: *A. B.*, XXV. — **Carter, N.**, '19, '20. Studies on the Chloroplasts of Desmids: *A. Bot.*, XXXIII, XXXIV. **Casteel, D. B.**, '04. (XIII). — '17. Cytoplasmic Inclusions in male Germ-cells of the Fowl-tick, etc.: *J. M.*, XXVIII. — **Castle, W. E.**, '96. The early Embryology of *Ciona*: *B. M. Z.*, XXVII. — '03, '09. (X). — '11. Heredity in Relation to Evolution and Animal Breeding. — '14. Nabour's Grasshoppers, Multiple Allelomorphism, etc.: *A. N.*, XLVIII. — '19. Is the Arrangement of the Genes in the Chromosome Linear?: *P. N. A.*, V. — '21. A New Type of Inheritance: *Sci.*, n. s., LIII. — '22. The Y-Chromosome Type of Sex-linked Inheritance in Man: *Sci.*, LV, 1435. — **Caullery, Maurice**, '06. L'œuf et la gènese des organes: *Revue du mois*, I. — '10. Variation et l'hérédité. Tendances et problèmes actuels: *Ibid.*, X. — '13. (X). — **Cavers, F.**, '14. (IX). — **Cerfontaine, P.**, '06-'07. (XIII). — **Chabry, L.**, '86, '87. (XIV). — **Chamberlain, C. J.**, '99. Oögenesis in *Pinus*: *B. G.*, XXVII. — '05. Alternation of Generations in Animals from a Botanical Standpoint: *B. G.*, XXXIX. — '09. Spermatogenesis in *Dioön edule*: *Ibid.*, XLVII. — '10. Fertilization and Embryogeny in *Dioön edule*: *Ibid.*, L. — '16. *Stangeria paradoxa*: *Ibid.*, LXI. — **Chambers, R.**, '14. Some Physical Properties of the Cell Nucleus: *Sci.*, XL. — '17a. The visible Structure of the Cell Protoplasm and Death Changes: *A. J. P.*, XLIII. — '17b. (IX). — '18.

- The Microdissection Method: *B. B.*, XXXIV. — '19. (II). — '17, '21. (I). — '19. Studies on the Surface-Layer in the living Egg-cell: *P. S. B. M.*, XVII. — '21a. The Formation of the Aster in Artificial Parthenogenesis: *J. G. P.*, IV. — '21b. Studies on the Organization of the Starfish Egg: *J. G. P.*, IV. — '23. The Mechanism of the Entrance of the Sperm into the Starfish Egg: *J. G. P.*, V. — '24. (I). — **Chambers, Conklin, Cowdry** and others, '24. (I). — **Champy, C.**, '11. (IX). — '13. (IV). — '13b. La différenciation des tissus cultivés en dehors de l'organisme: *Bibl. Anat.*, XXIII. — **Champy and Carleton**, '21. Observation on the Shape of the Nucleus, etc.: *Q. J.*, LXV. — **Charlton, H. H.**, '21. The Spermatogenesis of *Lepisma domestica*: *B. B.*, XXXV. — **Child, C. M.**, '00. (XIII). — '04. Amitosis in *Moniezia*: *A. A.*, XXV. — '07. Studies on the Relation between Amitosis and Mitosis, I-III: *B. B.*, XII, XIII; *A. A.*, XXX. — '11a. The Method of Cell Division in *Moniezia*: *B. B.*, '21. — '11b. A Study of Senescence and Rejuvenescence based on Experiments with *Planaria*: *A. Entom.*, XXXI. — '11c. Die physiologische Isolation von Teilen des Organismus, etc.: *Vortr. und Aufs. Entwicklungsm. der Organismen*, XI. Leipzig, **Engelmann**. — '11d. The axial Gradient in *Planaria*, etc.: *J. E. Z.*, X. — '12. Certain dynamic Factors in the regulatory Morphogenesis of *Planaria* in Relation to the axial Gradient: *J. E. Z.*, XIII. — '13. The Nature of the axial Gradients in *Planaria*, etc.: *A. Entom.*, XXXVII. — '13. The Relation between Resistance to depressing Agents and Rate of Metabolism in *Planaria*, etc.: *J. E. Z.*, XIV. — '14. Starvation, Rejuvenescence and Acclimation in *Planaria*: *A. Entom.*, XXXVIII. — '15. (III). — '15a. A Dynamic Conception of the Organic Individual: *Proc. Nat. Acad. Sci.*, I. — '15b. (XIV). — '16. Axial Susceptibility Gradients in Algae: *B. G.*, LXII. — **Christman, A. H.**, '05. Sexual Reproduction in the Rusts: *B. G.*, XXXIX. — '07. (VII). — **Chubb**, '06. The Growth of the Oöcyte in *Antedon*: *P. T.*, '198. — **Clapp, C. M.**, '91. Some Points in the Development of the Toad-Fish: *J. M.*, V. — **Claussen, P.**, '07. Zur Kenntniss der Kernverhältnisse von *Pyronema*: *B. D. B. G.*, XXV. — '08. Ueber die Entwicklung und Befruchtung bei *Saprolegnia*: *B. D. B. G.*, XXVI. — '12. Zur Entwicklungsgeschichte der Ascomyceten: *Bot. L.*, IV. — **Cleland, R. E.**, '19. The Cytology and the Life History of *Nemalion* Ag.: *A. Bot.*, XXXIII. — '22. The Reduction Divisions in the Pollen-mother-cells of *Oenothera*: *A. J. B.*, IX. — **Clowes, G. H. A.**, '16. (VIII). — **Coe, W. R.**, '99. The Maturation and Fertilization of the Egg of *Cerebratulus*: *Z. J.*, XII. — **Cohn, Ferd.**, '51. Nachträge zur Naturgeschichte des *Protococcus*: *Nova Acta*, XXII. — **Cohnheim, O.**, '11. (VIII). — **Coker, W. C.**, '03. On the Gametophytes and Embryo of *Taxodium*: *B. G.*, XXXVI. — '07. Fertilization and Embryogeny in *Cephalotaxus*: *B. G.*, XLIII. — **Collin, R.**, '13a. Les mitochondries de la cellule neuroglie, etc.: *C. R. Soc. Anat.*, '13b. Les mitochondries du cylindraxe, etc.: *C. R. S. B.*, LXXIV. — **Collins, E. J.**, '19. Sex Segregation in the Bryophyta: *J. G.*, VIII. — **Conklin, E. G.**, '96, '97, '99, '02, '05a, '05b, '07. (XIII). — '97c. Nuclei and Cytoplasm in the Intestinal Cells of Land Isopods: *A. N.*, Jan. — '99. Protoplasmic Movements as a Factor in Differentiation: *W. H. L.*, '98. — '01. Centrosomes and Spheres in the Maturation, Fertilization and Cleavage of *Crepidula*: *A. A.*, XIX. — '01. The Individuality of the Germ-nuclei during the Cleavage of the Egg of *Crepidula*: *B. B.*, II. — '02, '12, '17. (II). — '03a, '05, '17. (XIV). — '03b. The earliest Differentiations in the Egg: *Sci.*, XVII. — '04. (V). — '06. Does Half of an Ascidian Egg give rise to a whole Larva?: *A. Entom.*, XXI. — '10. The

Effects of centrifugal Force on the Organization and Development of the Eggs of fresh Water Pulmonates: *J. E. Z.*, IX. — '12a, '12b. (I, IX). — '15. Heredity and Environment: *Princeton Univ. Press.* — '15. Why polar Bodies do not develop: *P. N. A.*, I. — '17. The Share of the Egg and the Sperm in Heredity: *P. N. A.*, '19-'20. The Mechanism of Evolution in the Light of Heredity and Development: *Sci. Mo.*, IX, X. — '24. (XIV). — **Cook, M. H.**, '10. Spermatogenesis in Lepidoptera: *P. N. A.*, LXII. — **Cook and Swingle**, '05. Evolution of Cellular Structures: *U. S., Dept. Agric. Bur. Plant Ind. Bull.*, '81. — **Correns, C.**, '02. (XII). — '06, '13. (X). — '08. Die Rolle der männlichen Keimzellen bei der Geschlechtsbestimmung der gynodiözischen Pflanzen: *B. D. B. G.*, XXVIa. — '08. Zur Kenntnis der Geschlechtsformen polygamer Blütenpflanzen und ihre Beeinflussbarkeit: *Ibid.*, XLV. — '09. (XIV). — '16. Ueber den Unterschied von tierischen und pflanzlichen Zwittertum: *B. C.*, XXXVI. — '17-'18. Ein Fall von experimenteller Verschiebung des Geschlechtsverhältnisses, etc.: *Sitzb. d. preuss. Akad. d. Wissensch.* — **Correns and Goldschmidt**, '13. (X). — **Coulter, J. M.**, '08. Relation of Megaspores to Embryo Sacs in Angiosperms: *B. G.*, XLV. — '11. The Endosperm of Angiosperms: *B. G.*, LII. — '14. (VI). — **Coulter, J. M.**, and **Chamberlain, C. J.**, '03. Morphology of Angiosperms: Chicago. — '10. Morphology of Gymnosperms: *Ibid.* — **Cowdry, E. V.** — '13a. The Relation of Mitochondria and Other Cytoplasmic Constituents in Spinal Ganglion Cells of the Pigeons *Internat. Monatschr. f. Anat. u. Phys.*, XXIX. — '14a. The Vital Staining of Mitochondria with Janus green and Diethylsafranin in Human Blood Cells: *Ibid.*, XXXI. — '14b. The Comparative Distribution of Mitochondria in Spinal Ganglion Cells of Vertebrates: *A. J. A.*, XVII. — '14c. Mitochondria and Neurofibrils: *A. J. A.*, XV. — '16, '18. (I). — '22. The reticular Material as an Indicator of physiologic Reversal, etc.: *A. J. A.*, XXX. — '23. The Independence of Mitochondria and the *Bacillus radicola*: *A. J. A.*, XXXI. — '24. (IX). — **Cowdry, N. H.**, '17. (I, IX). — '18. The Cytology of the Myxomycetes with special reference to Mitochondria: *B. B.*, XXXV. — '20. Experimental Studies on Mitochondria in Plant Cells: *B. B.*, XXXIX. — **Crampton, H. E.**, '94. (XIII). — '97. The Ascidian Half-Embryo: *Ann. N. Y. Acad. Sci.*, X. — '99. The Ovarian History of the Egg of *Molgula*: *J. M.*, XV. Suppl. — **Crampton, H. E.** and **Wilson**, '96. (XIV). — **Cuénot**, '99. (X). — **Cunningham, B.**, '17. (VII). — **Cutler, D. Ward**, '17-'18. Natural and Artificial Parthenogenesis in Animals: *Proc. Manch. Lit. and Phil. Soc.*, LXII, 1. — **Czapek, F.**, '11. (VIII). — **Czermak, N.**, '99. Ueber die Desintegration und die Reintegration des Kernkörperchens, etc.: *A. A.*, XV, 22.

DA FANO, C., '21. On Golgi Apparatus of transplantable Tumor Cells: *Rep. Imp. Cancer Res. Fund*, VII. — '22. On Golgi's Internal Apparatus in . . . the mammary Gland: *J. P.*, LVI. — **Dahlgren, K. V. O.**, '15. Der Embryosack von *Plumbagella*: *A. B.*, XIV. — **Dahlgren and Kepner**, '08. (I). — **Dakin, H. D.**, '12. (VIII). — **Dalc, A.**, '21. (VI). — **Danchakoff, V.**, '16. Studies on Cell-division and Cell-differentiation: *J. M.*, XXVII. — **Dangeard, P. A.**, '94, '95. La reproduction sexuelle des Ascomycetes: *Le Botaniste*, IV, V. — '95. Mémoire sur les Chlamydomonadinées, etc.: *Ibid.*, VI. — '01. Étude comparative de la zoospore et du spermatozoïde: *Ibid.*, VII, 6. — '01. Étude sur la structure de la cellule et ses fonctions. *Polytoma: Ibid.*, VIII. — '19. Sur la distinction du chondriome des auteurs en vacuome, plastidome, et sphèrome: *C. R.*, CLXIX. —

- '20. Sur l'évolution du système vacuolaire chez les gymnospermes: *C. R.*, CLXX. — '20b. La structure de la cellule végétale et son métabolisme: *Ibid.*, CLXX. — Davenport, C. B., '12. Sex-limited Inheritance in Poultry: *J. E. Z.*, XIII. — Davenport, C. B., '17. Inheritance of Stature: *G.*, II. — Davis, B. M., '96. *A. Bot.*, X. — '98. Kerntheilung in der Tetrasporenmutterzelle bei *Corallina*: *B. D. B. G.*, XVI. — '99. The Spore-mother-cell of *Anthoceros*: *B. G.*, XXVIII. — '00. The Fertilization of *Albugo*: *B. G.*, XXIX. — '01, '03. (VII). — '04-'05. (I). — '05. Fertilization in the Saprolegniales: *B. G.*, XXXIX. — '09. Pollen Development of *Oenothera grandiflora*: *A. Bot.*, XXIII. — '09-'11. Cytological Studies on *Oenothera*: *Ibid.*, XXIII, XXIV, XXV. — '10. (VII). — '10. The Reduction Divisions of *Oenothera biennis*: *B. G.*, XXIV. — '11. A Comparison of the Reduction Divisions of *Oenothera lamarckiana* and *O. gigas*: *A. B.*, XXV. — Davis, H. S., '08. (VI). — Debaisieux, P., '09. Les débuts de l'ovogénèse dans le *Dytiscus*: *L. C.*, XXV. — Dederer, P. H., '07. Spermatogenesis in *Philosamia*: *B. B.*, XIII. — '15. Oögenèse in *Philosamia*: *J. M.*, XXVI. — '10. Pressure Experiments on the Egg of *Cerebratulus*: *A. Entom.*, XXIX. — Dehorne, A., '11. Le duplicisme constant du chromosome somatique chez *Salamandra*, etc.: *A. Zf.*, VI. — '14. Sur les Chromosomes de *Corethra*: *Ass. Fr. Avanc. Sci.*, *C. R.*, XLIII. — '21. Le mécanisme de la métaphase, etc., chez *Corethra*: *C. R.*, CLXXII. — Deineka, D., '12. (II). — '12b. Die Morphologie des Zellkerns und die Physik der Kolloide: *Z. f. Chemie u. Indus. d. Kolloide*, XII. — Delage, Yves, '99. Sur l'interprétation de la fécondation mérogonique, etc.: *A. Z. E.*, III, VII. — '99. (XIV). — '01. (V). — '01. L'acide carbonique comme agent de choix de la parthénogénèse expérimentale chez les Astéries: *C. R.*, CXXXV. — '03. (Int.). — '08. Élevage de larves parthénogénétiques, etc.: *A. Z. E.*, IV, VII. — Delage and Goldsmith, '13. (V). — '14. Les facteurs mécaniques de la division cellulaire: *Mercur de France*, CX. — Della Valle, P., '07. Osservazione de tetradi in cellule somatiche, etc.: *Atti. Acc. Napoli*, XIII. — '09, '11, '12. (XI). — '11. Le analogie fisico-chimiche della formazione e della dissoluzione dei cromosomi: *Monitore Zool. Ital.*, XX. — Dellinger, O. P., '09. The Cilium as a Key to the Structure of Contractile Protoplasm: *J. M.*, XX. — Delsman, H. C., '12. (XIII). — Demoll, R., '13. Ueber Geschlechtsbestimmung, etc.: *Z. J., Allg. Zool.*, XXXIII. — Demoor, J., '95. Contribution à l'étude de la physiologie de la cellule: *A. B.*, XIII. — Dendy, A., '88. Studies on the Comparative Anatomy of Sponges: *Q. J.*, Dec. — '14-'15. The Gametogenesis of *Grantia*: *Ibid.*, LX. — Derschau, M. V., '08. Beiträge zur pflanzlichen Mitose: *J. W. B.*, XLVI. — '11. Ueber Kernbrücken und Kernsubstanz in pflanzlichen Zellen: *A. Zf.*, VIII, 3. — '14. (IX). — Deton, W., '08. "l'Étape synaptique" dans le *Thysanozoön*: *L. C.*, XXV. — Devisé, R., '21. (II). — Digby, L., '05. On the Cytology of Apogamy and Apospory, II: *P. R. S.*, LXXVI. — '09. Observations on "Chromatin Bodies" and their Relation to the Nucleolus in *Galtonia*: *A. B.*, XXIII. — '10. (VI). — '12. (XI). — '14. A critical Study of the Cytology of *Crepis virens*: *A. Zf.*, XII. — '19. The Archesporial and Meiotic Mitoses in *Osmunda*: *A. Bot.*, CXXX. — Dimpker, A. M., '17. (XIII). — Divaz, N., '14. Die Spermatogenese von *Naucoris cimicoides*: *Z. A.*, XLV. — Dixon, H. H., '94. Fertilization of *Pinus*: *A. Bot.*, VIII. — '96. On the Chromosomes of *Lilium longiflorum*: *Proc. R. Ir. Ac.*, III. — Dobell, C., '08. The Structure and Life-History of *Copromonas*: *Q. J.*, LII, 205. — '09. (IX). — '11. Contributions to the Cytology of the Bacteria: *Q. J.*, LVI. — '13. Observations on the Life History of . . . *Arach-*

- nula*: *A. P.*, XXXI. — '14a. (III). — '14b. Cytological Studies on three Species of *Amoeba*: *A. P.*, XXIV. — **Dodds, G. S.**, '10. (IV). — **Dodel, A.**, '76. *Ulothrix zonata*: *J. W. B.*, X. — **Doflein, F. J.**, '13. (III). — '16. (VII). — '16. *Polytomella agilis*: *Z. A.*, XLVII. — **Dogiel, A. S.**, '90. Zur Frage über das Epithel der Harnblase: *A. M. A.*, XXXV. — **Dogiel, V.**, '23. The Transformation of the male Pronucleus into a Spermatozoön: *Zootom. Lab. Univ. Petrograd.* — **Doncaster, L.**, '06. On the Maturation of the Unfertilized Eggs and the Fate of the Polar Bodies in the Tenthredinidae: *Q. J.*, XLIX. — '07. Gametogenesis and Fertilization in *Nematus*: *Q. J.*, LI. — Correction of the above: *Nature*, LXXXII, and *Sci.*, XXXI. — '08. On Sex Inheritance in the Moth, *Abraxas grossulariata*: *4th Rep. Evol. Comm., R. Soc. Lond.* — '08. Animal Parthenogenesis: *Science Progress.* — '10, '11, '16. Gametogenesis of the Gall-fly, *Neuroterus lenticularis*: I, II, III: *P. R. S.*, XXXII-XXXIV. — '11. Some Stages in the Spermatogenesis of *Abraxas grossulariata*, etc.: '11. The Chromosomes in the Oögenesis and Spermatogenesis of *Pieris brassicae* and the Oögenesis of *Abraxas grossulariata*: *J. G.*, II, 3. — '14. (X). — '14b. (XII). — '14c. On the Relation between Chromosomes, Sex-limited Transmission and Sex-determination in *Abraxas grossulariata*: *J. G.*, IV. — '20. (I). — **Doncaster and Cannon**, '20. On the Spermatogenesis of the Louse, etc.: *Q. J.*, LXIV. — **Doncaster and Gray**, '11. Cytological Observations on Cross-fertilized Echinoderm Eggs: *Proc. Camb. Phil. Soc.*, XVI. — '13. Cytological Observations on the Early Stages of Segmentation of *Echinus* Hybrids: *Q. J.*, LVIII. — **Doncaster and Raynor**, '06. Breeding Experiments with Lepidoptera: *Proc. Zool. Soc. Lond.* — **Douin, C.**, '09. Nouvelles observations sur *Sphaerocarpos*: *Rev. Bryol.*, XXXVI. — **Driesch, H.**, '92. Entwicklungsmechanisches: *A. A.*, VII, '18. — '92. Entwicklungsmechanische Studien, I, II: *Z. W. Z.*, LIII. — '93. III-VI, *Ibid.*, LV. — '93. VII-X, *M. Z. S.*, XI. — '92a, '94, '96, '99a, '99b, '00, '06a, '06b, '07, '08a, '08b. (XIV). — '92b. 2. Ueber einige allgemeine Fragen der theoretischen Morphologie: *Ibid.*, LV. — '93. Ueber einige allgemeine entwicklungsmechanische Ergebnisse: *M. Z. S.*, XI, 2. — '93. Entwicklungsmechanische Studien: *Z. W. Z.*, LV. — '95. Zur Analysis der Potenzen embryonaler Organzellen: *A. Entwm.*, II. — '95. Entwicklungsmechanische Studien, IX: *M. Z. S.*, XI. — '96. (XIV). — '98. Ueber rein-mütterliche Charaktere and Bastardlarven von Echiniden: *A. Entwm.*, VII. — '98. Von der Beendigung morphogener Elementarprozesse: *A. Entwm.*, VI. — '00. Die Verschmelzung der Individualität, etc.: *A. Entwm.*, X. — '01a. Vorbereitungen zu einer Theorie des Lebens: *Leipzig.* — '01b. Die organische Regulationen: *Leipzig, Engelmann.* — '02. Neue Antworten und neue Fragen: *Erg., Merkel u. Bonnet.* XI. — '02. Neue Ergänzungen zur Entwicklungsphysiologie des Echinidenkeimes: *A. Entwm.*, XIV, 3, 4. — '02. Die restitutionem der *Clavellina*: *A. Entwm.*, XIV. — '03. Drei Aphorismen zur Entwicklungsphysiologie jüngster Studien: *A. Entwm.*, XVII, 1. — '03. Ueber Seeigelbastarde: *A. Entwm.*, XVI, 4. — '03. Ueber Aenderung der Regulationsfähigkeiten im Verlauf der Entwicklung bei Ascidien: *Ibid.*, XVII. — '05. Zur Cytologie parthenogenetischer Larven von *Strongylocentrotus*: *A. Entwm.*, XIX. — '05. Der Vitalismus: *Leipzig.* — '06. Die Physiologie der tierischen Form: *E. P.*, V, 1, 2. — '07. Die Entwicklungsphysiologie, '05-'08: *E. A. E.*, XVII. — '08. Zur Theorie der organischen Symmetrie: *A. Entwm.*, XXVI. — '10. Neue Versuche über die Entwicklung verschmolzener Echinidenkeime: *A. Entwm.*, XXX. — **Driesch and Morgan, T. H.**, '95. Zur Analyse der ersten Entwicklungsstadien des Ctenophorencies

- A. Entom.*, II. — **Drüner, L.**, '94. Zur Morphologie der Centralspindel: *J. Z.*, XXVIII. — '95. Studien über den Mechanismus der Zelltheilung: *J. Z.*, XXIX. — **Dubreuil, G.**, '13. Le chondriome de le dispositif de l'activité sécrétaire: *A. A. M.*, XV. — **Duesberg, J.**, '07. Der Mitochondrialapparat in den Zellen der Wirbeltiere und Wirbellosen: *A. M. A.*, LXXI. — '08. Sur l'existence de mitochondries dans l'œuf et l'embryon d'*Apis mellifica*: *A. A.*, XXXII. — '09. Ueber Chondriosomen und ihre Verwendung zu Myofibrillen beim Hühnerembryo: *V. A. G.*, XXXIV. — '09. Note complémentaire sur la spermatogénèse du rat: *A. Zf.*, III. — '09. Les chondriosomes der cellules embryonnaires du poulet, etc.: *A. Zf.*, IV. — '09. La spermatogénèse chez le rat: *Ibid.*, II. — '10. (IV). — '11, '13, '15. (IX). — '12, '14. (I). — '17. Chondriosomes in the Cells of Fish Embryos: *A. J. A.*, XXI. — '18. Chondriosomes in the Testicle-cells of *Fundulus*. *A. J. A.*, XXIII. — '19. On the Present Status of the Chondriosome-problem: *B. B.*, XXXVI. — '20. (IV). — **Duesberg et Hoven**, '10. Observations sur la structure du protoplasme des cellules végétales: *A. A.*, XXXVI. — **Dujardin, F.**, '35. Sur les prétendus estomacs des animalcules infusories et sur une substance appelée sarcode: *A. S. N., Zool.*, II, 4. — **Dupler, A. W.**, '17. The Gametophytes of *Taxus canadensis Marsh.*: *B. G.*, LXIV. — **Düsing, C.**, '86. Die Regulierung des Geschlechtsverhältnisses, etc.: *J. Z.*, XIX. — **Dutrochet, H. J.**, '37. Mémoires pour servir à l'histoire anatomique et physiologique des végétaux et des animaux:
- EAST, E. M.**, '13. Xenia and the Endosperm of Angiosperms: *B. G.*, LVI. — '15. (XII). — **East and Hayes**, '12. (III). — **Ebeling, A. H.**, '22. A ten-year old Strain of Fibroblasts: *J. Exp. Med.*, XXV, 6. — **Ebner, V. v.**, '71. Untersuchungen über den Bau der Samencanälchen, etc.: *Inst. Phys. u. Hist. Graz. (Leipzig)*. — '88. Zur Spermatogenese bei den Säugethieren: *A. M. A.*, XXXI. — **Edwards, C. L.**, '10. The Idiochromosomes in *Ascaris*, etc.: *A. Zf.*, V, 3. — '11. The Sex-chromosomes in *Ascaris felis*: *A. Zf.*, VII. — **Ehrlich, P.**, '79. Ueber die specifischen Granulationen des Blutes: *A. A. P. (Phys.)*. — **Ehrlich, Krause, Mosse, Rosin**, '10. Enzyklopädie der Mikroskopischen Technique: *Berlin, Wien*. Article on Färbungen by L. Michaelis. — **Eigenmann, C. H.**, '90. On the Egg-membranes and Micropyle, etc.: *B. M. Z.*, XIX. — **Eisen, G.**, '99. The Chromoplasts and the Chromioles: *B. C.*, XIX, 4. — '00. The Spermatogenesis of *Batrachoseps*: *J. M.*, XVII. — **Eisig, H.**, '99. (XIII). — **Eklof, H.**, '14. Chondriosomenstudien an den Epithel- und Drüsenzellen des Magen-Darmkanals, etc.: *A. Hf.*, I, Abt., LI. — **Elpatiewsky, W.**, '09. Die Urgeschlechtzellenbildung bei *Sagitta*: *A. A.*, XXXV. — '10. Entwicklungsgeschichte der Genitalprodukte bei *Sagitta*: *Biol. Zeitschr. (Moscow)*, I. — **Emberger, L.**, '20a. Évolution du chondriome chez les cryptogames vasculaires: *C. R.*, CLXX. — '20b. Évolution du chondriome dans la formation du sporange chez les fougères: *Ibid.*, CLXX. — **Engelmann, T. W.**, '80. Zur Anatomie und Physiologie der Flimmerzellen: *A. Ph.*, XXIII. — **Enriques, P.**, '07, '09, '16. (VII). — '11. La Teoria Cellulare: *Bologna*: — **Entz, G.**, '18. (IX). — **Erdmann, R.**, '09, '13. (IX). — '10. Depression und fakultative Apogamy bei *Amoeba diploidea*: *Festschr. R. Hertwig*, I. — '15. Endomixis und ihre Bedeutung für die Infusorienzelle: *S. B. d. Ges. naturf. Freunde Berlin*. — **Erhard, H.**, '11. (IX). — **Erlanger, R. v.**, '96. Die neuesten Ansichten über die Zelltheilung und ihre Mechanik: *Z. C.*, III, 2. — '96. Die Entwicklung der männlichen Geschlechtszellen: *Z. C.*, III, 12. — '96.

Neuere Ansichten über die Struktur des Protoplasmas: *Z. C.*, III, 8, 9. — '97. Beobachtungen über die Befruchtung und ersten Teilungen an den lebenden Eiern kleiner Nematoden *B. C.*, XVII. — '97. Ueber die Spindelbildung in den Zellen der Cephalopoden Keimscheibe: *B. C.*, XVII. — '97. Beiträge zur Kenntniss des Protoplasmas, etc.: *A. M. A.*, XLIX. — '98. Zur Befruchtung des *Ascariseies*, etc.: *Z. A.*, XIX. — Ernst, A., '02. Chromosomenreduction, etc.: *Flora*, XCI. — '18. Bastardierung als Ursache der Apogamie in Pflanzenreich: *Jena*. — Errera, '86. Eine fundamentale Gleichgewichtsbedingung organischen Zellen: *B. D. B. G.* — '87. Zellformen und Seifenblasen: 60 *Versamml. Naturf. und Aerzte Wiesbaden*. — Escoyez, E., '07. Le noyau et la caryocinèse chez le *Zygnema*: *L. C.*, XXIV. — '07. (IX). — '09. Caryocinèse, centrosome et kinoplasme dans le *Stypocaulon*: *L. C.*, XXIV. — Esmarch, G. v., '02. *Centralbl. f. Bakteriolog.*, XXXII. — Ewart, A. J., '03. On the Physics and Physiology of Protoplasmic Streaming in Plants: *Oxford*. — Ewing, H. E., '16. Eighty-seven Generations in a Parthogenetic Pure Line of *Aphis*: *B. B.*, XXXI. — Eycleshymer, A., '04. The Cytoplasmic and nuclear Changes in the striated Muscle Cell of *Necturus*: *A. J. A.*, III.

FAIRCHILD, D. G., '97. Ueber Kerntheilung und Befruchtung bei *Basidiobolus*: *J. W. B.*, XXX. — Farmer, J. B., '94. Studies in Hepaticae: *A. Bot.*, VIII, 29. — '95b. On Spore-formation and Nuclear Division in the Hepaticae: *A. Bot.*, IX. — '07. On the Structural Constituents of the Nucleus, etc.: *P. R. S.*, LXXIX. — '12. Telosynapsis and Parasynapsis: *A. Bot.*, XXVI. — Farmer and Digby, '07. (V). — '10. On the Somatic and Heterotype Mitoses in *Galtonia candicans*: *Rep. Brit. Assn. Sheffield*. — '10. On the Cytological Features exhibited by certain Varietal and Hybrid Ferns: *A. Bot.*, XXIV. — '14. On Dimensions of Chromosomes, etc.: *P. T.*, 205. — Farmer and Moore, '95. On the Essential Similarities existing Between the Heterotype Nuclear Divisions in Animals and Plants: *A. A.*, XI, 3. — '03. New Investigations in the Reduction Phenomena of Animals and Plants: *P. T.*, LXXII. — '05. (VI). — Farmer, Moore, and Digby, '03. On the Cytology of Apogamy and Apospory; I: *P. R. S.*, LXXI. — Farmer and Shove, '05. On the Structure and Development of the Somatic and Heterotype Chromosomes of *Tradescantia*: *Q. J.*, XLVIII. — Farmer and Williams, '96. On Fertilization, etc., in *Fucus*: *A. Bot.*, X. — '98. (VII). — Farr, C. H., '18. Cell-Division by Furrowing in *Magnolia*: *A. J. B.*, V. — Fasten, N., '14. Spermatogenesis of the American crayfish, etc.: *J. M.*, XXV. — '18. Spermatogenesis of the Pacific Coast edible Crab, *Cancer magister*: *B. B.*, XXXIV. — Fauré-Fremiet, E., '07. Mitochondries et sphéropastes chez les Infusoires ciliés: *C. R. S. B.*, LXII. — '08. Évolution de l'appareil mitochondrial dans l'œuf de *Julus*: *C. R. S. B.*, LXIV. — '10. (I, IV). — '10a. Mitochondries et liposomes; *C. R. S. B.*, LXII. — '10b. La continuité des mitochondries a travers des générations cellulaires et le rôle de ces éléments: *A. A.*, XXXVI. — '13. Le cycle germinatif chez l'*Ascaris megalcephala*: *A. A. M.*, XV. — '21. Constitution de l'œuf de *Sabellaria*: *C. R.*, CLXXIII. — Fauré-Fremiet et du Vivier de Streel, '21. Composition chimique de l'œuf et du têtard de *R. temporaria*: *C. R.*, CLXXIII. — Faust, E. C., '13. Size Dimorphism in Adult Spermatozoa of *Anasa*: *B. B.*, XXV. — '15. Size Dimorphism in the Spermatozoa for single testes: *J. E. Z.*, XVIII, 2. — Federley, H., '12. Das Verhalten der Chromosomen bei der Spermatogenese der Schmetterlinge, etc.: *Z. A. V.*, IX. — '14. Ein Beitrag zur Kenntniss der Sper-

- matogenese bei Mischlingen, etc.: *Finska Vetenskaps-Soc. Forhandl.*, LVI. — **Ferguson, M. C.**, '01a. The Development of the Egg and Fertilization in *Pinus*: *A. Bot.*, XV. — '01b. The Development of the Pollen Tube and the Division of the generative Nucleus in certain Species of *Pinus*: *Ibid.*, XV. — '04. Contributions to the Life History of *Pinus*: *Proc. Washington Acad. Sci.*, VI. — '13. Included Cytoplasm in Fertilization: *B. G.*, LVI. — **Fick, R.**, '93. Ueber die Reifung und Befruchtung des Axolotl: *Z. W. Z.*, LVI. — '05. (XI). — '06. (VI, XII). — '08. Zur Konjugation der Chromosomen: *A. Zf.*, I. — '09. Bemerkungen zu Boveris Aufsatz über die Blastomerenkerne von *Ascaris* und die Theorie der Chromosomen: *A. Zf.*, III. — **Firket, J.**, '11. Recherches sur la g n se des fibrilles  pidermiques chez le poulet: *A. A.*, XXXVIII. — '14. Recherches sur l'organog nese des glandes sexuelles: *A. B.*, XXIX. — **Fischel**, '97, '98, '03. (XIV). — '99. *A. Entwm.*, XXII. — '06. Zur Entwicklungsgeschichte der Echinodermen: *A. Entwm.*, XXII. — '06. Ueber Bastardierungsversuche bei Echinodermen: *A. Entwm.*, XXII. — **Fischer, A.**, '94. Untersuchungen  ber Bakterien: *J. W. B.*, XXVII. — '94a. Zur Kritik der Fixierungsmethoden der Granula: *A. A.*, IX. — '94b. Ueber die Geisseln einiger Flagellaten: *J. W. B.*, XXVII. — '95. Neue Beitr ge sur Kritik der Fixierungsmethoden: *A. A.*, X. — '99. (I). — '03. Vorlesungen  ber Bakterien. 2 Aufl.: *Jena.* — '05. (IX).
- Flemming, W.**, '75. Studien an der Entwicklungsgeschichte der Najaden: *Sitzb. d. k. k. Akad. Wiss. Wien.*, LXXI, 3. — '76. Beobachtungen  ber die Beschaffenheit des Zellkerns: *A. M. A.*, XIII. — '79a, '80, '81. (Int., II). — '79b. Ueber das Verhalten des Kernes bei der Zelltheilung, etc.: *Virchow's Arch.*, LXXVII. — '82. (Int.). — '87. Neue Beitr ge zur Kenntniss der Zelle, II: *A. M. A.*, XXXVII. — '92. Ueber Unsichtbarkeit lebender Kernstrukturen: *A. A.*, VII. — '95. Zur Mechanik der Zelltheilung: *A. M. A.*, XLVI. — '96. Ueber Intercellularl cken des Epithels, etc.: *An. Hf.*, VI, 17. — '97. Ueber den Bau der Bindegewebezellen, etc.: *Z. B.*, XXXIV. — **Floderus, M.**, '96. Ueber die Bildung der Follikelbilden bei den Ascidien: *Z. W. Z.*, LXI, 2. — **Fol, H.**, '73. Die erste Entwicklung des Geryonideies: *J. Z.*, VII. — '75. Sur le d veloppement des Pt ropodes: *A. de Zool.*, IV. — '75.  tudes sur le d veloppement des Mollusques: '76. Sur les ph nom nes de la division cellulaire: *C. R.*, LXXXIII. — '77. Sur le commencement de l'h nog nie chez divers animaux: *Arch. Sci. Nat. et Phys. Gen ve*, LVIII. See also *A. Z. E.*, VI. — '79. (Int.). — '91. Die "Centrenquadrielle," ein neue Episode aus der Befruchtungsgeschichte: *A. A.*, VI; also in *Arch. des Sci. Phys. et Nat.*, 15 Avril, '91. — **Fontana**, '81. Sur la structure primitive du corps animal: In *Trait  sur le venin de la vip re*, Florence. — **Foot and Strobell, E. C.**, '05. Prophases and Metaphase of the first Maturation Spindle of *Allolobophora*: *A. J. A.*, IV. — '10. Pseudoreduction in the O genesis of *Allolobophora*: *A. Zf.*, V. — '11. Amitosis in the Ovary of *Protenor belfragi*, etc.: *A. Zf.*, VII. — '12. A Study of Chromosomes and Chromatin Nucleoli in *Euschistus*: *A. Zf.*, IX. — '13. Preliminary Note on the Results of Crossing Two Hemipterous Species, etc.: *B. B.*, XXIV. — **Forenbacher, A.**, '11. Die Chondriosomen als Chromatophorenbildner: *B. D. B. G.*, XXIX. — *Fortpflanzung der Gew chse*. (VII). — **Francotte, P.**, '97. Recherches sur la maturation, etc., chez les Polyclades: *A. Z. E.*, VI. Also *M m. Cour. Acad. Belg.*, LV. — **Fraser, H. C. I.**, '07. On the Sexuality and Development of the Ascocarp of *Lachnea*: *A. Bot.*, XXI. — '08. Contributions to the Cytology of *Humaria*: *A. Bot.*, XXII. — '12. The Pairing of the Chromosomes: *N. P.*, XI. — '14. The Behavior of the Chromatin in the

Meiotic Divisions of *Vicia*: *A. Bot.*, XXVIII. — Fraser and Snell, '11. The vegetative Divisions in *Vicia*: *A. Bot.*, XXV, VI. — Fraser, H. C. I., and Welsford, E. J., '08. Further Contributions to the Cytology of the Ascomycetes: *A. A.*, XXII. — Frederikse, A. M., '22. Études sur l'Ovogenèse des Dytiscides: *A. B.*, XXXII. — Fries, W., '10. Die Entwicklung der Chromosomen im Ei von *Branchipus*, etc.: *A. Zf.*, IV. — Frisendahl, A., '12. Cytologische und entwicklungsgeschichtliche Studien an *Myricaria*: *Kgl. Svensk. Vet. Handl.*, XLVIII. — Fritsch, F. E., '05, '07. (IX). — Frolowa, S., '13. Idiochromosomen bei *Ascaris megaloccephala*: *A. Zf.*, IX. — Fromman, C., '65. Ueber die Struktur der Binde-substanzzellen des Rückenmarks: *Centrl. f. med. Wiss.*, III, 6. — '75. Zur Lehre von der Struktur der Zellen: *J. Z.*, IX. — '84. Untersuchungen über Struktur, Lebenserscheinungen und Reactionen thierischer und pflanzlicher Zellen: *J. Z.*, XVII. — Fulton, John F., '22. Animal Chlorophyll, etc.: *Q. J.*, LXVI, 2. (Lit.). — Furth, O. v., '12. (VIII).

GAJEWSKA, H., '17. Ueber die morphologischen Veränderungen des Kern- und Plasmasubstanzen im Verlaufe des Wachstums der Oöcyten: *A. Zf.*, XIV, 4. — Gaidukov, N., '10. Dunkelfeldbeleuchtung und Ultramikroskopie: *Jena.* — Gallardo, A., '96. Essai d'interprétation des figures karyokinétiques: *Ann. Mus. Nac. de Buenos Aires*, V. — '06. L'interprétation bipolaire de la division karyocinétique: *Ibid.*, VI. — '09. (II). — '09. Bipolaridad de la division celular: *Rev. del Mus. de La Plata* (2), III. — Galtsoff, P. S., '23. The amoeboid Movement of dissociated Sponge Cells: *B. B.*, XLV. — '24. Regeneration after Dissociation (*In press*). — Gardiner, E. G., '98. The Growth of the Ovum, etc., in *Polychaerus*: *J. M.*, XV. — Gardiner, W., '83. Continuity of Protoplasm in Vegetable Cells: *Phil. Trans.*, CLXXIV. — '84. On the Continuity of the Protoplasm through the Walls of Vegetable Cells: *Arb. Bot. Inst. Würzburg*, III. — '97. The Histology of the Cell Wall, etc.: *P. R. S.*, LXII. — '00. The Genesis and Development of the Wall and connecting Threads of the Plant Cell: *Ibid.*, LXVI. — Gardner, N. L., '06. Cytological Studies in Cyanophyceae: *Univ. Calif. Publ. Bot.* — Gardiner and Hill, '01. The Histology of the Cell Wall with special Reference to the Mode of Connexion of Cells: *P. T.*, CXCIV. — Gatenby, J. B., '17a, '17b, '18, '19a, '19b, '20a, '20b, '20c, '21, '22. (IV). — '17. The Degenerate (apyrene) Sperm-formation of Moths, etc.: *Q. J.*, LXII. — '17. The Embryonic Development of *Trichogramma*, etc.: *Ibid.* — '18a. The Segregation of the Germ-Cells in *Trichogramma*: *Ibid.*, LXIII. — '18b. Polyembryony in Parasitic Hymenoptera: *Ibid.* — '19. (I). — '20a. Further Notes on the Oögenesis and Fertilization of *Grantia*: *J. R. M.*, III. — '20b. *Grantia compressa*: *J. Linn. Soc.* — '22b. Gametogenesis of *Ornithorhyncus*: *Q. J.*, LXVI. — Gatenby and Woodger, '20. (IV). — Gates, R. R., '07. Pollen Development in Hybrids of *Oenothera*: *B. G.*, XLIII. — '08. (VI). — '09. The Behavior of the Chromosomes in *Oenothera lata* x *O. gigas*: *Ibid.*, XLVIII. — '09, '13, '20, '24. (XI). — '10, '15, '23. (XII). — '11. The Mode of Chromosome Reduction: *Ibid.*, LI. — '11. Pollen Formation in *Oenothera gigas*: *A. Bot.*, XXV. — '12. Somatic Mitoses in *Oenothera*: *A. Bot.* — '24. (XI). — Gates and Rees, '21. (VI). — Gates and Thomas, '14. (XII). — Gaudissart, P., '13. Réseau protoplasmique et chondriosomes dans la gènese des myofibrilles: *L. C.*, XXX. — Geddes and Thompson, '99. (X). — Geerts, J. M., '09. Beiträge zur Kenntniss der Cytologie und der partiellen Sterilität in *Oenothera lamarckiana*: *Rec. Trav. Bot.*

- Néerland.*, V. — '11. Cytologische Untersuchungen einiger Bastarde von *Oenothera gigas*: *B. D. B. G.*, XXIX, 3. — **Gegenbaur, C.**, '54. Beiträge zur näheren Kenntniss der Schwimmpolypen: *Z. W. Z.*, V. — **Geinitz, B.**, '15. Ueber Abweichungen bei der Eireifung von *Ascaris*: *A. Zf.*, XIII. — **Gelei, J.**, '13. Ueber die Ovogenese von *Dendrocoelum lacteum*: *A. Zf.*, XI. — '21, '22. (VI). — **Georgevitch, P.**, '08. Zur Nukleolusfrage, etc.: *Beih. Bot. Centr.*, XXIII. — '10a. Preliminary Note on Apospory and Apogamy in *Trichomanes*: *A. Bot.*, XXIV: *J. W. B.*, XLVIII. — **Gérard**, '09. Recherches sur la spermatogénèse chez *Stenobothrus*: *A. B.*, XXIV. — **Gerassimoff, J.**, '00. Ueber die Lage und die Function des Zellkerns: *Bull. Soc. Imp. Natur., Moscow*. — '01. Ueber den Einfluss des Kerns auf das Wachstums der Zelle: *Ibid.* — '02. Die Abhängigkeit der Grösse der Zelle von Menge ihrer Kernmasse: *Zeitsch. f. allgem. Physiol.*, I. — **Gerould, J. H.**, '06. (XIII). — '11. The Inheritance of Polymorphism and Sex in *Colias philodice*: *A. N.*, XLV. — '22. (Int.). — **Giard, A.**, '77. Sur la signification morphologique des globules polaires, etc.: *B. S. F. B.*, XXII. — **Giardina**, '01. (IV). — **Gierke, H.**, '85. Färberei zu mikroskopischen Zwecken: *Z. W. M.*, II. — **Giglio-Tos and Granata**, '08. I mitocondri nelle cellule seminali maschili di *Pamphagus*: *Biologica*, II. — **Girgolaff, S. S.**, '11. Kompressionsversuche am befruchteten Ei der *Ascaris*: *A. M. A.*, LXXVI. — **Gille, K.**, '14. Untersuchungen über die Eireifung, Befruchtung, und Zellteilung von *Gyrodactylus*: *A. Zf.*, XII. — **Gläser, H.**, '12. Ueber die Teilung einiger Amöben, etc.: *A. P.*, XXV. — **Glaser, O. C.**, '05. Ueber den Kannibalismus bei *Fasciolaria*, etc.: *Z. W. Z.*, LXXX. — '08. A Statistical Study of Mitosis and Amitosis in the Entoderm of *Fasciolaria*: *B. B.*, XIV. — '14a. The Change in Volume of *Arbacia* and *Asterias* Eggs in Fertilization: *B. B.*, XXVI. — '14b. On inducing Development in the Sea-urchin, etc.: *Sci.*, XXXVIII. — **Godlewsky, E.**, '97a. Ueber mehrfache bipolar Mitose bei der Spermatogenese von *Helix*: *Anz. Akas. Wiss. Krakau*. — '97b. Weitere Untersuchungen über die Umwandlung der Spermatiden, etc.: *Ibid.* — '06, '08, '09, '13. (XIV). — '10. Plasma und Kernsubstanz bei der Regeneration der Amphibien: *A. Entom.* XXX. — '11. Kombination der heterogenen Befruchtung mit der künstlichen Parthenogenese: *Ibid.*, XXXIII, 1, 2. — '18. (VI). — **Goebel, U.** Ueber sexuellen Dimorphismus bei Pflanzen: *B. C.*, XXX. — **Goette, A.**, '07. (IV). — **Goldschmidt, R.**, '02. Untersuchungen über die Eireifung, Befruchtung, etc.: *Z. W. Z.*, LXXI. — '05. Eireifung, Befruchtung und Embryonalentwicklung des *Zoogonus mirus*: *Z. J., Abt. f. Anat. u. Ont.*, XXI. — '08a. Ueber das Verhalten des Chromatins bei der Eireifung, u. s. w., des *Dicrocoelium*: *A. Zf.*, I. — '08b. Die Chromatinreifung des Geschlechtzellen des *Zoogonus* und die Primärtypus der Reduktion: *A. Zf.*, II. — '11-'14. Erblichkeitstudien an Schmetterlingen: I u. II, *Z. A. V.*, VII and XI. — '12. Bemerkungen zur Vererbung des Geschlechtspolymorphismus: *Ibid.*, VIII. — '13. (XII, XIV). — '15. Some Experiments on Spermatogenesis *in vitro*: *P. N. A., Washington*, I. — '16. Experimental Intersexuality and the Sex-Problem: *A. N.*, L. — '16. Genetic Factors and Enzyme Reaction: *Sci.*, XLIII. — '16. A Preliminary Report on Further Experiments in Inheritance and Determination of Sex: *P. N. A.*, II. — '16. Theodor Boveri: *Sci.*, XLIII. — '17. Crossing Over ohne Chiasmotypie: *G*, II. — '17. On a Case of Facultative Parthenogenesis in the Gypsy-moth, *Lymantria*, etc.: *B. B.*, XXXII. — '17. A Further Contribution to the Theory of Sex: *J. E. Z.*, XXII. — Intersexualität und Geschlechtsbestimmung: *B. Z.*, XXXIX. — '20a, '20b. (X). — '20c. Die Spermatogenese eines parthenogenetischen Frosches: *A. Zf.*, XV. — '20d. Die Bedeu-

tung der atypischen Spermatozoen: *Ibid.*, XV. — '20. Kleine Beobachtungen u. Ideen zur Zellenlehre, II: *A. Zf.*, XV. — '23a. Die Sammelchromosomen der Schmetterlinge: *Ibid.*, XVII. — '23. Untersuchungen über Intersexualität, III: *Z. J.*, *Abst. Vererb.*, XXI. — **Goldschmidt and Popoff**, '07. Die Caryokinese der Protozoa und der Chromidialapparat der Protozoen- und Metazoenzelle: *A. P.*, VIII. — **Goldsmith, W. M.**, '19. A comparative Study of the Chromosomes of the Tiger Beetles: *J. M.*, XXXII. — **Golgi, C.**, '98. Sur la structure des cellules nerveuses: *A. I. B.*, XXX. — '09. Sur une fine particularité de structure de l'épithélium, etc.: *A. I. B.*, LI. — **Goodale, H. D.**, '10. Some Results of Castration in Ducks: *B. B.*, XX. — '13. Castration in Relation to the Secondary Sexual Characters of Brown Leghorns: *A. N.*, XLVII. — '16. Gonadectomy in Relation to the Secondary Sexual Characters of Some Domestic Birds: *P. C. I.*, CCXLIII. — **Goodrich, H. B.**, '16. (X). — '20. Rapidity of Activation in the Fertilization of *Nereis*: *B. B.*, XXXVIII. — **Goodsir, J.**, '45. Anatomical and Pathological Observations: *Edinburgh*. — **Goroschankin, J.**, '83. Zur Kenntniss der Corpuscula bei den Gymnospermen: *B. Z.*, LXI. — **Gould, H. N.**, '17. Studies on Sex in the Hermaphrodite Mollusc, *Crepidula plana*, I. — **Govaerts, P.**, '13. Recherches sur la structure de l'ovaire des insectes: *A. B.*, XXVIII. — **Graham, M.**, '18. Centrosomes in Fertilization Stages of *Preissia*: *A. Bot.*, XXXII. — **Granata, L.**, '10. (VI). — **Gray, J.**, '13. The Effects of Hypertonic Solutions upon the Fertilized Eggs of *Echinus*: *Q. J.*, LVIII. — '16. The electrical Conductivity of Echinoderm Eggs, etc.: *Phil. Trans.* 207 B. — '22. A critical Study of the Facts of Artificial Parthenogenesis, etc.: *Q. J.*, LXVI. — **Grégoire, V.**, '99. Les cinèses polliniques chez les Liliacées: *L. C.*, XVI. — '04. Le reduction numérique des chromosomes et les cinèses de maturation: *L. C.*, XXI. — '05, '10. (VI). — '06. (II, XI). — '07. La formation des gemini hétérotypiques dans les végétaux: *Ibid.*, XXIV. — '08. Theories courantes sur l'hérédité mendélienne: *Ann. Soc. Zool. Mal. Belgique*, XLII. — '09a. La reduction dans le *Zoögonus* et le "Primärypus": *L. C.*, XXV. — '09. Les phénomènes de l'étape synaptique, etc.: *L. C.*, XXV. — '11. Les recherches de Mendel et des mendélistes sur l'hérédité: *Rev. des Quest. Sci.*, Oct., '11, Apr., '12. — '12. Les phénomènes de la métaphase et de l'anaphase dans la caryocinèse somatique, etc.: *Ann. Soc. Sci. Bruxelles*, XXXIV. — '12. La vérité du schema hétéro-homéotypique: *C. R.*, 155. — '13. La télophase et la prophase dans la caryocinèse somatique: *Ibid.*, CLVI. — **Grégoire et Berghs**, '04. La figure achromatique dans le *Pellia*: *L. C.*, XXI. — **Grégoire and Wygaerts**, '03. (II). — **Gregory, R. P.**, '04. Spore Formation in leptosporangiate Ferns: *A. Bot.*, XVIII. — '11. On Gametic Coupling and Repulsion in *Primula*: *P. R. S.*, LXXXIV. — '11. Experiments with *Primula*: *J. G.*, I. — '12. The Chromosomes of a giant Form of *Primula*: *Proc. Cambridge Phil. Soc.*, XVI. — '14. On the Genetics of Tetraploid Plants in *Primula*: *P. R. S.*, LXXXVII. — **Grew, Nehemiah**, 1682. (Int.), — **Griffn, B. B.**, '99. Studies on the Maturation, Fertilization, and Cleavage of *Thalassema* and *Zirphæa*: *J. M.*, XV. — **Griggs, R. F.**, '09. Some Aspects of Amitosis in *Synchytrium*: *B. G.*, XLVII. — '12. The Development and Cytology of *Rhodochytrium*: *B. G.*, LIII. — **Grobber, C.**, '78. Beiträge sur Kenntniss der männlichen Geschlechtsorgane der Dekapoden: *Arb. Zool. Inst. Wien*, I. — **Gross, J.**, '01. Untersuchungen über das Ovarium der Hemiptera: *Z. W. Z.*, LXXIX. — '04. Die Spermatogenese von *Syromastes*: *Z. J.*, *Anat. u. Ontog.*, XX. — '06. Die Spermatogenese von *Pyrrhocoris*: *Z. J.*, *Anat. Abt.*, XXIII. — '12. Heterochromosomen und Geschlechtsbestimmung bei

- Insekten: *Z. J., Allg. Teil.*, XXXII. — '16. Beobachtungen u. Versuche an lebenden Zellkerne: *A. Zf.*, XIV. — Gruber, A., '84. Beiträge zur Kenntniss der Physiologie und Biologie der Protozoen: *Ber. Naturf. Ges. Freiburg*, I. — '85. Über künstliche Teilung bei Infusorien: (VIII). — '93. Mikroskopische Vivisektion: *Ibid.*, VII, 1. — '97. Weitere Beobachtungen an vielkernigen Infusorien: *Ber. Naturf. Ges. Freiburg*, III. — Gruber, K., '12. Biologische und experimentelle Untersuchungen an *Amoeba* (Lit.): *A. P.*, XXV. — Guignard, L., '91. Nouvelles études sur la fécondation: *Ann. Sci. Nat. Bot.*, XIV. — '98. Les centres cinétiques chez les végétaux: *Ibid.* (VIII), V. Also *B. G.*, XXV. — '99. Sur les anthérozoïdes et la double copulation sexuelle chez les végétaux angiospermes: *C. R.*, CXXVIII. — '00. L'appareil sexuel et la double fécondation dans les Tulipes: *Ann. Sci. Nat. Bot.*, VIII, 11. — '01. La double fécondation chez les Ranunculacées: *Jour. Botanique*, XV. — '02. La double fécondation chez les Solanées: *Jour. Botanique*, XVI. — Guilliermond, A., '06. Contribution à l'étude cytologique des Cyanophycées: *Revue de Botanique*. — '07. La cytologie des Bactéries: *Bull. Inst. Pasteur*, V. — '08. Contribution à l'étude cytologique des Bacilles endospores: *A. P.*, XII. — '09. Observations sur la cytologie d'un Bacille: *C. R.*, LXVII. — '10a. (VII). — '10b. A propos de la structure des Bacilles endospores: *A. P.*, XIX. — '11. Aperçu sur l'évolution nucléaire des ascomycètes et nouvelles observations sur les mitoses des asques: *Rev. Gen. Bot.*, XXIII. — '12a. Recherches cytologiques sur le mode de formation de l'amidon et sur les plastes végétaux: *A. A. M.*, XIV. — '12b. Sur le mode de formation du pigment dans la racine de carotte: *C. R.*, CLV. — '12c. Sur les mitochondries des organes sexuels des végétaux: *C. R.*, CLIV. — '13a. Sur les mitochondries des champignons: *C. R. S. B.*, LXXIV. — '13b. Sur la signification du chromatophore des algues: *C. R. S. B.*, LXXV. — '13c. Nouvelles remarques sur la signification des plastes de W. Schimper, etc.: *Ibid.* — '13d. Sur le rôle du chondriosome dans l'élaboration des produits de réserve des champignons: *C. R.*, CLVII. — '13e. Nouvelles recherches cytologiques sur la formation des pigments anthocyaniques: *Ibid.*, CLVII. — '13f. Nouvelles observations sur le chondriome des champignons: *Ibid.*, CLVI. — '13g. Sur la formation de l'anthocyane au sein des mitochondries: *Ibid.*, CLVI. — '13h. Sur l'étude vitale du chondriome de l'épiderme des pétales d'*Iris*, etc.: *C. R. S. B.*, LXXIV. — '14a. Nouvelles remarques sur les plastes végétaux: *A. A.*, XLVI. — '14b. (I, IX). — '14c. Bemerkungen über die Mitochondrien der vegetativen Zellen und ihre Verwandlung in Plastiden: *B. D. B. G.*, XXXII. — '15a. Nouvelles observations sur le chondriome des cellules épidermiques de la fleur d'*Iris*: *C. R. S. B.*, LXVII. — '15b. Recherches sur le chondriome chez les champignons et les algues: *Rév. Gen. Bot.*, XXVII. — '17a. Sur la nature et le rôle des mitochondries des cellules végétales: *C. R. S. B.*, LXIX. — '17b. Observations vitales sur le chondriome de la fleur de Tulipe: *C. R.*, CLXIV. — '17d. Recherches sur l'origine des chromoplastes, etc.: *C. R.*, CLXIV. — '18. Sur l'origine mitochondriale des plastids: *C. R.*, CLXVII. — '19, '19a. (IX). — '20a. Sur l'évolution du chondriome dans la cellule végétale: *C. R.*, CLXX. — '20b. Sur les éléments figurés du cytoplasme: *C. R.*, CLXX. — '20c. Nouvelles recherches sur l'appareil vacuolaire dans les végétaux: *C. R.*, CLXXI. — Gulick, A., '11. (X). — Günthert, T., '10. Die Eibildung der Dytisciden: *Z. J.*, XXX. — Gurwitsch, A., '00. Idiozom und Centrankörper im Ovarialeie der Säugethiere: *A. M. A.*, LVI. — '01. Der Haarbüschel der Epithelzellen, etc.: *A. M. A.*, LIX. — '04, '13. (I). — '08. Ueber Prämissen und anstossgebende Faktoren der Furchung und Zellvermehrung:

A. Zf., II. — '23. Die Natur des spezifischen Erregers der Zellteilung: *A. M. A.*, C. — **Gutherz, S.**, '07. Zur Kenntniss der Heterochromosomen: *A. M. A.*, LXIX. — '12. Ueber ein bemerkenswertes Strukturelement (Heterochromosom) in der Spermiogenese des Menschen: *Ibid.*, LXXIX, 2. — '22. Das Heterochromosomproblem bei den Vertebraten: *Ibid.*, LXXIX. — **Guyer, M. F.**, '00. Spermatogenesis of Normal and Hybrid Pigeons: *Bull. Univ. Cincinnati*. — '02. Hybridism and the Germ-cell: *Ibid.* XXI. — '03. The Germ-cell and the Results of Mendel: *Cincinnati Lancet-Clinic*: — '07. The Development of Unfertilized Frog's Eggs injected with Blood: *Sci.*, XXV. — '09a. The Spermatogenesis of the domestic Guinea: *A. A.*, XXIV. — '09b. The Spermatogenesis of the domestic Chicken: *Ibid.*, XXIV. — '11. (XIV). — '16. (X).

BIERENS DE HAAN, J. A., '13. Ueber bivalente Eier, etc.: *Z. A.*, XLII. — **Haberlandt, G.**, '87. (VIII). — '14. *Physiological Plant Anatomy*, 4th Ed. Trans. by Drummond. — **Haeckel, E.**, '66. *Generelle Morphologie: Jena*. — '76. *The Perigenesis of Plastidules*. — '91. *Anthropogenie*, 4th Ed.: Leipzig. — **Haecker, V.**, '90. Ueber die Reifungsvorgänge bei *Cyclops*: *Z. A.*, XIII. — '92. Die Eibildung bei *Cyclops* und *Canthocamptus*: *Z. J.*, V. — '92a. Die Furchung des Eies von *Aequorea*: *A. M. A.*, XL. — '92c. Die heterotypische Kerntheilung im Cyclus der generativen Zellen: *Ber. Naturf. Ges. Freiburg*, VI. — '93. (IV). — '95a. The Reduction of the Chromosomes in the Sexual Cells: *A. Bot.*, IX. — '95b. Die Vorstadien der Eireifung: *A. M. A.*, XLV. — '95c. Ueber die Selbständigkeit der väterlichen und mütterlichen Kernbestandteile, etc.: *A. M. A.*, XLVI. — '97a. Die Keimbahn von *Cyclops*: *A. M. A.*, XLIX. — '99. Die Reifungserscheinungen: *E. A. E.*, VIII. — '99, '11. (Int.). — '00. Mitosen im Gefolge amitosenähnlicher Vorgänge: *A. A.*, XVII. — '02. Ueber das Schicksal der elterlichen und grosselterlichen Kernanteile: *J. Z.*, XXXVII. — '04, '07, '10. (XII). — '12. (V). — '12. *Allgemeine Vererbungslehre*, 2te Aufl. — **Haldane, J. S.**, '17. *Organism and Environment: New Haven*. — **Hallez, P.**, '86, '87. (XIII). — **Halliburton, W. D.**, '16. (VIII). — **Hamburger, C.**, '04. Die Konjugation von *Paramoecium bursaria*: *A. P.*, IV. — **Hammar, J. A.**, '97. Ueber eine allgemein vorkommende primäre Protoplasmaverbindung zwischen den Blastomeren: *A. M. A.*, XLIX. — '00. Ist die Verbindung zwischen den Blastomeren wirklich protoplasmatisch, etc.: *A. M. A.*, L. — **Hammarsten, O.**, '09. (VIII). — **Hance, R. T.**, '17. The Fixation of mammalian Chromosomes: *A. R.*, XII. — '17b. Somatic Mitoses of the Mosquito: *J. M.*, XXVIII. — '17c, '18. (XI). — **Hanseman, D.**, '93. Spezificität, Altruismus und die Anaplasie der Zellen: Berlin. — **Hanstein, J.**, '80. (I). — **Hardy, W. B.**, '99, '13. (I). — '05. *Colloidal Solution: J. P.*, XXXIII. — **Hargitt, C. W.**, '04. The Early Development of *Pennaria*: *A. Entom.*, XVIII. — **Hargitt, G. T.**, '09. Maturation, Fertilization, and Segmentation of *Pennaria*, etc.: *B. M. Z.*, LIII. — '13-'18. (IV). — **Harman, M. T.**, '13. Method of Cell-Division in the Sex Cells of *Taenia teniaeformis*: *J. M.*, XXIV. — '15. Spermatogenesis in *Paratettix*: *Sci.*, XLI. — '20. Chromosome Studies in Tettigidae, II: *B. B.*, XXXVIII. — **Harms, W.**, '14. *Experim. Untersuchungen über die innere Sekretion der Keimdrüsen, etc.: Jena*. — '21. *Untersuchungen über das Bidderschen Organ: Z. Anat. u. Entw.*, LXII. — **Harper, E. H.**, '04. The Fertilization and Early Development of the Pigeons' egg: *A. J. A.*, III. — **Harper, R. A.**, '95. Beitrag zur Kenntniss der Kernteilung und Sporenbildung im Ascus: *B. D. B. G.*, XIII. — '96. Ueber das Verhalten der Kerne bei der Fruchtentwicklung

- einiger Ascomyceten: *J. W. B.*, XXIX. — '97. Kernteilung und freie Zellbildung im Ascus: *J. W. B.*, XXX. — '99. (II). — '00. Cell and Nuclear Division in *Fuligo*: *B. G.*, XXX. — '00, '10. (VII). — '02. Binucleate Cells in certain Hymenomyces: *B. G.*, XXXIII. — '05. Sexual Reproduction and the Organization of the Nucleus in certain Mildews: *P. C. I.*, XXXVII. — '14. Cleavage in *Didymium melanospermum*: *A. J. B.*, I. — '18a, '18b. (XIII). — '19. (I). — **Harrison, R. G.**, '10. Outgrowth of the Nerve Fibre in Tissue-cultures: *J. E. Z.*, IX. — '12. Cultivation of Tissues in Extraneous Media, etc.: *A. R.*, VI. — **Harrison and Doncaster**, '14. (XI). — **Hartmann, F. A.**, '13. Variations in Size of Chromosomes: *B. B.*, XXIV. — **Hartmann, M.**, '04, '17, '21. (III). — '09, '13, '14, '18, '21. (VII). — '11. Die Konstitution der Protistenkerne und ihre Bedeutung für die Zellenlehre: *Fischer, Jena.* — '18. Theoretische Bedeutung und Terminologie der Vererbungserscheinungen bei haploiden Organismen: *Z. A. V.*, XX. — '21a. Praktikum der Protozoologie, 4th Ed.: *Fischer, Jena.* — **Hartmann und Nägler**, '08. Copulation bei *Amoeba diploidea* mit Selbständigbleiben der Gametenkerne, etc.: *S.-B. Ges. Naturf. Freunde, Berlin.* — **Hartmann and Prowazek**, '07. (IX). — **Hartmann and Schilling**, '17. (VII). — **Hartog, M.**, '09. Mitokinetism in the mitotic Spindle and in the Polyasters: *A. Entw.*, XXVII. — '10. Une force nouvelle, le Mitokinetisme: *C. R.*, CLI. — '13. (III). — '14. (II). — **Harvey (Browne), E. B.**, '16, '20. (XI). — '19. Mitotic Division of binucleate Cells: *B. B.*, XXXVII. — **Harvey, E. N.**, '10a. Methods of Artificial Parthenogenesis: *B. B.*, XVIII. — '10b. The Mechanism of Membrane-formation, etc.: *J. E. Z.*, VIII. — '14. Is the Fertilization-membrane . . . a Precipitation Membrane? *B. B.*, XXVII. — **Harvey, Wm.**, '51. (Int.). — **Hasper, M.**, '11. (IV). — **Hatschek, B.**, '87. Ueber die Bedeutung der geschlechtlichen Fortpflanzung: *Prager Med. Wochenschr.*, XLVI. — '88. Lehrbuch der Zoologie: — **Hatschek, E.**, '22. (VIII). — **Hayes and East**, '15. Further Experiments on Inheritance in Maize: *Conn. Agr. Exp. Sta. Bull.*, 188. — **Heath, H.**, '99. (XIII). — **Hegner, R. W.**, '08. An intra-nuclear mitotic Figure, etc.: *B. B.*, XIV. — '11. Germ-Cell Determinants and their Significance: *A. N.*, XLV. — '14a. Studies in Germ-cells, I and II: *J. M.*, XXV. — '14b, III: *A. A.*, XLVI. — '14c, '15. (IV). — '14d. The Origin and Early History of the Germ Cells in some Chrysomelid Beetles: *J. M.*, XX. — '19. (IX). — '20. The Relations between nuclear Number, Chromatin Mass, etc. . . . in *Arcella*: *J. E. Z.*, XXX. — **Heidenhain, M.**, '93. Ueber Kern und Protoplasma: *Festschr. z. 50-Jahr. Doctorjub. von v. Kölliker*: Leipzig. — '94. Neue Untersuchungen über die Centralkörper, etc.: *A. M. A.*, XLIII. — '95. Cytomechanische Studien: *A. Entw.*, I, 4. — '96. Ueber die Mikrocentren mehrkerniger Riesenzellen, etc.: *Morph. Arb.*, VII, 1. — '96. (II). — '99. Ueber die Struktur der Darmepithelzellen: *A. M. A.*, LIV. — '00. Die Centralkapseln und Pseudochromosomen in den Samenzellen von *Proteus*, etc.: *A. A.*, XVIII. — '01. Plasma und Zelle: *Jena.* — '02, '10. (VIII). — '07, '11. (Int.). — **Heidenhain and Cohn**, '97. Ueber die Mikrocentren in den Geweben des Vogelembryos, etc.: *Morph. Arb.*, VII. — **Heider, K.**, '00. (XIV). — **Heiderich, F.**, '10. Sichtbare Centrosomen in überlebenden Zellen: *A. A.*, XXXVI. — **Heilborn, O.**, '21. Taxonomical and cytological studies on . . . *Carica*: *Ark. B.*, XVII. — '22. Die Chromosomenzahlen der Gattung *Carex*: *Svensk. Bot. Tidskr.*, XVI. — **Heilbrunn, L. V.**, '15. Physical Changes in the Egg of *Arbacia*: *B. B.*, XXIX. — '20a. An Experimental Study of Cell-Division: *J. E. Z.*, XXX. — '20b. Studies in Artificial Parthenogenesis, III: *B. B.*, XXXVIII. — '21. Proto-

- plasmic Viscosity Changes during Mitosis: *J. E. Z.*, XXXIV. — **Heitzmann, J.**, '73. Untersuchungen über das Protoplasma: *Sitz. d. k. Acad. Wiss. Wien.*, LXVII. — '83. Mikroskopische Morphologie des Thierkörpers im gesunden und kranken Zustande: *Wien.* — **Held, H.**, '12. Ueber den Vorgang der Befruchtung bei *Ascaris megalcephala*: *V. A. G.* — '16. (V). — **Hempelmann, F.**, '06. Eibildung, Eireifung und Befruchtung bei *Saccocirrus*: *Z. A.*, XXX. — Die Geschlechtsorgane und Zellen von *Saccocirrus*: *Z.*, LXVII. — **Henderson, L. J.**, '20. The Order of Nature: *Harvard Univ. Press, Cambridge.* — **Henderson, W. D.**, '07. Zur Kenntniss der Spermatogenese von *Dytiscus*: *Z. W. Z.*, LXXXVII. — **Henking, H.**, '91, '92. (VI). — **Henle, J.**, '41. (Int.). — **Henneguy, L. F.**, '98. (IX). — '03. (Int.). — '04. Les insectes: Paris. — '11. Sur la parthénogénèse expérimentale chez les amphibiens: *C. R.*, CLII. — **Hensen, V.**, '81. Physiologie der Zeugung: Hermann's Physiologie, VI. — **Herbst, C.** Experimentelle Untersuchungen über den Einfluss der veränderten chemischen Zusammensetzung des umgebenden Mediums, etc., I: *Z. W. Z.*, LV, '92; II, *M. Z. S.*, XI, '93a; III-VI, *A. Entom.*, II, 4. — '94, '95. Ueber die Bedeutung der Reizphysiologie für die Kausale Auffassung von Vorgängen in der tierischen Ontogenese: *B. C.*, XIV, XV. — '93b. Ueber die künstliche Hervorufung von Dottermembranen an unbefruchteten Seeigeleiern, etc.: *B. C.*, XIII. — '01. (XIV). — '04. Ueber die zur Entwicklung der Seeigel nothwendigen anorg. Stoffe, etc.: *A. Entom.*, XVII. '06-'14. — (XII). Vererbungsstudien, I-X. (XII). — '12. (XIV). — **Herla, V.**, '95. Études des variations de la mitose chez l'*Ascaride megalcephale*: *A. B.*, XIII. — **Herlant, Maurice**, '11, '13, '19. (V). — '13. Le mechanisme de la parthénogénèse expérimentelle: *B. S. F. B.*, VII, 50. — '14. Sur le mécanisme de la première segmentation, etc.: *Ibid.*, XLVIII. — '17. Le mecanisme de la parthénogénèse expérimentale chez les Amphibiens et les Échinoderms: *Bull. Scient.*, VIII, 7. — **Herlitzka, A.**, '95. Contributo allo studio della capacità evolutiva dei due primi blastomeri nell' uovo di Tritoni: *A. Entom.*, II. — '96. Sullo sviluppo di embrioni completi da blastomeri isolati di uova de Tritoni: *Ibid.*, IV. — **Hermann, F.**, '91. Beiträg zur Lehre von der Entstehung der karyokinetischen Spindel: *A. M. A.*, XXXVII. — '92. Struktur und Histiogenese der Spermatozoen: *E. A. E.*, II. — **Hertwig, Günther**, '11. Radiumbestrahlung unbefruchteter Froscheier und ihre Entwicklung mit normalen Samen: *A. M. A.*, LXXVII. — '12. Das Schicksal des mit Radium bestrahlen Spermachromatins im Seeigelei: *Ibid.*, LXXIX. — '13. (V). — '18. Kreuzungsversuche an Amphibien: *A. M. A.*, XCI. — '20. Das Schicksal des väterlichen Chromatins, etc.: *Ibid.*, *Festschr. f. O. Hertwig.* — '21. (X). — **Hertwig, O.**, '75, '77, '78. (Int., V). — '84, '93, '98, '06, '10, '17. (Int.). — '90. Experimentelle Studien am tierischen Ei: *J. Z.*, XVII. — '90. (VI). — '92. (XIV). — '92. Urmund und Spina Bifida: *A. M. A.*, XXXIX. — '93. Ueber den Werth der ersten Furchungszellen für die Organbildung des Embryo: *A. M. A.*, XLII. — '94. Zeit und Streitfragen der Biologie: *Berlin.* — '98. Die Zelle und die Gewebe, II: *Jena.* — '00. Die Entwicklung der Biologie im 19 Jahrhundert: *Jena.* — '11. Radiumkrankheit tierischer Keimzellen: *A. M. A.*, LXXVII. — '12. Disharmonische Idioplasmaverbindungen und ihre Folgen: *Scientia*, XII. — '12, '20, '23. Allgemeine Biologie. 4te, 5te, 6te, Auflage (Int.). — '13. Versuche an *Tritoneiern* über die Einwirkung bestrahler Samenfäden auf die tierische Entwicklung: *A. M. A.*, LXXXII. — '17 (Int.). — **Hertwig, O. and R.**, '86. Experimentelle Untersuchungen über die Bedingungen der Bastardbefruchtung: *J. Z.*, XIX. — '87. (Int., II). — **Hertwig, P.**, '11. Durch Radiumbestrahlung her-

- vorgerufene Veränderungen in den Kernteilungsfiguren der Eier von *Ascaris*: *A. M. A.*, LXXVII. — '13. Das Verhalten des mit Radium bestrahlten Spermachromatins in Froschei: *A. M. A.*, LXXXI. — '20. (V). — '20. Abweichende Form der Parthenogenese bei einer Mutation von *Rhabdites*: *A. M. A.*, XCIV. — '23. Bastardierungsversuche mit entkernten Amphibieneiern: *A. M. A.*, C. —
- Hertwig, R.**, '84. Die Kerntheilung bei *Actinosphaerium Eichhorni*: *J. Z.*, XVII. — '88. Ueber Kernstruktur und ihre Bedeutung für Zellteilung und Befruchtung: *J. Z.*, IV. — '89, '14. (III). — '92. Ueber Befruchtung und Conjugation: *V. D. Z. G.*, Berlin. — '95. Ueber Centrosoma und Centralspindel: *S. B. M. P.*, München, I. — '96. Ueber die Entwicklung des unbefruchteten Seeigeleies, etc.: *Festschr. f. Gegenbaur*. — '97a. Ueber Karyokinese bei *Actinosphaerium*: *Ibid.*, VIII. — '98. Ueber Kernteilung, Richtungskörperbildung und Befruchtung, von *Actinosphaerium*: *Ibid.* (II), XIX. — '02. (VII). — '02. Ueber Wesen und Bedeutung der Befruchtung: *S. B. Kgl. Bayer. Akad. Wiss. München*, XXXII. — '03. Ueber Korrelation von Zell- und Kerngrösse, etc.: *B. C.*, XXIII. — '05. Ueber das Problem der sexuellen Differenzierung: *V. D. Z. G.*, XV. — '06. (V). — '06 u. '07. Weitere Untersuchungen über das Sexualitätsproblem: *V. D. Z. G.* — '08. (III, IX). — '12. (X). — '21. Das Sexualitätsproblem: *B. C.*, XLI, 2. —
- Heuser, F.**, '84. Beobachtungen über Zellkerntheilung: *B. C.*, XVII. —
- Hewett, C. G.**, '06. The Cytological Aspects of Parthenogenesis in Insects: *Mem. and Pro. Manchester Lit. and Phil. Soc.*, L. —
- Heymons, R.**, '93. (XIII). —
- Hill, A. W.**, '00. Distribution and Character of Connecting Threads in the Tissues of *Pinus*, etc.: *P. R. S.* — '01. The Histology of the Sieve-Tubes of *Pinus*: *A. Bot.*, XV. —
- Hill, M. D.**, '95. Notes on the Fecundation of the Egg of *Sphaerechinus*, etc.: *Q. J.*, XXXVIII. —
- Hinderer, Th.**, '14. Ueber die Verschiebung der Vererbungsrichtung unter dem Einfluss von Kohlensäure: *A. Entom.*, XXXVIII. —
- Hindle, E.**, '11. A Cytological Study of Artificial Parthenogenesis in *Strongylocentrotus*: *A. Entom.*, XXXI. —
- Hirase, S.**, '94. Notes on the Attraction-Spheres in the Pollen Cells of *Ginkgo*: *Bot. Mag. Tokyo*, VIII. — '95, '98. Études sur la fécondation et l'embryogénie du *Ginkgo*: *Journ. Coll. Sci. Imp. Univ. Tokio*, VIII, XII. — '18. Further Studies on the Fertilization and Embryogeny in *Ginkgo biloba*: *Bot. Mag. Tokyo*, XXXII. —
- Hirschler, J.**, '13. Ueber die Plasmastrukturen in den Geschlechtszellen der Ascariden: *A. Zf.*, IX. — '15. Ueber ein Verfahren zur gleichzeitigen Darstellung des Golgischen Apparates und der Mitochondrien, etc.: *Z. Wiss. M. u. T.*, XXXII. — '18. (IV). —
- His, W.**, '74. (XIV). —
- Höber, R.**, '14. (VIII). —
- Hof, A. C.**, '98. Histologische Studien an Vegetationspunkten: *B. C.*, LXXVI. —
- Hofer, B.**, '89. Experimentelle Untersuchungen über den Einfluss des Kerns auf das Protoplasma: *J. Z.*, XXIV. —
- Hoffman, R. W.**, '98. Ueber Zellplatten und Zellplattenrudimente: *Z. W. Z.*, LXIII. —
- Hofmeister, W.**, '49. Die Entstehung des Embryos der Phanerogamen: — '58. Neuere Beobachtungen über Embryobildung der Phanerogamen: *J. W. B.*, I. — '67. (Int.). —
- Hogben, L.**, '20a. Studies on Synapsis, I, II: *P. R. S.*, XCI. — '20b. The Problem of Synapsis: *J. R. M.* — '21. Studies on Synapsis (*Libellula*), III: *P. R. S.*, XCII. —
- Hogue, J. M.**, '10. Ueber die Wirkung der Centrifugalkraft auf die Eier von *Ascaris*: *A. Entom.*, XXIX. —
- Holmes, S.**, '99. '00. (XIII). —
- Holmgren, E.**, '99. Zur Kenntniss der Spinalganglionsellen von *Lophius piscatorius*, Lin.: *An. Hf.*, XII. — '03. Ueber die "Saftkanälchen" der Leberzellen und der Epithelzellen der Nebenniere; *A. A.*, XII. —
- Holmgren, I.**, '19. Zytologische Studien über die Fortpflanzung bei

den Gattungen *Erigeron* und *Eupatorium*: *K. Svensk. Vet.-Akad. Handl.*, LIX. — **Holmgren, N.**, '02. Ueber den Bau der Hoden und die Spermatogenese von *Silpha carinata*: *A. A.*, XX. — **Holt, C. M.**, '17. Multiple Complexes in the Alimentary tract of *Culex*: *J. M.*, XXIX. — **Hooke, R.**, '75. (Int.). — **Hooker, D.**, '15. The Rôles of Nucleus and Cytoplasm in Melanin Elaboration: *A. R.*, IX. — **Hopkins, F. G.**, '13. (VIII). — **Hovasse, R.**, '22. La régulation du nombre des chromosomes, etc.: *C. R.*, CLXXIV. Also *B. B. F. B.*, LVI, 2. — **Hoven, H.**, '10a, '11. (IX). — '10b. Du rôle du chondriome dans la sécrétion: *A. A.*, XXXVII. — **Hoy, W. E.**, '16. A Study of somatic Chromosomes: *B. B.*, XXXI. — **Hoyt, W. D.**, '10. Alternation of Generations and Sexuality in *Dictyota*: *B. G.*, XLIX. — **Huie, L.**, '97. Changes in the Cell-organs of *Drosera* produced by Feeding with Egg-albumen: *Q. J.*, XXXIX. — **Hutchinson, A. N.**, '15. Fertilization in *Abies*: *B. G.*, LX. — **Huxley, J. S.**, '20. Restitution-bodies and free Tissue-cultures in *Sycon*: *Q. J.*, LXV. — **Huxley, T. H.**, '53. (Int.). — '68. (I). — '78. (XIV). — **Hyde, I. H.**, '04. Differences in Electrical Potential in developing Eggs: *A. J. P.*, XII. — **Hyman and Bellamy**, '22. The Correlation between metabolic Gradients, Electrical Gradients and Galvanotaxis: *B. B.*, XLIII.

IDE, M., '89. Nouvelles observations sur les cellules épithéliales: *L. C.*, V. — **Ikeno, S.**, '98. Untersuchungen über die Entwicklung der Geschlechtsorgane, etc., bei *Cycas*: *J. W. B.*, XXXVIII. — '98a. Zur Kenntniss des sogenannten Centrosomähnlichen Körpers im Pollenschläuche der Cycaden: *Flora*, LXXXV, 1. — '01. Contribution à l'étude de la fécondation chez le *Ginkgo*: *Ann. Sci. Nat. Bot.*, VIII, 13. — '03. Die Spermatogenese von *Marchantia*: *Beih. Bot. Centralb.*, XVI. — '04. Blepharoplasten im Pflanzenreich: *Ibid.*, XXIV. — '06. Zur Frage nach der Homologie der Blepharoplasten: *Flora*, XCVI. — **Ishikawa, C.**, '91. On the Formation of Eggs in the Testis of *Gebia*: *Z. A.*, XIV. — '94. *Noctiluca miliaris*: Its Division and Spore-formation: *Journ. College of Sc. Imp. Univ. Japan*, VI. — '99. Further Observations on the Nuclear Division of *Noctiluca*: *Ibid.*, XII, 4. — **Ishikawa, M.**, '11. Cytologische Studien über Dahlien: *Bot. Mag. Tokyo.*, XXV. — '16. (XI). — **Issakowitsch**, '06. Geschlechtsbestimmende Ursachen bei den Daphniden: *A. M. A.*, LXIX.

JACOBS, M. H., '24. (VIII). — **Jaeger, F. M.**, '20. Lectures on the Principle of Symmetry: *Amsterdam*. — **Jahn, E.**, '11. Myxomycetenstudien. Der Sexualakt: *B. D. B. G.*, XXIX. — **Janssens, F. A.**, '01, '05. (VI). — '04. Production artificielle de larves géantes, etc., dans l'*Arbacia*: *L. C.*, XXI. — '09, '19, '24. (XII). — **Janssens et Dumez**, '03. (VI). — **Janssens et Willems**, '08. La spermatogénèse l'*Alytes obstetricans*: *L. C.*, XXV. — '09. Spermatogénèse dans les Batrachiens, IV: *Ibid.*, XXV. — **Jenkinson, J. W.**, '04. The Maturation and Fertilization of the Egg of the Axolotl: *Q. J.*, XLVIII. — '07, '09, '14, '17. (XIV). — '11. On the Origin of the Polar and Bilateral Structure of the Egg of the Sea-urchin: *A. Entom.*, XXXII. — **Jennings, H. S.**, '96. (XIII). — '08. Heredity, Variation and Evolution in the Protozoa: *Proc. Amer. Phil. Soc.*, XLVII. — '09. Heredity and Variation in the simplest Organisms: *A. N.*, XLIII. — '11. Assortive Mating, Variability and Inheritance of Size in the Conjugation of *Paramecium*: *J. E. Z.*, XI. — '12, '13, '20. (III). — '18. Disproof of a certain Type of Crossing-over between Chromosomes: *A. N.*, IIL. — '23. The numerical

Relations in Crossing-over, etc.: *P. G.*, VIII. — Jennings and Hargitt, '10. Characteristics of the diverse Races of *Paramecium*: *J. M.*, XXI. — Jennings and Lashley, '13. Biparental Inheritance and the Question of Sexuality in *Paramecium*: *J. E. Z.*, XIV. — Jhering, *H. v.*, '77. (IV). — Johannsen, *W.*, '09. Elemente der exakten Erblchkeitslehre: *Jena*. — '11. The Genotype Conception of Heredity: *A. N.*, XLV. — Johnson, *D. S.*, '00. On the Endosperm and Embryo of *Peperomia*: *B. G.*, '00. — '07. A New Type of Embryo Sac in *Peperomia*: *Johns Hopkins Univ. Circ.*, 1907. — '14. The History of the Discovery of Sex in Plants: *Sci.*, XXXIX. — Johnson, *H. H.*, '22. Peripheral Migration of a Centriole-Derivative in *Oecanthus*: *Sci.*, LVI. — Jollos, *V.*, '16. (III). — '21. (VII). — Jones, *Walter*, '14. (VIII). — Jones, *W. N.*, '18. On the Nature of Fertilization and Sex: *N. P.*, XVII. — Jordan, *H. E.*, '08. The Spermatogenesis of *Aplopus mayeri*: *P. C. I.*, 102. — '11. The Spermatogenesis of the Opossum, etc.: *A. Zf.*, VII. — '13. Amitosis in the Epididymis of the Mouse: *A. A.*, XLIII. — '14. Spermatogenesis in *Chrysemys* and *Cistudo*: *Sci. N. S.*, XXXIV. — Jordan and Eycleshymer, '94. The Cleavage of Amphibian Ova: *J. M.*, IX. — Jordan and Ferguson, '16. (I). — Jörgenssen, *M.*, '08. Untersuchungen über Eibildung bei *Nephelis*, etc.: *A. Zf.*, II. — '10a. Beitr. zur Kenntnis der Eibildung bei Schwämmen: *A. Zf.*, IV. — '10b. Zur Entw. des Eierstockeies von *Proteus*: *Festschrift R. Hertwig*, I. — '13a, '13b. (IV), — Jost, *L.*, '07. (I). — '13. Vorlesungen über Pflanzenphysiologie. 3te Aufl.: *Fischer, Jena*. (English trans. of 1st ed. by Gibson, *Oxford*. '07). — Juel, *H. O.*, '97. Die Kerntheilungen in den Pollenmutterzellen, etc.: *J. W. B.*, XXX. — '98. Parthenogenesis bei *Antennaria*: *Bot. Centr.* LXXIV). — '00. Beiträge zur Kenntniss der Tetradenteilung: *J. W. B.*, XXXV. — '00. Vergleichende Untersuchungen über typische und parthenogenetische Fortpflanzung bei der Gattung *Antennaria*: *Handl. Svensk. Vet. Akad.*, XXXIII. — '04. Die Tetradenteilung in der Samenanlage von *Taraxacum*: *Ark. f. Bot.*, II. — '05. Die Tetradenteilung bei *Taraxacum* und anderen Cichoraceen: *Kgl. Svensk. Vet. Akad.*, XXXIX. — Julin, *J.*, '93a. Ovogénèse, spermatogénèse, et fécondation chez *Styleopsis*: *B. S. F. B.*, XXIV. — Junker, *H.*, '23. Cytologische Untersuchungen an . . . *Perla marginata*: *A. Zf.*, XVII. — Just, *E. E.*, '12. (XIV). — '15. Initiation of Development in *Nereis*: *B. B.*, XXVIII. — '19, '20, '23. (V). — '22a. The Effect of Sperm boiled, etc.: *Sci.*, LVI. — '22b. Initiation of Development in the Egg of *Arbacia*, I, II, III: *B. B.*, XLIII. —

KAHLE, *W.*, '08. Die Paedogenese des Cecidomyiden: *Z.*, XXI. — Kanitz, *A.*, '09. '10. (VIII). — Karsten, *G.*, '96. Untersuchungen über Diatomeen: *Flora*, LXXXII. — '00. Die Auxosporenbildung der Gattungen *Cocconeis*, *Suriella*, und *Cymatopleura*: *Ibid.*, LXXXVII. — '08. Die Entwicklung der Zygoten von *Spirogyra jugalis*: *Ibid.*, XCIX. — Kassowitz, *M.*, '99. Allgemeine Biologie: *Wien*. — Kautzsch, *G.*, '12, '13. Studien über Entwicklungsanomalien bei *Ascaris*, I: *A. Zf.*, VIII; II, *A. Entw.*, XXXV. — Keeble, *E.*, '12. Gigantism in *Primula*: *J. G.*, II. — Keene, *M. L.*, '14. Cytological Studies on the Zygosporangia of *Sporodinia*: *A. Bot.*, XXVIII. — '19. Studies of Zygosporangium Formation in *Phycomyces*: *Trans. Wis. Acad. Sci.*, XIX. — Kemnitz, *G. A.*, '13. Eibildung, Eireifung, Samenreifung und Befruchtung von *Brachycoelium*: *A. Zf.*, X. — Kemp, *H. P.*, '10. On the Question of the Occurrence of "Heterotypical Reduction" in Somatic Cells: *A. Bot.*, XXIV. — Keuten, *J.*, '95. Die Kerntheilung von *Eu*

- glena*: Z. W. Z., LX. — **Key, J. A.**, '16. On the Relation of Mitochondria to Zymogen Granules: *A. R.*, X. — **Kienitz-Gerloff, F.**, '91. Review and Bibliography of Researches on Protoplasmic Connections between adjacent Cells: *B. Z.*, XLIX. — **Kihara, H.**, '19a. Ueber cytologische Studien bei einigen Getreidearten, I: *Bot. Mag. Tokyo*, XXXII. — '19b, II: *Ibid.*, XXXIII. — '21. III: *Ibid.*, XXXV. — '24. (XI). — **Kihara and Ono**, '23. Chromosome Number and Sexes in *Rumex acetosa*: *Bot. Mag. Tokyo*, XXXVII. — '23. Cytological Studies on *Rumex*: *Bot. Mag. Tokyo*, XXXVII. — **King, H. D.**, '07. The Spermatogenesis of *Bufo*: *A. J. A.*, VII. — '08. The Oögenesis of *Bufo*: *J. M.*, XIX. — '08. The Structure and Development of Bidder's Organ in *Bufo*: *Ibid.*, XIX. — '10. Temperature as a Factor in the Determination of Sex in Amphibians: *B. B.*, XVIII. — '11. Studies on Sex-determination in Amphibians: *Ibid.*, XX. — '12. Dimorphism in the Spermatozoa of *Necturus*: *A. R.*, VI. — **King, Robt. L.**, '23. Heteromorphic homologous Chromosomes, etc.: *J. M.*, XXXVIII. — **King and Gatenby**, '23. The Golgi Bodies of a Coccidian: *Q. J.*, LXVII. — **Kingery, H. M.**, '14. So-called Parthenogenesis in the white Mouse: *B. B.*, XXVII. — '17, '18. Oögenesis in the white Mouse: *J. M.*, XXX. — **Kingsbury, B. F.**, '01. The Spermatogenesis of *Desmognathus*: *A. J. A.*, I. — '11. The Histological Demonstration of Lipoids: *A. R.*, V. — **Kingsbury and Hirsch**, '12. The Degeneration of the Secondary Spermatogonia of *Desmognathus*: *J. M.*, XXIII. — **Kirkham, W. B.**, '06. Maturation of the Mouse Egg: *B. B.*, XII. — '16. The Germ Cell Cycle in the Mouse: *A. R.*, X. — **Kite, G. L.**, '13a. (I). — '13b. The relative Permeability of . . . Animal and Plant cells: *B. B.*, XXV. — **Klebahn**, '90. Die Keimung von *Closterium* und *Cosmarium*: *J. W. B.*, XXII. — '92. Die Befruchtung von *Oedogonium*: *J. W. B.*, XXIV. — '96. Beiträge zur Kenntniss der Auxosporenbildung; I. *Rhopalodia*: *J. W. B.*, XXIX. — '02. Ein Ueberblick über die neue Diatomenliteratur: *A. P.*, I. — **Klebs, G.**, '81. Beiträge zur Kenntnis niederer Algenformen: *B. Z.* — '83. Ueber die Organization einiger Flagellaten-Gruppen, etc.: *Bot. Inst. Tübingen*, I, 1. — '84. Ueber die neueren Forschungen betreffs der Protoplasmaverbindungen: — '87. Ueber den Einfluss des Kerns in der Zelle: *B. C.*, VII. — '89. Zur Physiologie der Fortpflanzung: *B. C.* — '91. Über die Bildung der Fortpflanzungszellen bei *Hydrodictyon*: *B. Z.*, XLIX. — '94. Ueber die Verhältnisse des männl. und weibl. Geschlechts in der Natur: *Jena*. — '95. Ueber einige Probleme der Physiol. der Fortpflanzung: *Jena*. — '96, '13, '17. (III). — '98. Alternation of Generations in the Thallophytes: *A. Bot.*, XII. — '99. (VII). — **Klein, E.**, '78-'79. (II). — '79. Ein Beitrag zur Kenntniss der Struktur des Zellkerns: *Centr. f. Med. Wiss. Berlin*. — **Kleinert, A.**, '09. Spermatogenese von *Helix*: *J. Z.*, XLV. — **Klinckowström, A. v.**, '97. Eireife und Befruchtung bei *Prostheceraceus*: *A. M. A.*, XLVIII. — **Kniep, H.**, '19a. Untersuchungen über den Antherenbrand (*Ustilago*), etc.: *Z. B.*, XI. — '19b. Ueber morphologische u. physiologische Geschlechtsdifferenzierung: *V. P. M. G.* — **von Knoche, E.**, '10. Experimentelle und andere Studien am Insektenovarium: *Z. A.*, XXXV. — **Kofoid, C. A.**, '95. (XIII). — '15. The Evolution of the Protozoan Nucleus and its extranuclear Connections: *Sci.*, XLII. — '21. A Critical Discussion of the Chromidial formation of Nuclei, etc.: *A. R.*, XX, 2. — '23. (III). — **Kofoid and Christiansen**, '15. On Binary and Multiple Fission in *Giardia*: *Univ. Cal. Pub.*, XVI. — **Kofoid and Swezy**, '20. On the Morphology and Mitosis of *Chilomastix*: *Ibid.*, XX. — '21. On the . . . Stages of *Councilmania*, etc.: *Ibid.*, XX. — **Koernicke, M.**, '04. (I). — '04, '05. (VI). — '06.

- Zentrosomen bei Angiospermen? *Flora*, XCVI. — **Kohl, F. G.**, '03. Ueber die Organisation und Physiologie der Cyanophyzeenzelle und die mitotische Teilung ihres Kernes: *Jena*. — **Kohlbrugge, F.**, '10. Der Einfluss der Spermatoïden auf die Blastula: *A. M. A.*, LXXV. — **Kölliker, A. v.**, '41. Beiträge zur Kenntniss für Geschlechtsverhältnisse und Samenflüssigkeit wirbelloser Tiere: *Berlin*. — '44. Entwicklungsgeschichte der Cephalopoden: *Zurich*. — '95. (Int.). — '86. Das Karyoplasma und die Vererbung, etc.: *Z. W. Z.*, XLIV. — '89. Handbuch der Gewebelehre, 6th ed.: *Leipzig*. — '97. Die Energiden von Sachs, etc.: *V. P. M. G., Würzburg*, XXXI. — **Koltzoff, N. K.**, '06, '09. (IV). — **Konapacki, M.**, '11. Ueber den Einfluss hypotonischen Lösungen auf befruchtete Echinideneier: *A. Zf.*, VII. — **Kopec, St.**, '11. Untersuchungen über Castration und Transplantation bei Schmetterlingen: *A. Entom.*, XXXIII. — '13. Ueber die Unabhängigkeit der Ausbildung sekundärer Geschlechtscharaktere . . . bei Lepidopteren: *Z. A.*, XLIII. — **Kopsch, F.**, '02. Die Darstellung des Binnennetzes in Spinal-ganglionzellen, etc.: *Sitzb. d. k. preusse. Akad. d. Wiss.*, XL. — **Korff, K. v.**, '99. Zur Histogenese der Spermien von *Helix*: *A. M. A.*, LIV. — '01. Weitere Beobachtungen über das Vorkommen V-förmiger Central-körper: *A. A.*, XIX. — '02. (IV). — **Kornhauser, S. I.**, '14. A comparative Study of the Chromosomes in the Spermatogenesis of *Euchenopa*, etc.: *A. Zf.*, XII. — '15. A cytological Study of the semi-parasitic Copepod, *Hersilia*, etc.: *A. Zf.*, XIII. — **Korotneff, A.**, '09. Mitochondrien, Chondriomiten, und Faserepithel der Tricladen: *A. M. A.*, LXXIV. — **Korschelt, E.**, '82. Ueber Bau und Entwicklung des *Dinophilus apatris*: *Z. W. Z.*, XXXVII. — '86. Ueber die Entstehung und Bedeutung der verschiedenen Elementen des Insektenovariums: *Z. W. Z.*, XLIII. — '89. (VIII). — '95. Ueber Kerntheilung, Eireifung und Befruchtung bei *Ophryotrocha*: *Z. W. Z.*, LX. — '97. Ueber den Bau der Kerne in den Spinndrüsen der Raupen: *Ibid.*, XLIX. — **Korschelt, and Heider**, '02-'03. Lehrbuch der vergleichenden Entwicklungsgeschichte, Allgemeiner Theil: *Fischer, Jena*. — '02. Ei- und Eibildung: *Ibid.* — '02. Sperma und Spermatogenesis: *Ibid.* — '03. (V). — '13. (IV). — **Kossel, A.**, '91. Ueber die chemische Zusammensetzung der Zelle: *A. A. P.* — '93. Ueber die Nucleinsäure: *A. A. P.* — '96. Ueber die basischen Stoffe des Zellkernes: *Zeit. Phys. Chem.*, XXII. — '12. (VIII). — '21. Ueber die Beziehung der Biochemie zu den Morphologischen Wissenschaften: *Sitzb. Heidelberger Ak. Wiss.* — **Kostanecki, V. K.**, '97a. Ueber die Bedeutung der Polstrahlung, etc.: *A. M. A.*, LXIX. — '98. Die Befruchtung des Eies von *Myzostoma*: *A. M. A.*, LI. — '04. Cytologische Studien an künstlich sich entwickelnden Eiern von *Maetra*: *A. M. A.*, LXIV. — '08. Zur Morphologie der künstlichen parthenogenetischen Entwicklung bei *Maetra*: *Ibid.*, LXXII. — **Kostanecki and Siedlecki**, '97. Ueber das Verhältnis der Centrosomen zum Protoplasma: *A. M. A.*, XLVII. — **Kostanecki et Wierzeski**, '96. Ueber das Verhalten der sog. achromatischen Substanzen im befruchteten Ei: *A. M. A.*, XLVII. — **Kowalevsky, A.**, '71. (XIII). — **Kowalski, F.**, '04. Reconstitution du noyau et formation des chromosomes dans les cinèses somatiques de la larvae de Salamandre: — **Krimmel, O.**, '10. Chromosomenverhältnisse in generativen und somatischen Mitosen bei *Diaptomus*, etc.: *Z. A.*, XXXV. — **Krüger, Eva**, '13. Fortpflanzung und Keimzellenbildung von *Rhabditis aberrans*: *Z. W. Z.*, CV. — **Kuczynski, M. H.**, '17. Ueber die Teilung der Trypanosomenzelle, etc.: *A. P.*, XXXVIII. — **Kühn, A.**, '08. Die Entwicklung der Keimzellen in den parthenogenetischen Generationen der Cladoceren: *A. Zf.*, I. — '13. Die Sonderung der Keimesbe-

zirke . . . von *Polyphemus pediculus*: *Z. J.*, (*Anat.*), XXXV. — '20. Untersuchungen zur kausalen Analyse der Zellteilung, I: *A. Entwm.*, XLVI. — **Kühne, W.**, '64. Untersuchungen über das Protoplasma und die Contractilität. — **Kupelweiser, H.**, '09. Entwicklungserregung bei Seeigeleiern durch Molluskensperma: *A. Entwm.*, XXVII. — '12. (V). — **Kupffer, C. v.**, '06. Ueber Energiden und paraplastische Bildungen: München. — **Kurssanow, L.**, '09. Beiträge zur Cytologie der Florideen: *Flora*, XCIX. — '11. Ueber Befruchtung, Reifung, und Keimung bei *Zygnema*: *Flora*, CIV. — **Kuschakewitsch, S.**, '10. Die Entwicklungsgeschichte der Keimdrüsen von *Rana*: *Festschr. f. R. Hertwig*. — '10. Zur Kenntniss der sogenannten "wurmformigen" Spermien der Prosobranchien: *A. A.*, XXXVII. — '13. Studies über den Dimorphismus der männlichen Geschlechtselemente bei den Prosobranchia: *A. Zf.*, X. — **Küster, E.**, '13. (I). — **Küster, W.**, '94. Die Oelkörper der Lebermoose und ihr Verhältniss zu Elaioplasten: *Inaug. Dissert., Basel*. — **Küster and Bruel**, '15. (II). — **Kuwada, Y.**, '10. A Cytological Study of *Oryza*: *Bot. Mag. Tokyo*, XXXIX. — '19, '21. Die Chromosomenzahl von *Zea*: *J. S. C.*, XXXIX (Rev. in *A. N.*, LV). — **Kylin, H.**, '14. Studien über die Entwicklungsgeschichte von *Rhodomela*: *Svensk Botanisk Tidskr.* VIII. — '16. Die Entwicklungsgeschichte von *Griffithsia*: *Z. B.*, VIII. — '16. Ueber den Bau der Spermatozoiden der Fucaceen: *Ber. Bot. Ges.*, XXXIV. — '16. Ueber die Befruchtung und Reduktionsteilung bei *Nemalion*: *B. D. B. G.*, XXXIV. — '18. Studien über die Entwicklungsgeschichte der Phaeophyceen: *Svensk. Bot. Tidskr.*, XII. —

LABBÉ, A., '04. La maturation des spermatides, etc. . . . chez les Crustacés décapodes: *A. Z. E.*, XI. — **Lacaze-Duthiers, H.**, '75. Sur la formation des monstres doubles chez les gasteropodes: *A. Z. E.*, IV. — '83. Étude sur l'embryogénie de *Dentale*: *Ann. Mus. d'Hist. Nat. de Marseille Zool.*, I, 7. — **Lagerberg, T.**, '06. Ueber die präsynaptische und synaptische Entwicklung der Kerne in den Embryosackmutterzellen von *Adoxa*: *Bot. Stud. Kjellmann, Upsala*. — '09. Studien über die Entwicklungsgeschichte und systematische Stellung von *Adoxa moschatellina, L.*: *Kgl. Svensk. Vet. Akad. Handl.*, XLIV. — **Laguesse, E.**, '11. Ergastoplasme et chondriome dans les cellules sécrétantes séreuses: *J. A.*, XXI. Bibl. — **Laibach, F.**, '07. Zur Frage nach der Individualität der Chromosomen im Pflanzenreich: *Beih. Bot. Cent.*, XXII. — **Lamb, A. B.**, '08. A new Explanation of the Mechanics of Mitosis: *J. E. Z.*, V. — **Lams, M. H.**, '07. Contribution à l'étude de la génèse du vitellus dans l'ovule des Amphibiens: *A. A. M.*, IX. — '08. Les divisions des spermatocytes chez la fourmi (*Camptonotus herculeanus*): *A. Zf.* I. — '09. Les globules polaires de l'œuf d'*Arion*: *A. Z. E.*, I. — '10. (IX). — '13. Étude de l'œuf de cobaye aux premiers stades de l'embryogénèse: *A. B.*, XXVIII. — **Lams and Doorme**, '08. Nouvelles recherches sur la maturation et la fécondation, etc.: *A. B.*, XXIII. — **Lang, A.**, '81. (XIII). — **Lang, W. H.**, '09. A Theory of Alternation of Generations in Archegoniate Plants: *N. P.*, VIII. — **Land, W. J. G.**, '00. Double Fertilization in Compositae: *B. G.*, XXX. — '07. Fertilization and Embryogeny of *Ephedra trifurca*: *B. G.*, XLIV. — **Landauer, W.**, '22. Untersuchungen über die Verschiebung der Vererbungsrichtung, etc.: *A. Entwm.*, LII. — **Lankester, E. Ray**, '77. Notes on Embryology and Classification: *Q. J.*, XVII. — **Laqueur, E.**, '09. Ueber Teilbildungen aus dem Froschei und ihre Postgeneration: *A. Entwm.*, XXVIII. — **Lauche, A.**, '13. Ueber pluripolare Mitosen in Hodenregeneraten von *Rana fusca*: *A. M. A.*, LXXXII. —

- Lauterborn, R.**, '95. Kern- und Zellteilung von *Ceratium*: *Z. W. Z.*, XLIX. — '96. Untersuchungen über Bau, Kernteilung, und Bewegung der Diatomen: *Leipzig*. — **Lawson, A. A.**, '98. Some Observations on the Development of the Karyokinetic Spindle in the Pollen Mother Cell of *Cobæa scandans*: *Proc. Calif. Acad. Sci. Bot.*, III, 1. — '00, '03a. (II). — '03b. On the Relation of the Nuclear Membrane to the Protoplast: *B. G.*, XXXV. — '04. The Gametophyte, Archegonia, Fertilization and Embryo of *Sequoia*: *A. Bot.*, XVIII. — '04b. — The Gametophyte, Fertilization and Embryo of *Cryptomeria*: *A. Bot.*, XVIII. — '07. The Gametophytes . . . of *Cephalotaxus*: *A. Bot.*, XXI. — '11. Nuclear Osmosis as a Factor in Mitosis: *Trans. Roy. Soc. Edinburgh*, XLVIII. — '11. The Phase of the Nucleus known as Synapsis: *Ibid.*, — '12. A Study in Chromosome Reduction: *Ibid.*, XLVIII. — **Lebrun, H.**, '01. Les cinèses sexuelles des Anours: *L. C.*, XVIII. — **Lécaillon, A.**, '10. La parthénogénèse chez les Oiseaux: *A. A. M.*, XII. — **Leduc, St.**, '04. Production par diffusion des forces, des mouvements et des figures de la karyokinèse: *C. R. Ass. Adv. des Sciences*. — **Lee, A. Bolles**, '96. Sur le Nebenkern, etc., chez *Helix*: *L. C.*, XI. — '97. Les cinèses spermatogénétiques chez *Helix*: *L. C.*, XIII. — '11. Le réduction numérique et la conjugation des chromosomes chez l'escargot: *L. C.*, XXVII. — '13. La structure des chromosomes et du noyau au repos chez *Paris*: *L. C.*, XXVIII. — '21. The Microtomist's Vademecum, 8th ed., *London, Churchill*. — **Lefevre, G.**, '07. (V). — **Lefevre and McGill**, '08. The Chromosomes of *Anasa* and *Anax*: *A. J. A.*, VIII. — **Legér, L.**, '07. Le genre *Ophryocystis*: *A. P.*, VIII. — **Legér et Duboscq**, '09. Études sur la sexualité chez les gregarines: *A. P.*, XVII. — **Lehman, O.**, '06. Fließende Kristalle und Organismen: *A. Entom.*, XXI. — **Lenhossék, M. v.**, '95. Centrosom und Sphäre in den Spinalganglion des Frosches: *A. M. A.*, XLVI. — '98. Untersuchungen über Spermatogenese: *A. M. A.*, LI. — '98. Ueber Flimmerzellen: *V. A. G., Kiel*, XII. — '99. Das Mikrocentrum der glatten Muskelzellen: *A. A.*, XVI. — **Lespeschkin, W. W.**, '11. Zur Kenntniss der chemischen Zusammensetzung der Plasmamembran: *B. D. B. G.*, XXIX. — **Leplat, G.**, '10. La spermiogénèse chez le chat: *A. B.*, XXV. — '13. Les plastosomes des cellules visuelles, etc.: *A. A.*, XLV. — **Lerat, P.**, '05. Les phénomènes de maturation dans *Cyclops strenuus*: *L. C.*, XXII, 1. — **Levi, G.**, '05. Vergleichende Untersuchungen über die Grösse der Zellen: *V. A. G.*, XIX. — '05. Studi sulla grandezza della cellule: *Arch. Ital. Anat. Embriol.*, V. — '11. Sulla presunta partecipazione dei condriosomi alla differenziazione cellulare: *Ibid.*, X. — '12. I condriosomi delle cellule secernenti: *A. A.*, XLII. — '13. Note citologiche sulle cellule somatiche dell'ovaio dei Mammiferi: *A. Zf.*, XI. — '15-'16. Il comportamento dei condriosomi durante i piu precoci periodi, etc.: *A. Zf.*, XIV. — **Levi e Terni**, '11. Studi sulla grandezza delle cellule: *Arch. Ital. Anat. e Embryol.*, X. — '11. Le variazioni dell'indice plasmatico-nucleare, etc.: *Arch. Ital. Anat. e Emb.*, X. — **Levy, F.**, '15. Ueber die Chromatinverhältnisse in der Spermatogenese von *Rana*: *A. M. A.*, LXXXVI. — **Lewis, F. T.**, '23. (XIII). — **Lewis, I. M.**, '08. The Behavior of the Chromosomes in *Pinus* and *Thuja*: *A. Bot.*, XXII. — **Lewis, J. F.**, '09. The Life History of *Griffithsia hornetiana*: *A. Bot.*, XXIII. — '12. Alternation of Generations in certain Floridiæ: *B. G.*, LIII. — **Lewis, M. R.**, '16. Sea Water as a Medium for Tissue-Cultures: *A. R.*, X, 4. — '17. Development of Connective-tissue Fibers in Tissue Cultures of Chick Embryos: *P. C. I., Cont. Embryol.*, XVII. — **Lewis and Lewis**, '15. Mitochondria (and other cytoplasmic Inclusions) in Tissue-Cultures: *A. J. A.*, XVII. — '17. The Duration of the Various Phases of

- Mitosis in the Mesenchyme Cells of Tissue Cultures: *A. R.*, XIII. — '24. (I). — **Lewis and Robertson**, '16. (II). The Mitochondria, etc., in *Chorthippus*: *B. B.*, XXX. — **Lewitski, G.**, '10. Ueber die Chondriosomen in pflanzlichen Zellen: *B. D. B. G.*, XXVIII. — '11. Die Chloroplastenanlagen in lebenden und fixierten Zellen von *Elodea*: *Ibid.*, XXIX. — '14. Die Chondriosomen als Secretbildner bei den Pilzen: *Ibid.*, XXXI. — **Leydig, Fr.**, '54. (I). — '83. Untersuchungen zur Anatomie und Histologie der Thiere: *Bonn.* — '85. Zelle und Gewebe, *Bonn.* — '89. Beiträge zur Kenntniss des thierischen Eies im unbefruchteten Zustande: *Zool. Jahrb. Anat. Ont.*, III. — **Lilienfeld, L.**, '93. Ueber die Wahlverwandtschaft der Zellelemente zu Farbstoffen: *A. A. P.* — **Lillie, F. R.**, '95, '99, '01. (XIII). — '96. On the smallest Parts of *Stentor* capable of Regeneration: *J. M.*, XII, 1. — '97. On the Origin of the Centres of the First Cleavage-spindle in *Unio*: *Sci.*, V. — '98. Centrosome and Sphere in the Egg of *Unio*: *Zool. Bull.*, I, 6. — '02. Differentiation without Cleavage in the Egg of the Annelid *Chaetopterus*: *A. Entom.*, XIV. — '06. (XIV). — '08. A Contribution towards an experimental Analysis of the Karyokinetic Figure: *Sci.*, XXVII. — '09a. Polarity and Bilaterality of the Annelid Egg. Experiments with centrifugal Force: *B. B.*, XVI. — '09b. Karyokinetic Figures of centrifuged Eggs: *B. B.*, XVIII. — '11—'11. Studies of Fertilization. I-IV (Morphology). I, II, '12: *J. M.*, XXII; III, IV, '12: *J. E. Z.*, XII. V-X (Physiology). V, VI, '13, '14: *J. E. Z.*, XIV, XVI; VII, '15: *B. B.*, XXVIII; VIII, '21: *Ibid.*, XL; IX, X, '21a, '21b: *Ibid.*, XL, XLI. — '12—'15. (V). — '16. The History of the Fertilization Problem: *Sci.*, XLIII. — '16. The Theory of the Free-martin: *Sci.*, XLIII. — '17. Sex-determination and Sex-differentiation in Mammals: *P. N. A.*, III. — '17. The Free-martin: *J. E. Z.*, XXIII. — '19. (Int., V). — **Lillie and Just**, '24. (V). — **Lillie, R. S.**, '02. On the oxidative Properties of the Cell-Nucleus: *A. J. P.*, VII. — '03, '05, '05—'11. (II). — '08. Momentary Elevation of Temperature . . . producing artificial Parthenogenesis in Star-fish Eggs, etc.: *J. E. Z.*, V. — '09, '18. (VIII). — '13. The Rôle of Membranes in Cell-Processes: *S. M.*, Feb. — '13, '14. (I). — '15. On the Conditions of Activation of Unfertilized Starfish Eggs, etc.: *B. B.*, XXVIII. — '17. (V). — '22. (XIII). — '24. (VIII). — **Linville, H. R.**, '00. Maturation and Fertilization in Pulmonate Gasteropods: *B. M. Z.*, XXV. — **Litardière, R. de**, '12. Formation des chromosomes hétérotypiques chez le *Polypodium*: *C. R.*, CLV. — '21. Recherches sur l'élément chromosomique, etc.: *L. C.*, XXI. — **Lloyd, F. E.**, '15. The Behavior of Protoplasm as a Colloidal Complex: *Yearbook Carnegie Inst.*, XIV. — **Lock, R. H.**, '06. Recent Progress in the Study of Variation, Heredity, and Evolution: *London and N. Y.* — '07. On the Inheritance of Certain Invisible Characters in Peas: *P. R. S.*, London, B 79. — '08. The Present State of Knowledge of Heredity in *Pisum*: *Ann. Roy. Bot. Garden*, IV. — **Locy, W. A.**, '15. (Int.). — **Loeb, J.**, '91—'92. Untersuchungen zur physiologischen Morphologie. I. Heteromorphosis: *Würzburg*, '91. II. Organbildung und Wachstum: *Ibid.*, '92a, '92b. Experiments on Cleavage: *J. M.*, VII. — '93. Some Facts and Principles of Physiological Morphology: *W. H. L.*, '93. — '94. Ueber die Grenzen der Theilbarkeit der Eisubstanz: *A. Ph.*, LIX, 6, 7. — '95. Ueber Kerntheilung ohne Zelltheilung: *A. Entom.*, II. — '99. On the Nature of the Process of Fertilization and the Artificial Production of Normal Larvae, etc.: *A. J. P.*, III, 3. — '01. Artificial Parthenogenesis in Annelids: *A. J. P.*, IV. — '10. Ueber den autokatalytischen Charakter der Kernsynthese bei der Entwicklung: *B. C.*, XXX. — '10. Heredity in Heterogeneous Hybrids: *J. M.*, XXIII. — '11.

Auf welche Weise rettet die Befruchtung das Leben des Eies: *A. Entom.*, XXXI. — '12. The Mechanistic Conception of Life: *Chicago*. — '12, '13. (V). — '16a. The Sex of Parthenogenetic Frogs: *P. N. A.*, II. — '16b. (XIV). — '18. Further Experiments on the Sex of Parthenogenetic Frogs: *P. N. A.*, IV. — '18. (VIII). — '19. The Physiological Basis of Polarity, etc.: *J. G. P.*, I. — '21. Further Observations of the Production of Parthenogenetic Frogs: *J. G. P.*, III. — '22. Proteins and the Theory of Colloidal Behavior: *N. Y.* — **Loeb and Bancroft**, '13. The Sex of a Parthenogenetic Tadpole and Frog: *J. E. Z.*, XIV. — '13. Further Observations on Artificial Parthenogenesis in Frogs: *J. E. Z.*, XV. — **Loeb and Wasteneys**, '12. Die Oxydationsvorgänge im befruchteten und unbefruchteten Seesternei: *A. Entom.*, XXXV. — **Loeb, L.**, '12. Growth of Tissues in Culture Media, etc.: *A. R.*, VI. — '15. Germ Cells and Somatic Cells: *A. N.*, XLIX. — **Lomen, F.**, '14. Der Hoden von *Culex*: *J. E. Z.*, LII. — **Lotsy, J. P.**, '05. Die X-Generation und die 2 X-Generation. Eine Arbeitshypothese: *B. C.*, XXV. — '07. Vorträge über botanische Stammesgeschichte, I: *Jena*. — '16. Evolution by Means of Hybridization: *The Hague*. — **Löwschin, A. M.**, '13. Myelinformen und Chondriosomen: *B. D. B. G.*, XXXI. — '14. Vergleichende experimentalcytologische Untersuchungen über Mitochondrien, etc.: *B. D. B. G.*, XXXII. — **Loyez, M.**, '06. (IV). — '08. Les "noyaux de Blochmann" et la formation du vitellus chez les Hyménoptères: *C. R. Assoc. Anat.*, 10, *Marseilles*. — '09. Les premiers stades de la vitellogénèse chez quelques Tuniciers: *C. R. Assoc. Anat.* — '11. Sur la structure de l'oöcyte de la femme, etc.: *Ibid.* — **Lubosch, W.**, '02, '14. Ueber die Eireifung der Metazoen, etc.: *E. A. E.*, IX, XXI. — **Ludford and Gatenby**, '21. (II). — **Ludwig, H.**, '74. Ueber die Eibildung im Thierreiche: *Wurzburg*. — **Luna, E.**, '13a. Lo sviluppo dei plastosomi negli anfibi: *A. A.*, XLV. — '13b. Sulla importanza dei condriosomi nella genesi delle miofibrille: *A. Zf.*, IX. — '13c. Ricerche sulla biologia dei condriosomi, condriosomi e pigmento retinico: *A. Zf.*, X. — **Lund, E. J.**, '23a. The normal electrical Polarity of *Obelia*: *J. E. Z.*, XXXVI. — '23b. Electrical Control of Organic Polarity in the Egg of *Fucus*: *B. G.*, LXXVI. — **Lundegårdh, H.**, '09. Ueber Reduktionsteilung in den Pollenmutterzellen einiger dikotylen Pflanzen: *Sv. Bot. Tids.*, III. — '10b. Ueber Kernteilung in den Wurzelspitzen von *Allium* und *Vicia*: *Svensk. Bot. Tidskr.*, IV. — '12a. (I). — '12b. (II). — '12c. Die Kernteilung bei höheren Organismen nach Untersuchungen an lebenden Material: *J. W. B.*, LI. — '12d. Das Caryotin im Ruhekern, etc.: *A. Zf.*, IX. — **Lutman, B. F.**, '11. Cell and Nuclear Division in *Closterium*: *B. G.*, LI. — **Lutz, A. M.**, '12, '16, '17. (XI). — **Lyon, E. P.**, '04. Rhythms of Susceptibility and of Carbon Dioxide Production in Cleavage: *A. J. P.*, XI. — '07. (XIV).

MAAS, P., '01. Experimentelle Untersuchungen über die Eifurchung: *S. G. M. P. München*, '01. — '03. (XIV). — **McAllister, F.**, '09. The Development of the Embryo Sac of *Smilacina*: *B. G.*, XLVIII. — '13. On the Cytology and Embryology of *Smilacina*: *Trans. Wis. Acad. Sci.*, XVII. — **Macallum, A. B.**, '91. Contribution to the Morphology and Physiology of the Cell: *Trans. Inst. Canad.*, 1, 2. — '95. On the Distribution of assimilated Iron Compounds, etc.: *Q. J.* — '04. Blood Salts same as Cambrian Sea: *Trans. Canad. Inst.* — '08. Die Methoden und Ergebnisse der Mikrochemie, etc.: *E. P.*, VII. — Oberflächenspannung und Lebenserscheinungen: *E. P.*, XI. — **Mac Bride and Jackson**, '15. Inheritance of Color in the Stick Insect, *Carassius*: *P. R. S.*, LXXXIX. — **McClendon, J. E.**,

- '08. The Segmentation of Eggs of *Asterias* deprived of Chromatin: *A. Entom.*, XXVI, 4. — '10a. Changes of Permeability of developing Eggs to Electrolytes: *A. J. P.*, XXVII. — '10b. Further Studies on the Gametogenesis of *Pandarus*: *A. Zf.*, V. — '10c. The Electric Charge on Colloids in living Tips of Plants: *A. Entom.*, XXXI. — '10d. The Development of isolated Blastomeres of the Frog's Egg: *A. J. A.*, X. — '12. Artificial Parthenogenesis in Vertebrates: *A. J. P.*, XXIX. — '13. The Laws of Surface-Tension and their Applicability to Living Cells and Cell-Division: *A. Entom.*, XXXVII, 2. — '17. Physical Chemistry of Vital Phenomena: *Princeton*. — '18. The Physical Chemistry of the Proteins: — **McClung, C. E.**, '99. A peculiar nuclear Element in male Reproductive Cells of Insects: *Zool. Bull.*, II. — '00. The Spermatocyte-Divisions of the Acrididae: *Kans. Univ. Quart.*, IX. — '01, '02a. (X). — '02b. The Spermatocyte Divisions of the Locustidae: *Kansas Univ. Sci. Bull.*, XIV. — '05, '08a, '17. (XI). — '08b. The Spermatogenesis of *Xiphidium*: *Kans. Univ. Sci. Bull.*, IV. — '14. (VI). — '24. (XII). — **Macdougall, D. T.**, '20. (XIII). — **Macdougall and Spoehr**, '20. (VIII). — **Mac Farland, F. M.**, '97. Celluläre Studien an Molluskeneiern: *Z. J.*, X. — **McGregor, J. H.**, '99. The Spermatogenesis of *Amphiuma*: *J. M.*, XV. *Suppl.* — **Mack, J. B.**, '14. A study of the Dimensions of the Chromosomes . . . of *Amblystoma*: *Kans. Univ. Sci. Bull.*, IX. — **Macklin, C. C.**, '16. (II). — **Maggi, L.**, '78. I plastiduli nei ciliate ed i plastiduli liberamente viventi: *Atti. Soc. Ital. Sc. Nat. Milano*, XXI. — **McGill, C.**, '06. The Behavior of the Nucleoli during Oögenesis, etc.: *Z. J., Anat. Ontog.*, XXIII. — **McLean, R. C.**, '14. Amitosis in Parenchyma of Water Plants: *Proc. Camb. Phil. Soc.*, XVII. — **McMurrich, J. P.**, '86, '95. (XIII). — **Maier, H. W.**, '03. (IX). — **Maire, R.**, '05. Recherches cytologiques sur quelques ascomycetes: *Ann. Mycol.*, III. — '11. La biologie des Uredinales: *P. R. B.*, IV. — **Malfatti, H.**, '91. Beiträge zur Kenntniss der Nucleine: *Zeit. Phys. Chem.*, XVI. — '91-'92. Zur Chemie der Zellkerne: *Ber. Naturwiss. Ver. zu Innsbrück*. — **Malone, J. Y.**, '18. Spermatogenesis of the Dog: *Trans. Am. Micr. Soc.*, XXXVII. — **Malpighi, M.**, 1675. (Int.). — **Malsen, H. v.**, '06. Geschlechtsbestimmende Einfluss und Eibildung des *Dinophilus*: *A. M. A.*, XLIX. — **Mann, G.**, '02, '06. (VIII). — **Marchal, É.**, '20. (XI). — **Marchal, É. et Ém.**, '06, '07, '09. (VII). — '12. (XI). — **Marchal, P.**, '04. Recherches sur la biologie et la développement des Hyménoptères parasites, I: *A. Z. E.*, Sér. IV, II. — '13. Contribution à l'étude de la biologie des *Chermes*: *A. S. N., Zool.*, Sér. IX, XVIII. — **Marcus, H.**, '06. Ei und Samenreife bei *Ascaris canis*: *A. M. A.*, LXVIII. — **Maréchal, J.**, '04. (XI). — '05. Ueber die morphologische Entwicklung der Chromosomen im Teleostierei, usw.: *A. A.*, XXVI. — '06. (IV). — '07. (VI). — **Mark, E. L.**, '81. (Int.). — '90. Studies on *Lepidosteus*: *B. M. Z.*, XIX. — **Mark and Copeland**, '06. Some Stages in the Spermatogenesis of the Honey Bee: *Proc. Amer. Acad.*, XLII. — '07. Maturation Stages in the Spermatogenesis of *Vespa*: *Ibid.*, XLIII. — **Marshall, W. S.**, '07. Amitosis in the Malpighian Tubules of the Walking-Stick: *B. B.*, XIV. — '07. Contributions toward the Embryology and Anatomy of *Polistes*: *Z. W. Z.*, XXVI. — '07. Cellular elements in the Ovary of *Platyphylax*: *Ibid.* — **Marshall and Vorhies**, '06. Cytological Studies on the Spinning Glands of *Platyphylax*: *Int. Monatsch. Anat. u. Phy.*, XXIII. — **Martens, P.**, '22. Le cycle du chromosome somatique dans le *Paris quadrifolia*: *L. C.*, XXXII. — **Martin, F.**, '14. Zur Entwicklungsgeschichte des polyembryonalen *Ageniaspis (Encyrtus) fuscicollis*: *Z. W. Z.*, CX. — **Martins**

- Mano, Th.**, '04. Nucleole et chromosomes: *L. C.*, XXII. — '09. La microsporogénèse dans le *Funkia: Broteria*, *Sér. Bot.*, VIII. — **Masing, E.**, '10. Ueber das Verhalten Nucleinsäure bei der Furchung des Seeigelleies: *A. Entw.*, XXXI. — **Matala, J.**, '13. Der Kolloide Zustand der Materie: *Steinkopf, Dresden und Leipzig*. — **Mathews, A. P.**, '97a. Internal Secretions considered in Relation to Variation and Development: *Sci.*, V, 122. — '97b. Zur Chemie der Spermatozoa: *Zeit. Phys. Chem.*, XXIII, 4, 5. — '98. (VIII). — '99b. The Metabolism of the Pancreas Cell: *J. M.*, XV, Suppl. — '01. Artificial Parthenogenesis produced by mechanical Agitation: *A. J. P.*, VI. — '03. Electrical Polarity in Hydroids: *A. J. P.*, VIII. — '15a. A Theory of the Nature of Protoplasmic Respiration and Growth: *B. B.*, VIII. — '15b, '24. (VIII). — **Matschek, H.**, '09. Zur Kenntnis der Eireifung bei den Copepoden: *Z. A.*, XXXIV. — '10. (VI). — **Maupas, M.**, '88, '89, '91. (III). — '00. (X). — **Maurer, F.**, '15. (I). — **Mavor, J. W.**, '22. The Production of Non-Disjunction by X-rays: *Sci.*, LV. — **Maximow, A.**, '08. Ueber Amitose in den embryonalen Geweben bei Säugtieren: *A. A.*, XXXIII. — '13. Ueber Chondriosomen in lebenden Pflanzenzellen: *Ibid.*, XLIII. — '16b. Sur la structure des chondriosomes: *C. R. S. B.*, LXXIX. — **May and Walker**, '08. Note on the Multiplication and Migration of Nucleoli, etc.: *Q. J., Exp. Phys.*, I. — **Mayer, A.**, '08. Zur Kenntniss der Samenbildung bei *Ascaris*: *Z. J.*, XXV. — **Mayer, Rathery and Schaeffer**, '14. Les granulations ou mitochondries de la cellule hépatique: *Jour. Phys. Path. Gen.*, XVI. — **Maziarski, S.**, '13. Sur la persistance des résidus fusoriaux, etc.: *A. Zf.*, X. — **Mead, A. D.**, '95. Some Observations on the Maturation, and Fecundation in *Chaetopterus*: *J. M.*, X, 1. — '97. (XIII). — '97a. The Origin of the Egg-centrosomes: *J. M.*, XII. — '98a. (V). — '98b. The Rate of Cell-Division and the Function of the Centrosome: *W. H. L.* — **Medes, Grace**, '05. The Spermatogenesis of *Scutigera*: *B. B.*, IX. — **Meek, C. F. U.**, '11. The Spermatogenesis of *Stenobothrus*: *Jour. Linn. Soc. (Zool.)*, XXXII. — '12a. A metrical Analysis of Chromosome Complexes, etc.: *P. T.*, B, CCIII. — '12b. The Correlation of somatic Characters and Chromatin Rod-lengths, etc.: *Jour. Linn. Soc.*, XXXII. — '13. The Problem of Mitosis: *Q. J.*, LVIII. — '14. The possible Connection between Spindle-length and Cell-Volume: *Proc. Zool. Soc. London*. — '20. A Further Study of Chromosome Dimensions: *P. R. S.*, B, XCI. — **Meisenheimer, J.**, '00. (XIII). — '08. Ueber den Zusammenhang von Geschlechtsdifferenzierung: *V. D. Z. G.* — '09, '12, '13. (X). — '21. Geschlecht und Geschlechter im Tierreich: *Jena*. — **Melin, E.**, '15. Die Sporogenese von *Sphagnum*, etc.: *Svensk. Bot. Tids.*, IX. — **Mendel, G.**, '65 ('66). Versuche über Pflanzenhybriden: *Reprinted in Flora*, LXXXIX. — **Mercier**, '07. Recherches sur les Bacterioides des Blattides: *A. P.*, IX. — **Mereschkowsky, C.**, '05. Ueber Natur und Ursprung der Chromatophoren im Pflanzenreiche: *B. C.* — **Merriman, M. L.**, '04. Vegetative Cell Division in *Allium*: *B. G.*, XXXVII. — '13. Nuclear Division in *Spirogyra*: *B. G.*, LVI. — **Metcalf, M. M.**, '15. Chromosomes in Protozoa: *Sci.*, XLII. — **Metschnikoff, E.**, '66. Embryologische Studien an Insecten: *Z. W. Z.*, XVI. — '86. Embryologische Studien an Medusen: *Wien*. — **Metz, C. W.**, '14. A preliminary Study of five different Types of Chromosome-groups in the Genus *Drosophila*: *J. E. Z.*, XVII. — '14, '16a, '16b. (XI). — '16. Pairing of Chromosomes in the Diptera: *Sci.*, XLIII. — '22. Association of Homologous chromosomes in tetraploid Cells of *Drosophila*: *B. B.*, XLIII. — '22. Chromosome Studies in the Diptera, IV. Incomplete Synapsis . . . in *Dasyllis*: *B. B.*, XLIII. — **Metz, Moses and Mason**, '23.

- Genetic Studies on *Drosophila virilis*: *P. C. I.*, 328. — Metz and Nonidez, '21. '23. Spermatogenesis in *Asilus*: *J. E. Z.*, XXXII: *A. Zf.*, XVII. — Meves, F., '91. Ueber amitotischen Kerntheilung in den Spermatogonien des Salamanders, etc.: *A. A.*, V. — '94. Ueber eine Metamorphose der Attractionsphäre in den Spermatogonien von *Salamandra*: *A. M. A.*, XLIV. — '96. Ueber die Entwicklung der männlichen Geschlechtszellen von *Salamandra*: *Ibid.*, XLVIII. — '96, '98. (II). — '97. Ueber Structur und Histogenese der Samenfäden von *Salamandra*: *A. M. A.*, L. — '97. Zur Struktur der Kerne in den Spinndrüsen der Raupen: *Ibid.*, XLVIII. — '97a. Ueber den Vorgang der Zelleinschnürung: *A. Entom.*, V, 2. — '97b. Zelltheilung: *Merkel u. Bonnet, Erg.*, VI. — '97c. Ueber Centrankörper in männlichen Geschlechtszellen von Schmetterlingen: *A. A.*, XIV, 1. — '98. Zelltheilung: *E. A. E.*, VIII. — '98. Ueber das Verhalten der Centrankörper bei der Histogenese der Samenfäden von Mensch und Ratte: *V. A. G.*, XIV. — '99, '00, '01, '03. (IV). — '02. Ueber die Frage, ob die Centrosomen Boveri's als allgemeine und dauernde Zellorgane aufzufassen sind: *V. A. G.*, Halle. — '04. Ueber das Vorkommen von Mitochondrien bzw. Chondriomiten in Pflanzenzellen: *B. D. B. G.*, XX. — '04. Ueber Richtungskörperbildung im Hoden von Hymenopteren: *A. A.*, XXIV. — '07. Die Spermatocytenbildung bei der Honigbiene: *A. M. A.*, LXX. — '07a. Ueber Mitochondrien bzw. chondriokonten in den Zellen junger Embryonen: *A. A.*, XXXI. — '07b. Die Chondriokonten in ihrem Verhältnis zur Filarmasse Flemmings: *Ibid.*, XXXI. — '08. Die Chondriosomen als Träger erblicher Anlagen: *A. M. A.*, LXXII. — '08. Die Spermatocytenteilungen bei der Hornisse: *Ibid.*, LXXI. — '08. (VI). — '09. Ueber Neubildung quergestreifter Muskelfasern nach Beobachtungen am Hühnerembryo: *A. A.*, XXXIV. — '10a. Ueber Strukturen in den Zellen des embryonalen Stützgewebes, etc.: *A. M. A.*, LXXV. — '10b. Zur Einigung zwischen Fäden- und Granula-lehre des Protoplasma, etc.: *Ibid.*, LXXV. — '11. Chromosomenlängen bei *Salamandra*, etc.: *Ibid.*, LXXVII. — '11a. Gesammelte Studien an den roten Blutkörperchen der Amphibien: *Ibid.*, XXVIII. — '11, '14. (V). — '13. Ueber das Verhalten des plastomatischen Bestandteiles bei der Befruchtung des Eies von *Phallusia*: *A. M. A.*, LXXXII. — '14. Was sind die Plastosomen? *A. A.*, LXXXV. — '15. Ueber Mitwirkung der Plastosomen bei der Befruchtung des Eies von *Filaria*: *A. M. A.*, LXXXVII. — '15a. Was sind die Plastosomen? II.: *Ibid.*, LXXXVII. — '15c. Ueber den Befruchtungsvorgang bei der Miesmuschel (*Mytilus*): *A. M. A.*, LXXXVII. — '16. (IX). — '17, '18a. (I). — '18b. Zur Kenntniss des Baues pflanzlicher Spermien: *A. M. A.*, XCI. — '18c. Ueber Umwandlung von Plastosomen in Sekretkügelchen, etc.: *Ibid.*, XC, 4. — Meves, F., and Duesberg, J., '08. Die Spermatocytenteilungen bei der Hornisse: *Ibid.*, LXXI. — Meyer, A., '81. Ueber die Struktur der Stärkekörner: *B. Z.*, XXXIX. — '83a. Ueber Krystalloide der Trophoplasten und über die Chromoplasten der Angiospermen. *B. Z.*, XLI. — '95. Untersuchungen über die Stärkekörner: *Jena.* — '96. Die Plasmaverbindungen, etc.: *B. Z.*, XI, XII. — '04. Orientierende Untersuchungen über . . . Volutin: *B. Z.*, LXII. — '08. Der Zellkern der Bakterien: *Fischer, Jena.* — '12. (IX). — '16. Die Allinanten, etc.: *B. D. B. G.*, XXIV. — '20. (I). — Meyer, O., '95. Cellular-Untersuchungen an Nematodeneiern: *J. Z.*, XXIX. — De Meyer, J., '11. Observations et expériences relatives a l'action exercée par des extraits . . . sur les spermatozoides: *A. B.*, XXVI. — Michaelis, L., '97. Die Befruchtung des Tritoneies: *A. M. A.*, XLVIII. — '99. Die vitale Färbung, eine Darstellungsmethode der Zellgranula: *Ibid.*, LV. —

- '02. Einführung in die Farbstoffchemie für Histologen: *Berlin*, S. Karger. — '10. Theorie der Färbung: *Handbuch der Bioch.*, II, 1. — **Miehe, H.**, '23. (IX). — **Migula, W.**, '04. Der Bau der Bakterien: *Jena*. — **Mikosch**, '94. Ueber Struktur im pflanzlichen Protoplasma: *Verh. d. Ges. d. Naturf. u. Aertze*. — **Minchin, E. A.**, '12. (VII). — '15. (IX). — **Minot, C. S.**, '82. Theorie der Genblasten: *B. C.*, XX. — '90. On certain Phenomena of Growing Old: *Proc. Amer. Ass'n. Adv. Sci.*, XXIX. — '91. Senescence and Rejuvenation: *J. P.*, XI, 2. — '92. Human Embryology: *New York*. — '95. Ueber die Vererbung und die Verjüngung: *B. C.*, XV. — '08, '13. (III). — **Mirande, M.**, '19. Sur le chondriome, les chloroplastes et les corpuscles nucleolaires du protoplasme des *Chara*: *C. R.*, CLXVIII. — **Miyake, K.**, '05. On the Centrosomes of Hepaticae: *Bot. Mag. Tokyo*, XIX. — '05. Ueber Reduktionsteilung in den Pollenmutterzellen einigen Monokotylen: *J. W. B.*, XLII. — '06. The Spermatozoid of *Ginkgo*: *Jour. Appl. Micr. and Lab. Methods*, V. — '10. The Development of the Gametophytes and Embryogeny in *Cunninghamia*: *Beih. Bot. Centr.*, XXVII. — **Moenkhaus, W. J.**, '04, '10. (XI). — **Mohl, H. v.**, '35, '37. Ueber die Vermehrung der Pflanzenzelle durch Theilung: *Dissert. Tübingen 1835. Flora*. — '46. Ueber die Saftbewegung im Innern der Zellen: *B. Z.* — '51. Grundzüge der Anatomie und Physiologie der vegetabilischen Zelle: *Engl. Trans. by Henfrey, London*. — **Mohr, Otto L.**, '14. (VI, X). — '16. (X). — **Mol, W. E. de**, '21. De l'existence der varieties hétéroploides de l'*Hyacinthus*, etc.: *Arch. Néerl. des Sci.*, III, b, IV. — **Moll, J. W.**, '93. Observations on Karyokinesis in *Spirogyra*: *Verh. Kon. Akad., Amsterdam*, IX. — **Molisch, H.**, '08. Ueber Ultramikroorganismen: *B. Z.*, LXVI. — '13. (VIII). — **Montgomery, T. H.**, '98a. The Spermatogenesis of *Pentatoma*, etc.: *Z. J.* — '98b. (I). — '01b. Further Studies on the Chromosomes of the Hemiptera-Heteroptera: *P. N. A.*, LIII. — '01, '06a. (XI). — '03. The heterotypical Maturation Mitosis in Amphibia, etc.: *B. B.*, IV, 5. — '04. (VI). — '05. The Spermatogenesis of *Syrbula* and *Lycosa*, etc.: *Proc. Acad. Nat. Sci. Phila.*, LVII. — '06. The Terminology of aberrant Chromosomes and their Behavior in certain Hemiptera: *Sci., n. s.*, XXIII. — '08. On the Morphological Difference of the Chromosomes in *Ascaris*: *A. Zf.*, II. — '10. On the dimegalous Sperm and Chromosomal Variation of *Euschistus*, etc.: *Ibid.*, V. — '11. Differentiation of the Human Cells of *Sertoli*: *B. B.*, XXI. — '11. The Spermatogenesis of an Hemipteron, *Euschistus*: *J. M.*, XXII, 3. — '12. Human Spermatogenesis: *Jour. Acad. Nat. Sci. Phila.*, XV. — '12. Complete Discharge of Mitochondria from the Spermatozoön of *Peripatus*: *B. B.*, XXII. — **Monti, R.**, '15. I condriosomi e gli apparati di Golgi nelle cellule nervose: *Arch. Ital. di Anat. e di Embriol.*, XIV. — **Moore, A. C.**, '05. Sporogenesis in *Pallavicinia*: *B. G.*, XL. — **Moore, B.**, '12. The Origin and Nature of Life: *N. Y. and London*. — **Moore, C. R.**, '16. On the Superposition of Fertilization and Parthenogenesis: *B. B.*, XXI. — '17. (V). — **Moore, J. E. S.**, '93. Mammalian Spermatogenesis: *A. A.*, VII. — '96. On the structural Changes in the reproductive Cells of Elasmobranchs: *Q. J.*, XXXVIII. — **Moore and Embleton**, '06. On the Synapsis in Amphibia: *P. R. S.*, LXXVII. — **Moore and Robinson**, '05. On the Behavior of the Nucleolus in the Spermatogenesis of *Periplaneta*: *Q. J.*, XLVIII. — **Moore and Walker**, '06. The Meiotic Process in the Mammalia: *Cancer Research Lab., Liverpool Univ.* — **Mordwilko, A.**, '07, '09. Beiträge zur Biologie der Pflanzenläuse: *B. C.*, XXVII, XXIX. — **Moreau, M. F.**, '14. Les mitochondries chez les Uredinées: *C. R. S. B.*, LXXVI. — '14. Le chondriosome et la division des

mitochondries chez les *Vaucheria*: *Bul. Soc. Bot. France.*, LXI. — '14a. Sur la formation de corpuscles metachromatiques dans les mitochondries granuleuses: *C. R. S. B.*, LXXVII. — '15b. La division des mitochondries et ses rapports avec les phénomènes de sécrétion: *Ibid.*, LXXVIII. — **Morgan, L. V.**, '22. Non-criss-cross Inheritance in *Drosophila*: *B. B.*, XLII, 5. — **Morgan, T. H.**, '93a. Experimental Studies on Teleost Eggs: *A. A.*, VIII. — '93b. Experimental Studies on Echinoderm Eggs: *Ibid.*, IX. — '95a. (XIV). — '95b. Studies on the partial Larvae of *Sphaerechinus*: *A. Entwm.*, II. — '95c. A Study of Variation in Cleavage: *Ibid.*, II. — '96. The Number of Cells in Larvae from isolated Blastomeres of *Amphioxus*: *A. Entwm.*, III. — '96, '99. (IX). — '96. The Fertilization of non-nucleated Fragments of Echinoderm Eggs: *A. Entwm.*, III. — '99, '00, '08, '09, '10a, '17, '23. (XIV). — '00. Further Studies on the Action of Salt Solutions, etc.: *A. Entwm.*, X. — '01. Regeneration in Egg, Embryo, and Adult: *A. N.*, XXXV. — '01. Regeneration of Proportionate Structures in *Stentor*: *B. B.*, II. — '01. Regeneration: *Columbia Biol. Ser.*, VIII. — '03. Recent Theories in Regard to the Determination of Sex: *Pop. Sci. Monthly.* — '04. Relation between normal and abnormal Development of the Embryo of the Frog. III: *A. Entwm.*, XVIII. — '05a. Self-fertilization in *Ciona*: *B. B.*, VIII. — '05b. An Alternative Interpretation of gynandromorphous Insects: *Sci.*, XXI. — '06. The Influence of a strong centrifugal Force on the Frog's Egg: *A. Entwm.*, XXII. — '06. Male and female Eggs of the Phylloxerans of the Hickories: *B. B.*, X. — '07a. (III). — '07. The biological Signification and Control of Sex: *Sci.*, n. s., XXV. — '07b. The Cause of Gynandromorphism in Insects: *A. N.*, XLI. — '08. The Production of Two Kinds of Spermatozoa in *Phylloxerans*: *P. S. B. M.*, V. — '09. (X). — '09. Hybridology and Gynandromorphism: *A. N.*, XLIII. — '10. Chromosomes in the parthenogenetic and sexual Eggs of the Phylloxerans and Aphids: *P. S. B. M.*, VII. — '10. The Effect of Altering the Position of the Cleavage Planes, etc.: *A. Entwm.*, XXIX. — '10, '11, '19, '22. (XII). — '10. Experiments bearing on the Nature of the karyokinetic Figure: *P. S. B. M.*, VII. — '10. Sex-limited Inheritance in *Drosophila*: *Sci.*, XXXII. — '10b. The Method of Inheritance of Two Sex-limited Characters in the Same Animal: *P. S. B. M.*, VIII. — '11. The Application of the Conception of Pure Lines to Sex-limited Inheritance, etc.: *A. N.*, III. — '11a. An Attempt to analyze the Constitution of the Chromosomes on the Basis of sex-limited Inheritance in *Drosophila*: *J. E. Z.*, XI, 4. — '12. The Elimination of the Sex Chromosome from the Male-Producing Eggs of *Phylloxerans*: *J. E. Z.*, XII. — '13. Factors and Unit Characters in Mendelian Heredity: *A. N.*, XLVII. — '14. Sex-limited and Sex-linked Inheritance: *A. N.*, XLVIII. — '14. Chromosomes of the white Man and the Negro: *Sci.*, n. s., XXIX. — '14. Mosaics and Gynandromorphs in *Drosophila*: *P. S. B. M.*, XI. — '15a. The Constitution of the Hereditary Material: *Proc. Am. Phil. Soc.*, LIV. — '15b. Localization of the Hereditary Material in the Germ Cells: *P. N. A.*, I. — '15c. The Predetermination of Sex in *Phylloxerans* and *Aphids*: *J. E. Z.*, XIX, 3. — '23. The Bearing of Mendelism on the Origin of Species: *S. M.*, '23. Removal of the Block to Fertilization in *Ciona*: *P. N. A.*, IX. — '24. (XII). — **Morgan and Boring**, '03. The Relation of the first Plane of Cleavage and the grey Crescent, etc.: *A. Entwm.*, XVI. — **Morgan and Bridges**, '16. (XII). — '19. (X). — **Morgan, Bridges, Sturtevant**, '29. (XII). — **Morgan and Dimon**, '04. Physiological Polarity and Electrical Polarity in the Earthworm. *J. E. Z.*, I. — **Morgan and Goodale**, '12. Sex-linked Inheritance in Poultry: *Ann. N. Y. Acad. Sci.*, XXII. — **Morgan**

and **Lyon**, '07. The Relation of the Substances of the Egg separated by a strong Centrifugal Force, etc.: *A. Entom.*, XXIV. — **Morgan, Payne, and Browne**, '10. A Method to Test the Hypothesis of Selective Fertilization: *B. B.*, XVIII. — **Morgan and Spooner**, '09. (XIV). — **Morgan, Sturtevant, Bridges**, '21. (XII). — **Morgan, Sturtevant, Muller and Bridges**, '23. (XII). — **Morgan and Tsuda, U.**, '94. The Orientation of the Frog's Egg: *Q. J.*, XXXV. — **Moroff, Th.**, '09. Oögenetische Studien. I. Copepoden: *A. Zf.*, II. — **Morrill, C. V.**, '10. The Chromosomes in the Oögenesis, Fertilization and Cleavage of *Coreid Hemiptera*: *B. B.*, XIX, 2. — **Morris, Margaret**, '14. The Behavior of the Chromatin in Hybrids between *Fundulus* and *Ctenolabrus*: *J. E. Z.*, XVI. — '17. A Cytological Study of Parthenogenesis in *Cumingia*: *Ibid.*, XXII. — **Morse**, '09. The nuclear Components of the Sex Cells in four Species of Cockroaches: *A. Zf.*, III. — **Mottier, D. M.**, '97. Ueber das Verhalten der Kerne bei der Entwicklung des Embryosacs: *J. W. B.*, XXXI. — '97b. Beiträge zur Kenntniss der Kerntheilung in den Pollenmutterzellen, etc.: *Ibid.*, XXX. — '98. Das Centrosoma bei *Dictyota*: *B. D. B. G.*, XVI. — '98. Beiträge zur Kenntniss der Kerntheilung in den Pollenmutterzellen, etc.: *J. W. B.*, XXXI. — '98. Ueber das Verhalten der Kerne bei der Entwicklung des Embryosacks und die Vorgänge der Befruchtung: *J. W. B.*, XXXI. — '00. (II). — '03. The Behavior of the Chromosomes in the Spore-Mother-Cells of Higher Plants: *B. G.*, XXXV. — '04. The Development of the Spermatozoid of *Chara*: *A. Bot.*, XVIII. — '04. (V). — '05, '07, '09, '14. (VI). — '18. (IX). — '21. (I). — **Mottier and Nothnagel**, '13. The Development and Behavior of the Chromosomes in the First or heterotypic Mitosis of the Pollen Mother-Cells of *Allium*: *Bull. Torr. Bot. Club*. XL. — **Muckermann, H.**, '12. Zur Anordnung, Trennung und Polwanderung der Chromosomen in der Metaphase, etc.: *L. C.*, XXVIII. — **Müller, E.**, '96. (XIV). — **Müller, H.**, '03. Beitrag zur Embryonalentwicklung der *Ascaris*: *Z.*, XVII. — **Müller, E. A. Cl.**, '09. Ueber karyokinetische Bilder in den Wurzelspitzen von *Yucca*: *J. W. B.*, XLVII, 1. — '11. (II). — **Muller, H. J.**, '14, '16. (XII). — '20. Are the Factors of Heredity arranged in a Line? *A. N.*, LIV. — '22. Variations due to Change in the individual Gene: *A. N.*, LVI. — **Mülsow, K.**, '11. Chromosomenverhältnisse bei *Ancyracanthus*: *Z. A.*, XXXVIII. — '12. (X). — **Munson, J. P.**, '06. Spermatogenesis of the Butterfly, *Papilio*: *Proc. Boston Soc. Nat. Hist.*, XXXIII. — '12. A Comparative Study of the Structure and Origin of the Yolk Nucleus: *A. Zf.*, VIII. — **Murbeck**, '04. Parthenogenesis bei den Gattungen *Taraxacum* und *Hieracium*: *Bot. Not., Lund.* — **Murray, J. A.**, '98. Contributions to a Knowledge of the Nebenkern in the Spermatogenesis of Pulmonata: *Z. J.*, XI, 14. — **Murrill, W. A.**, '00. The Development of the Archegonium and Fertilization in the Hemlock Spruce: *A. Bot.*, XIV.

NABOURS, R. K., '14, '17. Studies of Inheritance and Evolution in Orthoptera. I, II, III: *J. G.*, III. — '19. Parthenogenesis and Crossing Over in the Grouse Locust *Apotettix*: *A. N.*, LIII. — **Nachtsheim, H.**, '13. (X, XII). — '14. Das Problem der Geschlechtsbestimmung bei *Dinophilus*: *Naturf. Ges. Freiburg*, XXI. — '15. Entstehen auch aus befruchteten Bieneiern Drohnen? *B. C.*, XXXV. — '19. (X). — '21. Sind haploid Organismen (Metazoön) lebensfähig? *B. C.*, XLI. — **Nagai, I.**, '15. On the Influence of Nutrition upon the Development of Sexual Organs in the Fern Prothallia: *J. Coll. Agr. Univ. Tokyo*, VI. — **Nägeli, C.**, '44. '46. Zellkerne, Zellbildung, und Zellwachsthum: *Z. W. B.*,

- I, III. — '46. On the Utricular Structures in the Contents of Cells: Ray Society: — '84. (Int.) — **Nägeli** and **Schwenderer**, '67. Das Mikroskop: *Leipzig*. (See later editions) — **Nägler**, **K.**, '09. Entwicklungsgeschichtliche Studien über Amöben: *A. P.*, XV. — **Nakahara**, **W.**, '17. On the Physiology of the Nucleoli as seen in the Silk-gland of Certain Insects: *J. M.*, XXIX. — '17. Preliminary Note on the Nuclear Division in Adipose Cells of Insects: *A. R.*, XIII. — '18. Some Observations on the Growing Oöcytes of the Stonefly, etc.: *A. R.*, XV. — '18. Studies in Amitosis: Its Physiological Relations, etc.: *J. M.*, XXX. — '19. A Study of the Chromosomes in the Spermatogenesis of the Stonefly, etc.: *Ibid.*, XXXII. — '20. Side-to-side versus End-to-end Conjugation of Chromosomes in Relation to Crossing Over: *Sci.*, LII. — **Nakao**, **M.**, '11. Cytological Studies on the Nuclear Division of the Pollen Mother-cells of Some Cereals and Their Hybrids: *Jour. Coll. Agr. Tohoku Imp. Uni.*, V. — **Nassonov**, **D. N.**, '18. Recherches cytologiques sur les cellules végétales: *Arch. Russ. Anat. Histol. et Phys.*: II. — '23. Das Golgische Binnennetz, etc.: *A. M. A.*, XCVII. — '23b. Das Golgische Binnennetz, etc.: *Ibid.* C. — **Nathansohn** **A.**, '00. Physiologische Untersuchungen über amitotische Kernteilung: *J. W. B.*, XXXV. — **Nawaschin**, **M.**, '15. Haploide, Diploide, und Triploide Kerne von *Crepis virens*, Vill. (See Sakamura, '15, '20). — **Nawaschin**, **S.**, '99. Neue Beobachtungen über Befruchtung bei *Fritillaria* und *Lilium*: *Bot. Centr.*, LXXVII. — '09. Ueber das selbständige Bewegungsvermögen der Spermakerne bei einigen Angiospermen: *Oesterreich. Bot. Zeitschr.*, LIX. — '10. Näheres über die Bildung der Spermakerne bei *Lilium*: *Ann. Jard. Bot. Buit.*, XII. — **Nebeski**, **O.**, '80. Die Erzeugung von Eiern im Hoden von *Orchestia*: *Arb. Zool. int. Wien*, III. — **Nelson**, **J. A.**, '04. (XIII). — **Nemec**, **B.**, '97. Ueber die Struktur der Diplopodeneier: *A. A.*, XIII, 10, 11. — '99. Ueber die karyokinetische Kerntheilung in den Wurzelspitzen von *Allium*: *J. W. B.*, XXVIII, 2. — '03. (II). — '08. Ueber die Natur des Bakterienprotoplasten: *B. D. B. G.* — '10. (V). — '12. Ueber die Befruchtung bei *Gagea*: *Bull. Internat. Acad. Sci. Bohême*. I—XVII. — **Newell**, **Wilmon**, '14. Inheritance in the Honey Bee: *Sci., n. s.*, XLI. — **Newmann**, **H. H.**, '10. (XIV). — **Newman** and **Patterson**, '10. The Development of the nine-banded Armadillo: *J. M.*, XXI. — **Newport**, **G.**, '54. (XIII). — **Nichols**, **G. E.**, '10. A Morphological Study of *Juniperus*: *Beih. Bot. Centr.*, XXV. — '08. The Development of the Pollen of *Sarracenia*: *B. G.*, XLV. — **Newton**, **W. C. F.**, '24. Pairing and Segmentation in *Galtonia*: *A. B.*, XXXVIII. — **Nichols**, **M. L.**, '10. The Spermatogenesis of *Euchroma*: *B. B.*, XIX. — **Nicolas**, **A.**, '00. Contribution a l'étude de la fécondation chez l'orvet: *A. A. M.*, III. — '03. Nouvelles observations relatives a la fécondation chez l'orvet: *C. R. Soc. de biol. de Paris*. — **Niesing**, **C.**, '96. Die Betheiligung im Centrankörper und Sphäre um Aufbau des Samenfadens, etc.: *A. M. A.*, XLVIII. — **Noack**, **K. L.**, '21. Untersuchungen über die Individualität der Plastiden bei Phanerogamen: *Z. B.*, XIII. — **Noack**, **W.**, '01. Beiträge zur Entwicklungsgeschichte der Muscidae. *Z. W. Z.*, LXX. — **Noll**, **F.**, '07. Versuche über Geschlechtsbestimmung bei diözischen Pflanzen: *Sitzungber. d. Niederrhein. Ges. f. Natur- u. Heilkunde zu Bonn*. — **Nonidez**, **J. F.**, '20. Spermatogenesis of *Blaps*, etc.: *J. M.*, XXXIV. — **Nordenskiöld**, **E.**, '09. Zur Spermatogenese von *Ixodes*: *Z. A.*, XXXIV. — **Noren**, **C. O.**, '07. Zur Entwicklungsgeschichte des *Juniperus*: *Upsala Univ. Arsskrift*. — **Norman**, **W. W.**, '96. Segmentation of the Nucleus without segmentation of the Protoplasm: *A. Entom.*, III. — **Nothnagel**, **M.**, '16. Reduction Divisions in the

Pollen Mother-cells of *Allium*: *B. G.*, LXI. — '18. Fecundation and Formation of the Primary Endosperm Nucleus in certain Liliaceae: *Ibid.*, LXVI. — **Nowikoff, M.**, '10. Zur Frage nach der Bedeutung der Amitose: *A. Zf.*, V. — **Nowlin, (W.) Nadine**, '08. The Chromosome Complex of *Melanoplus bivittatus*: *Kansas Univ. Sci. Bull.*, IV. — '06. Study of the Spermatogenesis of *Coptocyclus*: *J. E. Z.*, III. — **Nussbaum, M.**, '80. Zur Differenzierung des Geschlechts im Tierreich: *A. M. A.*, XVIII. — '84a. Ueber Spontane und Künstliche Theilung von Infusorien: *Verh. d. naturf. preus. Rheinland.* — '84b. Ueber die Veränderungen der Geschlechtsproducte bis zur Eifurchung: *A. M. A.*, XXIII. — '86. Ueber die Teilbarkeit der lebendigen Materie, I: *Ibid.*, XXVI. — '94. Die mit der Entwicklung fortschreitende Differenzierung der Zellen: *B. C.*, XVI. — '97. Die Entstehung des Geschlechts bei *Hydatina*: *A. M. A.*, XLIX. **Nussbaum-Hilarowicz, J.**, '17. Ueber das Verhalten des Chondrioms während der Eibildung bei *Dytiscus*: *Z. W. Z.*, CXVII. — **Nuttall**, '04. (VIII).

OBST, P., '99. Untersuchungen über das Verhalten der Nucleolen, etc.: *Z. W. Z.*, LXVI, 2. — **Oehninger, M.**, '13. Ueber Kerngrößen bei Bienen: *V. P. M. G., Würzburg*, XLII. — **Oehlkers, F.**, '16. Beitrag zur Kenntniss der Kernteilung bei den Characeen: *B. D. B. G.*, XXXIV. — **Oes, A.**, '08. Ueber die Autolyse der Mitosen: *B. Z.* — '10. Neue Mitteilung über enzymatische Chromatolyse: *Z. B.*, II. — **Oettinger, R.**, '09. Samenreifung und Samenbildung bei *Pachyiulus*: *A. Zf.*, III, 4. — **Ogata, M.**, '83. Die Veränderung der Pancreaszellen bei der Secretion: *A. A. P. (Phys. Abt.)*. — **Oguma and Kihara**, '23. Étude des chromosomes chez l'homme: *A. B.*, XXXIII. — **Oguma and Kihara**, '22. A preliminary Report on the Human Chromosomes: *Zool. Mag. Tokyo*, XXXIV, 401. — **Ohshima, Hiroshi**, '21. Inhibitory Effect of Dermal Secretion of the Sea-urchin upon Fertilizability of the Egg: *Sci.*, LIV. — **Okkelberg, P.**, '14. Volumetric Changes in the Egg of the Brook Lamprey, etc.: *B. B.*, XXVI. — '21. The early History of the Germ-cells in the Brook Lamprey: *J. M.*, XXXV. — **Olive, E. W.**, '05. Mitotic division of the Nuclei of the Cyanophyceae: *Beih. z. Biol. Zentralbl.* — '07. Cytological Studies on *Ceratomyxa*: *Trans. Wiss. Acad. Sci.*, XV. — **Oliver, J. R.**, '13. The Spermiogenesis of the Pribilof Fur Seal: *A. J. A.*, XIV. — **Oltmanns, F.**, '95. Ueber die Entwicklung der Sexualorgane bei *Vaucheria*: *Flora*. — '22, '23. (VII). — '13. Fortpflanzung der Gewächse, Algae: *H. Nw.*, IV. *Jena*. — **Oltmanns, Fischer, Winkler, Klebs, Korschelt, and others**, '13. Fortpflanzung: *H. Nw.*, IV, *Fischer, Jena*. — **Onions, G. W.**, '12, '14. South African "fertile Worker-bees": *Ag. Journ. Union South Africa*, III and IV. — **Oppel, A.**, '91. Die Befruchtung des Reptilieneies: *A. A.*, VI. — **Orton, J. H.**, '09. On the Occurrence of Protandric Hermaphroditism in the Mollusc *Crepidula*: *P. R. S.*, LXXXI. — **Osawa, I.**, '12. Cytological and Experimental Studies in *Citrus*: *Jour. Coll. Agr. Imp. Uni., Tokyo*, IV. — '13. Studies on the Cytology of some Species of *Taraxacum*: *A. Zf.*, X. — '20. (XI). — **Osterhout, W. J. V.**, '97. (II). — '00. Befruchtung bei *Batrachospermum*: *Flora*, LXXXVII. — '17. The Rôle of the Nucleus in Oxidation: *Sci.*, XLVI. — '22. (III). — **Ostwald, W.**, '09. (VIII). — **Otte**, '07. Samenreifung und Samenbildung bei *Locusta*: *Z. J.*, XXIV. — **Overton, C. E.**, '89. Beitrag zur Kenntniss der Gattung *Volvox*: *B. C.*, XXXIX. — '88. Ueber den Conjugationsvorgang bei *Spirogyra*: *B. D. B. G.*, VI. — '93. Ueber die Reduktion der Chromosomen in den Kernen der Pflanzen: *Vierteljahrschr. Naturf. Ges. Zürich*, XXXVIII. Also *A.*

- Bot.*, VII. — **Overton, J. B.**, '02. Parthenogenesis in *Thalictrum*: *B. G.*, XXXIII. — '05. Ueber Reduktionsteilung in den Pollenmutterzellen einiger Dikotylen, etc.: *J. W. B.*, XLII. — '09. (XI). — '22. (II).
- PACE, L.**, '07. Fertilization in *Cypripedium*: *B. G.*, XLIV. — '09. The Gametophyte of *Calopogon*: *B. G.*, XLVIII. — '10. Some Peculiar Fern Prothallia: *B. G.*, L. — '13. Apogamy in *Atamosco*: *Ibid.*, LVI. — **Packard, C.**, '18. The Effect of Radium Radiations on the Development of *Chaetopterus*: *B. B.*, XXXVI. — **Painter, T. S.**, '14. Spermatogenesis in Spiders: *Z. J., A. u. O.*, XXXVIII. — '18. Contributions to the Study of Cell Mechanics. II: *J. E. Z.*, XXIV. — '19. The Spermatogenesis of *Anolis*: *A. R.*, XVII. — '21. The Y-Chromosome in Mammals: *Sci., n. s.*, LIII. — '21, '22a, '23. (X). — '22. The Sex-chromosomes of the Monkey: *Sci.*, LVI. — '23b. The Sex Chromosomes of Monkeys: (In press). — '23b. The Fate of the Chromatin-nucleolus in the Opossum: (In press). — **Paladino, G.**, '90. I ponti intercellulari tra l'uovo ovarico e le cellule follicolari, etc.: *A. A.*, V. — **Palladin, V. I.**, '18. Plant Physiology: (*Eng. trans., ed. by Livingston*). — **Pampaloni, L.**, '03. I fenomeni cariocinetici nelle cellule meristemali degli apici vegetativi de *Psilotum*: *Annali di Bot.*, I. — **Pantel and Sinéty**, '06. Les cellules de le lignée mâle chez le *Notonecta* L.: *L. C.*, XXIII. — '08. Sur l'apparition des mâles et d'hermaphrodites dans les pontes parthéno-génétiques des Phasmes: *C. R.*, CXLVII. — **Papanicolaou, G.**, '10. Experimentelle Untersuchungen über die Fortpflanzungsverhältnisse der Daphniden: *B. C.*, XXX. — **Papanicolaou and Stockard**, '18. The Development of the Idiosome in the Germ-cells of the male Guinea-pig: *A. J. A.*, XXIV. — **Pappenheimer, A. M.**, '16. (IX). — **Parmenter, C. L.**, '19. Chromosome Number and Pairs in the somatic Mitoses of *Amblystoma*: *J. M.*, XXXIII, 1. — '20. The Chromosomes of parthenogenic Frogs: *J. G. P.*, XI, 3. — **Pascher, A.**, '16. Ueber die Kreuzung einzelliger haploiden Organismen, *Chlamydomonas*: *B. D. B. G.*, XXXIV. — **Patten, W.**, '85. The Embryology of *Patella*: *Arb. Zool. Inst. Wien*, VI, 2. — **Patterson, J. T.**, '08. Amitosis in the Pigeon's Egg: *A. A.*, XXXII. — '15. Observations on the Development of *Copidosoma*: *B. B.*, XXIX. — Studies on the Biology of *Paracopidosomopsis*, I, '17: *B. B.*, XXXII; II (with L. T. Porter): *Ibid.*, XXXIII; III, '17b: *Ibid.*; IV, '18: *Ibid.*, XXXV; V, '19: *J. H.*, X. — '21. The Development of *Paracopidosomopsis*: *J. M.*, XXXVI. — **Patterson and Porter**, '17. Studies on the Biology of *Paracopidosomopsis*, II: *B. B.*, XXXIII. — **Paulcke, W.**, '00. Ueber die Differenzierung der Zellelemente im Ovarium der Biener-Königin: *Z. J.*, XIV. — **Paulmier, F. C.**, '98. Chromatin Reduction in the Hemiptera: *A. A.*, XIV. — '99. The Spermatogenesis of *Anasa tristis*: *J. M.*, XV, Suppl. — **Payne, F.**, '08, '09. (X). — '10. The Chromosomes of *Acholla multispinosa*: *B. B.*, XVIII. — '12. A Further Study of the Chromosomes of the Reduviidae, etc.: *J. M.*, XXIII. — '12. The Chromosomes of *Gryllotalpa*: *A. Zf.*, IX. — '14. Chromosomal Variations and the Formation of the first Spermatocyte Chromosomes in . . . *Forficula*: *J. M.*, XXV. — '16. A Study of the Germ Cells of *Gryllotalpa*: *Ibid.*, XXVIII. — **Pearl, R.**, '21. The Biology of Death. II — The Conditions of Cellular Immortality: *S. M.*, XII. — '22. (III). — **Pensa, A.**, '12. Osservazioni di morfologia e biologia cellulare nei vegetali (mitocondri, cloroplasti): *A. Zf.*, VIII. — '13a. Condriosomi e pigmento antocianico nelle cellule vegetali: *A. A.*, XLV. — '13b. La struttura della cellula cartilaginea: *A. Zf.*, XI. — '14. Ancora a proposito de condriosomi e pigmento antocianico

- nelle cellule vegetali: *A. A.*, XLVI. — **Pentimalli, F.**, '09. Influenza della corrente elettrica sulla dinamica del processo cariocinetica: *A. Entom.*, XXVIII, 2, 3. — **Perroncito, A.**, '10. (IV). — **Peter, K.**, '99. Das Centrum für die Flimmer- und Geißelbewegung: *A. A.*, XV, 14, 15. — **Petrunkewitsch, A.**, '01. Die Richtungskörper im befruchteten und unbefruchteten Bienenei: *Z. J., Abt. Anat.*, XIV. — '02. Die Reifung der partenog. Eier von *Artemia*: *A. A.*, XXI. — '03. Das Schicksal der Richtungskörper im Drohnenei: *Z. J.*, XVII. — '04. Künstliche Parthenogenesis: *Z. J.*, Suppl., VII. — **Pfeffer, W.**, '84. (V). — '96. Ueber den Einfluss des Zellkerns auf die Bildung der Zellhaut: — '09. Ueber die Erzeugung und die physiologische Bedeutung der Amitose: *Ber. Königl., Sachs., Ges. Wiss. Leipzig.* — '99. Bericht über amitotische Kerntheilung: *Ber. d. Math.-Phys. Kl. d. Klg. Sach. Ges. Wiss.* — **Pfitzner, W.**, '82. Ueber den feineren Bau der bei der Zelltheilung auftretenden fadenförmigen Differenzierungen des Zellkerns: *M. J.*, VII. — '83. Beiträge zur Lehre vom Baue des Zellkerns und seinen Theilungserscheinungen: *A. M. A.*, XXII. — **Pflüger, E.**, Versuche der Befruchtung überreifer Eier: XXIX. '82. Ueber die geschlechtsbestimmenden Ursachen und die Geschlechtsverhältnisse der Frosche: *Ibid.*, XXIX. — '83. Ueber den Einfluss der Schwerkraft auf die Theilung der Zellen, I: *A. Ph.*, XXXI; II: *Ibid.*, XXXII. Abstract in *B. C.*, III, '84. — '84. Ueber die Einwirkung der Schwerkraft und anderer Bedingungen auf die Richtung der Zelltheilung: *A. Ph.*, XXXIV. — '89. Die allgemeinen Lebenserscheinungen: *Bonn.* — **Philips, O. P.**, '04. A comparative Study of the Cytology and Movements of the Cyanophyceae: *Contrib. Bot. Lab. Univ. Pa.*, II. — **Picard, M.**, '13. A Bibliography of Works on Meiosis and Somatic Mitosis in the Angiosperms: *Bull. Torr. Bot. Club.*, XL. — **Pinney, E.**, '08. Organization of the Chromosomes in *Phrynotettix*: *Kans. Univ. Sci. Bull.*, IV. — '18. A Study of the Relation of the Behavior of the Chromatin to Heredity and Development in Teleost Hybrids: *J. M.*, XXXI. — **Platner, G.**, '86a. Zur Bildung der Geschlechtsprodukte bei den Pulmonaten: *A. M. A.*, XXVI. — '86b. Ueber die Befruchtung von *Arion*: *Ibid.*, XXVII. — '89. Beiträge zur Kenntniss der Zelle und ihrer Theilung: *Ibid.*, XXXIII. — '89. (VI). — **Plough, H. H.**, '17. (XII). — **Poirault and Raciborski**, '96. Ueber konjugate Kerne und die konjugate Kerntheilung: *B. C.*, XVI, 1. — **Policard, A.**, '15. Chondriocentes et fibrilles plasmatiques dans les cellules du tube urinaire des Batraciens: *A. A.*, XLVII. — **Polowzow, W.**, '23. Wirkung der Alkohalnarkose auf . . . Seeigeleier: *A. M. A.*, XCVIII. — **Popoff, M.**, '07. Eibildung bei *Paludina*, etc.: *A. M. A.*, LXX. — '08. Ueber das Vorhandensein von Tetraden-Chromosomen in den Leberzellen von *Paludina*: *B. C.*, XXVIII, 17. — '08. Die Gametenbildung und Konjugation von *Carchesium*: *Z. W. Z.*, LXXXIX. — '08-'09. Experimentelle cytologische Studien: *A. Zf.*, I, III, IV. — '09. Ueber einige Ursache der physiologischen Depression der Zelle: *A. Zf.*, IV. — **Potts, F. A.**, '06. The Modification of the Sexual Characters of the Hermit Crab caused by the Parasite *Pelto-gaster*: *Q. J.*, L. — **Prandtl, H.**, '06. Die Konjugation von *Didinium*: *A. P.*, VII. — **Pranker, T. L.**, '15. Notes on the Occurrence of Multinucleate Cells: *A. Bot.*, XXIX. — **Prantl, R.**, '81. Beobachtungen über die Ernährung der Farnprothallien und der Verteilung der Sexualorgane: *B. Z.*, XXXIX. — **Pratje, A.**, '20. (VIII). — **Pratt, B. H.**, and **Long, J. A.**, '17. The Period of Synapsis in the Egg of the White Rat: *J. M.*, XXIX. — **Prenant, A.**, '94. Sur le corpuscule central: *Bull. Soc. Sci., Nancy.* — '98-'99, '10, '11a, '13a. (IX). — '10. (II). — '11. (XII). — '13. Sur l'origine mitochondriale des grains de pigment: *C. R. S. B.*,

LXXIV. — **Prenant, Bouin, Maillard**, '04. (I). — **Preusse, F.**, '95. Ueber die amitotische Kerntheilung in den Ovarien der Hemipteren: *Z. W. Z.*, LIX, 2. — **Prévost and Dumas**, 1824. (Int.). — **Pringsheim, E. G.**, '13. Ueber Blaualgen: *Die Naturwissenschaften*. — **Pringsheim, N.**, '54. Untersuchungen über Bau und Bildung der Pflanzenzelle: Berlin. — '55. Ueber die Befruchtung und Keimung der Algen und das Wesen des Zeugungsaktes: *Monatsber. K. Akad. Wiss. Berlin*, I. — '58. Morphologie der Oedogonien: *J. W. B.*, I. — '69. Ueber die Paarung von Schwärmsporen, die morphologische Grundform der Zeugung im Pflanzenreiche: *Monatschr. d. Kgl. Akad. d. Wissensch., Berlin*. — '78. Ueber Sprossung der Moosfrüchte und den Generationswechsel der Thallophyten: *J. W. B.*, XI. — **Prowazek, S.**, '02a. Spermatogenese der Weinbergschnecke, I: *Arb. Zool. Inst. Wien*, XIII. — '02b. Spermatogenese des Nashornkäfers (*Oryctes*): *Ibid.*, XIII. — '04. Untersuchungen über einige parasitische Flagellaten: *Arb. a. d. Kais. Gesundheitsamt.*, XXI. — **Prowazek and Nöller**, '20. (VII). — **Przibram, H.**, '08. (XIV). — **Punnett, R. C.**, '06. Sex-determination in *Hydatina*, etc.: *P. R. S.*, B, LXXVIII. — '09. On the Alleged Influence of Lecithin upon the Determination of Sex in Rabbits: *Proc. Camb. Phil. Soc.*, XV. — '11. Mendelism, 3rd ed.: New York. — '13, '17. Reduplication Series in Sweet Peas, I, II: *J. G.*, III and VI.

RABL, C., '79. (XIII). — '89. (XI). — '89b. Ueber die Prinzipien der Histologie; *Verh. Anat. Ges.*, III. — '89. (II). — '99. (IX). — '06. (Int., XIV). — '15. (Int.). — **Raffaele, F.**, '21. (XI). — **Rappeport, T.**, '15. Zur Spermatogenese der Süßwassertricladien: *A. Zf.*, XIV. — **Vom Rath, O.**, '92. Zur Kenntniss der Spermatogenese von *Grylotalpa*: *A. M. A.*, XL. — '91. Ueber die Bedeutung der amitotischen Kerntheilung im Hoden: *Z. A.*, XIV. — '95. Neue Beiträge zur Frage der Chromatinreduction in der Samen- und Eireife: *A. M. A.*, XLVI. — '95b. Ueber den feineren Bau der Drüsenzellen des Kopfes von *Anilocra*, etc.: *Z. W. Z.*, LX, 1. — **Rauber, A.**, '83. Neue Grundlegungen zur Kenntniss der Zelle: *M. J.*, VIII. — **Reed, G. B.**, '15. The Rôle of Oxidases in Respiration: *Jour. Biol. Chem.*, XXII. — **Reed, T.**, '14. The Nature of the Double Spireme in *Allium*: *A. Bot.*, XXVIII. — **Regaud, C.**, '09a. Attribution aux "formations mitochondriales" de la fonction générale d'extraction et de fixation électives, etc. *C. R. S. B.*, LXVI. — '09b. Sur les mitochondries des fibres musculaires du cœur: *C. R.*, CXLIX. — '09c. Participation du chondriomes a la formation des grains de sécrétion, etc.: *C. R. S. B.*, LXVI. — '10. (IV, IX). — '11. Les mitochondries, organites du protoplasma, etc.: *Revue de Medicin.* — **Regaud and Dubreuil**, '05. La constitution de la zone pellucida, etc.: *C. R. Ass. Anat., Geneva*. — **Regaud and Favre**, '12. Nouvelles recherches sur les formations mitochondriales de l'épiderme humain a l'état normal et pathologique: *C. R. S. B.*, LXVI. — **Regaud and Mawas**, '09a. Ergastoplasme et mitochondries dans les cellules de la glande sous-maxillaire: *C. R. S. B.*, LXVI. — '09b. Sur la structure du protoplasma: *C. R. Assoc. Anat.* — **Reichert, E. T.**, '14. The Germ-Plasm as a Stereochemic System: *Sci.*, XL. — **Reichert and Brown**, '09. (VIII). — **Reinke, Fr.**, '94. Zellstudien I: *A. M. A.*, XLVII. III: *Ibid.*, XLIV. — '00. Zum Beweis der trajektorischen Natur der Plasmastrahlungen. Ein Beitrag zur Mechanik der Mitose: *A. Entw.*, IX. — **Reinke, J.**, '01. Einleitung in die theoretische Biologie: Berlin. — **Remak, R.**, '41. Ueber Theilung rother Blutzellen beim Embryo: *Med. Ver. Zeit.* — '50-'55. (Int.). — '52. Ueber extracelluläre Entstehung thie-

- rische Zellen und über Vermehrung derselben durch Theilung: *Müller's Archiv.* — **Renner, O.**, '14. Befruchtung und Embryobildung bei *Oenothera*, etc.: *Flora*, CVII. — '16. Zur Terminologie des pflanzlichen Generationswechsel: *B. C.*, XXXVI. — **Retzius, G.**, '89. Die Intercellularbrücken des Eierstockseies und der Follikelzellen, etc.: *V. A. G., Berlin.* — '02-'14. (IV). — '06. Ueber die Spermien der Fucaceen: *Ark. Bot.*, V; also *Biol. Unters.* N. P., XIII. — '12. Zur Kenntniss der Hüllen und besonders des Follikelnepithels, etc.: *Biol. Unters.*, XVII. — '14. (I). — **Rhumbler, L.**, '93. Ueber Entstehung und Bedeutung der in den Kernen vieler Protozoen und im Keimbläschen von Metazoen vorkommenden Binnenkörper (Nucleolen): *Z. W. Z.*, LVI. — '96. Versuch einer mechanischen Erklärung der indirekten Zell- und Kerntheilung: *A. Entwm.*, III. — '97. Stemmen die Strahlen der Astrosphäre oder ziehen sie? *A. Entwm.*, IV. — '98. Die Mechanik der Zelldurchschnürung nach Meves' und nach meiner Auffassung: *A. Entwm.*, VII. — '99. Furchung des Ctenophoreneies nach Ziegler und deren Mechanik usw.: *A. Entwm.*, VIII. — '99. Mechanik der Abdruckung von Zelleinlagerungen, etc.: *A. Entwm.*, IX. — '99. Allgemeine Zellmechanik: *E. A. E.*, VIII. — '02. Zur Mechanik des Gastrulationsvorganges, etc.: *A. Entwm.*, XIV. — '03. (II). — '05. Aus dem Lückengebiet zwischen Organischer und Anorganischer Material: *E. A. E.*, XV. — '02, '14. (IX). — **Richards, A.**, '09, '11. (II). — '17. (XI). — **Richards and Thompson**, 21. The Migration of the Primary Sex-Cells of *Fundulus*: *B. B.*, XL. — **Richter, P.**, '13. Die Reinkultur und die durch sie erzeugten Fortschritte vornehmlich auf botanischen Gebiete: *P. R. B.* — **Riddle, O.**, '11. On the Formation, Significance and Chemistry of the White and Yellow Yolk of Ova: *J. M.*, XXII. — '12. Preliminary Chemical Studies on Male- and Female-Producing Eggs of Pigeons: *Sci.*, XXXV. — '14. The Determination of Sex and its Experimental Control: *Bull. Am. Acad. Med.*, XV. — '16a. (X). — '16b. Success in Controlling Sex: *J. H.*, VII. — '17. The Theory of Sex as Stated in Terms of Results of Studies on Pigeons: *Sci.*, XLVI. — '17. The Control of the Sex Ratio: *Jour. Wash. Acad. Sc.*, VII. — **Del Rio Hortega, P.**, '15. Estudios sobre el centrosoma de las celulas nerviosas, etc.: *Trab. Univ. Madrid*, XIII. — '17. Contribucion al conocimiento de las epiteliopibrillas: *Ibid.*, XV. — **Ritter, W. E.**, '19. (XIV). — **Rivett, M. F.**, '18. The Structure of the Cytoplasm in the Cells of *Alicularia*: *A. Bot.*, XXXII. — **Robert**, '02. (XIII). — **Robertson, T. B.**, '09a. The Proteins: *Univ. Calif. Publ. Phys.*, III, 16. — '09b. Note on the Chemical Mechanics of Cell-Division: *A. Entwm.*, XXVII. — '11. Further Remarks on the Chemical Mechanics of Cell Division: *Ibid.*, XXXII. — '13. Further Explanatory Remarks Concerning the Chemical Mechanics of Cell Division: *Ibid.*, XXXV. — '18. The Physical Chemistry of the Proteins: *New York.* — '20. Principles of Biochemistry: *Philadelphia and New York, Lee and Fibiger.* — '21. La base chimique de la croissance, etc.: *Scientia.*, March. — **Robertson, W. R. B.**, '08, '15, '16, '17. (XI). — '19. The Presence of a longitudinal Split in Chromosomes prior to their Union in Parasynapsis: *Abstract of Proc. Am. Soc. Zool.*, 1919. — **Rohde, E.**, '14. (I). — **Romeis, B.**, '13a. Ueber Plastosomen und andere Zellstrukturen in den Uterus, Darm- und Muskelzellen von *Ascaris*: *A. A.*, XLIV. — '13b. Beobachtungen über die Plastosomen von *Ascaris*: *A. M. A.*, LXXXI. — '13c. Das Verhalten der Plastosomen bei der Regeneration: *A. A.*, XLV. — **Romieu, M.**, '11. La spermiogénèse chez l'*Ascaris megalocephala*: *A. Zf.*, VI. — **Rosen, F.**, '96. Beiträge zur Kenntniss der Pflanzenzellen, III: *Beitr. z. Biol. der Pflanz.*, VII. — **Rosenberg, O.**,

'03. Das Verhalten der Chromosomen in einer hybriden Pflanze: *B. D. B. G.*, XXI. — '04, '07, '09, '17. (XI). — '06. Ueber die Embryobildung in der Gattung *Hieracium*: *B. D. B. G.*, XXIV. — '07. Zur Kenntniss der praesynaptischen Entwicklungsphasen der Reduktionsteilung: *Svenk. Bot. Tids.*, I. — '09. Ueber die Chromosomenzahlen bei *Taraxacum* und *Rosa*: *Ibid.*, III. — '09a. Zur Kenntniss von den Tetradenteilung der Compositen: *Ibid.*, III. — '09b. Ueber den Bau des Ruhekerne: *Ibid.*, III. — '18. Chromosomenzahlen und Chromosomendimensionen in der Gattung *Crepis*: *Ark. B.*, XV. — '20. Weitere Untersuchungen über die Chromosomenverhältnisse in *Crepis*: *Svensk. Bot. Tidskr.*, XIV. — **Roux, W.**, '83. (II, XI). — '83b. Ueber die Zeit der Bestimmung der Hauptrichtungen des Froschembryo: *Leipzig*. — '85, '87. (XIII). — '90. Die Entwicklungsmechanik der Organismen: *Wien*. — '92, '93, '95, '03, '05. (XIV). — '92. Ueber das Entwicklungsmechanische Vermögen jeder der Beiden ersten Furchungszellen des Eies: *Verh. d. Anat. Ges. zu Wien*. — '92a. Entwicklungsmechanik: *Merkel. u. Bonnet, Erg.*, II. — '93b. Ueber die Spezifikation der Furchungszellen, etc.; *B. C.*, XIII, — '94a. Ueber den "Cytotropismus" der Furchungszellen des Grasfrosches: *A. Entom.*, I. — '94. Gesammelte Abhandlungen über Entwicklungsmechanik: *Leipzig*, Engelmann. — '94b. Aufgabe der Entwicklungsmechanik, etc.: *A. Entom.*, I. Trans. in *W. H. L.*, '94. — '95. Ueber die verschiedene Entwicklung isolirter erster Blastomeren: *A. Entom.*, I. — '97. Für unser Program und seine Verwirklichung: *A. Entom.*, V. — '02. Bemerkungen über die Achsenbestimmung des Froschembryo und die Gastrulation des Froscheies: *A. Entom.*, XIV. — **Rubaschkin, W.**, '10. (IX). — '12. (IV). — **Rückert, J.**, '91. Zur Befruchtung des Selachiereies: *A. A.*, VI. — '92. Physiologische Polyspermie bei meroblastischen Wirbeltiereiern: *A. A.*, VII. — '92a, '92b. (VI, XII). — '93. (VI). — '94. Zur Eireifung der Copepoden: *E. A. E., An. Hf.*, IV. — '95a. Zur Kenntniss des Befruchtungsvorganges: *Sitzb. Bayer. Akad. Wiss.*, XXVI, 1. — '95b. Zur Befruchtung von *Cyclops*: *A. A.*, X, 22. — '95c. Ueber das Selbständigbleiben der väterlichen und mütterlichen Kernsubstanz während der ersten Entwicklung des befruchteten *Cyclops*-Eies: *A. M. A.*, XLV, 3. — '99. Die erste Entwicklung des Eies der Elasmobranchier: *Festschrift für C. von Kupffer*. — '10. Ueber Polyspermie: *A. A.*, XXXVII. — **Rudolph, K.**, '12. Chondriosomen und Chromatophoren, etc.: *B. D. B. G.*, XXX. — **Ruhland, W.**, '15. Zur Kritik der Lipoid- und Ultrafiltertheorie der Plasmahaut, usw.: *Biochem. Zeitschr.*, LIV. — **Russo, A.**, '12. Aumento dei granuli proplasmatici nell' oöcite delle coniglia, etc.: *A. Zf.*, VIII. — **Ruzicka, V.**, '09. Die Cytologie der Sporenbildenden Bakterien und ihr Verhältnis zur Chromidienlehre: *Centr. Bakt.*, II, XXIII.

SABASCHNIKOFF, M., '97. Beiträge zur Kenntniss der Chromatinreduktion in der Ovogenese von *Ascaris*: *Bull. Soc. Nat. Moscow.*, I. **Sachs, J.**, '82. (XIII). — '90. (Int.). — '92. Beiträge zur Zellentheorie: *Flora*, Heft I. — '93. Stoff und Form der Pflanzenorgane: *Ges. Abh.*, II. — '93. Ueber einige Beziehungen der specifischen Grösse der Pflanzen zu ihrer Organization: *Flora*, LXXVII. — '95. Weitere Betrachtungen über Energiden und Zellen: *Flora*, LXXXI. — **Sædeleer, A. de**, '13. Contribution a l'étude de l'ovogénèse dans l'*Ascaris megalocephala bivalens*: *L. C.*, XXVIII. — **Saguchi, S.**, '13. (I). — '15. Ueber Sekretionserscheinungen, etc.: *Tokyo*. — '17. (IX). — '20. Studies on the glandular Cells of the Frog's Pancreas: *A. J. A.*, XXVI. — **Sakamura, T.**, '14.

- Ueber die Kernteilung bei *Vicia*: *Bot. Mag. Tokyo*, XXVIII. — '15. Ueber die Einschnürung der Chromosomen bei *Vicia faba* L.: *Ibid.*, XXIX. — '16. Ueber die Beeinflussung der Zell- und Kernteilung durch *Chloralisierung*, etc.: *Ibid.*, XXX. — '18. Kurze Mitteilung über die Chromosomenzahlen und die Verwandtschaftsverhältnisse der *Triticum*-Arten: *Ibid.* — '20. Experimentelle Studien über die Zell- und Kernteilung mit besonderer Rücksicht auf Form, Grösse und Zahl der Chromosomen: *Jour. Coll. Sci. Imp. Univ. Tolyo*, XXXIX. — Sala, L., '95. Experimentelle Untersuchungen über die Reifung und Befruchtung der Eier bei *Ascaris megalocephala*: *A. M. A.*, XL. — Samassa, P., '96. Studien über den Einfluss des Dotters auf den Gastrulation, etc.: *A. Entom.*, II. — Sams-sonow, N., '10. Ueber die Beziehungen der Filarmasse Flemmings zu den Fäden und Körnern Altmann's, etc.: *A. M. A.*, LXXV. — Samuely, Fr., '09. Tierische Fermente: In *Handbuch der Biochemie* (Oppenheimer) I, Fischer, Jena. — Sands, H. C., '07. Nuclear Structure and Spore-Formation in *Microsphaera*: *Trans. Wis. Acad. Sci.*, XV. — '22. Perigenesis: *Sci.*, LVI. — '23. (XI). — Sapèhin, A. A., '11. Ueber das Verhalten der Plastiden im sporogonen Gewebe: *B. D. B. G.*, XXIX. — '13a. (IX). — '15. Untersuchungen über die Individualität der Plastide: *A. Zf.*, XIII. — Santos, J. K., '23. Differentiation among Chromosomes in *Elodea*: *B. G.*, LXXV. — Sarasin, P., '82. Entwicklungsgeschichte der *Bythinia tentaculata*: *Arb. Zool. Inst. Würzburg*. VI. — Sargent, Ethel, '95. Some Details of the first nuclear Division in the Pollen-mother-cells of *Lilium martagon*: *J. R. M.*, III. — '96. The Formation of the Sexual Nuclei in *Lilium Martagon*: *A. Bot.*, X. — '97. The Formation of the Sexual Nuclei in *Lilium*, II. Spermatogenesis: *A. Bot.*, XI. — Sawyer, M. L., '17. Pollen Tube and Spermatogenesis in *Iris*: *B. G.*, LXIV. — Sax, K., '16. Fertilization in *Fritillaria pudica*: *Bull. Torrey Bot. Club.*, XLIII. — '17. The Behavior of the Chromosomes in Fertilization: *G.*, III. — '22, '23. (XI). — Schacke, M. A., '19. A Chromosome Difference between the Sexes of *Sphaerocarpus texanus*: *Sci.*, XLIV. — Schaefer, F., '07. Spermatogenese von *Dytiscus*: *Z. J.*, XXIII. — Schafer, E. A., '12. (Int.). — Schaffer, J., '20. (I). — Schaffner, J. H., '08. The Centrosomes of *Marchantia polymorpha*: *Ohio Nat.*, IX. — '09. The Reduction Division in the Microsporocytes of *Agave virginica*: *B. G.*, XLVII. — '22. (X). — Schaudinn, F., '95. Ueber die Theilung von *Amoeba binucleata*: *Sitz. Ber. Ges. Naturf. Freunde, Berlin*, XCV. — '95c. Ueber das Centralkorn der Heliozoen: *V. D. Z. G.* — '96a. Ueber den Zeugungskreis von *Paramoeba Eilhardi*: *Sitz. Ber. Akad. Wiss. Berlin*, Jan. 16. — '96b. Ueber die Copulation von *Actionophrys sol*: *Sitz. Ber. Akad. Wiss. Berlin*, Jan., 16. — '02. Beiträge zur Kenntniss der Bakterien und verwandten Organismen, I. *Bacillus Bütschlii*, n. sp.: *A. P.*, I. — '03. Untersuchungen über die Fortpflanzung einiger Rhizopoden: *Arb. Kaiserl. Gesundheitsamt*, XIX. — '05. Die Befruchtung der Protozoen: *V. D. Z. G.* — Schaxel, J., '10. Die Beziehungen des Chromatins zum Cytoplasma, etc.: *Z. A.*, XXXVI. — '11a. (IX). — '11b. Das Verhalten des Chromatin bei der Eibildung einiger Hydrozoen: *Z. J.*, XXXI. — '12. (XIV). — Schellenberg, A., '11. Ovogenese, Eireifung, und Befruchtung von *Fasciola hepatica*: *A. Zf.*, VI. — Schepotieff, A., '11. Monerenstudien: *Z. J.* (Anat. Abth.), XXXII. — Scherrer, A., '14. Untersuchungen über Bau und Vermehrung der Chromatophoren, etc.: *Flora*, CVII. — Schewiakoff, W., '88. Ueber die karyokinetische Kerntheilung der *Euglypha alveolata*: *M. J.*, XIII. — '93. Ueber einen neuen Bakterienähnlichen Organismus: *Hab. Schrift.*, Heidelberg. — Schiller, J., '09. Ueber künst-

- liche Erzeugung "primitiver" Kernteilungsformen bei *Cyclops*: *A. Entom.*, XXVII. — '09. Ueber die Entstehung der Plastiden aus dem Zellkern: *Oesterr. Bot. Zeitschr.* — **Schimper, A. F. W.**, '80, '81. Untersuchungen über die Entstehung der Stärkekörner: *B. Z.*, XXXVIII. — '85. (I). — **Schittenhelm, A.**, '11. (VIII). — **Schittenhelm and Brahm**, '09. Nucleoproteide und ihre Spaltprodukte: *Handbuch der Biochem.*: I. — **Schitz, V.**, '16. Sur la spermatogénèse chez *Columbella*: *A. Z. E.*, LVI. — **Schlater, G.**, '94. Zur Morphologie der Zelle: *A. M. A.*, XLIV, 2. — '11. Die Cellularpathologie und der gegerwartige Stand der Histologie: Fischer, Jena. — **Schleicher, W.**, '78. Die Knorpelzelltheilung, etc.: *Centr. med. Wiss. Berlin.* (Also *A. M. A.*, XVI, '79). — **Schleiden, M. J.**, '37. Einige Blicke auf die Entwicklungsgeschichte des vegetabilische Organismus bei den Phanerogamen: *Wiegmann's Archiv.*, I. — '38. (Int.). — **Schleip, W.**, '06. Die Entwicklung der Chromosomen im Ei von *Planaria*: *Z. J.*, XXIII. — '07. Die Samenreifung bei Planarien: *Z. J.*, XXIV. — '08. Die Richtungkörperbildung im Ei von *Formica*: *Zool. Jarb. Abt. Anat.*, XXVI. — '09. (VI). — '10. Die Reifung des Eies von *Rhodites*, etc.: *Ibid.*, V. — '11. Das Verhalten des Chromatin bei *Angiostomum (Rhabdonema) nigrovenosum*: *A. Zf.*, VII. — '12. (X). — '15. (III). — **Schmidt, E. W.**, '12. (I). — **Schmidt, W. J.**, '18. Die Chromatophoren der Reptilienhaut: *A. M. A.*, XC. — **Schmitz, Fr.**, '79. Untersuchungen über die Zellkerne der Thallophyten: *Verh. Naturhist. Ver. Preuss. Rheinl. u. Westfl.* — '82. Die Chromatophoren der Algen: *Bonn.* — **Schneider, A.**, '73. Untersuchungen über Platelminthen: *Jahr. d. Oberhess. Gesell. Natur-Heilkunde*, XIV. — '83. Das Ei und seine Befruchtung: *Breslau.* — **Schneider, H.**, '14. Ueber die Prophasen der ersten Reifeteilung in Pollenmutterzellen, etc.: *A. Zf.*, XII. — **Schneider, K. C.**, '02. (I). — '10. Chromosomengenesse: *Festschrift R. Hertwig*, I. — **Schockaert, R.**, '01, '02. L'ovogénèse chez le *Thysanozoon*, I, II: *L. C.*, XVIII, XX. — **Schoenfeld, H.**, '01. (VI). — **Schönemund, E.**, '12. Zur Biologie und Morphologie einiger Perla-Arten: *Z. J. Anat.*, XXXIV. — **Schrader, F.**, '20. Sex Determination in the White Fly (*Trialeurodes*): *J. M.*, XXXIV. — '21. The Chromosomes of *Pseudococcus Nipae*: *B. B.*, XL. — '23. Haploidie bei einer Spinnmilbe: *A. M. A.*, XCVII. — '23. The Origin of the Mycetocytes in *Pseudococcus*: *B. B.*, XLV. — **Schreiner, A. and K. E.**, '04. Die Reifungsteilungen bei den Wirbeltieren: *A. A.*, XXIV. — '05. Ueber die Entwicklung der männlichen Geschlechtszellen von *Myxine glutinosa* (L.): *A. B.*, XXI. — '06a, '06b, '08. (VI). — '06. Die Reifung der Geschlechtszellen von *Ophryotrocha*: *A. A.*, XXIX. — '06c. Die Reifung der Geschlechtszellen von *Enteroxenos*: *Skrift. Vidensk. Christiania*, I. — '06d. Die Reifung der Geschlechtszellen von *Zoogonus mirus*: *Ibid.*, VIII. — '08. Zur Spermienbildung der Myxinoiden: *A. Zf.*, I. — **Schreiner, K. E.**, '12. Kurze Bemerkung zur Frage von der Bedeutung des Kerns, etc.: *B. C.*, XXXII. — '15. Ueber Kern- und Plasma-veränderungen in Fettzellen, etc.: *A. A.*, XLVIII. — '16, '18. Zur Kenntniss der Zellgranula, etc.: *A. M. A.*, LXXXIX; *Ibid.*, XCII. — **Schridde, H.**, '05. Die Körnelung der Plasmazellen: *An. Hf.*, 1 Abt., XXVIII. — '07. Myeloblasten, Lymphoblasten und lymphoblastische Plasmazellen; *Ziegler's Beitr. z. path. Anat.*, XLI. — **Schuberg, A.**, '03. Untersuchungen über Zellverbindungen: *Z. W. Z.*, LXXIV. — **Schultze, Max**, '61. Ueber Muskelkörperchen und das was man eine Zelle zu nennen hat: *A. A. P.* — **Schultze, O.**, '87. Untersuchungen über die Reifung und Befruchtung des Amphibien-eies: *Z. W. Z.*, XLV. — '90. Ueber Zelltheilung: *S. B. P. M. G.*, Würzburg. — '94, '00. (XIII, XIV). — '95. Die

- künstliche Erzeugung von Doppelbildungen bei Froschlarven, etc.: *A. Entom.*, I. — '03. Zur Frage, von den geschlechtsbildenden Ursachen: *A. M. A.*, LXIII. — '11b. Ueber die Genese der Granula in den Drüsen-Zellen: *A. A.*, XXXVIII. — '12. Ueber den directen Zusammenhang am Muskelfibrillen und Sehnenfibrillen: *A. M. A.*, LXXIX. — Schurhoff, P. N., '15. Amitosen von Riesenkernen im Endosperm von *Ranunculus acer*: *J. W. B.*, LV. — '18. Die Beziehungen des Kernkörperchens zu den Chromosomen und Spindel-fasern: *Flora*, CX. — '19. Das Verhalten des Kerns in den Knöllchenzellen von *Podocarpus*: *B. D. B. G.*, XXXVII. — Schustow, L. v., '13a. Ueber Kernteilung in der Würzelspitze von *Allium Cepa*: *A. A.*, XLIII: *A. Zf.*, XI. — Schwann, Th., '39. (Int.). — Schwarz, Fr., '87. Die Morphologische und chemische Zusammensetzung des Protoplasmas: Breslau. (Rev. in *Bot. Zeit.* XLV). — Schweigger-Seidel, O., '65. Ueber die Samenkörperchen und ihre Entwicklung: *A. M. A.*, I. — Sedgwick, A., '85-'88. The Development of the Cape Species of *Peripatus*, I-VI: *Q. J.*, XXV-XXVIII. — '94. On the Inadequacy of the Cellular Theory of Development, etc.: *Q. J.*, XXXVII. — Seeliger, O., '94. Giebt es geschlechtlicherzeugte Organismen ohne mütterliche Eigenschaften? *A. Entom.*, I, 2. — Seifriz, W., '18. Observations on the Structure of Protoplasm by the aid of Microdissection: *B. B.*, XXXIV. — '20. Viscosity values of Protoplasm as determined by Microdissection: *B. G.*, LXX. — '21. Observations on some Physical Properties of Protoplasm, etc.: *A. Bot.* — Seiler, J., '14. Das Verhalten der Geschlechtschromosomen bei Lepidopteren: *A. Zv.*, XIII. — '17, '20, '21, '22, '23. (X). — Seiler and Hanel, '21. — Das verschiedene Verhalten der Chromosomen, etc., von *Lymantria monaca*: *Z. A. V.*, XXVII. — Selenka, E., '83. Die Keimblätter der Echinodermen: *Studien über Entwickl.*, II. Wiesbaden. — Sertoli, E., '65. Dell' esistenza di particolari cellule ramificate dei canaliculi seminiferi del testicolo umano: *Il Morgagni*. — Shackell, L. F., '11. Phosphorus Metabolism during early Cleavage of the Echinoderm Egg: *Sci.*, XXXIV, 878. — Shaffer, E. L., '17. Mitochondria and other Cytoplasmic Structures in the Spermatogenesis of *Passalus*: *B. B.*, XXXII. — '20. The Germ-Cells of *Cicada*: *B. B.*, XXXVIII. — Sharp, L. W., '11. The Embryo Sac of *Physostegia*: *B. G.*, LII. — '12b. The Orchid Embryo-Sac: *B. G.*, LIV. — '13, '20. (II). — '12a, '14, '20. (IV). — '14. Maturation in *Vicia*: *B. G.*, LVII. — '21. (I). — Shattuck, C. H., '15. A Morphological Study of *Ulmus Americana*: *B. G.*, XL. — Shaw, W. R., '98a. Ueber die Blepharoplasten bei *Onoclea* and *Marsilia*: *B. D. B. G.*, XVI, 7. Shearer, C., '12. The Problem of Sex Determination in *Dinophilus*: *Q. J.*, LVII. — Shearer, C., and Lloyd, D. J., '12. On Methods of Producing Artificial Parthenogenesis in *Echinus esculentus*, etc.: *Q. J.*, LVIII. — Shearer, De Morgan and Fuchs, '13. On the Experimental Hybridization of Echinoids: *P. T.*, CCIV, B. — Sheppard, E. J., '13. The Structure of the Nucleus: *J. R. M.* — Shull, A. F., '10, '11. (III). — '12. Studies in the Life Cycle of *Hydatina Senta*, III: *J. E. Z.*, XII. — '15. Inheritance in *Hydatina senta*, II: *J. E. Z.*, XVIII. — '21. Chromosomes and the Life Cycle of *Hydatina*: *B. B.*, XLI. — Shull, G. H., '10. Inheritance of Sex in *Lychnis*: *B. G.*, XL. — '11. Reversible Sex-mutants in *Lychnis dioica*: *B. G.*, LII. — '14. (X). — Siedlecki, M., '99. Étude cytologique et cycle évolutif de *Adelea*: *Ann. Inst. Pasteur*, XIII. — Sijpkens, B., '04. Die Kernteilung bei *Fritillaria*: *Recueil des Trav. Bot. Néerlandais*, II, IV. — Silvestri, F., '06-'08. Contribuzioni alla conoscenza biologica degli Imenotteri parassitici, 1-4: *Boll. Scuola Sup. Agric. Portici*, I-III. — '14. Prime fasi di sviluppo del *Copidosoma*,

- etc.: *A. A.*, XLVII. — **Simon, C. E.**, '23. The Filterable Viruses: *Phys. Rev.*, III. — **Sinéty, R. de**, '01. Recherches sur la biologie et l'anatomie des phasmes: *L. C.*, XIX. — **Sjövall, E.**, '06. (IV). — **Smallwood, W. M.**, '04. Maturation, Fertilization, etc. . . . of *Haminea*: *C. M. Z.*, XLV. — '05. Some Observations on the Chromosome Vesicles in the Maturation of Nudibranchs: *M. J.*, XXXIII. — **Smet, E. de**, '14. Chromosomes, prochromosomes, et nucléole dans quelques Dicotylées: *L. C.*, XXIX. — **Smith, Bertram, G.**, '12. The Embryology of *Cryptobranchus*, I: *J. M.*, XXIII. — '19. The Individuality of the Germ-Nuclei during the Cleavage of the Egg of *Cryptobranchus*: *B. B.*, XXXVII. — **Smith, E. A.**, '16. Spermatogenesis of the Dragonfly *Sympetrum*, etc.: *B. B.*, XXXI. — **Smith, G.**, '10, '11, '10-'12. (X). — **Smith, R. W.**, '11. The tetra-nucleate Embryo-Sac of *Clintonia*: *B. G.*, LII. — **Snook, H. J.**, and **Long, J. A.**, '14. Parasynaptic Stages in the Testis of *Aneides lugubris*: *Univ. Calif. Publ.*, XV. — **Sobotta, J.**, '95. Die Befruchtung und Furchung des Eies der Maus: *A. M. A.*, XLV. — '97. Die Reifung und Befruchtung des Eies von *Amphioxus*: *A. M. A. L.* — **Sokoloff, B.**, '23. Études sur la biologie des Protozoaires (Lit.): *A. B.*, XIII. — **Sokolow, I.**, '13. Ueber die Spermatogenese der Skorpione: *A. Zf.*, IX. — '24. (VIII). — **Sonnenbrodt**, '08. Wachstumsperiode der Oöcyte des Hühnes: *A. M. A.*, LXXII. — **Solger, B.**, '91. Die radiaren Strukturen der Zellkörper, etc.: *Berl. Klin. Wochenschr.*, XX. — **Spaeth, R. A.**, '16. (VIII). — **Spallanzani**, 1786. Experiences pour servir a l'histoire de la génération des animaux et des plantes: *Geneva*. — **Spek, J.**, '18a, 18b. (II). — **Spemann, H.**, '01-'03. (XIV). — '14. Ueber verzögerte Kernversorgung von Keimteilen: *V. D. Z. G.* — '19. Experimentelle Forschungen zum Determinations- und Individualitätsproblem: *Die Naturwissenschaften*, VII, 32. — **Spencer, H.**, '66. Principles of Biology: *Am. Ed.* — **Spiro, K.**, '09. (VIII). — **Spitzer**, '97. Die Bedeutung gewisser Nucleoproteide für die oxydative Leistung der Zelle: *A. Ph.*, LXVII. — **Spitzchakoff, T.**, '09. Spermien und Spermiohistogenese bei *Cariden*: *A. Zf.*, III. — **Spooner, G. R.**, '10. Embryological Studies with the Centrifuge: *J. E. Z.*, X. — **Stauffacher, H.**, '94. Eibildung und Furchung bei *Cyclas*: *J. Z.*, XXVIII. — '10. Beiträge zur Kenntniss der Kernstrukturen: *Z. W. Z.*, XCV. — **Steil, W. N.**, '18. Studies of some new Cases of Apogamy in Ferns: *Bull. Torr. Bot. Club*, XLV. — '19a. Apogamy in *Nephrodium*: *A. Bot.*, XXXIII. — '19b. Apospory in *Pteris*: *B. G.*, LXVII. — **Stevens, F. L.**, '99. The Compound Oösphere of *Albugo bliti*: *B. G.*, XXVIII. — '01. Gametogenesis and Fertilization in *Albugo*: *B. G.*, XXXII. — **Stevens, N. M.**, '03. On the Ovogenesis and Spermatogenesis of *Sagitta*: *Z. J. (Anat.)*, XVIII. — '04. Further Studies on the Oogenesis of *Sagitta*: *Ibid.*, XXI. — '04. On the Germ Cells and the Embryology of *Planaria*: *Proc. Acad. Nat. Sci., Phil.* — '05, '06, '09, '11. (X). — '08a. The Chromosomes in *Diabrotica*, etc.: *J. E. Z.*, V. — '08, '12b. (XI). — '09. The Effect of Ultra-violet Light upon the Developing Eggs of *Ascaris megalocephala*: *A. Entom.*, XXVII. — '09. An Unpaired Chromosome in the Aphids: *J. E. Z.*, VI. — '10. A Note on Reduction in the Maturation of male Eggs in Aphids: *B. B.*, XVIII. — '10. Further Studies on Reproduction in *Sagitta*: *J. M.*, XXI. — '10a. The Chromosomes in the Germ-cells of *Culex*: *J. E. Z.*, VIII. — '11a. Preliminary Note on Heterochromosomes in the Guinea-Pig: *B. B.*, XX. — '12. Supernumerary Chromosomes and Synapsis in *Ceuthophilus*: *B. B.*, XXII. — **Stieve, H.**, '20. '20a. (IV). — **Stockey, A. G.**, '18. Apogamy in the *Cyatheaceae*: *B. G.*, LXV. — **Stolc, A.**, '10. Ueber kernlose Individuen, etc. von *Amoeba*: *A. Entom.*, XXIX.

- Stoll, N. R., '19. Sex-determination in the White Fly: *J. G.*, IV. — Stomps, T. J., '10. (VI). — '11. Kernteilung und Synapsis bei *Spinacia*: *B. C.*, XXI. — '12. Mutation in *Oenothera biennis* L.: *B. C.*, XXXII. — '12. Die Entstehung von *Oenothera gigas*: *B. D. B. G.*, XXX. — '16. (XII). — '19. (XI). — Stout, A. B., '12. (XI). — Strasburger, E., '75, '80, '84, '07, '10. (Int.). — '77, '84, '09. (V). — '79. Die Angiospermen und die Gymnospermen: *Jena*. — '82. Ueber den Theilungsvorgang der Zellkerne, etc.: *A. M. A.*, XXI. — '82. Ueber den Bau und das Wachstum der Zellhäute: *Jena*. — '84a. Die Controversen der indirecten Zelltheilung: *A. M. A.*, XXIII. — '88. Ueber Kern- und Zelltheilung im Pflanzenreich, nebst einem Anhang über Befruchtung: *Hist. Beitr.*, I. — '88, '95, '00. (II). — '89. Ueber das Wachstum vegetabilischer Zellhäute: *Jena*. — '92. (IV). — '93a. (IX). — '93b. Ueber die Wirkungssphäre der Kerne und die Zellgrösse: *Fischer, Jena*. — '94. The Periodic Reduction of the Number of the Chromosomes, etc.: *A. Bot.*, VIII. — '97a. Kerntheilung und Befruchtung bei *Fucus*: *J. W. B.*, XXX. — '97c. Ueber Cytoplasmastrukturen, Kern- und Zelltheilung: *J. W. B.*, XXX. — '98, '03. (I). — '00. Versuche mit diözischen Pflanzen in Rücksicht auf Geschlechtsverteilung: *B. C.*, XX. — '01. Ueber Plasmaverbindungen pflanzlicher Zellen: *J. W. B.*, XXV. — '01. Ueber Befruchtung: *B. Z.*, LIX. — '04. Die Apogamie der *Eualchemillen*: *J. W. B.*, XLI. — '05. (VI). — '06. Zur Frage eines Generationswechsels bei Phaeophyceen: *B. Z.*, LXIV, 2. — '07, '08, '09, '10. (XI). — '07a. Apogamie bei *Marsilia*: *Flora*, XCVII. — '07b. (III). — '08a, b, '10. (XII). — '10. — '14. The Periodic Reduction of the Number of Chromosomes in the Life-History, etc.: *Ann. Bot.*, VII (see also *B. C.*, XIV). — Strassen, O. L. zur, '96. Embryonalentwicklung der *Ascaris meg.*: *A. Entw.*, III. — '96. Riesenembryonen bei *Ascaris*: *B. C.*, XVI. — '98. (XIII). — '03. Ueber die Mechanik der Epithelbildung: *V. D. Z. G.* — '06. (XIII). — Studnicka, F. K., '18. Die Reduktion und die Regeneration des Cytoplasmas, etc.: *Z. W. Z.*, CXVII, 4. — Sturtevant, A. H., '13, '14, '15. (XII). — '15. No Crossing Over in the Female of the Silkworm Moth: *A. N.*, XLIX. — '17. Crossing over without Chiasmatype: *G.*, II. — '20. Intersexes in *Drosophila simulans*: *Sci.*, LI. — Sturtevant, Bridges and Morgan, '19. The Spatial Relations of Genes: *P. N. A.*, V. — Sumner, F. B., '23. Size-Factors and Size-Inheritance: *P. N. A.*, IX. — Surface, F. M., '07. (XIII). — Süssenguth, K., '21. Bemerkungen zur meiotischen und somatischen Kerntheilung, etc.: *Flora*, XIV. — Sutton, W. S., '00. The spermatogonial Divisions in *Brachystola magna*: *Kansas Univ. Quart.*, IX. — '02. On the Morphology of the Chromosome-group in *Brachystola magna*: *B. B.*, IV, 1. — '03. (XII). — Suzuki, B., '98. Notiz über die Entstehung des Mittelstückes von Selachiern: *A. A.*, XV. — Svedelius, N., '11. '15. (VII). — '14a. Ueber die Zystokarpiebildung bei *Delesseria*: *Ibid.*, VIII. — '14b. Ueber die Tetradenteilung in der vielkernigen Tetrasporangiumanlagen bei *Nitophyllum*: *B. D. B. G.*, XXXII. — '14b. Ueber Sporen an Geschlechtspflanzen von *Nitophyllum*: *B. D. B. G.*, XXII. — Swarczewsky, B., '12. Zur Chromidienfrage, etc.: *B. C.*, XXXII. — '08. Ueber die Fortpflanzungserscheinungen bei *Arcella*: *A. P.*, XII. — Swezy, O., '16. (IX). — Swift, C. H., '14. (IV). — '16. Two new Organs of the Plant Cell: *B. G.*, XXV. — Swingle, W. W., '17. The Accessory Chromosome in a Frog, etc.: *Ibid.*, XXXII. — '18. The Effects of Inanition upon the Development of the Germglands, etc.: *J. E. Z.*, XXIV, 3. — '20. (IV). — '22. Is there a Transformation of Sex in Frogs? *J. E. Z.* — Sykes, M. G., '08. Nuclear Division in *Funkia*: *A. Zf.*,

- I. — '09. On the Nucleus of some unisexual Plants: *Ann. Bot.*, XXIII. — Szuts, A. v., '15. Studien über die feinere Beschaffenheit, etc.: *A. Zf.*, XIII.
- TÄCKHOLM, G.**, '14. Zur Kenntniss der Embryosackentwicklung von *Lopezia*: *Svensk. Bot. Tids.*, VIII. — '20. On the Cytology of the Genus *Rosa*: *Ibid.*, XIV, 2-3. — '22. (XI). — **Tahara, M.**, '10. Ueber die Kernteilung bei *Morus*: *Bot. Mag. Tokyo*, XXIV. — '15. Parthenogenesis in *Erigeron*: *Ibid.*, XXIV. — '15. Cytological Studies on *Chrysanthemum*: *Ibid.*, XXIX. — '21. Cytologische Studien an einigen Kompositen: *Jour. Coll. Sci. Imp. Univ. Tokyo*, V, 43. — **Tanaka, I.**, '13. A Study of Mendelian Factors in the Silkworm, *Bombyx*: *Jour. Coll. Agr., Tohoku Imp. Univ., Sapporo, Japan*, V. — '16. Genetic Studies on the Silkworm: *Ibid.*, VII. — **Tangl, E.**, '79. Ueber offene Communicationen zwischen den Zellen des Endosperms einiger Samen: *J. W. B.*, XII. — **Taylor, Monica**, '14. The Chromosome Complex of *Culex*: *Q. J.*, LX. — **Taylor, W. R.**, '20. A Morphological and Cytological Study of Reproduction in the Genus *Acer*: *Contrib. Bot. Lab. U. of Pa.*, V. — '22. Organization of herotypic Chromosomes: *Sci.*, XLVI. — '24. Chromosome Shape and Individuality (in *Gasteria*): *A. J. B.*, XI. — **Teichmann, E.**, '03. Ueber die Beziehung zwischen Astrosphären und Furchen: *A. Entom.*, XVI, 2. — **Tellyesnickzy, K.**, '02. Zur Kritik der Kernstrukturen: *A. M. A.*, LX. — '05. Ruhekerne und Mitose: *Ibid.*, LXVI. — '07. Die Entstehung der Chromosomen. Evolution oder Epigenesis? *Berlin, Wien*. — **Tennent, D. H.**, '08. The Chromosomes in cross-fertilized Echinoid Eggs: *B. B.*, XV. — '11. A Heterochromosome of Male Origin in Echinoids: *B. B.*, XXI. — '12. Studies in Cytology, I and II: *J. E. Z.*, XII. — **Terni, T.**, '14. Condriosomi, idiozoma e formazioni periidiozomiche nella spermatogenesi degli Anfibi: *A. Zf.*, XII. — **Thompson, D'Arcy W.**, '17. (XIII). — **Thompson, J. A.**, '08. Heredity: *London and New York*. — **Timberlake, H. G.**, '00. (II). — '02. Development and Structure of the Swarm-Spores of *Hydrodictyon*: *Trans. Wis. Acad. Sci.*, XIII. — **Tischler, G.**, '06. Ueber die Entwicklung des Pollens und der Tapetenzellen bei *Ribes-Hybriden*: *J. W. B.*, XLII. — '10, '15. (XI). — '18. Untersuchungen über den Riesenzwuchs von *Phragmites*: *B. D. B. G.*, XXXVI. — '20. Ueber die sogenannten "Erbsubstanzen" und ihre Lokalisation in der Pflanzenzelle: *B. C.*, XL. — '22. Allgemeine Pflanzencaryologie: *Handb. d. Pflanzenanat.* I, *Berlin*. — **Torrey, J. C.**, '03. (XIII). — **Townsend, C. O.**, '97. Der Einfluss des Zellkerns auf die Bildung der Zellhaut: *J. W. B.*, XXX. — **Toyama, K.**, '94. On the Spermatogenesis of the Silkworm: *Bull. Coll. Agric., Imp. Univ., Tokio.*, II. — **Treadwell, A. L.**, '01. (XIII). — **Tretjakoff, D.**, '04. Die Spermatogenese bei *Ascaris*: *A. M. A.*, LXV. — **Troland, L. T.**, '17. (IX). — **Tröndle, A.**, '11. Ueber die Reduktionsteilung in den Zygoten von *Spirogyra*, etc.: *Z. B.*, III. — '12. Der Nucleolus von *Spirogyra* und die Chromosomen höherer Pflanzen: *Z. B.* — **Trow, A. H.**, '95. The Karyology of *Saprolegnia*: *A. Bot.*, IX. — '16. A Criticism of the Hypothesis of Linkage and Crossing over: *J. G.*, V. — **Tschas-sownikoff, S.**, '14. Ueber Becher- und Flimmerepithelzellen, etc.: *A. M. A.*, LXXXIV. — **Tschermak, E. v.**, '08. Der moderne Stand des Vererbungsproblems: *Arch. Rass. und Gesell.*, V. — **Tschernoyarow, M.**, '14. Ueber die Chromosomenzahl in besonders beschaffene Chromosomen im Zellkerne von *Najas*: *B. D. B. G.*, XXXII. — **Twiss, W. C.**, '19. A Study of Plastids and Mitochondria in *Preissia* and Corn: *A. J. B.*, VI. — **Tyson, James**, '87. (Int.).

USSOW, M., '81. Untersuchungen über die Entwicklung der Cephalopoden: *A. B.*, II.

LA VALETTE ST. GEORGE, '65, '67. Ueber die Genese der Samenkörper, I and II: *A. M. A.*, I, III. — '76. Die Spermatogenese bei den Amphibien: *A. M. A.*, XII. — '78. Die Spermatogenese bei den Säugethieren und dem Menschen: *A. M. A.*, XV. — '85-'87. Spermatologische Beiträge, I-V: *A. M. A.*, XXV, XXVII, XXVIII and XXX. — '87. Zelltheilung und Samenbildung bei *Forficula*: *Festschrift f. v. Koelliker., Leipzig.* — **Van Bambeke, C.**, '93. Elimination d'éléments nucléaires dans l'œuf ovarien de *Scorpaena*: *A. B.*, XIII, 1. — '98. Recherches sur l'oöcyte de *Pholcus phalangioides*: *A. B.*, XV. — **Van Beneden, E.**, '70. Recherches sur la composition et la signification de l'œuf: *Mém. Cour. de l'Ac. Roy. de Belgique.* — '75. La maturation de l'œuf, la fécondation et les premières phases du développement embryonnaire des mammifères, etc.: *Bull. Ac. Roy. de Belgique*, XI. — '76. Recherches sur les Dicyémides: *Ibid.*, XLI, XLII. — '76. Contribution à l'histoire de la vésicule germinative et du premier noyau embryonnaire; *Ibid.*, XLI, also *Q. J.*, XVI. — '83, '84. (Int.). — **Van Beneden and Julin**, '81. Observations sur la maturation, la fécondation et la segmentation de l'œuf chez les Cheiroptères: *A. B.*, I. — '84a. (XIII). — '84b. La spermtogénèse chez *l'Ascaride mégalocéphale*: *B. A. B.*, 3me ser. VII. — **Van Beneden et Neyt**, '87. (V). — **Van Camp, G. M.**, '23. Le rôle du nucléole dans la caryocinèse somatique: *L. C.*, XXXIV. — **Van der Stricht, O.**, '92. Contribution à l'étude de la sphère attractive: *A. B.*, XII, 4. — '95a. La maturation et la fécondation de l'œuf d'*Amphioxus*: *B. A. B.*, XXX, 2. — '95b. De l'origine de la figure achromatique de l'ovule en mitose chez le *Thysanozoön*: *Verh. d. anat. Versamml. in Strasburg.* — '95c. Contributions à l'étude de la forme, de la structure et de la division du noyau: *B. A. B.*, XXIX. — '97. La formation des deux globules polaires, etc., dans l'œuf de *Thysanozoön*: *A. B.*, XV. — '98b. Contribution à l'étude du noyau vitellin de Balbiani: *V. A. G.*, XII. — '99. Étude de plusieurs anomalies intéressante lors de la formation des globules polaires: *Livre Jubilaire dédié a Van Bambeke.* — '02. Les "pseudochromosomes" dans l'oöcyte de chauve-souris: *C. R. Assoc. Anat.* — '04. La couche vitellogène et les mitochondries de l'œuf des Mammifères: *V. A. G.* — '05. Structure de l'œuf ovarique de la femme: *B. A. B.* — '05. La structure de l'œuf de chauve-souris: *C. R. Assoc. Anat.* — '08. La structure de l'œuf de la chienne et la gènèse du corps jaune: *Ibid.* — '09. La structure de l'œuf des Mammifères: *Mem. Acad. Royale de Belgique.* — '11. Vitellogénèse dans l'ovule de Chatte: *A. B.*, XXVI. — **Van Herwerden, M. A.**, '10. Ueber den Kernstruktur in den Speicheldrüsen der *Chironomus* Larvae: *A. A.*, XXXVI. — '13. Ueber die Nucleasewirkung auf tierische Zellen: *A. Zf.*, X. — '16. La digestion de spermatozoides par la nuclease: *Arch. Néer. Phys.*, I. — '17. On the Nature and Significance of Volutin in Yeast Cells: *Proc. Kon. Akad. Wetensch. Amsterdam*, XX, 1. — **Van Leeuwen-Reijnvaan, D.**, '07. Ueber eine Zweifache Reduktion bei einigen *Polytrichum*-Arten: *Rec. Trav. Bot. Néerl.*, IV. — '08. Ueber die Spermatogenese der Moose: *B. D. B. G.*, XXVIa. — **Vejdovský, F.**, '81. Untersuchungen über die Anatomie, Physiologie und Entwicklung von *Sternaspia*: *Denkschr. d. Akad. Wien.*, XLIII. — '88-'92. (XIII). — '04. Ueber den Kern der Bakterien und seine Teilung: *Centr. Bakt.*, XI. — '07. (VI). — '11. Die Vererbungsträger: *Prag.* — '11-'12. (XI). — **Vejdovský and Mrázek**, '98. Centrosom und Periblast: *Sitzber. Böhm.*

Ges. Wiss. — '03. (II, V). — **Verworn, M.**, '88. Biologische Protisten-studien: *Z. W. Z.*, XLVI. — '91, '03, '09, '15. (VIII). — '95. Allgemeine Physiologie: *Jena.* — '13, '15. (I). — **Vialleton, L.**, '88. (XIII). — **Vines, S. H.**, '11. (V). — **Virchow, R.**, '55. Cellular-Pathologie: *Arch. Path. Anat. Phys.*, VIII, 1. — '58. (Int.). — **Voïnov, D. N.**, '03. Le spermatogénèse d'été chez le *Cy-bister*: *A. Z. E.*, I, 4th sér. — '14. Sur un nouveau mécanisme déterminant le dimorphisme des éléments sexuels, etc.: *C. R. S. B.*, LXXVI. — '16. Recherches sur la spermatogénèse du *Gryllotalpa*: *A. Z. E.*, LIV. — '16. Sur une formation juxta-nucleaire dans les éléments sexuels du *Gryllotalpa*, etc.: *C. R. S. B.*, LXXIX. — '16. Sur l'existence d'une chondriodière: *C. R. S. B.*, LXVIII. — **von Voss, H.**, '14. Cytologische Studien an *Mesostoma*: *A. Zf.*, XII. — **De Vries, H.**, '85. Plasmolytische Studien über die Wand der Vacuolen: *J. W. B.*, XVI. — '89. (IX). — '03. Befruchtung und Bastardierung: *Leipzig.* (XII).

WAGER, H., '96. On the Structure and Reproduction of *Cystopus*: *A. Bot.*, X. — '03. The Cell-Structure of the Cyanophyceae: *P. R. S.* — '04. The Nucleolus and Nuclear Division in the Root Apex of *Phaseolus*: *A. Bot.*, XVIII. — **Wakker, J. H.**, '88. Studien über die Inhaltkörper der Pflanzenzelle: *J. W. B.*, XIX. — **Waldeyer, W.**, '70. (IV). — '88. (Int.). — '06. (IV). — **Walker, C. E.**, '07. The Essentials of Cytology: London. — '11. On Variation in Chromosomes: *A. Zf.*, VI. — **Walker, N.**, '13. On Abnormal Cell-Fusion in the Archegonium; and on Spermatogenesis in *Polytrichum*: *A. Bot.*, XXVII. — **Walker and Debaisieux**, '09. On the Behavior of the Nucleoli, etc.: *Proc. Roy. Soc. Med.* — **Walker and Tozer**, '09. (I). — **Wallace, L. B.**, '09. The Spermatogenesis of *Agalena*: *B. B.*, XVII. — **Wallin, I. E.**, '22, '23. — On the Nature of Mitochondria: *A. J. A.*, IV; *A. N.*, LVII. — '23a. The Mitochondria Problem: *A. N.*, LVII. — '23b. Symbiontism and Protaxis: *A. R.*, XXVI. — **Walter, H. E.**, '14. Genetics: New York. — **Walton, A. C.**, '18. The Oögenesis and Early Embryology of *Ascaris canis*: *J. M.*, XXX. — **Warburg, O.**, '08. Beobachtungen über die Oxidationsprozesse im Seeigeelei: *Zeit. Physio. Chem.*, LVII. — '10. Ueber die Oxydationen in lebenden Zellen nach Versuchen am Seeigeelei: *Zeitschr. phys. Chem.*, LXVI. — '13. (VIII). — '14. Beiträge zur Physiologie der Zelle, etc.: *E. P.*, XIV. — **Wasielewski, W. v.**, '02, '03. Theoretische u. experimentelle Beiträge zur Kenntniss der Amitose, I, II: *J. W. B.*, XXXVIII. — **Wassilieff, A.**, '07. Die Spermatogenese von *Blatta*: *A. M. A.*, LXX. — **Watasé, S.**, '90. (XIII). — '93a. (IX). — '97b. Homology of the Centrosome: *J. M.*, VIII, 2. — **Webber, H. J.**, '97b. The Development of the Antherozoids of *Zamia*: *B. G.*, XXIV. — '97c. Notes on the Fecundation of *Zamia* and the Pollen-tube Apparatus of *Gingko*: *B. G.*, XXIV, 4. — '00. Xenia . . . in Maize: *U. S. Dept. Agr., Bull.*, XXII. — '01. Spermatogenesis and Fecundation in *Zamia*: *U. S. Dept. Agr. Plt. Ind. Bull.*, II. — **Weigl, R.**, '12. Vergleichend-zytologische Untersuchungen über den Golgi-Kopschschen Apparat, etc.: *Bull. Int. Acad. Sci. Cracovie*, LVII. — **Weinzieher, S.**, '14. — **Weismann, A.**, '81-'88, '04. (Int.). — '81-'83, '13. (III). — '82. Beiträge zur Kenntnis der ersten Entwicklungsvorgänge im Insektenei: Festschrift. — '83. Ueber Vererbung: *Jena.* — '83. Entstehung der Sexualzellen bei den Hydromedusen: *Fischer, Jena.* — '85. (V, XIV). — '87. Ueber die Zahl der Richtungkörper, etc.: *Jena.* — '91b. Amphimixis, oder die Vermischung der Individuen: *Fischer, Jena.* — '92b. Das Keim-plasma: *Jena.* — '93. (XIV). — '94. Aeussere Einflüsse als Entwicklungsreize:

- Jena.* — '99. Regeneration: *Nat. Sci.*, XIV, 6. (See also *A. A.*, '99.) — **Welsford, E. J.**, '97. Fertilization in *Ascobolus*: *N. P.*, VI. — '14. The Genesis of the Male Nuclei in *Lilium*: *A. Bot.*, XXVIII. — '15. Nuclear Migration in *Phragmidium*: *A. Bot.*, XXIX. — **Wenck, W. v.**, '14. Entw. Untersuchungen an Tardigraden: *Z. J.*, XXXVII. — **Weniger, W.**, '18. Fertilization in *Lilium*: *B. G.*, LXVI. — **Wenrich, D. H.**, '15. Synapsis and the Individuality of the Chromosomes: *Sci.*, XLI. — '16, '17. (VI). — '21. The Structure and Division of *Trichomonas*: *J. M.*, XXXVI. — **Wenyon, C. M.**, '13. Observations on *Herpetomonas*, etc.: *A. P.*, XXXI. — **West, G. S.**, '16. (VII). — **West and Lechmere**, '15. On Chromatin Extrusion in Pollen Mother-cells of *Lilium*: *A. B.*, XXIX. — **Wetzell, G.**, '96. Beiträge zum Studium der künstlichen Doppelmissbildungen, etc.: *Inaug. Diss., Berlin.* — '04. Centrifugerversuche an unbefruchteten Eiern von *Rana fusca*: *A. M. A.*, LXIII. — **Wheeler, W. M.**, '89. The Embryology of *Blatta* and *Doryphora*: *J. M.*, III. — '93. A Contribution to Insect-embryology: *Ibid.*, VIII, 1. — '95. The Behavior of the Centrosomes in the Fertilized Egg of *Myzostoma*: *Ibid.*, X. — '96. The Sexual Phases of *Myzostoma*: *M. Z. S.*, XII, 2. — '97. The Maturation, Fertilization and early Cleavage of *Myzostoma*: *A. B.*, XV. — '98. (Int.). — '03. (X). — **Wheldale, M.**, '16. The Anthocyanin Pigments of Plants: *Cambridge.* — **Whiting, P. W.**, '17. The Chromosomes of the common House-Mosquito, *Culex pipiens*: *J. M.*, XXVIII, 2. — '18. Sex-determination and Biology of a parasitic Wasp, etc.: *B. B.*, XXIV, 4. — '21. Studies on the Parasitic Wasp, *Hadrobracon*: *B. B.*, XLI. — '21. The Production of Mosaic Males . . . in Hymenoptera: *A. R.*, XX. — **Whitman, C. O.**, '78, 94a and b. (Int.). — '78, '87, '97. (XIII). — '87. (IX). — '88, '94. (XIV). — '93. The Inadequacy of the Cell-Theory of Development: *J. M.*, VIII. — **Whitney, D. D.**, '09. Observations on the Maturation Stages, etc. of *Hydatina*: *J. E. Z.*, VI. — '12. Reinvigoration Produced by Cross Fertilization in *Hydatina senta*: *Ibid.*, XII. — '14. (III). — '16. The Control of Sex by Food in Five Species of Rotifers: *Ibid.*, XX. — '17. The Relative Influence of Food and Oxygen in Controlling Sex in Rotifers: *Ibid.*, XXIV. — **Wiemann, H. L.**, '10. A Study of the Germ-Cells of *Leptinotarsa*: *J. M.*, XXI. — '17. The Chromosomes of Human Spermatoocytes: *A. J. A.*, XXI. — **Wierzejski, A.**, '05. (XIII). — **Wiesner, J.**, '86. Untersuchungen über die Organization der vegetabilischen Zellhaut: *Sitzber. Akad. Wiss. Wien.* — '92. (IX). — **Wilcox, E. V.**, '01. Longitudinal and transverse Divisions of Chromosomes: *A. A.*, XIX. — **Wildman, E. E.**, '13. The Spermatogenesis of *Ascaris*, etc.: *J. M.*, XXIV. — **Wilke, G.**, '07. Die Spermatogenese von *Hydrometra*: *J. Z.*, XLII. — '13. Chromatinreifung und Mitochondrienkörper in der Spermatogenese von *Hydrometra*: *A. Zf.*, X. — **Will, L.**, '84. Ueber die Entstehung des Dotters, etc., Amphibien, Insecten: *Z. A.*, VII. — '86. Die Entstehung des Eies von *Colymbetes*: *Z. W. Z.*, XLIII. — '94. **Will, N.**, Ueber die Befruchtung bei *Nemalion*: *B. D. B. G.*, XII. — **Williams, C. L.**, '99. The Origin of the Karyokinetic Spindle in *Passiflora*: *Proc. Calif. Acad. Sci.*, III., Bot. I. — **Williams, J. L.**, '04. The Cytology of the Gametophyte Generation: *A. Bot.*, XVIII. — **Williams, L.**, '07. The Structure of Cilia, etc.: *A. N.*, XLI. — **Wilson, C. B.**, '99. The Habits and early Development of *Cerebratulus*: *Q. J.*, XLIII. — **Wilson, E. B.**, '84. The Development of *Renilla*: *P. T.*, CLXXIV. — '89. The Embryology of the Earthworm: *J. M.*, III. — '92, '98. (XIII). — '93. Amphioxus and the Mosaic Theory of Development: *J. M.*, VIII. Also *W. H. L.*, II. — '95. Archoplasm, Centrosome, and

- Chromatin in the Sea-urchin Egg: *J. M.*, XI. — '96, '00, '09c. (Int.). — '96b, '03, '04a and b. (XIV). — '97. Centrosome and Middle-piece in the Fertilization of the Egg: *Sci.*, V, 114. — '99, '23. (I). — '01a. (V). — '01a-c. Experimental Studies in Cytology, I-III: *A. Entom.*, XII, XIII. — '02. Mendel's Principles of Heredity and the Maturation of the Germ-Cells: *Sci.*, XVI. — '03a. Notes on Merogony and Regeneration in *Renilla*: *B. B.*, IV, 5. — '04a, '04b. (XIV). — '05a, b, '06, '09, '10, '11a, b, '12. (X, see also XII). — '05c. (X). — '09, '10. (XI, XII). — '09b. The female Chromosome-groups in *Syromastes* and *Pyrrhocoris*: *B. B.*, XVI, 4. — '09c. Photographic Illustrations . . . of the Chromosomes in Hemiptera (Abstract): *Proc. Seventh Internat. Zool. Congr.*, Boston, Aug., '07. — '09. Secondary Chromosome Couplings and the Sexual Relations in *Abraxas*: *Sci.*, XXIX. — '10. Note on the Chromosomes of *Nezara*: *Sci.*, XXXI. — '12. (VI). — '12a, '14. (XII). — '13. A Chromatoid Body simulating an Accessory Chromosome in *Pentatoma*: *B. B.*, XXIV. — '16. The Distribution of the Chondriosomes to the Spermatozoa of Scorpions: *P. N. A. S.*, II. — **Wilson and Leaming**, '95. Atlas of Fertilization: *New York*. — **Wilson and Mathews**, '95. (V). — **Wilson and Morgan**, '20. (XII). — **Wilson, H. V.**, '07. (XIII). — '10. Development of Sponges from Dissociated Tissue Cells: *Bull. Bureau Fisheries, Washington*, XXX. — **Wilson, M.**, '09. On Spore Formation, etc., in *Mnium*: *A. Bot.*, XXIII. — '11. Spermatogenesis in the Bryophyta: *Ibid.*, XXV. — **Winge, O.**, '14. The Pollination and Fertilization Process; etc.: *C. R. Trav. Lab. de Carlsberg*, II. — '17. (XI). — '19. On the Relation between Number of Chromosomes and Number of Types: *J. G.*, VIII. — '22. One-sided masculine and sex-linked Inheritance in *Lebistes*: *Ibid.*, XII. — '22. A peculiar mode of Inheritance and its Cytological Explanation: *Ibid.*, XII, 2. — '23. Crossing-over between the X- and the Y-chromosome in *Lebistes*: *J. G.*, XIII. — '23. (X). — **Winiwarter, H. de.**, '01. (VI). — '12. Études sur la spermatogénèse humaine, I, II: *A. B.*, XXVII. — '12. Observations cytologiques sur les cellules interstitielles du testicule humaine: *A. A.*, XLI. — '14. L'Hétérochromosomes chez le Chat: *Acad. Roy. de Belgique*. — '19. Les mitoses de l'épithélium séminal du chat: *A. B.*, XXX. — '21. La formule chromosomiale dans l'espèce humaine: *C. R. S. B.*, LXXXV., '21. (XII). — **Winiwarter and Sainmont, G.**, '09. (VI). — **Winkler, H.**, '01. Ueber Merogonie und Befruchtung: *J. W. B.*, XXXVI. — '04. Ueber Parthenogenesis bei *Wikstroemia*: *B. D. B. G.*, XXII. — '06. Ueber Parthenogenesis bei *Wikstroemia*: *Ann. Jard. Bot. Buit.*, V. — '08. (III, V). — '09, '16. (XI). — '13, '20. (V). — '13-'14. Die Chimärenforschung als Methode experimenteller Biologie: *V. P. W.* — '16. Ueber die experimentelle Erzeugung von Pflanzen mit abweichenden Chromosomenzahlen: *Zeitschr. f. Bot.*, VIII. — '21. Ueber die Entstehung von genotypischer Verschiedenheiten, etc.: *Leipzig*. — **Wis-selingh, C.**, '14. On the Nucleolus and Karyokinesis in *Zygnema*: *Rec. Trav. Bot. Néer.*, II. — **Witschi, Emil**, '14a. Experimentelle Untersuchungen über die Entwicklungsgeschichte der Keimdrüsen von *Rana*: *A. M. A.*, XXXV. — '14b. Studien über die Geschlechtsbestimmung bei Fröschen: *A. M. A.*, LXXXVI. '21. Development of Gonads and Transformation of Sex in Frogs: *A. N.*, LV. — '23. Ueber die genetische Konstitution der Froschwinter: *B. C.*, XLIII. — **Wodsdalek, J. E.**, '13. Spermatogenesis of the Pig with special Reference to the Accessory Chromosomes: *B. B.*, XXV. — '14. Spermatogenesis of the Horse, etc.: *Ibid.*, XXVII, 6. — '16. Causes of Sterility in the Mule: *Ibid.*, XXX. — '20. Studies on the Cells of Cattle with special Reference to Sex-Determination:

Ibid., XXXVIII. — Wolfe, J. J., '04. Cytological Studies on *Nemalion*: *A. Bot.*, XVIII. — '18. Alternation and Parthenogenesis in *Padina*: *J. Elisha Mitchell Sci. Soc.*, XXXIV. — Wolff, C. F., 1759. (Int.). — Wolff, Gustav, '95. Die Regeneration der Urodelenlinse: *A. Entom.*, I, 3. — Woltereck, R., '98. Zur Bildung und Entwicklung des Ostracoden-Eies: *Z. W. Z.*, LIV. — '04. (XIII). — '08. Ueber Veränderungen der Sexualität bei Daphniden: *Internat. Zeitschr. Hydrobiol.*, IV.: *V. D. Z. G.* — '11. Ueber Veränderung der Sexualität bei Daphniden: *Internat. Revue. Hydrobiol.*, IV. — Woodburn, W. L., '11. Spermatogenesis in certain Hepaticae: *A. Bot.*, XXV. — '13. Spermatogenesis in *Blasia*: *Ibid.*, XXVII. — '15. Spermatogenesis in *Mnium*: *Ibid.*, XXIX. — Woodruff, L. L., '05, '08, '12, '14, '21. (III). — '11. Two thousand Generations of *Paramoecium*: *A. P.*, XXI. — '15. The Problem of Rejuvenescence in Protozoa: *Biochem. Bull.*, IV. — Woodruff and Baitzell, '11. (III). — Woodruff and Erdmann, '14. (III, VII). — Woolery, R., '15. Meiotic Divisions in the Microspore Mother-Cells of *Smilacina*: *A. Bot.*, XXIX. — Woolsey, C. I., '15. Linkage of Chromosomes, etc.: *B. B.*, XXVIII. — Woronin, Helene W., '07. Apogamie und Aposporie bei einigen Farnen: *B. D. B. G.*, XXV.

YAMANOUCHI, S., '06. (VII). — '07. Apogamy in *Nephrodium*: *B. G.*, XLIV. — '08. Apogamy in *Nephrodium*: *Ibid.*, XLV. — '08. Spermatogenesis, Oögenesis, and Fertilization in *Nephrodium*: *Ibid.*, XLV. — '09. Mitosis in *Fucus*: *Ibid.*, XLVII. — '10. Chromosomes in *Osmunda*: *Ibid.*, XXIX. — '12. (VII). — Yasui, K., '11. On the Life-History of *Salvinia*: *A. Bot.*, XXV. — Yatsu, N., '04, '10a and b, '11, '12. (XIV). — '05. (IX). — '09. Observations on Ookinensis in *Cerebratulus*: *J. M.*, XX. — '10c. An experimental Study of the Cleavage of the Ctenophore Egg: *Proc. Int. Zool. Cong.: Boston.* — '13. Notes on the Spermatogenesis of the wild and the domesticated Silkworms: *Annot. Zoöl. Japon.*, VIII. — Yocom, H. B., '17. Some Phases of Spermatogenesis in the Mouse: *Univ. Calif. Publ.*, XIV. — '23. The Occurrence of Telosynapsis in *Leptocoris*: *J. M.*, XXXVII. — Young, R. T., '13. The Histogenesis of the Reproductive Organs of *Taenia pisiformis*: *Z. J.*, XXXV.

ZACHARIAS, E., '81-'93. Ueber die chemische Beschaffenheit des Zellkerns: *B. Z.*, XXXIX. — Ueber den Zellkern: *Ibid.*, XL. — Ueber Eiweiss, Nuclein, und Plastin: *Ibid.*, XLI. — Ueber den Nukleolus: *Ibid.*, XLIII. — Beiträge zur Kenntniss des Zellkerns und der Sexualzellen: *Ibid.*, XLV. — '85. Ueber die amöboiden Bewegungen der Spermatozoen von *Polyphemus pediculus*: *Z. W. Z.*, XLI. — Ueber Chromatophile: *B. D. B. G.*, XI. — '88. Ueber Kern und Zelltheilung: *Ibid.*, XLVI. — '93a. Ueber die chemische Beschaffenheit von Cytoplasma und Zellkern: *B. D. B. G.*, II, 5. — '93b. Ueber Chromatophilie: *Ibid.*, II, 5. — '94. Ueber Beziehungen des Zellenwachstums zur Beschaffenheit des Zellkerns: *Ibid.*, XII, 5. — '95. Ueber das Verhalten des Zellkerns in wachsenden Zellen: *Flora*, LXXXI. — '96. Ueber einige mikrochemische Untersuchungsmethoden: *B. D. B. G.*, XIV. — '98. Ueber Nachweis und Vorkommen von Nuclein: *Ibid.*, XVI, 7. — '07. (IX). — '10. (VIII). — '13. Die Chromatin-Diminution in den Furchungszellen von *Ascaris*: *A. A.*, XLIII. — Zaleski, W., '11. Ueber die Rolle der Nucleoproteide in den Pflanzen: *B. D. B. G.* — Zarnik, B., '11. Ueber den Chromosomencyclus bei Pteropoden: *V. D. Z. G.* — Zawarzin, A., '09. Beobachtungen an dem Epithel der Dessemetschen Membran: *A.*

M. A., LXXIV. — Zeleny, C., '04. (XIV). — '05. Compensatory Regulation: *J. E. Z.*, II. — Zeleny and Faust, '15. (X). — Zeleny and Senay, '15. (X). — Ziegler, H. E., '87. Die Entstehung des Blutes bei Knochenfischenembryonen: *A. M. A.*, '89. Ueber die Ursachen der pathologischen Gewebsneubildungen: *Int. Beitr. zur wiss. Med. Festschrift, R. Virchow*, II. — '91. Die biologische Bedeutung der amitotischen Kerntheilung im Tierreich: *B. C.*, XI. — '94. Ueber das Verhalten der Kerne im Dotter der meroblastischen Wirbelthiere: *Ber. Naturf. Ges. Freiburg*. — '94. Ueber Furchung unter Pressung: *V. A. G.*, VIII. — '95. Untersuchungen über die ersten Entwicklungsvorgänge der Nematoden: *Z. W. Z.*, LX. — '95. Untersuchungen über die Zelltheilung: *V. D. Z. G.* — '96. Einige Betrachtungen zur Entwicklungsgeschichte der Echinodermen: *V. D. Z. G.* — '98. Experimentelle Studien über die Zelltheilung; I: *A. Entw.*, VI, 2. — '98b. Die Furchungszellen von *Beröe*: *A. Entw.*, VII. — Zimmerman, A., '93. Beiträge zur Morphologie und Physiologie der Pflanzenzelle: *Tübingen*. — '94. Sammelreferate aus dem Gesamtgebiete der Zellenlehre: *Bot. Centr. Beihefte*. — '96. Die Morphologie und Physiologie des pflanzlichen Zellkernes, etc.: *Jena*. — Zimmerman, K. W., '93b. Studien über Pigmentsellen, etc.: *A. M. A.*, XLI. — '98. Beiträge zur Kenntniss einiger Drüsen und Epithelzellen: *A. M. A.*, LII. — Zoja, R., '95a. Sullo sviluppo dei blastomeri isolate dalle uova di alcune meduse: *A. Entw.*, I, II, IV. — '95b. Sulla indipendenza della cromatina paterna e materna nel nucleo delle cellule embrionali: *A. A.*, IX, 10. — '96. Untersuchungen über die Entwicklung der *Ascaris*: *A. M. A.*, XLVII. — Zoja, F. and R., '91. Intorno ai plastiduli fuchsino-fili (bioblastuli dell'Altmann): *Mem. Ist. Sc. Milano* XVI. — Zukal, H., '96. Ueber den Bau der Cyanophyzeen und Bakterien: *B. D. B. G.* — Zsigmondy, R., '20. (VIII). — Zweiger, H., '07. Die Spermatogenese von *Forficula*: *Zeitsch. f. Naturwiss.*, XLII.

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