

Universal Decimal Classification —

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UDC 57 Biological sciences in general —
Virology — Microbiology

UDC 025.45:57

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Foreword

The English version of the Universal Decimal Classification (UDC) is being prepared and published as BS 1000 by the British Standards Institution (BSI) at the original joint request of the British Society for International Bibliography (BSIB) and the Association of Special Libraries and Information Bureaux (ASLIB), now amalgamated as Aslib. It has the approval of the Lake Placid Education Foundation, New York, proprietors of the Dewey Decimal Classification, from which the UDC derives. The English full edition of the UDC is authorized by the International Federation for Documentation (FID), PO Box 30115, 2500 GC, The Hague, Netherlands.

This section is part of the English full edition. It should be used in conjunction with the Abridged English Edition, BS 1000A, which refers to many other subjects of interest not listed in this schedule, and provides a conspectus of the whole scheme, together with an introduction to its use. For further practical information about the principles, application and utilization of the scheme, users should refer to BS 1000C.

This edition of BS 1000[57] supersedes material published as part of BS 1000:Vol. 2, Part 3:1943. It includes modifications authorized in “Extensions and Corrections to the UDC” (FID publication no. 248) up to and including Series 10, No. 1, dated June 1978. Subsequent issues of “Extensions and Corrections to the UDC” should be consulted to keep the schedule up to date. British Standards related to this part of BS 1000 are listed on the inside back cover.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 72, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Scope

Under 57 is classed information about scientific methods and research common to all the biological sciences; also (in 578/579) virology and microbiology. Some specific biological subjects are classed elsewhere, notably botany at 58, zoology at 59 and human physiology at 612. Application of biological knowledge to the preservation of human health is classed in the divisions of 61; and animal health at 619 or 636.09.

Related subjects

(083.816) “61/62”	Systematic lists — Table I(d) Form Geological (lithological/biological/palaeoecological) time division — Table I(g) Time
.001.33	Systematization. Classification — Table I(i) Point of view
001	Science and knowledge in general (including nomenclature, scientific laws)
005	Study of organization etc. Classification and taxonomy
069	Museums. Permanent exhibitions
167/168	Logical methodology
52–37	Biological properties — Astronomy
537.533.35	Electron microscopy
556.115	Biological and microbiological properties of water
54	Chemistry, <i>especially</i> 547 Organic chemistry
56	Palaeontology
58	Botany
59	Zoology
61	Medical sciences, <i>especially</i>
612	Physiology
619	Veterinary science
621.385.833	Electron microscopes. Diffraction cameras
628	Public health engineering
63	Agriculture. Forestry. Animal breeding etc.
663.1	Microbiological industries
681.72	Magnifiers. Microscopes
778.315	Photomicrography (using optical microscopes)
902	Archaeology
903	Prehistory, prehistoric remains etc.

Auxiliary signs and subdivisions

Full information about the common and special auxiliary signs and subdivisions (often abbreviated to “common and special auxiliaries”) will be found in BS 1000A and BS 1000C.

Colon sign of relation. For the classification of information for the public, as in abstracts and bibliographies, maximum use of colon combinations rather than of common or special auxiliaries is recommended. The use of the colon sign of relation is preferable for multiple entry systems, as it will help prevent the concealment of information. This usually results in longer notation, however, and for information for more restricted use, the application of auxiliaries, where available, may be simpler and more convenient provided that there is an adequate alphabetical subject index.

Common auxiliaries. The common auxiliaries of language = . . ., form (0 . . .), place (1/9), race and nationality (= . . .), time “. . .”, point of view .00 . . ., materials –03 . . . and persons –05 . . . are applicable throughout the UDC. However, they should be used mainly to express concepts not otherwise provided for in the schedules. Particularly useful are Table I(e) “Common auxiliaries of place” and Table I(f) “Common auxiliaries of race and nationality” under 572.9 “Special anthropography” the “6” time auxiliaries from Table I(g) under 57.07 “Extinct species, orders etc.” and the asterisk from Table I(h) to introduce non-decimal subdivision under 577.152.

Special auxiliaries. The special auxiliary subdivisions 57.01/.08 are applicable throughout 57 except that .02 is specially developed under 572. In general, special auxiliary subdivisions may be detached and applied to any subdivision of the number at which they are listed.

The apostrophe is used as a brief way of introducing subdivisions from elsewhere in 57, saving the need for a full colon combination, e.g. at 575'3 and many subdivisions of 577, 578 and 579.

Typographic presentation

Small type is used for cancelled numbers and text. The arrow → means either “see” or “see also” according to the context. The symbol ≅ “subdivide as” means that the number preceding it may be subdivided in the same way as, and with meanings analogous to the subdivisions of, the number which follows it.

Abbreviations

ATP	adenosine triphosphate [577.152.27]
DNA	deoxyribonucleic acid [subdivisions of 577.2, 577.3, 578.2, 579.2]
IUB/EC	International Union of Biochemistry. Enzyme Classification [577.152 and subdivisions]
NAD	nicotinamide-adenine dinucleotide [subdivisions of 577.152]
NADP	nicotinamide-adenine dinucleotide phosphate [subdivisions of 577.152]
RNA	ribonucleic acid [577.152.611 and subdivisions of 577.2, 577.3, 578.2]
tRNA	transfer ribonucleic acid [577.217.33 and subdivisions]

Many chemical symbols are used with their usual significance.

Bibliographical references

- 572 MARTIN, Rudolf. *Lehrbuch der Anthropologie ...* Zweite, vermehrte Auflage. Jena, 1928. 3 vol.
- 579.8 BUCHANAN, Robert E and GIBBONS, Norman E (ed.). *Bergey's manual of determinative bacteriology*. 8th ed. Baltimore, Md.: Williams and Wilkins, 1974.

SCHEDULE

57 Biological sciences

Here is classed information about scientific methods and research common to all the biological sciences.

For particular biological sciences → 58 Botany, 59 Zoology and 612 Physiology

Special auxiliary subdivisions

57.01	GENERAL LAWS, THEORETICAL ASPECTS, CHARACTERISTICS, PROPERTIES	57.017.2	Origin. Formation. Localization. Arrangement
.011	General theory, principles etc. <i>Further particulars may be denoted by colon combination with 001, 167/168 etc.</i>	.22	Origin. Formation. Precursors
.012	Structural characteristics	.23	Localization
.2	Macrostructure	.24	Arrangement
.22	Outer layer	.3	Adaptability. Accommodation. Ability to recover. Repair → 57.04 Factors. Influences
.23	Inner part. Core	.32	Adaptability. Accommodation
.24	Inclusions. Enclosed bodies	.322	Acclimatization
.3	Microstructure → 57.086.2 Optical microscopy techniques	.35	Ability to recover. Regeneration → 57.04 Factors. Influences
.4	Ultrastructure. Fine structure → 57.086.3 Electron microscopy techniques	.4	Irritability. Sensitivity
.5	Supramolecular structure. Molecular organization → 57.088 Special methods and techniques for studying biological molecules	.5	Reproduction. Sex and sexuality
.6	Macromolecular structure → 57.088 Special methods and techniques for studying biological molecules	.53	Reproduction
.62	Helix structure	.55	Sex, sexuality
.63	Sheet structure	.6	Growth. Development. Ageing. Death
.64	Random coil structure	.64	Growth. Development
.7	Atom-molecular structure	.642	Embryonic development. Embryo. Foetus
.013	Physical-chemical properties and parameters 57.013 ≅ 577.3 <i>Further particulars may be denoted by colon combination with 53 and 541.1</i> → 57.044 Chemical factors	.645	Post-natal development. Young organisms
.014	Characteristics dependent on chemical composition and properties → 57.044 Chemical factors <i>Further particulars may be denoted by colon combination with 577.1 and 546/547</i>	.647	Mature organisms
.015	Organizational complexity characteristics	.67	Ageing. Senescence
.2	Homogeneous	.68	Death. Dead organisms
.3	Heterogeneous	.7	Respiration. Metabolism
.35	Microheterogeneous	.72	Respiration. Respiratory modes
.5	Subparticles. Subunits. Fragments	.722	Aerobic
.6	Functional parts. Compartments. Pools	.723	Anaerobic
.7	Structural parts, septa, partitions	.73	Metabolism
.016	Functional activity characteristics	.732	Anabolism
.2	Structural, supportive function	.735	Catabolism
.3	Information function	.8	Nutritional modes
.4	Regulatory (control) function → 57.05 Characteristics dependent on control properties. Principles of control processes at various levels	.82	Autotrophic organisms
.6	Protective function	.83	Myxotrophic organisms
.7	Transport function	.85	Heterotrophic organisms
57.017	Biological properties, characteristics → 573.7 General properties and characteristics of living systems 577 Material bases of life. Biochemistry. Molecular biology. Biophysics	.018	External characteristics and traits
		.2	Form. Shape
		.22	Rodlike
		.25	Round
		.26	Regular
		.27	Irregular
		.3	Quantity. Concentration. Number
		.4	Size. Volume. Dimensions
		.42	Length
		.44	Breadth, diameter
		.46	Height
		.5	Density. State of aggregation
		.52	Liquid
		.53	Semi-liquid
		.54	Liquid-crystalline state
		.55	Solid
		.56	Crystalline state
		.58	Gel state
		.6	Colour
		.62	Distribution of colour. Colour relationships
		.63	Variations in pigmentation
		.633	Variegation. Diversity of colours
		.634	Albinos

57.018.7	Biogeometry. Topological relations	57.045	Meteorological, climatic and cosmic factors
.72	Symmetry. Asymmetry		Biotic factors
.722	Symmetry	.047	→57.017 Biological properties, characteristics
.2	Radial symmetry		Social factors
.5	Bilateral symmetry		Other factors
.725	Asymmetry	.048	CHARACTERISTICS DEPENDENT ON CONTROL PROPERTIES. PRINCIPLES OF CONTROL PROCESSES AT VARIOUS LEVELS
.8	Weight. Mass	.049	Control at molecular level
.82	Specific weight	57.05	Allosteric control
.85	Molecular weight		Feedback inhibition
57.02	BIOLOGICAL AND ETHOLOGICAL PROCESSES: MECHANISMS, INTERACTION WITH ENVIRONMENT	.052	Phosphorylation-dephosphorylation as a control mechanism
.021	Mode of action of substances within the cell or organism	.2	Control at cellular level
.022	Interaction of the organism with its (normal) environment. Viability, survival, extinction	.4	Ionic regulation
.023	Internal processes and their mechanisms	.6	Cyclic nucleotides as a universal control system
	→57.017 Biological properties, characteristics	.053	Control at organ level
	581.1 Plant physiology	.2	Control at population and biocenotic levels
	591.1 Animal physiology	.4	Interaction of control form
.024	Psychobiological processes. Individual behaviour. Intelligence, instinct	.054	NOMENCLATURE AND CLASSIFICATION SYSTEMS OF ORGANISMS. TAXONOMY
.025	Activity and function of the organism in the biosphere	.055	→001.4 Specialist terminology. Scientific nomenclature
	→574 General ecology. Biocenology. Hydrobiology. Biogeography	.056	025.4 Classification. Indexing languages, especially 025.44/.47
	581.5 Habits of plants. Ecology. Ethology. The plant and its environment	57.06	582 Systematic botany
	591.5 Ecology. Ethology. The animal in relation to its environment		592/599 Systematic zoology
.026	Social processes and behaviour	.061	Theory of nomenclature. Codes and rules of nomenclature
57.03	PATTERN OF PROPERTY VARIATIONS (CHARACTERISTICS). RATE OF BIOLOGICAL PHENOMENA OR PROCESSES. KINETICS. EQUILIBRIUM	.062	Artificial classification systems
.031	Spontaneous variation. Fluctuation	.2	Pre-Linnaean systems, e.g. Ray, Tournefort
.032	Variations arising under the influence of internal factors (growth, development, differentiation etc.)	.4	Linnaean system and binomial nomenclature
	→57.041 Internal factors	.063	Natural classification. Taxonomic groups. Taxa
.033	Variations arising under the influence of external factors	.2	Kingdoms
	<i>For details of external factors →57.042/.048</i>	.3	Phyla
.034	Cyclic variations, oscillation. Rhythmicity	.4	Classes
.036	Rate of process or phenomenon	.5	Orders
.037	Kinetics. Kinetic constants	.6	Families. Tribes
.038	Steady state. Equilibrium	.7	Genera. Species. Varieties. Forms
57.04	FACTORS. INFLUENCES	.8	Strains. Phage types. Serotypes
	→57.013 Physical-chemical properties and parameters	.064	Phenetic classification systems. Numerical taxonomy
	<i>Further particulars may be denoted by colon combination with 53/55</i>	.065	Phylogenetic classification system
.041	Internal factors	57.07	EXTINCT SPECIES, ORDERS ETC.
.042	External factors generally. Collective action of several factors	.072	FOSSIL PLANTS, ANIMALS AND MAN
.2	Inhibitors. Inhibitor analysis		<i>Further particulars may be denoted by colon combination with 572, 582 and 592/599, and by Table I(g) Common auxiliaries of time</i>
.5	Activators. Cofactors		Fossil remains, e.g.
.043	Physical and other mechanical factors	.073	58.072 Fossil plants
	→57.013 Physical-chemical properties and parameters	.075	59.072 Fossil animals
	<i>Further particulars may be denoted by colon combination with 53</i>	57.08	599.2.072 Fossil human remains
.044	Chemical factors		→562/569 Systematic palaeozoology
	→57.014 Characteristics dependent on chemical composition and properties		Problematic remains. Unidentified remains
	<i>Further particulars may be denoted by colon combination with 54</i>		Restoration and reconstruction of fossil plants, animals and man
			BIOLOGICAL TECHNIQUES, EXPERIMENTAL METHODS AND EQUIPMENT
			GENERAL ORGANIZATION OF BIOLOGICAL LABORATORIES
			Automation of biological experiments
			Monitoring biological experiments

57.081.23	Automated analysis, evaluation and data processing of biological experiments <i>Further particulars may be denoted by colon combination with 681.3, e.g.</i> 57.081.23:681.3.021 Off-line processing of experiments :681.3.022 On-line processing of experiments	57.082.58	Specimen display →069.4 Procedures of arranging, setting up collections, exhibits etc. Museums 069.5 Collections. Exhibits
57.082	LABORATORY AND MUSEUM TECHNIQUES AND EQUIPMENT FOR PLANT AND ANIMAL SPECIMENS AND COLLECTIONS →069.4 Procedures of arranging, setting up collections, exhibits etc. Museums .1 Specimen acquisition, identification and reconstruction .11 Methods of acquisition: purchase, exchange or collection .114 Methods and equipment for capture (alive or dead) of animals →639.1 Hunting .115 Techniques and equipment for plant collecting .13 Identification and marking of specimens .132 Of extant (existing) specimens .133 Of extinct specimens .14 Reconstruction, remodelling of plant or animals. Taxidermy etc. .142 Skeletal reconstructions. Skeleton preparations .144 Skin reconstructions. Stuffed animals. Taxidermy .145 Visceral reconstructions. Transparent preparations .146 Reconstruction of extinct specimens .2 Specimen care, nutrition, breeding →57.082.52 Specimen preparation, e.g. mounting, drying, pressing 636.083 Care of animals, general .22 Nutrition. Feeding →636.084 Feeding of animals .222 Artificial diet .25 Prevention of diseases. Germfree laboratory specimens. Gnotobiology .252 Equipment for raising germfree animals. Isolators, incubators etc. .26 Breeding. Cultivation →636.082.4 Rearing methods and techniques. Reproduction .261 Inbreeding. Pure lines. Clonal cultures .262 Outbreeding. Mating. Crossing .263 Hybridization .5 Specimen preparation and preservation for collections →57.082.2 Specimen care, nutrition, breeding .52 Specimen preparation, e.g. mounting, drying, pressing .54 Specimen preservation. Maintenance. Upkeep →57.082.2 Specimen care, nutrition, breeding .542 Of live specimens →57.083 Microbiological, virological and immunological methods and techniques 57.086.8 Methods and equipment for studying living cells and tissues .544 Of dead specimens .56 Specimen storage: cabinets, jars, tanks etc.	57.083	MICROBIOLOGICAL, VIROLOGICAL AND IMMUNOLOGICAL METHODS AND TECHNIQUES <i>Specific substances investigated may be denoted by '1, subdivided as 577.1</i> .1 Microbiological methods and techniques .12 Isolation of microorganisms .13 Cultivation of microorganisms .131 Surface cultivation .132 Submerged cultivation .133 Liquid cultures .134 Cultivation and storage media .135 Synthetic media .136 Enrichment media .137 Differential media .138 Media for special purposes .2 Media for determining physiological properties .4 Media for assaying different substances <i>Details may be denoted by '1, subdivided as 577.1, e.g.</i> 57.083.138.4'112.34 Medium for assaying amino acids .6 Media for sterility testing .16 Staining of microorganisms 57.083.16 ≅ 57.086.16 .18 Identification of microorganisms .182 Cultural characteristics .2 Form of colonies .4 Elevation .184 Indole tests .185 Fermentation tests <i>Further particulars may be denoted by colon combination with 547 and by '1, subdivided as 577.1</i> .2 Virological methods and techniques .22 Preparation of viruses .222 Preparation of inocula .223 Inoculation of laboratory animals or other test-objects .224 Cultivation in tissue cultures .226 Chick embryo techniques .24 Isolation of viruses .3 Immunological methods, reactions and tests. Immunological investigation .32 Allergic reactions .322 Hypersensitivity reactions .324 Graft-versus-host reactions .33 Serological reactions .331 Agglutination reactions .332 Lytic reactions. Bacteriolytic reactions .333 Virus neutralisation reactions .334 Precipitation reactions .335 Haemagglutination inhibition reactions .336 Flocculation reactions .337 Complement binding reactions .338 Passive haemagglutination reactions .34 Fluorescent antibody tests .36 Cytotoxic tests 57.084 EXPERIMENTS AND OBSERVATIONS ON WHOLE LIVING ORGANISMS, PLANTS OR ANIMALS .1 Under artificially controlled conditions, e.g. in the laboratory .2 Under natural conditions, e.g. in the field .5 Comparison of natural and artificially controlled conditions

57.085	EXPERIMENTS AND OBSERVATIONS ON PARTS OF ORGANISMS, E.G. ORGANS, TISSUES	57.086.83.006.2	Laboratories for tissue cultures
	→57.083 Microbiological, virological and immunological methods and techniques	57.086.832	Instruments for tissue cultures
.1	On living organisms or tissues, in vivo (in situ)	.2	Tripsinization flasks
.17	Decorticated preparations	.4	Instruments for distribution of cells
	<i>not applicable under 578.085.1</i>	.6	Containers for tissue cultures
.2	On isolated or explanted organs or tissues, in vitro experiments	.833	Preparation of primary cultures
.21	On perfused preparations	.2	Cultures on slides
.22	On immersed preparations	.4	Cultures in test tubes, bottles or other containers
.23	On tissue cultures, on cell cultures	.6	Cultures in chambers on dishes or on plastic sheets
	→57.083.3 Immunological methods, reactions and tests.	.834	Preparation of secondary cultures
	Immunological investigation	.835	Cell lines and their isolation
.25	Agents, reagents used		<i>Further particulars may be denoted by adding name or identification number</i>
.4	On dead organs or tissues (post-mortem)	.86	Methods and equipment for micromanipulations and microsurgery
.42	On autolysed tissues, autolysis	.862	Isolation of single cells, organoids etc. e.g.
.43	On isolated cells	.863	576.315.088.862 Enucleation
57.086	CYTOLOGICAL AND HISTOLOGICAL TECHNIQUES		Microdissection. Cutting. Removing of single particles
.1	Preparation of specimens	.864	Microinjection
.12	Sampling and fixation. Fixatives	.865	Microtransplantation
	<i>Details of fixatives may be denoted by colon combination with 546/547</i>	.866	Micromanipulators and other instruments for micromanipulations
.122	Sampling. Blocking of tissues	.88	Reconstruction of objects, organs and tissues from series of sections.
.124	Vapour fixation		Stereomicroscopy. Photomicrography etc.
.126	Immersion fixation		→778.315 Photomicrography (i.e. using optical microscope)
.128	Perfusion fixation	57.087	METHODS AND TECHNIQUES FOR PARAMETER ESTIMATION AND RECORDING OF BIOLOGICAL DATA
.13	Freezing. Cryotechniques. Cryofixation	.1	Biometry. Statistical study and treatment of biological data
.132	Freeze drying		<i>Further particulars may be denoted by colon combination with 519.2</i>
.134	Freeze substitution	.2	Graphic recording, charting and mapping techniques (in biology)
.136	Cryostat technique		→528 Geodesy. Surveying.
.14	Dehydration. Embedding media		Photogrammetry. Cartography
	Media may be denoted by colon combination	.23	Counting technique
.15	Cutting. Sectioning. Microtechnique and microtomy	.27	Size-measurement technique
.16	Staining. Contrasting. Impregnating	.3	Photographic and cinematographic methods and techniques for registration and interpretation of biological images
	→57.083.16 Staining of microorganisms		<i>Further particulars may be denoted by colon combination with 778</i>
.161	Differential (selective) staining	57.088	SPECIAL METHODS AND TECHNIQUES FOR STUDYING BIOLOGICAL MOLECULES
.162	Negative staining	.1	Methods for analysis and estimation
.163	Positive staining		<i>Further particulars may be denoted by colon combination with 546/547, and by 1, subdivided as 577.1</i>
.164	Fluorescent staining	.2	Methods and techniques for preparation, concentration and isolation. Preparative ultracentrifuge techniques
.166	Polychrome staining	.3	Methods and techniques for separation, fractionation and purification
.167	Gram staining		<i>Further particulars may be denoted by colon combination with 543.54</i>
.168	Acid-fast staining	.5	Methods and techniques for studying structures and properties
.169	Vital staining	.52	Direct methods and techniques. X-ray techniques
.18	Mounting. Mounting agents		<i>Further particulars may be denoted by colon combination with 548.73</i>
	<i>Agents may be denoted by colon combination</i>		
.182	Water-miscible mounting agents		
.185	Alcohol-miscible mounting agents		
.188	Mounting agents not miscible with either alcohol or water		
.2	Optical microscopy techniques		
	<i>Further particulars may be denoted by colon combination with 681.7.01/08 and 681.723</i>		
.3	Electron microscopy techniques		
	<i>Further particulars may be denoted by colon combination with 537.533.35 and 621.385.833</i>		
.8	Methods and equipment for studying living cells and tissues		
.82	Preparation of living cells		
57.086.83	Methods and equipment for cultivation of cells and tissues		
	<i>Further particulars may be denoted by Table I(i) Common auxiliaries of point of view, e.g.</i>		

57.088.53	Resonance methods and techniques <i>Further particulars may be denoted by colon combination with 53</i>	57.089.26	Anaesthetic techniques <i>Further particulars may be denoted by colon combination with 616-089.5</i>
.55	Hydrodynamic methods and techniques.	.27	Perfusion techniques
	Sedimentation methods and techniques <i>Further particulars may be denoted by colon combination</i>	.3	Embryological techniques →581.3 Embryology of plants 591.3 Embryology in general Zoology
.6	Methods and techniques for studying metabolism and biotransformation.	.32	Induced ovulation and artificial fertilization and insemination
	Radioisotope methods and techniques <i>Further particulars may be denoted by colon combination</i>	.34	Collection of embryos
57.089	BIOMEDICAL METHODS. PHYSIOLOGICAL, SURGICAL, HISTOPATHOLOGICAL AND RELATED TECHNIQUES <i>Instruments may be denoted by colon combination with 615.47</i> →616-089 Operative treatment. Operative technique. Surgical, operative procedure. Surgery	.36	Preparation of embryonic tissues, e.g. for tissue culture →57.086.8 Methods and equipment for studying living cells and tissues
		.38	Transplantation and flushing of ova
.2	Basic methods and techniques	.6	Experimental surgical techniques
.22	Handling and restraint techniques	.62	Decerebration and other surgical manipulations on the brain
.23	Sampling techniques <i>Further particulars may be denoted by colon combination with 519.2, 59 and 611/612</i>	.64	Organectomy. Excision <i>Organs may be denoted by colon combination with 61</i>
.24	Compound administration methods. Injections	.66	Biopsy and puncture techniques
		.67	Implantation
		.7	Necropsy dissection techniques <i>Organs may be denoted by colon combination with 61</i>

Principal divisions

571	Prehistory [<i>in BS 1000 Vol. 2, Part 3:1943; cancelled</i>] →903. Archaeology [<i>in BS 1000A:1961; cancelled</i>] →902; for prehistoric man →569.96, 57.072, 903	571.97	Remains from periods of higher culture [<i>cancelled</i>] →903.3/.4, especially 903.46/.48, 903.7
(11)	Prehistoric periods [<i>cancelled</i>] →“61/63” in Table I(g), 903“63”	572	ANTHROPOLOGY <i>Here is classed everything concerning anthropology in the narrower sense, i.e. the study of human natural history; for human culture (ethnology, ethnography, folklore etc.) →39</i>
(118)	Tertiary period [<i>cancelled</i>] →“623”		→569.9 Homo. Humans. Palaeoanthropology
(119)	Quaternary period [<i>cancelled</i>] →“624/627”		57.072 Fossil remains
571.1/.9	Various prehistoric objects [<i>cancelled</i>] →903		599.9 Homo. Humans. Systematic zoology
571.1/.2	Stone Age remains [<i>cancelled</i>] →903 “631/634”, 903.2-032.5		61 Medicine
.1	Natural stones, plants and animal remains which can be used by man without any or with but slight alteration [<i>cancelled</i>] →903.072; cf 57.072		<i>The subdivisions of 572 follows the arrangement of R Martin (see bibliographical references, page 2)</i>
.2	Stones and plant and animal remains worked with tools [<i>cancelled</i>] →903.074/.076; cf 903.01, 903.21		Special auxiliary subdivisions for 572 <i>Note. The special auxiliary subdivisions listed under 57, insofar as they differ from the following, are not applicable under 572</i>
.3	Objects in bronze and copper [<i>cancelled</i>] →903“636/637”, 903.2-034.3/.6	572.02	Influence of external factors on humans and human races
.4	Iron objects [<i>cancelled</i>] →903“638”, 903.2-034.1	.021	Climate
.5	Various objects of other materials (wood, bone, pottery etc.) [<i>cancelled</i>] →903.2-03, e.g. -035.3; for food remains →903.28	.1	Acclimatization
.7	Objects of art. Ornaments. Decoration [<i>cancelled</i>] →903.25, 903.27, cf 903.08	.022	Geographical surroundings. Territorial influences
.8	Dwellings [<i>cancelled</i>] →903.3/.4	.023	Nutrition
.9	Various ancient monuments [<i>cancelled</i>] →903.5/.9	.024	Habits. Behaviour
.91	Burials in general [<i>cancelled</i>] →903.5	.025	Functions. Occupation
.94	Monoliths. Stone circles [<i>cancelled</i>] →903.6	.2	Changes of occupation
.95/.96	Circles. Labyrinths. Artificial mounds of earth and stones [<i>cancelled</i>] →903.45, 903.53	.026	Cultural factors. Degree of civilization
		.027	Race and state. Political anthropology

572.027.6	Relations between civilized and uncivilized races	572.524	Organs of integument
.028	Race and society. Social anthropology. Social domination of races	.1	Skin
.029	Anthropology of special categories in society →343.9 Criminology. Criminal anthropology	.11	Structure of the skin
.08	Anthropological technique, experiments, observations, measurements	.12	Surface texture of skin. Wrinkles, lines. Handprints, footprints, fingerprints
.087	Anthropometric measurements etc. Anthropometry	.13	Skin colour
Principal divisions (continued)		.131	Colour of the mucous surfaces
572.1/.4	ANTHROPOGENY. GENERALITIES ON HUMAN DEVELOPMENT AND ORIGIN OF THE HUMAN SPECIES →573.5 The problem of the origin of life. Life on other planets. Exobiology 575.8 Evolution. Origin of species. Phylogeny	.132	Coccygeal marks
572.1	Unity of the human species. Monophyletic or polyphyletic origin. Monogenism, polygenism	.2	Hair
.2	Heterogeneity of the human species. Races. Physical types. Varieties <i>Further particulars may be denoted by colon combination with the subdivisions of 575</i>	.21	Shape of the individual hair. Cross section
.4	Place and time of the origin of the human species	.22	Hairiness, pilosity of the head. Hair distribution
.41	Place of origin. Primitive and legendary habitat of humanity. Eden. Atlantis etc.	.23	Hairiness, pilosity of the body
.42	Time, date of origin. Age, antiquity of humanity <i>Individual types of fossil human are classed under palaeoanthropology at 569.9</i>	.231	Lanugo
572.5	SOMATOLOGY (IN THE SENSE USED BY R MARTIN). ANTHROPOLOGY OF THE LIVING BODY	.232	Hypertrichiasis
.51	General shape of the body	.233	Vortices pilorum. Fulmina pilorum
.511	Posture. Corpulence. Steatopygia	.24	Colour of hair
.2	Posture. Upright walk, bearing	.3	Nails
.3	Sexual influences on the shape of the body	.525	Colour and characteristics of the eyes
.4	Influence of age on the shape of the body	.1	Iris
.512	Measurements and proportions of the body in general	.2	Sclerotic (sclerotic coat)
.1	Height. Dimensions of the body	.3	Conjunctiva
.11	Giants	.54	Head and face
.13	Dwarfs	.541	General shape
.14	Pigmies	.1	Dimensions of the soft parts
.2	Relation of height to age	.2	Relations between the dimensions of the head and those of the cranium
.3	Body weight	.3	Physiognomy
.4	Relation of weight to height	.4	Variations in the dimensions of the face and head with age
.5	Asymmetry of the body	.5	Sexual differences in the dimensions of the face and head
.6	Formula. Key to proportions	.543	Dimensions of the head, relative and absolute
.7	Proportions and relations between shapes and dimensions of the trunk	.544	Facial dimensions, relative and absolute →572.762.3 Angle of the face
.71	Neck	.545	Proportions of the shape and dimensions of facial features
.72	Thorax	.1	Eye surroundings. Eyelids. Eyebrows
.73	Mammary organs. Chest. Hyperthelia. Hypermastia	.2	Lips and cheeks
.74	Abdomen	.21	External (skin) surfaces of the lips
.8	Proportions and relations between the shapes and dimensions of the limbs	.22	Internal (mucous) surfaces of the lips
.81	Comparative studies of the limbs and their parts	.24	Cheeks
.82	Upper limbs	.3	External shape of the nose
.823	Hands and fingers	.4	External shape of the ear
.83	Lower limbs	.41	Position of the ear
.833	Feet and toes	.42	Shape of the concha
.9	Deformities of the body	.43	Darwin's tubercle. Auricular tubercles
.52	Pigmentation. Integument	.44	Deformities of the ear
.521	Pigmentation in general. Depigmentation	572.7	MORPHOLOGY. MEROLOGY (IN THE SENSE USED BY R MARTIN). ANTHROPOLOGY OF ISOLATED ORGANS
.522	Albinism	.71	Craniology in general
.523	Correlations between pigmentation of hair, of skin, of eyes. Pigmentation types	.72	General proportions of the cranium, including comparison with those of animals
		.721	Cranial norms
		.722	Weight. Thickness of bone
		.723	Sutures. Fontanelles. Synostoses. Ossa intercalaria
		.724	Relation of cranial dimensions to age
		.725	Sexual differences in the cranium
		.726	Asymmetry of the cranium
		.727	Relation of cerebral to frontal cranium
		.728	Deformities of the cranium. Trepanning, trephining
		.73	Craniological types. Combinations of cranial characteristics
		.74	Cerebral cranium
		.741	Capacity
		.742	Craniocerebral proportions

572.743	Relation between dimensions and shape of cerebral cranium. Measurements, indices in general	572.79	Anthropobiology. Racial physiology.
.1	Measurements of length, of width. Indices	.795	Racial pathology
.2	Measurements of height. Indices	572.9	Miscegenation, cross-breeding of human races
.3	Measurements of circumference		SPECIAL ANTHROPOGRAPHY.
.4	Angle		ETHNOLOGY. INDIVIDUAL RACES
.744	Characteristic circumferential curves.		<i>Further particulars may be denoted by colon combination and by Tables I(e) Common auxiliaries of place and I(f) Common auxiliaries of race and nationality, e.g.</i>
	Diagraphic curves		572.9:502.8 Special anthropography and conservation of ethnologic features
.745	Crania of famous persons, of exceptional persons		572.9(=91) Ethnic analysis of Indoeuropean, Aryan races
.746	Alterations of the shape of the cerebral cranium		
.1	Pathological	.94	European (Caucasoid, white) race
.2	Artificial	.941	Principal groups of the white race
.75	Racial variations of parts of the cerebral cranium	.1	Nordic
.751	Occipital bone (os occipitale)	.2	Western, Mediterranean
.1	Foramen magnum	.3	Dinaric
.752	Sphenoid bone (os sphenoidale). Pterion	.4	Eastern, Alpine
.753	Temporal bone (os temporale)	.5	East-Baltic, Eastern Caucasoid
.754	Parietal bone (os parietale)	.6	Oriental
.755	Frontal bone (os frontale)	.7	Armenian, Near-Eastern
.1	Glabella. Superciliary ridge (arcus superciliaris)	.8	Indic
.2	Metopism (persistence of metopic suture)	.9	Other Caucasoid groups
572.756	Ethmoid bone (os ethmoidale)	.95	Mongoloid (yellow) race, including Amerindian
.757	Base of skull (basis cranii)	.96	Negroid (black) race, including Melanesian, Australoid
.76	Frontal cranium		
.761	Relation between dimensions and shape of frontal cranium. Measurements. Indices	573	GENERAL AND THEORETICAL BIOLOGY
.762	Upper jaw		<i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i>
.3	Angle to face	.2	573.01 General theories, e.g. dualistic theories, vitalism
.763	Bony parts of nose	.22	Theoretical biology
.1	Nasal bones (ossa nasalia)	.24	The system theory in biology. Levels of organization of biological systems
.2	Apertura piriformis	.3	Relation biology. (M,R)systems
.3	Choanae		Living and dead matter, their chemical and structural differences
.764	Malar bone (os malae). Zygomatic arch (arcus zygomaticus)	.4	→577 Material bases of life. Biochemistry. Molecular biology. Biophysics
.765	Orbits (orbita)	.5	Microorganisms, plants and animals as forms of life
.766	Lower jaw	.52	→574 General ecology. Biocoenology. Hydrobiology. Biogeography
.1	Shape of the chin	.55	The problem of the origin of life. Life on other planets. Exobiology
.767	Hyoid bone	.552	Evidence about life on other planets
.77	Teeth. (Natural) denture	.554	<i>Particular planets may be denoted by colon combination with the subdivisions of 523</i>
.771	Shape of teeth	.555	The problem of the origin of life
.772	Size of teeth	.6	Abiogenic origin of primary organic matter
.773	Position of teeth	.7	Origin of complex biological molecules and supramolecular structures
.774	Dental arches (arcus dentales)		Origin of primary organisms (protobionts)
.775	Dentitions		Applied biology in general
.776	Regressive and progressive formations of the denture		General properties and characteristics of living systems
.779	Deformities of the teeth		→57.017 Biological properties, characteristics
.781	Osteology. Skeletal system other than the cranium		577 Material bases of life. Biochemistry. Molecular biology. Biophysics
.2	Skeletal system in general		
.4	Skeleton of the trunk		
.42	Vertebral column, spine		
.44	Thorax		
.6	Skeleton of the limbs		
.62	Shoulder-girdle		
.64	Upper limbs		
.66	Pelvis		
.68	Lower limbs		
.782	Musculature		
.783	Circulatory system		
.784	Respiratory system		
.785	Digestive system		
.786	Endocrine system		
.787	Urogenital system		
.788	Central nervous system		

574/578	GENERAL BIOLOGY	574.55	Productivity
	<i>Here are classed general and comparative studies of living things. Specialized studies (even if no particular reference is given) should always be classed with the specific subject, e.g. palaeobiology, botany, zoology, medicine or anthropology. Thus at 576.7 come only general and comparative studies of tissues; plant tissues come at 581.8, animal tissues at 591.8, and human tissues at 611-018. For comparative physiology, see also 612, which for historical reasons (physiology developed as a branch of medicine), includes general and comparative matters not confined to purely human physiology</i>	.56	Energetics
574	GENERAL ECOLOGY. BIOCOENOLOGY. HYDROBIOLOGY. BIOGEOGRAPHY.	.57	Hydrobiological typology of waters →556.115 Biological and microbiological properties of water
	<i>Only general and comparative studies of populations, biocoenoses and ecosystems are classed here</i>	.58	Aquatic biocoenoses
	→579.26 Microbial ecology	.582	Pleuston
	581.5 Habits of plants. Ecology. Ethology. The plant and its environment	.583	Plankton
	591.5 Ecology. Ethology. The animal in relation to its environment	.584	Nekton
	631.95 Mode of life of plants (ecology) from the agricultural point of view	.586	Periphyton
.2	Organisms and environment	.587	Benthos
.22	Optimal habitat conditions. Preferendum	.589	Other aquatic biocoenoses
.23	Extrenal conditions. The limits of tolerance	.6	Applied hydrobiology →573.6 Applied biology in general
.24	Ecological physiology of organisms. Response of organisms to alteration of environmental factors <i>Further particulars may be denoted by colon combination with 581, 591 and 612, and by the .04 special auxiliary subdivisions listed under 57</i>	.62	Fishery hydrobiology
		.622	Food of aquatic organisms
		.625	Acclimatization and introduction of aquatic organisms
		.626	Cultivation of food organisms
		.63	Sanitary hydrobiology
		.632	Effects of pollution on hydrobionts
		.633	Biological analysis of waters
		.635	Biological treatment of wastes (sewage) and self purification of waters (ecological aspects) →628.16 Water treatment: processes, operations, plant and equipment. Waterworks practice generally
			628.35 Biological treatment processes in general — Public health engineering
		.636	Means of controlling harmful hydrobionts
		.64	Aquatic toxicology →615.9 Toxicology. General studies of poisons
		.65	Technical and navigational hydrobiology
		.652	Fouling organisms and borers
		.653	Sonic scattering layers
574.3	Populations and environment	.68	Space hydrobiology →629.78 Spaceflight engineering. Astronautics. Spacecraft
.32	Modes of formation of populations		Self-contained systems
.34	Population dynamics →575.174 Genetic population dynamics	.682	Auxiliary recycling systems
.36	Biomass and energetics of populations	.685	Biogeography in general. Geographical distribution of organisms
.4	Terrestrial biocoenoses and ecosystems. Biogeocoenoses. Biogeochemical cycles →581.524 Associational ecology. Synecology — Botany	.9	Migration. Change of habitats
	591.553 Biocoenosis — Zoology <i>Further particulars may be denoted by (21/25) from Table I(e) Common auxiliaries of place</i>	.91	GENERAL GENETICS. GENERAL CYTOGENETICS. IMMUNOGENETICS. EVOLUTION. SPECIATION. PHYLOGENY
.42	Formation and development of terrestrial biocoenoses and ecosystems. Succession	575	Longevity. Maturation etc. [<i>cancelled</i>] → 57.017.6 or use Table I(g), especially → "712.4/.9" or Table I(k), especially -053.1/.9. cf 612.681, 616-007.11/.12
.43	Food chains (networks, webs)		Special auxiliary subdivisions for 575
.44	Trophic levels. Ecological pyramids	575-181/-184	Size, biogeometry, weight, number [<i>cancelled</i>] →57.018
.45	Productivity	575.061	External characters [<i>cancelled</i>] →57.018
.46	Energetics	575'3	Cytological details 575'3 ≅ 576.3
.5	Hydrobiology. Aquatic biocoenoses and ecosystems →556 Hydrosphere. Water (in general). General hydrology <i>Further particulars may be denoted by (26/28) from Table I(e) Common auxiliaries of place</i>		Principal divisions (continued)
.52	Hydrobionts: effects of hydrological and hydrochemical factors	575.1	HEREDITY. INHERITANCE
.522	Ecological physiology of the hydrobionts <i>Further particulars may be denoted by colon combination with 581 and 591</i>	.11	Nuclear inheritance
.523	Food chains (networks, webs)	.111	Effects of external factors [<i>cancelled</i>] use 575.042, cf 575.043/.049
.524	Trophic levels	.112	Effects of internal factors [<i>cancelled</i>] use 575.041, cf 575.043/.049
		.113	Gene. Genetic apparatus. Genome
		.1	Inheritance information. Nature of gene →577.21 Molecular mechanisms of coding, storage and realization of inheritance information

575.113.12	Genetic code	575.174	Genetic population dynamics
.15	Nature of gene		<i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i>
.152	Cistron		575.174.015.3 Genetic polymorphism (heterogeneity) in the population
.153	Muton	.2	Mutation process and population dynamics
.155	Recon	.4	Selection and genetic population dynamics
.2	Allele. Allelism (allelomorphism). Homozygosity. Heterozygosity. Hemizyosity	.5	Isolation and genetic population dynamics
.3	Gene interaction. Epistasis. Hypostasis	.175	Genetic homeostasis
.32	Complementarity	.176	Genetic load
.34	Polymery	.177	Genetic drift
.35	Hypostasis	.18	Sex genetics. Genetic sex determination
.36	Epistasis	.181	Sex-limited traits. Sex-linked traits
.39	Other types of gene interaction	.182/.183	Maternal influence, paternal influence [cancelled] →575.18
.4	Multiple factors [cancelled] →575.113.34	.19	Genealogy [cancelled] →612.6.05, cf 929.5 (formerly 929.1/.5)
.42	Cumulative factors [cancelled] →575.113.39	.191	Eugenics [cancelled] →613.94
.5	Modifying factors [cancelled] →575.113.39	575.2	VARIATION
.6	Inhibiting factors [cancelled] →575.113.39	.21	Phenotypic variation. Phenotype. Modifications. Phenocopies
.7	Lethal factors [cancelled] →575.113.39	.22	Genotypic variation. Genotype
.114	Segregation. Recombination [cancelled] →575.22	.222	Combinative variation
.115	Dominance. Recessiveness [cancelled] →575.118.2/.3	.2	Mating (crossing)
.116	Gene linkage. Genetic (chromosome) map	.3	Panmixis (random mating)
.1	Interference	.4	Outbreeding
.12	Gene recombination. Crossing over	.5	Inbreeding. Pure lines
.14	Gene conversion	.52	Inbreeding. Depression
.4	Genetic (chromosome) map	.6	Interlining mating
.5	Interchromosomal linkage [cancelled] →576.352	.7	Hybridization. Hybrids
.7	Sex linkage [cancelled] →575.118.52	.72	Inter-species sex hybridization
.117	Expressivity and penetrance of genes	.73	Distant hybridization
.2	Gene expressivity	.75	Vegetation hybridization. Chimaeras
.5	Gene penetrance	.78	Heterosis
.118	The types of nuclear inheritance	.224	Mutations. Mutagenesis. Mutagens →576.356 Anomalies of cell division
.2	Dominance	.2	Mutations; their types
.3	Recessiveness	.22	Gene (point) mutations
.5	Linkage inheritance of traits	.23	Chromosomal mutations (aberrations, abnormalities)
.52	Sex-linked inheritance →575.181 Sex-limited traits. Sex-linked traits	.232	Chromosomal structure mutations
.9	Other types of nuclear inheritance	.2	Duplication
.12	Natural hybridization. Characters of hybrids [cancelled] →575.222.7, cf 575.113.2; for endogamy, exogamy →575.222.4/.5	.3	Translocation
.13	Extranuclear (cytoplasmic) inheritance	.4	Inversion
.133	Plasmagenes (non-chromosomal, extranuclear genes). Plasmon. Plaston	.5	Deficiency
.14	Effects of inbreeding. Incest [cancelled] →575.222.5, cf 575.113.2	.52	Deletion
.15	Mechanical phenomena [cancelled] →575.1 and use 575.1.02	.54	Gap
.153	Genetic nuclear-cytoplasmic interaction	.6	Fragmentations
.155	Somatic cell genetics →576.3 General cytology	.234	Genome mutations
.16	Chemical phenomena [cancelled] →577.1	.2	Polyploidy
.16	Developmental genetics. Genetic basis of ontogenesis	.4	Heteroploidy
.162	Gene-trait relation	.29	Mutations of other types
.164	Mechanism of gene expression. Pleiotropy	.4	Mutagenesis. Mutagenesis types
.165	Genetic norm of reaction		<i>Further particulars may be denoted by the .04 special auxiliary subdivisions listed under 57, e.g.</i>
.167	Genotype-environment interrelation		575.224.46.044 Chemical mutagenesis
.17	Morphological phenomena [cancelled] →576.3, 581.4, 591.4	.42	Spontaneous mutagenesis
575.17	Population genetics. Genetic processes in populations →575.857 Population — Evolution	.46	Induced mutagenesis
.172	Physiological reactions [cancelled] →575.164	.6	Antimutageneses
.173	Biochemical reactions of the gone [cancelled] →577.21	.23	Other types of variation
			<i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i>
			575.23.084 Experimental variation
		.24	Mutations [cancelled] →575.224
		.25	Segregation [cancelled] →575.222
		.26	The rule of homologous series

575.27	Bacterial sex recombination and mutation.	576.2	General physiology and morphology [<i>cancelled</i>] class with specific life forms, e.g.
	Bacterial transformation and transduction	581.1	Plant physiology
	(only general topics)	.4	Plant morphology
575.28	Viral recombination and mutations (only	591.1	Animal physiology
	general topics)	.4	Organology. Anatomy
575.3/.7	Species-forming factors [<i>cancelled</i> , <i>see relocations at individual numbers below</i>]	576.3	GENERAL CYTOLOGY. THE CELL AS A BIOLOGICAL SYSTEM: GENERAL PLAN, CHEMICAL COMPOSITION, PHYSICO-CHEMICAL AND MOLECULAR PROPERTIES
.3	Species formation by inheritance of acquired characters. Lamarckism [<i>cancelled</i>] →575.822		<i>Only general and comparative studies are classed here</i>
.4	Species formation by natural and artificial selection (Darwinism) [<i>cancelled</i>] →575.827		<i>For plant cytology →581.17</i>
.5	Species formation by sexual selection [<i>cancelled</i>] →575.829		<i>For animal cytology →591.81</i>
.6	Connection between migration and species formation [<i>cancelled</i>] →575.825.2		→612.014 General physiology of the cell and of the organism
.7	Degeneration and regeneration phenomena in species [<i>cancelled</i>] →575.835, cf 57.017.3	576.3 (contd.)	<i>Further particulars may be denoted by the .08 special auxiliary subdivisions listed under 57, e.g.</i>
575.8	EVOLUTION. ORIGIN OF SPECIES. PHYLOGENY	576.3.08	Cytological technique, experiments, measurements
.82	Factors of evolution	.31	Cell morphology: plan and composition of cells, organoids and their subparticles
.822	Heredity and variation	.311	Cytoplasm: general plan and ultrastructure
	→575.1 Heredity. Inheritance	.1	Chemical composition [<i>cancelled</i>] →576.311 or use 576.311.014
	.2 Variation	.2	Vital properties. Energy [<i>cancelled</i>] →576.311 or use 576.311.017.3, 576.311.022 etc.
.824	Struggle for existence	.3	Structure of cytoplasm. Cytoplasmic components. Organelles
.825	Isolation	.31	Granules. Enclosed bodies
.2	Biological isolation	.32	Background substance of cytoplasm. Cytoplasmic matrix
.5	Geographical isolation	.33	Vacuolar systems of cytoplasm and its components. Endoplasmic reticulum (ergastoplasm)
.826	Adaptation	.332	Endoplasmic membranes
.827	Selection	.335	Golgi Zone (complex) and dictyosomes
.2	Natural selection	.336	Ribosomes. Polyribosomes. Agranular endoplasmic reticulum
.5	Artificial selection		→577.217.34 Structure of ribosomes and their components
.829	Other evolution factors	.35	Messenger ribonucleic acid
.83	Directions and rules of evolution	.36	Polyribosomes
.832	Divergence	.34	Various organelles of cytoplasm
.833	Parallelism	.342	Plastids. Leucoplasts. Chloroplasts. Chromatophores (chromoplasts)
.834	Convergence		<i>Only information about fine structure is classed here. For function →581.174</i>
.838	Puzzles of evolution	.2	Outer membrane
.85	Mechanics of evolution. Evolution	.3	Inner membrane
	according to levels of biological systems	.4	Ground substance. Matrix
	<i>At 575.852/.854 are classed studies of the significance of changes at relevant levels in the evolution of the organism</i>	.6	Lamellae. Grana
.852	Biomacromolecules. Molecular evolution	.344	Lysosomes. Peroxisomes
	<i>Further particulars may be denoted by '1, subdivided as 577.1, e.g.</i>	.2	Lysosomal membrane
	575.852 '112 Protein evolution	.4	Ground substance. Matrix
	'113 Nucleic acid evolution	.5	Primary lysosomes
.853	The cell and subcellular structure	.6	Secondary lysosomes
	<i>Further particulars may be denoted by '3, subdivided as 576.3, e.g.</i>	.345	Golgi apparatus [<i>cancelled</i>] →576.311.335
	575.853'316.37 Karyotype evolution	.346	Centrosome. Cell centre
.854	Tissue, organs and function	.2	Centrioles and their satellites
	<i>Further particulars may be denoted by colon combination with 577.1/.2, 581 and 591</i>		→576.311.348.22 Basal body (kinetosome)
.856	Organism	.5	Centrodosome
.857	Population	.7	Centrosphere. Astrosphere
	→575.17 Population genetics. Genetic processes in populations	.347	Mitochondria
.858	Species. Speciation	.2	Outer membrane
.86	The origin of organismic groups (taxa).	.3	Inner membrane
	Phylogeny	.4	Ground substance. Matrix
.87	The origin of organs and functions		
	<i>Further particulars may be denoted by colon combination with 581 and 591</i>		
.89	Other topics concerning evolution		
576	CELLULAR AND SUBCELLULAR		
	BIOLOGY. CYTOLOGY		
.1	Origin of organized beings and of species in general. Phylogeny [<i>cancelled</i>] →573.5, 575.8		

576.311.347.6	Crystal	575.316.22	Primary constriction. (Spindle-attachment). Centromere (kinetochore). Chromosomes according to number and position of centromeres
.348	Organelles of special sense		
.2	Cilia. Flagella	.221	Monocentric chromosomes. Chromosomal arms
.22	Basal body (kinetosome)	.2	Acrocentric chromosomes
.24	Matrix	.5	Submetacentric chromosomes
.26	Inner fibres	.222	Dicentric chromosomes
.27	Outer fibres	.223	Polycentric chromosomes
.3	Myofibres (striated muscle)	.228	Acentric chromosomes
.32	Sarcomers	.23	Secondary (nucleolar) constriction. Nucleolar organizers. Nucleolar chromosomes →576.315.45 Nucleoli. Nucleolar chromatin
.33	Limits of sarcomers (Z-bands)	.24	Terminal sites of chromosome. Telomere
.34	Anisotropic bands (A-bands)	.25	Satellite of the chromosome. SAT-chromosomes
.35	Isotropic bands (I-bands)	.29	Other chromosome components
.37	Protofibrils (myofilaments)	.3	Fine structure of the chromosome
.372	Thin filaments	.32	Matrix
.373	Thick filaments	.33	Chromatids
.375	Cross-bridges	.34	Coiling structure of chromosomes. Chromonemes
.4	Neurofibrils	.342	Chromofibres
.5	Tonofibrils	.343	Chromomeres
.7	Microtubulars	.344	Interchromomeric strands
.349	Special organoids of other types	.345	Heterochromatin. Chromocentres (false nuclei)
.38	Theories of the structure of protoplasm etc. [cancelled] use 576.311.3.01	.35	Special (giant) chromosomes
.6	Arrangement of the protoplasm in the cell [cancelled] use 576.311.017.2	.352	Polytene (salivary gland) chromosomes
.7	Quantity of protoplasm in the cell [cancelled] use 576.311.018.3	.2	Bands
.8	Uniformity of protoplasm throughout the biological series [cancelled] use 576.311.015.2	.3	Interbands
.9	Polarity of the cell [cancelled] use 576.3.018.72	.5	Puffs
.312	The nucleus [cancelled] →576.315/.316; for chromosomes →575.316	.7	Balbani rings
.313	Central or polar corpuscles. Centrosomes [cancelled] →576.311.346	.353	Lampbrush chromosomes
576.314	Cell (plasma) membrane →576.311.332 Endoplasmic membranes 577.352.3 Natural (biological) membranes — Biophysics	.2	Central chromosomal axis
.2	Structure of the plasma membrane and specialized methods for their preparation	.4	Lateral loops
.3	Outer layer of membrane	576.316.7	Karyotype. Pattern and number of the set of chromosomes (in cell nucleus) <i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i> 576.316.7.087 Karyometry. Idiograms, karyograms
.4	Stroma		
.5	Inner membrane layer	.72	Autosomes
.6	Specialized structure of cell surface	.74	Sex chromosomes <i>Further particulars may be denoted by alphabetic extension [Table I(h)], e.g.</i> 576.316.74X X chromosomes 576.316.74Y Y chromosomes
.62	Specialized structure of free cell surface		
.622	Microvilli	.79	Other types of chromosome
.624	Cuticula	576.32/.36	PHYSIOLOGY, BIOCHEMISTRY, BIOPHYSICS AND MOLECULAR BIOLOGY OF THE CELL <i>Only general and complex studies are classed here For studies of particular aspects →577.1/.3</i>
.625	Brush border	.32	Mechanical activity of the cell →581.18 Movement. Sensibility — Botany
.626	Basal labyrinth	.321	Intracellular motility. Protoplasmic circulation, streaming. Cyclosis
.63	Specialized structure of contacting cell surface. Intercell junctions	.322	Cell motility. Amoeboid movement. Ciliary and flagellary movements
.632	Intercell bridges. Desmosomes	.2	Amoeboid movement. Pseudopodia formation
.7	Outer layer of cell surface	.3	Cilia and flagella motility
.315	Cell nucleus (in general) <i>For chromosomes →576.316</i>	.323	Contraction. Contractile vacuole
.2	Nuclear membrane (envelope)	.2	Myofibre contraction
.3	Nucleoplasm. Nuclear sap (karyolymph, karyoxylema)		
.4	Interphase nuclei		
.42	Chromatin →576.316 Chromosomes		
.43	Chromocenters (karyosomes). Sex chromatin		
.45	Nucleoli. Nucleolar chromatin →576.316.23 Secondary (nucleolar) constriction. Nucleolar organizers. Nucleolar chromosomes		
.316	Chromosomes		
.2	General plan and components of the chromosome		

576.323.3	Significance of sarcoplasm in contraction	576.356	Anomalies of cell division
.324	Deformations of cell body due to passive movements	→575.224	Mutations. Mutagenesis. Mutagens
.33	Irritability and sensitivity of the cell	.1	Non-disjunction [<i>cancelled</i>] →576.356.2
	<i>Cell response to external effects may be denoted by the .04 special auxiliary subdivisions listed under 57, especially .042</i>	.2	Anomalies of the cell division due to chromosomal disturbances
.331/.332	Nature and cause of irritability. Cell reactions [<i>cancelled</i>] use 576.33.04...	.3	Anomalies of the cell division due to disturbance of the mitotic apparatus
.333	Taxes. Tropisms (cytological foundation)	.4/.5	Monosomics. Polysomics. Haploidy. Diploidy. Polyploidy [<i>cancelled</i>] →575.224.234
	→581.18 Movement. Sensibility — Botany	.6	Cytotomia disturbances
	591.185 Sensitivity. Tropisms — Zoology	.7	Autosyndesis. Allosyndesis [<i>cancelled</i>] →576.385
.34	Cell nutrition. Cell metabolism	.357	Degeneration of the nucleus [<i>cancelled</i>] →576.385
.341	Types of cell nutrition	.36	Life cycle of the cell
.342	Transport systems of the cell	.362	Growth and multiplication stage in non-differentiated state
.343	Metabolic pathways of the cell		Stage of differentiation
	→577.121 General aspects of metabolism. Metabolic pathways etc.	.363	Dedifferentiation
.344	Morphological foundations of cell metabolism	.364	Stage of normal activity
.345	Action of katabolic products on the cell.	.365	Stage of senescence
	Poisons. Toxins [<i>cancelled</i>] use 576.3.044...	.366	Disintegration. Natural death
.35	Cell reproduction, multiplication. Cell division	.367	Cytological basis of sexual reproduction of multicellular organisms
.351	Amitosis. Direct cell division	→581.162	Sexual reproduction — Botany
.352	Endomitosis. Endoreproduction. Duplications of chromosomes without cell or nuclear division	591.16	Reproduction. Biogenesis etc. — Zoology
	.2 Polyteny	612.613	Coitus. Impregnation — Physiology
	.3 Polysomaty		Morphology of fertility. Germ cells
	.5 Somatic reduction	.371	Physiology and biochemistry of fertility
.353	Mitosis. Karyokinesis. Indirect cell division	.372	Other types of cell function or activity.
	.2 Morphology of mitosis. Mitotic phases	.38	Cell pathology
	.22 Preparation for mitosis. Interphase	.382	Secretory function of the cell. Cellular basis of secretion
	.23 Prophase	.3	Morphological peculiarities of the secretory cell. Secretory cycle
	.24 Prometaphase		<i>Further particulars may be denoted by colon combination with 576.31</i>
	.25 Metaphase		Secretion production
	.26 Anaphase	.32	Excretion
	.27 Telophase	.33	Types of secretion
	.3 Mitotic apparatus. Organelles in mitosis	.4	Holocrine
	.4 Cytokinesis (cytotomia)	.42	Macroapocrine
	.7 Physiology and biochemistry of mitosis	.43	Merocrine
	.8 Biophysics of mitosis	.44	Other types of secretion
576.354	Special kinds of cell multiplication or division	.49	Recovery to normal activity
.4	Meiosis. Meiotic phases	.7	Pathological changes in the cell. Cell pathology (cytopathology, pathocytology)
.42	First meiotic division. Reduction division	.385	<i>Here are classed studies of cell behaviour during injury and cellular death or degeneration</i>
.422	Prophase I	→616	Pathology
	.2 Proleptonema	617	Orthopaedics. Surgery.
	.3 Leptonema		Ophthalmology
	.4 Zygonema. Synapsis. Chromosomal pairing	618	Gynaecology. Obstetrics
	.5 Pachynema		Oedema. Hydropic degeneration of the cell
	.6 Diplonema. Chromosomal chiasma	.2	Deposition of substances. Infiltration
	.7 Diakinesis	.3	Deposition of protein substances
.423	Prometaphase I	.32	Amyloid infiltration
.424	Metaphase I	.322	Hyaline infiltration and degeneration
.426	Anaphase I	.323	Mucoid degeneration
.427	Telophase I	.324	Glycogen infiltration
.43	Interkinesis. Meiotic interphase	.33	Fat infiltration and degeneration
.44	Second meiotic division. Equational division	.34	Myelin infiltration and degeneration. Myelin figures
.442	Prophase II	.342	Cholesterol deposition
.444	Metaphase II	.35	Pathological pigmentation
.447	Telophase II	.36	Deposition of mineral substances
.46	Synapsis. Chromosome pairing [<i>cancelled</i>] →576.354.422.4		
.465	Reduction division [<i>cancelled</i>] →576.354.42		
.53	Maturation of the egg [<i>cancelled</i>] →576.37		
.355	Influence of various factors on cellular division [<i>cancelled</i>] use 576.35.04		

576.385.362	Calcification	576.89	576.893.12	Amoebozoa. Amoebae.
.363	Iron (Fe) deposition			Amoeba of dysentery
.4	Pathology of cellular growth. Hypertrophy. Atrophy.		.16	Flagellata
.5	Pathology of cell differentiation. Carcinogenesis, Peculiarities of tumor growth →616-006 Tumours. Neoplasms. Blastomata. Choristomata. Hamartomata. Oncology (study of tumours)		.161	Euflagellata
.7	Pathology of individual cell organelles <i>Further particulars may be denoted by colon combination with 576.31</i>		.13	Trypanosomatidae
.8	Pathology of cell junction and cell population		.21	Trichomonas
.4	Movement. Locomotion of the cell [<i>cancelled</i>] →576.32		.22	Giardia (Lamblia)
576.5	CELL INTERACTIONS AND INTERCELLULAR JUNCTIONS; THEIR TYPES. CELL POPULATIONS. CELL BEHAVIOUR IN CULTURE <i>For culture technique →57.085.23</i>		.17	Ciliata. Infusoria
.52	Phenomena at cell surfaces. Cell adhesion, contacts		.172.1	Balantidium
.522	Contacts between mobile cells		.19	Sporozoa
.523	Contacts between non-mobile cells		.192.1	Coccidia
.524	Cellular adhesion		.6	Babesia (Piroplasma). Plasmodium (Malaria)
.526	Specific methods of studying cell adhesion properties		.895	Articulata
.53	Cell population		.1	Vermes. Worms
.532	STEADY-STATE		.121	Cestodes. Tape-worms
.533	Growth		.3	Bothriocephaloidea
.534	Renewal		.56	Taeniidae. Echinococcus
.535	In vitro cell cultures as model cell population		.122	Trematodes. Flukes
.2	Suspension culture		.21	Liver flukes. Lung trematodes. Paragonismus
.5	Mono-layer culture		.22	Blood trematodes. Bilharzia
.536	Differentiation in cell population		.131	Nematomorpha
.538	Dynamics of cell population		.1	Gordiidae
.54	Cell interactions		.132	Nematoda. Thread-worms
576.6	CYTOECOLOGY. SYMBIOSIS OF CELLS AND ORGANELLES		.2	Strongyloides
576.7	TISSUES AND ORGANS AS A CELLULAR SET →575.87 The origin of organs and functions 581.8 Plant histology 591.8 Histology in general — Zoology 611-018 Histology. Histogenesis — Anatomy		.5	Filaria. Loa. Anchocerca. Dracunculus
.72	Tissues. General study of tissues. Histology [<i>cancelled</i>] →576.7 and references there		.6	Trichocephalus (Trichiura). Trichina
.74	Organs. General study of organs [<i>cancelled</i>] →575.85/.87, 576.7		.7	Hook-worms. Ancylostoma. Necator
.75	The organism as a whole. Nature of biological organization and improvement [<i>cancelled</i>] →573.7		.8	Ascaris. Oxyuris
576.8	PARASITOLOGY		.133	Acanthocephali
576.8.01/576.856	Microbiology. Bacteriology [<i>cancelled</i>] →579		.14	Annelida
576.858	Virus species etc. [<i>cancelled</i>] →578		.143	Hirudinea. Leeches
.859	Undetermined members of the class of bacteria [<i>cancelled</i>] →576.85/.86, 582.232		.2	Arthropoda. Pest destruction, delousing
576.88	Plant parasitology. Parasitic plants 576.88 ≅ 582		.3	Crustacea or Branchiata. Crabs
.89	Animal parasitology. Parasitic animals. Carriers of disease 576.89 ≅ 592/599, e.g. 576.893.1 Protozoa .11 Rhizopoda		.4	Arachnoidea
			.41	Linguatulidae
			.42	Acarina. Mites (scabies, mange, asthma)
			.421	Ixodoidea. Ticks (paralysis, relapsing fever, Texas fever)
			.6	Myriapoda. Millipedes
			.7	Insecta, Hexapoda. Insects
			.72	Orthoptera. Earwigs. Cockroaches
			.75	Hemiptera. Lice. Bugs
			.751.4	Mallophaga
			.77	Diptera
			.771	Nematocera. Gnats. Mosquitoes
			.772	Brachycera. Flies. Gadflies. Myiasis. Tsetse
			.775	Aphaniptera

577	MATERIAL BASES OF LIFE.	577.382.6	Valine
	BIOCHEMISTRY. MOLECULAR	.383	Oxyaminocarboxylic acids
	BIOLOGY. BIOPHYSICS (GENERAL	.2	Serine
	STUDIES OF THE CHEMICAL AND	.5	Threonine
	PHYSICAL-CHEMICAL FOUNDATIONS	.384	Dicarboxylic amino acids and their amides
	OF BIOLOGICAL PHENOMENA)	.2	Aspartic acid. Asparagine
	→576.3 General cytology. The cell as a	.4	Glutamic acid. Glutamine
	biological system		→547.466.64 Glutamic acid.
	612.015 Physiological chemistry		Glutamine — Chemistry
	Special auxiliary subdivisions for 577	.385	Dibasic amino acids
577.01/.089	Theory, property, factors etc.	.2	Arginine
	577.01/.089 ≅ 57.01/.089		→547.495.9 Guanidine and its
			derivatives. Arginine etc. — Chemistry
577.3	Cytological, cell and subcell details	.4	Lysine
	577'3 ≅ 576.3		→547.466.46 Diaminocaproic acid.
			Lysine — Chemistry
Principal divisions (continued)			
577.1	CHEMICAL BASES OF LIFE.	.6	Hydroxylysine
	BIOCHEMISTRY AND BIO-ORGANIC	.386	Sulpha-containing amino acids
	CHEMISTRY GENERALLY	.2	Cystine. Cysteine
	<i>Here are classed general studies of</i>	.5	Methionine
	<i>biopolymers and other biologically</i>		
	<i>interesting substances, enzymes, vitamins,</i>	577.112.387	Aromatic amino acids
	<i>hormones, antibiotics etc.</i>	.2	Phenylalanine
	→546 Inorganic chemistry		→547.586.2 Monotosic phenylaliphatic
	547 Organic chemistry		acids, e.g. phenylalanine —
			Chemistry
	581.19 Chemical constituents of	.3	Tyrosine
	plants		→547.587.42 Hydrocoumaric acids.
	591.05 Physiological chemistry and		Melilotic acid — Chemistry
	metabolism in general.	.4	Tryptophane
	Composition of the body		→547.757 Carboxylic acids of the
	<i>Further particulars may be denoted by</i>		indoles, e.g. tryptophane —
	<i>the '3 special auxiliary subdivisions</i>		Chemistry
	<i>described under 577, e.g.</i>	.388	Imino-acids
	577.112'315.42 Chromatin of proteins	.2	Proline
	(from 576.315.42)		→547.747 Hydrogenated carboxylic
.11	Static biochemistry. Biopolymers and		acids of pyrrole, e.g. proline
	other biologically interesting substances		— Chemistry
	→577.12 Dynamic biochemistry.	.3	Hydroxyproline
	Metabolism of biopolymers		→547.747 Hydrogenated carboxylic
	and other biologically active		acids of pyrrole,
	substances		e.g. hydroxyproline —
.112	Proteins: isolation, properties, structure,		Chemistry
	classification	.389	Other biologically interesting amino acids
	→547.96 Proteins — Chemistry	.4	Chemical reactions of the proteins.
	577.122 Protein metabolism: functional		Determination of terminal and functional
	organization		groups. Chemical modification of proteins
	<i>Further particulars may be denoted by the</i>	.5	Polypeptide chain. Types of linkages in the
	<i>special auxiliary subdivisions listed</i>		proteins. Sequence of amino acids. Primary
	<i>under 57, e.g.</i>		structure of protein and specific methods of
	577.112.083 Isolation, purification,		determination
	crystallization and fractionation of proteins	.6	Synthetic peptides and polypeptides
.34	Chemical reactions of the amino acids.	.7	Protein complexes
	Chemical modification of the amino acids	.8	Protein classification
.342	Reactions of amino group	.82	Simple proteins
.343	Reactions of carboxyl group	.822	Protamins
.345	Reaction amino and carboxyl groups	.823	Histones
.36	Three-dimensional structure of the amino	.824	Albumins
	acids	.825	Globulins
.37	Amino-acid complexes	.826	Prolamins (alcohol-soluble)
.38	Classification of the biologically interesting	.827	Glutelins
	amino acids	.828	Scleroproteins
.382	Aliphatic amino acids	.85	Conjugated proteins
	→547.466 Amino derivatives of	.852	Phosphoproteins
	carboxylic acids. Amino	.853	Mucoproteins (glycoproteins)
	acids — Chemistry	.854	Chromoproteins (metalloproteins)
.2	Glycine	.855	Nucleoproteins
.3	Alanine	.856	Lipoproteins
.4	Leucine		
.5	Isoleucine		

577.113	Nucleic acids: isolation, characterization, structure, classification →547.963.32 Nucleic acids — Chemistry 577.123 Nucleic acid metabolism: functional organization <i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i> 577.113.083 Isolation, purification, crystallization and fractionation of nucleic acids	577.118	Inorganic and mineral substances. Macroelements. Microelements. Trace and semi-trace elements <i>Particular substances may be denoted by colon combination with the subdivisions of 546 and 549</i> Dynamic biochemistry. Metabolism of biopolymers and other biologically active substances →577.11 Static biochemistry. Biopolymers and other biologically interesting substances <i>Further particulars may be denoted by Table I(e) Common auxiliaries of place, e.g.</i> 577.12(204) Aquatic metabolism
.3	Nucleosides, nucleotides and nitrogen bases. Nucleotide composition of nucleic acids. Chargaff rules →547.963.3 Nucleoproteins. Nucleohistone — Chemistry	.12	
.4	Chemical reactions of nucleic acids. Chemical modification of nucleic acids	.121	General aspects of metabolism. Metabolic pathways. Metabolites. Anabolism and catabolism
.5	Polynucleic chain. Analogous sequences in the polynucleotides. Primary structure of nucleic acids and specific methods for its determination	.2	Degradation processes. Catabolic pathways. Dissimilation
.6	Synthetic polynucleotides	.3	Biosynthetic processes. Anabolic pathways. Assimilation
.7	Nucleic acid complexes	.4	Main metabolic pathways. Citric acid (Krebs) cycle
.8	Classification of the nucleic acids	.5	Anaplerotic pathways
.114	Carbohydrates. Monosaccharides. Polysaccharides: isolation, characterization, structure, classification →547.455 Simple sugars or monosaccharides — Chemistry 547.458 Polysaccharides — Chemistry 577.124 Carbohydrate metabolism: functional organization <i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i> 577.114.083 Isolation, purification and fractionation of carbohydrates	.6	Interrelation between anabolism and catabolism
.3	Monosaccharides	.7	Energy metabolism. Biological oxidations. →577.23 Energy bases of life. Molecular bioenergetics
.4	Polysaccharides: chemical reactions	.9	Other general aspects of metabolism
.5	Polysaccharide chain. Primary structure of the polysaccharides (for heteropolysaccharides)	.122	Protein metabolism: functional organization →577.112 Protein: isolation, properties, structure, classification
.7	Polysaccharide and carbohydrate complexes	.2	Protein digestion and its pathways <i>For peptide hydrolases →577.152.34</i>
.8	Classification and nomenclature for polysaccharides and carbohydrates	.3	Amino acid metabolism
.115	Lipids (fats, fat-like substances): isolation, characterization, structure, classification →547.915.5 Lipids — Chemistry 547.92 Steroids — Chemistry 577.125 Lipid metabolism <i>Further particulars may be denoted by the special auxiliaries listed under 57, e.g.</i> 577.115.083 Isolation, purification and fractionation of lipids	.32	General aspects of amino acid metabolism
.3	Biologically interesting fatty acids. Fatty acid composition of lipids	.322	Transamination
.4	Chemical reactions of lipids	.323	Decarboxylation
.5	Types of linkage in the lipids	.324	Racemization
.7	Lipid complexes	.325	Deamination
.8	Classification and nomenclature for lipids	.33	Branching-chain amino-acid metabolism
.117	Metabolism of other organics 577.117 $\cong$ 577.127, e.g. 577.117.2 Steroids, bile acids .3 Pyrrole pigments (porphyrins)	.332	Breakdown of phenylalanine and tyrosine
		.335	Breakdown of methionine and biological transmethylation
		.34	Arginine metabolism and urine biosynthesis
		.36	Pathways of amino acid biosynthesis
		.38	Disturbances of amino acid metabolism
		.5	Protein biosynthesis in general and its pathways →577.217 Realization of inheritance information. Translation. Molecular mechanisms of protein biosynthesis
		.8	Disturbance of protein metabolism
		.123	Nucleic acid metabolism: functional organization →577.113 Nucleic acids: isolation, characterization, structure, classification
		.2	Pathways of breakdown (digestion) of nucleic acids <i>For nucleases →577.151</i>
		.3	Breakdown of purines and pyrimidines. Nucleotidephosphate metabolism
		.32	Dephosphorylation
		.35	Phosphorolysis
		.36	Pyrene breakdown

577.123.37	Pyrimidine breakdown	.02	Theory and mode of action of enzymes.
.38	Nucleotide triphosphate biosynthesis		Enzymes as catalysts [<i>cancelled</i>] →577.151.4
.382	Pyrimidine nucleotide biosynthesis	.021	General [<i>cancelled</i>] use 577.151.4.01
.383	Pyrimidine nucleotide biosynthesis	.022	Velocity of action [<i>cancelled</i>] use 577.151.036
.385	Enzymatic phosphorylation of nucleotides	.023	Reversibility of reactions. Equilibrium
.388	Disturbance of the nucleotide metabolism		[<i>cancelled</i>] →575.151.4
.5	Nucleic acid biosynthesis (in general) and its pathways	.024	Activation of enzymes [<i>cancelled</i>]
	→577.214 Copying of inheritance information. Transcription	use 575.151.042.5	
	577.215 Inverse transcription. Synthesis of DNA on RNA template	.025	Retardation of enzyme action [<i>cancelled</i>]
.8	Disturbance of nucleic acid metabolism	use 575.151.042.2	
.124	Carbohydrate metabolism: functional organization	.03	Influence of physical, mechanical and physicochemical factors [<i>cancelled</i>]
	→577.114 Carbohydrates etc.: isolation, characterization, structure, classification	use 577.151.043	
.2	Pathways of carbohydrate breakdown	.04	Influence of chemical elements and compounds
.22	Glycolytic pathway. Glycolysis	[<i>cancelled</i>] use 577.151.044	
.23	Lactic acid fermentation	.05	Influence of living things [<i>cancelled</i>]
.24	Other types of fermentation	use 577.151.047	
.25	Hexose monophosphate (pentose) pathway	.06	Origin. Distribution. Production [<i>cancelled</i>]
.4	Formation and breakdown of nucleotide diphosphate sugars	use 577.151.4.017.2	
.5	Biosynthesis of carbohydrates and polysaccharides	.07	Preparation. Isolation. Synthesis [<i>cancelled</i>]
.8	Disturbances of carbohydrate metabolism	use 577.151.083, 577.151.5/7	
.125	Lipid metabolism	.08	Enzymological techniques, experimental methods and equipment
	→577.115 Lipids etc.: isolation, characterization, structure, classification		<i>The full subdivisions of .08 are listed under 57</i>
.2	Lipid breakdown		
.3	Fatty acid metabolism		
.32	Pathways of breakdown of fatty acids		
.33	Oxidation of fatty acids		
.36	Synthesis of fatty acids		
.38	Disturbances of fatty-acid biosynthesis. Formation of ketonic (acetic) bodies		
.5	Pathways of lipid biosynthesis		
.52	Biosynthesis of triglycerides		
.53	Biosynthesis of phospholipids		
.54	Biosynthesis of sphingolipids		
.8	Disturbances of lipid metabolism		
.126	Interrelation between the metabolism of proteins, nucleic acids carbohydrates and lipids		
.127	Metabolism of other biologically active organics		
	→577.117 Metabolism of other organics		
.2	Steroid and bile acid metabolism		
.3	Porphyrin metabolism		
.4	Isoprenoids and flavonoid metabolism		
.128	Inorganic and mineral metabolism		
	<i>Further particulars may be denoted by colon combination with 546, by Table I(e)</i>		
	<i>Common auxiliaries of place etc. e.g.</i>		
	577.128(204) Aquatic mineral metabolism		
.13	Reserve and secondary origin substances		
.15	Enzymes. Catalysts of biological reactions. Enzymology		
Special auxiliary subdivisions for 577.15			
577.15.01	Types of enzymes [<i>cancelled</i>] →577.151, 577.152		
.011	Zymogens. Pro-enzymes [<i>cancelled</i>]		
	→577.151.5		
.012	True enzymes [<i>cancelled</i>] →577.151		
.013	Co-enzymes [<i>cancelled</i>] →577.151.33		
577.15.014	Anti-enzymes [<i>cancelled</i>] use 577.151.042.2		
			Principal divisions (continued)
		577.151	General problems and studies of enzymes: structure, specificity, origin, properties
			<i>For specific enzyme types →577.152</i>
			<i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i>
		577.151.01	Theory, general characteristics of enzymes
		.02	Fermentation mechanism
		.03	Properties and process variation. Rate etc.
		.04	Factors, influences (external, internal)
		.042	Retardation. Activation
		.05	Control characteristics at molecular, cell organ and population levels
		.3	Enzyme structure. Components of enzyme systems
		.32	Protein part of enzyme. Apoenzyme
		.33	Non-protein parts of enzyme. Coenzymes. Cofactors. Prosthetic groups
		.34	Active centre (site) of enzyme
		.35	Enzyme substrates
		.36	Enzyme-substrate complexes
		.4	Enzymatic specificity and reaction mechanism
		.42	Chemical specificity
		.43	Stereospecificity
		.44	Apoenzyme interaction
		.45	Enzyme-substrate interaction
		.5	Origin (formation) of enzymes
		.52	Biosynthesis of enzymes
		→577.122.5	Protein biosynthesis in general and its pathways
		577.217	Realization of inheritance information. Translation. Molecular mechanisms of protein biosynthesis
		.53	Constitutive synthesis of enzymes
		.54	Inducible synthesis of enzymes
		.57	Enzyme origin from precursors. Activation of precursors. Proenzymes
		.6	Biological properties of enzymes
		.62	Multi-enzymatic systems. Coordination and organization of enzymatic systems

577.151.63	Significance of enzymes in metabolism	577.152.129	With other acceptors
	→577.12 Dynamic biochemistry.	.13	Acting on the CH-CH group of donors
	Metabolism of biopolymers	.131	With NAD or NADP as acceptor
	and other biologically active	.132	With a cytochrome as an acceptor
	substances	.133	With O ₂ as acceptor
.64	Comparative enzymology. The nature of	.139	With other acceptors
	multiple forms of enzymes. Isoenzymes	.14	Acting on the CH-NH ₂ group of donors
	(isozymes)		(aminoacid oxidoreductases etc.)
.642	Intercellular differences	.141	With NAD or NADP as acceptor
.643	Tissue differences	577.152.143	With O ₂ as acceptor
.644	Specific differences	.15	Acting on the C-NH group of donors
.645	Genetic differences	.151	With NAD or NADP as acceptor
.7	Synthetic and partially synthetic enzymes	.153	With O ₂ as acceptor
.152	Classification and nomenclature of enzymes,	.16	Acting on NADH ₂ or NADPH ₂ as donor
	coenzymes, isoenzymes and parameters of	.161	With NAD or NADP as acceptor
	enzymatic reactions	.162	With a cytochrome as an acceptor
	<i>Further particulars may be denoted by the</i>	.164	With a disulphide compound as acceptor
	<i>special auxiliary subdivisions .01/.089</i>	.165	With a quinone or related compound as
	<i>listed under 57, and '1 subdivided</i>		acceptor
	<i>as 577.151</i>	.166	With a nitrogenous group as acceptor
	<i>This scheme follows the three-level coding</i>	.169	With other acceptors
	<i>(class: subclass: sub-subclass) of the</i>	.17	Acting on other nitrogenous compounds as
	<i>International Union of Biochemistry's</i>		donors
	<i>Enzyme Classification (IUB/EC), except</i>	.173	With O ₂ as acceptor: uricase
	<i>that:</i>	.179	With other acceptors
	<i>(a) the three levels are treated decimally</i>	.18	Acting on sulphur groups of donors
	<i>with the points omitted between class and</i>	.181	With NAD or NADP as acceptor
	<i>subclass and between subclass and</i>	.183	With O ₂ as acceptor
	<i>sub-subclass;</i>	.184	With a disulphide compound as acceptor
	<i>(b) the IUB/EC subclasses 1.9, 1.10</i>	.185	With a quinone or related compound as
	<i>and 1.11 are here</i>		acceptor
	<i>numbered 577.152.191, .192 and .193</i>	.186	With a nitrogenous group as acceptor
	<i>(according to the octave principle).</i>	.191	Acting on haem groups of donors (IUB/EC 1.9)
	<i>Individual enzymes that are listed with</i>	.3	With O ₂ as acceptor
	<i>their fourth-level serial numbers in the</i>	.6	With a nitrogenous group as acceptor
	<i>IUB/EC index but not enumerated here,</i>	.192	Acting on diphenols and related substances as
	<i>may be specified by adding the relevant</i>		donors (IUB/EC 1.10)
	<i>serial number after an asterisk (to indicate</i>	.3	With O ₂ as acceptor
	<i>official external source and serial,</i>	.193	Acting on H ₂ O ₂ as acceptor: peroxidases
	<i>non-decimal numbering) e.g.</i>		(IUB/EC 1.11)
	577.152.277 Nucleotidyltransferases	.198	Enzymes using H ₂ as reductant (IUB/EC 1.98)
	.277*16 Ribonuclease	.199	Other enzymes using O ₂ as oxidant
	<i>Documents about several specific enzymes</i>		(IUB/EC 1.99)
	<i>or groups may be classed under all the</i>	.1	Hydroxylases
	<i>relevant numbers, either using the plus sign</i>	.2	Oxygenases
	<i>[Table I(a)], or replacing the digits 577.152</i>	.2	Transferases
	<i>with an apostrophe in the second and</i>	.21	Transferring one-carbon groups
	<i>subsequent numbers in a compound, e.g.</i>	.211	Methyltransferases
	577.152.277 + 577.152.314	.212	Hydroxymethyl-, formyl- and related
	<i>alternatively</i>		transferases
	577.152.277*314 Nucleases: ribonuclease,	.213	Carboxyl- and carbamoyltransferases
	deoxyribonuclease	.22	Transferring aldehydic or ketonic residues
Special auxiliary subdivisions for 577.152		.23	Acyltransferases
577.152'1	Isolation, structure, properties etc.	.231	Acyltransferases
	577.152'1 ≅ 577.151, e.g.	.232	Aminoacyltransferases
	577.152.277'135 Nucleotidyltransferase	.24	Glycosyltransferases
	substrates	.241	Hexosyltransferases
Principal divisions (continued)		.242	Pentosyltransferases
577.152.1	Oxidoreductases (oxidases, dehydrogenases,	.25	Transferring alkyl or related groups
	reductases etc.)	.26	Transferring nitrogenous groups
.11	Acting on the CH-OH group of donors	.261	Aminotransferases
.111	With NAD or NADP as acceptor	.262	Amidinotransferases
.112	With a cytochrome as an acceptor	.263	Oximinotransferases
.113	With O ₂ as acceptor	.27	Transferring phosphorus-containing
.119	With other acceptors		groups: ATP etc.
.12	Acting on the aldehyde or keto-group of donors	.271	Phosphotransferases with an alcohol group as
.121	With NAD or NADP as acceptor		acceptor
.122	With a cytochrome as an acceptor	.273	Phosphotransferases with a nitrogenous group
.123	With O ₂ as acceptor		as acceptor
.124	With lipoate as acceptor		

577.152.274	Phosphotransferases with a phospho-group as acceptor	577.152.43	Carbon-nitrogen lyases
.275	Phosphotransferases, apparently intramolecular	.431	Ammonia-lyases
.276	Pyrophosphotransferases	.432	Amidine-lyases
.277	Nucleotidyltransferases: ribonuclease	.44	Carbon-sulphur lyases
	→577.213.3 In vitro enzymatic synthesis of DNA or RNA — Replication	.45	Carbon-halide lyases
	577.214.3 Enzymatic synthesis of RNA in vitro — Transcription	.5	Isomerases
.278	Transferases for other substituted phospho-groups	.51	Racemases and epimerases
.28	Transferring sulphur-containing groups	.511	Acting on aminoacids and derivatives
.281	Sulphurtransferases	.512	Acting on hydroxyacids and derivatives
.282	Sulphotransferases	.513	Acting on carbohydrates and derivatives
.283	CoA-transferases	.519	Acting on other compounds
.3	Hydrolases (and hydrolytic fermentations)	.52	Cis-trans isomerases
.31	Acting on ester bonds (Esterases)	.53	Intramolecular oxidoreductases
.311	Carboxylic ester hydrolases: lipase, chlorophyllase, cholinesterase, tannase etc.	.531	Interconverting aldoses and ketoses
.312	Thiolester hydrolases	.532	Interconverting keto- and enol-groups
.313	Phosphoric monoester hydrolases: phosphatase, phytase etc.	.533	Transposing C=C bonds
.314	Phosphoric diester hydrolases: deoxyribonuclease etc.	.54	Intramolecular transferases
.315	Triphosphoric monoester hydrolases	.541	Transferring acyl groups
.316	Sulphuric ester hydrolases: glycosulphatase etc.	.542	Transferring phosphoryl groups
.32	Acting on glycosyl compounds (saccharases, carbohydrases)	.549	Transferring other groups
.321	Glycoside hydrolases: glucosidases, amylase, cellulase etc.	.55	Intramolecular lyases
.322	Hydrolysing N-glycosyl compounds: nucleosidase etc.	.6	Ligases (Synthetases)
.323	Hydrolysing S-glycosyl compounds	.61	Forming C-O bonds
.33	Acting on ether bonds	.611	Aminoacid-RNA ligases
.331	Thioether hydrolases	.62	Forming C-S bonds
.34	Acting on peptide bonds (peptide hydrolases), proteolytic fermentation	.621	Acid-thiol ligases
.341	Alpha-Aminopeptide aminoacid-hydrolases	.63	Forming C-N bonds
.342	Alpha-Carboxypeptide aminoacid-hydrolases	.631	Acid-ammonia ligases (amide synthetases)
.343	Dipeptide hydrolases	.632	Acid-aminoacid ligases (peptide synthetases)
.344	Peptide peptidohydrolases: pepsin, trypsin, thrombin etc.	.633	Cyclo-ligases
.35	Acting on C-N bonds other than peptide bonds (amidases etc.)	.634	Other C-N ligases
.351	In linear amides: urease etc.	.635	C-N ligases with glutamine as N-donor
.352	In cyclic amides: penicillinase, allantoinase etc.	.64	Forming C-C bonds
.353	In linear amidines: arginase, creatinase, etc.	.9	Enzymes not included in the foregoing classification
.354	In cyclic amidines	577.153	Lipolytic fermentation. Esterases. Lipases
.359	In other compounds	.154	[cancelled] →577.152.31
.36	Acting on acid-anhydride bonds	.155	Saccharolytic fermentation. Carbohydrases.
.361	In phosphoryl-containing anhydrides. Pyrophosphatase	.156	Saccharases [cancelled] →577.152.32
.37	Acting on C-C bonds	.157	Nucleases. Amidases. Aminoacidases
.371	In ketonic substances	.158	[cancelled] →577.152.277, 577.152.314, 577.152.35, 577.152.611
.38	Acting on halide bonds	.159	Proteolytic fermentation. Proteases
.381	In C-halide compounds	577.16	[cancelled] →577.152.34
.382	In P-halide compounds		Other types of fermentation and hydrolytic enzymes [cancelled] →577.152.344, 577.152.9, cf 577.152.2/.3
.39	Acting on P-N bonds: phosphoamidase etc.		Enzymatic oxydation and reduction. Oxidases.
.4	Lyases		Oxidoreductases (Deshydrases). Desmolases
.41	Carbon-carbon lyases		[cancelled] →577.152.1
.411	Carboxy-lyases		Other enzymes [cancelled] →577.152.9
.412	Aldehyde-lyases		Vitamins and vitamin-like substances.
.413	Ketoacid-lyases		Vitaminology
.42	Carbon-oxygen lyases		→591.133.16 Vitamins — Animal physiology
.421	Hydro-lyases		612.015.6 Effects and action of vitamins — Physiology (human)
.429	Other carbon-oxygen lyases		616.391 Diseases due to lack or excess of inorganic substances in the diet. Avitaminoses and hypervitaminoses
			<i>Further particulars may be denoted by the special auxiliary subdivisions listed under 57, e.g.</i>
			577.16.01 Theory, general characteristics of vitamins
			.02 Vitamin activity mechanism, metabolism