(Types of organisms)
(Taxa)
(Plants)

G

ANIMALS, ZOOLOGY

G2

(Common subdivisions)
* As E2/E9.

G7

(Collections, exhibitions, museums)
(Collecting, acquisition, preparation of specimens)
* For capture of animals, see GAI UC.

(G7I)
(Preparation)

(G7I K)
Killing
* For killing in wild, see GAI VX.

(G7J)
Setting

(Preservation)

(G7K)
(Dry)

(G7K R)
Casting of moulds

(Taxidermy)

(G7K V)
Skeletons

G8

(Collections of living animals) Zoos
(Care & breeding of captive animals)

(G8 M B)
Grooming

(G8 M D)
(Nutrition, feeding)

(G8 M E)
(Housing)

(G8 M Q)
(Special equipment & facilities)
* For example, bedding.

(G8 M S)
(Special environments)

(G8 M T)
Exercise areas, paddocks
(For aquatic animals)
* For qualification of aquatic animals only.

(G8 M U)
Ponds

(G8 M V)
Aquaria

(G8 M W)
Tanks
(For terrestrial animals)

(G8 N)
Cages

(G8 N W)
Nest boxes

(G8 N)
(Health & medical care)

(Veterinary medicine)
* Alternative (not recommended) to locating with Animal husbandry.
* If the option above is not taken, the following schedule is available for qualification in Class G.

Add to GGN letters N/X following H in HN/HX.

G92

(History of zoology)

(G93 C)
Pre-classical zoology

(G93 C Y)
Classical zoology

(G93 C R)
Greek classical zoology

(G93 C V)
Roman classical zoology

GAA

(Principles, schools of thought, relations to other subjects)

GAC

(Research)

(GAI)
(Field investigation)

(GAI 5)
(Equipment)

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(Animals) (Field investigation) (Equipment)

GAI 5F
  5J Binoculars, telescopes
  5B (Observation, watching)
  5UB (Collecting specimens)
  5UC Capture
  5UD Tracking
  5UD5 (Equipment)
  5UD5 F Radar
  5UH Radio
  5UB Stalking
  5UF Trapping
    (Special aids)
    Dredging (for insects)
    5UC Decoys
    5UI (Methods, A/Z)
      * E.g. netting.
  5UK Immobilisation
  5UL Injection
  5UM Sedation
  5UN Anaesthetics
  5UP Physical methods
  5UQ Chemical methods
  5UR (Other)
  5V Marking
    Ringing, banding
    5VE Ringing stations
    5VP Special methods
    5VH (Other methods, A/Z)
      * E.g. dyeing, tagging.
    5VJ Radio tagging
    5VL Recovering marked specimens
    5VN Controlling, re trapping
    5VX Killing
      * For collecting & preserving, see G71K.

GAK (Experimental & practical zoology)

GAV (Operations on biological materials)
    (By biological material acted on)
      (Embryos)
        Amniocentesis

GAV P (Organs & products)
      Add to GAV P letters A/Y following GJ - e.g.

PUL Blood

FWS DJR Faeces

FWW DJP Urine

GAW Laboratory animals
      * For collections of living animals in zoos, etc., see G8.
      Add to GAW letters A/P following G8 in G6A/GSP. A selection of prominent classes is given below, with some amendment.

GAW MX Breeding
      * See also Animal husbandry GT.
(Animals)
    (Experimental & practical zoology)
    (Laboratory animals)
        (Breeding)
        (Health & medical care)
            * This includes actions taken on laboratory animals for purposes of investigation.
            Add to GAW letters N/X following H in HN/HX.
        NLY
            (Biopsy)
        NVM
            (Drug administration)
        OL
            (Surgery) Vivisection
        OM
            (Anaesthesia)
        OS
            (Organectomy)
            * For surgery on specific parts, see part below (GAW T/GAW X).
        PKT
            (Autopsy)
        XA
            (Reproductive system)
        XB
            Breeding
        XRL
            (Techniques)
        XBN
            Artificial insemination
        XD
            (Males)
        XF
            (Females)
    (Types of animals)
        * Any given type may be qualified as follows (where hyphen represents its classmark):
            Add to - letters A/F following OS
            Add to - FZ letters B/X following GAT
            Add to - G letters D/F following GAU
            Add to - letters H/X following GAW (see examples above)
        (By state)
        XN
            Decerebrated
        XP
            Decapitated
        XR
            (Other special states)
    GAK
        B
            Invertebrates
            (Other than Arthropods)
        C
            Arthropods other than insects
        D
            Insects
        E
            Vertebrates
            Fish
        G
            Amphibians
        H
            Reptiles
        J
            Birds
        K
            Mammals
        M
            Cats
        N
            Dogs
        P
            Guinea pigs, cavi
        Q
            Hamsters
        R
            Mice
        S
            Rats
        T
            (Others, A/Z)
    GBB
        (Physiology in general)
    GBB J
        (By organism)
        * Alternative not recommended) for libraries wishing to cite organism after processes or structures. If this option is taken proceed as follows:
            Add to GBC letters JC/RV following G in GJC/GRV.

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(Animals)
(Physiology)
((By organism))

**GBD**
(By part, organ or system)
* Alternative (not recommended) for libraries wishing to cite physiology before parts, organs or systems. If this option is taken proceed as follows:
  Add to GBD letters T/Y following GI e.g. resting potential in muscle cells GDP QRB C TUE.

**GBP**
(Biochemistry)
**GEW**
(Metabolism & nutrition)
  * For organs & processes serving intake of nutrients, see Digestive system G IW I.

**GEX N**
(Energy metabolism)
**F**
(Basal metabolism)
**S**
(Catabolism)
**T**
(Respiration)
  * Metabolic aspects only. For external respiratory system, see GIW E.

**GSB B**
(Anabolism)
**GEX x Gas transfer**

**Q**
(Nutrition)
  * Metabolic aspects only. For digestive system in the nutrition process, see GIW ID
  * Alternative (not recommended) for libraries wishing to keep here also digestive system processes is to proceed as follows:
    Add to GSB Q letters D/J following GIW ID.

**S**
(Storage, reserve formations)

**GCF**
(Biochemistry of particular substances)
**GCH P**
Minerals
**GCI**
(Inorganic elements & compounds)
**GCI G**
Water
**GCO**
(Organic compounds)
**GCR O**
Carbohydrates
**GCS B**
Lipids
**GCS D**
Fats
**GCS JG**
Nucleotides
**GCS M**
Nucleic acids
**GCT**
Proteins
**GCU**
Enzymes
**GCV**
Vitamins
**GW**
Hormones
**GCV**
Pigments

**GEW L**
(Interactions at level of atoms, molecules, ions)

**GD**
(By energy forms & interactions)
  See also Taxis (behaviour) GHW R

**GDP B**
(Thermal phenomena & interactions)
**N**
(Electrical phenomena & interactions)

**GDH**
(Optical phenomena & interactions)
(Animals)
(Special physiological processes)
((Optical phenomena & interactions)

GDL
(Pathology)

GDN B
(Constituent materials of organisms)
* For substances at molecular level, see Biochemistry GBP.

GDO
(Body fluids)
* For circulatory system, see GIU I.

GDP
(Anatomy & morphology in general)

GE
(Cytology)

GES
(Histology)

(Types of tissues)

GES QT
(General)
* As EBS WT/SES V.

GET
Epithelium, epithelial tissue
(Spatial properties)

GST BH
Striations
(Biochemistry)

CLK
Calcium

CLK BV
Calcification

CTP P
Albuminoids

CTP W
Keratin

CTP W3W
Keratinisation
(Special processes)
(Desquamation, scaling) see Coatings, coverings GEW G

E
(Cells)

ETW
(Cilia, flagella)

ERN
Chromatophores

ERP
Melanophores, melanocytes

ERQ
Iridophores, iridocytes

ERR
Xanthophores, lipophores
(Special to epithelium)

ERT
Secretory

ERU
Goblet
(Glands) see Glandular tissue GEW M

ERW
Absorptive

ERX
Langerhan's cells

R
Layers

RV
Outer, external, cortical tissue

RW
Middle

RX
Inner, internal

S
Surface

T
Microvilli

TV
Brush borders

V
Contact surfaces, intercellular junctions

VW
Tight junctions

VX
Intermediate junctions

VY
Desmosomes
(Animals)

(Histology)

(Epithelium)

(Surface)

(Desmosomes)

(Types of epithelium)

* Most types of tissue reflect certain combinations of the following arrays (e.g. mucous membrane is simple but with limited stratification, ciliated, contains goblet cells, etc.). It is recommended that combining such characteristics to obtain a classmark is not attempted.

(By cell shape and height)

GEW B
Squamous, pavement cell

D
Cuboidal, cubical

P
Columnar, palisade, cylindrical

(By arrangement and layer)

H
Simple

J
Simple squamous

K
Simple cuboidal

L
Simple columnar

M
Composite

N
Stratified, laminated

O
Stratified squamous

P
Stratified columnar

Q
Transitional

R
Pseudo-stratified

(By possession of particular constituents)

U
Keratinised

V
Non-keratinised

W
Pigmented

(Other chemically defined types)

Add to GEW Y letters I/Y following HC.

(By structural & other features)

Add to GEW B letters D/Y following HD

(By cytological features)

GEW C
Ciliated

D
Non-ciliated

E
(Other)

Add to GEW E letters D/R following HE.

(By function)

G
Coatings, coverings, teguments, integuments, investing tissues, epithelial tissue proper

(GCI)

(Processes)

G DJQ
Desquamation, scaling

DJR
Exfoliation

H
Linings, endothelial tissues

J
Mesothelial tissue

See also Serous membrane GEW S

L
Secretary epithelium

M
Glandular epithelium

* For glands see GIW AL.

N
Absorptive epithelium

P
(Other functional epithelium)

* For example, resorptive epithelium.

R
Basement membrane

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**Animals**

**Epithelium**

*By function*

*Basement membrane*

Serous membrane

Mucous membrane

* For mucin see Body fluids GCT RT.

**Connective tissue, interstitial tissue**

*For connective tissue cells special to a given part, organ or system, see part, etc. - e.g. macrophages, plasma cells.

**Cells**

- Fibroblasts
- (L cells) see Cultured cells EER CT
- Mast cells, labrocytes
- Fat cells
  - See also Adipose tissue GEY D.
- Free cells

**Associated tissue**

- Intercellular substance, matter, matrix, ground substance
  - See also Tissue fluid (extracellular fluids) GES 0.
- Collagen
- Procollagen
- Tropocollagen
- Reticular fibres, argentophil fibres, argyrophil fibres
- White, collagenous fibres
- Elastic fibres
  - (Elastin) see Proteins GCT FR
- Yellow elastic fibres

**Types of connective tissue**

* For connective tissue functioning as special organs or systems, see latter.

**Loose connective tissues, areolar tissues, cellular tissues**

Adipose tissues

Brown fat

Reticular tissue

Elastic tissue

Areolar tissue

Fibrous tissue

Mucoid tissue

Callus

**Development, zoogenesis**

* Ontogeny & phylogensis of animals together.
(Animals)
(Development, zoogenesis)

GFB

(DEVELOPMENT & GROWTH)
* Ontogeny of animals (development of individual organisms)

GFB K
(Differentiation)

P
(Life cycles)
Q
(Diplohaplontic life cycle)
V
(Diplontic life cycle)
W
(Haplontic life cycle)

GFC
(Forms of development)

GFD
(Growth)

GFD J
(Restitution)
M
(Regeneration)

Q
(Stages of growth)
R
(Rest periods, dormancy)

GFE
(EMBRYOLOGY)

GFE AJ
(Special theories)
AK
(Experimental embryology)
EKV
(Communication)
CTM
(Biochemistry)
Foetal globulins

(Processes & structures)
* The concept of development is central to embryology and its processes are enumerated below (in approximately evolutionary order) as the main facet. Structures associated with specific processes are collocated with the stage to which they relate - e.g. blastula with blastulation.

* Most of the vocabulary below is drawn from the embryology of vertebrates in general & mammals in particular. But many of the concepts & terms are applicable to all animal forms & the appropriate term should be extracted when classifying works on non-vertebrate animals.

(Processes involving all stages & structures)

EF
(Cell division & growth)

EKT
Cell death during development

G
Differentiation

H
Induction

HR
Organizers, evocators

HT
Metamorphosis, transformation
* For metamorphic forms see GJL G.

Polar behaviour, polarity
Gradients
(Animals)

(Embryology)

(Differentiation)

(Gradients)

GFE J
Morphogenesis
* Only the most general processess are given here; formation of specific organs and parts see GFK.

JR Invagination
JS Evagination
JT Fusion
JV Detachment, separation
JW Aggregation, condensation
JX Migration
JY Involution
KA Retromorphis

K
(Self-sustaining function)
* This position allows qualification of a particular stage or structure by functions such as blood-supply.
Add to GFE K letters T/Y following GI.

KWI
(Nutrition) Embryotrophy

L
(Structures involving all processes)
* For pre-zygotic structures, see Reproductive system GIX.
* Any given part may be qualified by A/L following GFE in GFE A/GFE L.

LP Pronuclei
LQ Zygote in embryology
LR Embryo

LY Appendicular organs of the embryo (general)

(N Processes and accompanying structures, by stage)

N Cleavage, segmentation
P Metameric segmentation
(By cleavage zones)
Q Determinate eggs
QR Polarisation
R Indeterminate
S Holoblastic cleavage, total cleavage
T Radial cleavage
V Spiral cleavage
WR Biradial cleavage, disymmetrical cleavage
WS Bilateral cleavage
WT Irregular cleavage

GFE B Meroblastic cleavage, partial cleavage
BR Discoidal cleavage
(By ability to form whole organ)

C Regulative cleavage
D Mosaic cleavage

F Blastulation, blastomere
G Morula, steroblastula
H Blastula, blastocyst, blastodermic vesicle, germinal vesicle, coeloblastula
J Trophoblast, trophoderm
K Blastoderm, inner cell mass
KR Primitive streak, embryonic axis
L Blastocoel
(Animals)
(Embryology)
(Blastulation)
(Blastocoel)
(Special to invertebrates)
Amphiblastula
Periblastula
Discoblastula

N
Implantation and placentation
P
Delayed implantation

Q
Gastrulation, gastrula
(Inagination)
QJR
(Involution)
QRY
Epiboly
R
Archenteron, gastrocele
S
Blastopore

* For Primitive streak, see GFF KR.
(Trophoblast) see GFF J

Membranes of the embryo (general)
GPG
Germ layers, embryological tissues
NO
Embryonal connective tissue
PO
Mesenchyme
Q
Mucous connective tissue
RS
Ectoderm, epiblast, outer layer
ST
Neurulation
TV
Neural plate, medullary plate
W
Neural folds

Sense organs, forms
GPH
Optical
BD
Optic vesicle
EF
Placode
FG
Optic cup
GH
(Other)
IK
Integumentary organs
KL
Mesoderm, mesoblast
MN
Canalis neutentericus
NO
Notochord

Somites
Intermediate zone
P
* Forerunner of urogenital system.
Q
Somatic layer, somatopleure
R
Myotome
ST
Splanchnic layer, splanchnopleure
UV
Coelom

W
Endoderm, entoderm

Gastro-intestinal organs
W
Cloaca

Urogenital sinus

Extraembryonic membranes, appendages of the embryo, EEF
GFI
Foetal membranes

(Villi)
P
Placenta
Q
Umbilical chord
(Arteries)
(Veins)
(Animals)

(Embryology)

(Extra embryonic membranes)

((Veins))

Amnion

Amniotic cavity

Amniotic fluid

Amniotic sac

GFJ B Charcoalantoic membrane

G C Chorion

C D & V (Villi)

E Allantois

F Allantoic stalk (for Urachus see Bladder, GFK WYL).

G Body stalk

J Yolk, yolk sac

K Vitelline membrane

L Vitelline duct

N Endometrium

P Decidua, Hunter's membrane

GFK

Histogenesis and organogenesis

* At post germ-layer stage; for early embryonic forms see germ layer GFK N.

* The preferred arrangement is to subordinate the embryology of a particular part, organ or system with the latter, in GIT/GIX.

* An alternative (not recommended) is given here for libraries wishing to keep together all embryology. If this option is taken, proceed as follows: add to HFX letters T/Y following GI.

A brief selection is given here to illustrate.

GFK UH

UJS X (Heart) Foetal heart

WF Ductus arteriosus

WP (Pharynx) Branchial region

WTL DVK D Mesonephros, Wolffian body

WTL DVK F Wolffian duct

WX (Kidney) Pronephros

WYL (Bladder) Urachus

GFL B

(Post-embryo development)

J Degeneration

K Ageing

L Longevity (Stages)

N Infancy

P Youth

& Adulthood, maturity

V Old age

W Death

GFM T Variation, genetics, evolution

GFL Genetics

GCS Evolution

GFM V Directly
(Animals)
((Evolution!))

(GGF)
(Palaeontology) Palaeozoology
*See notes at GGF & EGF MY regarding
alternatives.

(GGF M)
(Informations deduced)
* Alternative (not recommended) to
subordinating to specific part or type
of animal. If this option is taken,
proceed as follows:
Fossil animals

Add to GGO letters J/R

Following G - e.g. fossil
Articulata GGG KVL.

(GGG)
(Ecology)
Phytoplankton - c.f.
and build life in

(Behaviour) Animal behaviour, ethology

(Behaviour, ethology)
* The term 'ethology' is now tending to be used
more narrowly to signify the naturalistic study
of whole patterns of behaviour. But the literary
warrant for this does not seem sufficiently
strong to justify distinguishing it from the
general subject of animal behaviour.
* For the structure & mechanisms of functional
parts, organs & systems regarded as subsystems
of the whole organism, see Parts, etc. G
See also Types of animals by behavioural GIT/GIY,
characteristics GJP T.

(GHT BB)
(Physiological factors)
* For neurophysiology, see GHU CI.

(Hormones)

(FN)
(GH)
(GOO BGW)
(GEO N)
(GOO)
(Ecophysiology)

(Energy systems)
Energy budgets, time-energy budgets
* Amounts of time spent on particular
activities.

(Population factors) see GHG.

I
Psychology of animals
* For studies of animal behaviour considered
narrowly in comparison with human behaviour,
see IC.

(GHU)
Add to GHU letters CC/CES, CI/K following I in
ICC/IK. A selection of the more prominent
concepts is given below with some
modification of notation.

(GHU CI)
Neurophysiology

(GP)
Sensation & perception

(GPJ)
Readiness

(CQ)
Stimulus & response

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(Animals)

(Stimulus & response)

Filtering
Unconditioned responses
Conditioned responses
Sensorimotor activity
Intelligence
Proprioceptive sensation
Orientation
Visceral
  * Hunger & thirst, etc.
Somesthetic sensation
Pain perception
Equilibrium sense
Higher sensations
  * For structures & physiological mechanisms, see GIV CIH/GIV G.
Visual perception
Monocular vision
Binocular vision
Spatial perception
Pattern recognition
Stereoscopic vision
Auditory perception
Chemical sense
Smell perception
Time perception
Motor processes
  * For forms of movement, see GHW/GHX.
Prehension, grasping, manipulation

Motivation, drives
Instincts
Habits
Laterality
Voluntary actions
Incentives
Affective psychology, emotions
Cognitive behaviour
Curiosity
Play
Learning & memory
Memory
Learning
Educability
Conditioned learning
Experience
Imprinting
Personality
Individuality
Altruism
Psychopathology

(Modality, modality related behaviour, modality specific feelings)
Modal action patterns
  * Behaviour generalized as a total system.
(Animals)
(Behaviour)

(GHU Q)
Appetitive behaviour
(QS)
Releasing stimuli, releasers
(QT)
Releasing mechanisms
(R)
Aversive behaviour
See also Conflict GHY IC.
(S)
Consummatory behaviour
(T)
Displacement behaviour
(V)
Adaptive behaviour (general)

(GHV)
Social behaviour (general), sociobiology
* It is very difficult to distinguish clearly social activities from purely individual ones. So the general class is located here, ahead of the particular forms of behaviour, many of which are only partially social. The major subclass Communication, which is needed to qualify many of these particular forms, is given next. The more obviously specific social activities & interactions follow those activities which are only partly social (Classes GHV U/GHX T) and which are related more closely to particular structural parts & organs of the animal.
* To qualify classes in GHV retroactively, proceed as follows (where hyphen represents the classmark added to):
  Add to - letters A/HT following G in GA/GHT.
  Add to - I letters C/Y following GGU.
  Add to - J letters J/Y following GGV.

(GHV JM)
Multiplier effect
* Amplification of effects of evolutionary change when behaviour becomes part of social organization.

(JS)
Social drift
* Random divergence in behaviour & mode of organization of societies.

(K)
Cooperative behaviour
* When activity (e.g. grooming) may or may not involve another organism. This position is provided solely in order to allow qualification of classes OH /OH below. The general class for cooperation is GHY G.

(L)
Communication
* The following order of concepts is consistent with that in KE, from which further details may be obtained.

(LK)
Signals
* Signs serving specific functions go with the function - e.g. feeding, mating.
(Animals)

(Social behaviour)

(Signals)

Economy in signals
Specificity in signals
Antithesis principle
Discrete signals
Graded signals
Displays
Ritual

Visual communication
Colour
Flashing
Staring
Tactile
Body movements
Dancing

(Movement, dilatation, etc of specific parts)

* For example, feather ruffling.

Vocal and aural / Sonification, sound production
Chemical, olfactory, smell
Pheromones
Excretory markers

(By message)

Metacommunication
Warnings signals, alarms
Distress signals

Comfort activities
Grooming, preening

* An eclectic set of behaviours in which ritual elements & conciliatory signalling are often prominent.

(Cooperation) Allogrooming
Cleaning
Scratching
Bathing
Dirt bathing, dust bathing
(Other forms, A/Z)
Basking, wallowing, loafing
(Special to species)

* E.g. roosting of birds.

Body activities
Posture
Standing, lying down
Sessile

Movements

* To qualify classes in GHW retroactively, follow 'Add' instructions at GE' with the following addition:

Add to - K letters N/X following GHW.

(Tropisms)
(Taxis)
(Animals)

(Behaviour)

(Body activities)

((Taxis))

* For pharotaxis, see Navigation GHX FVV.

Kinesis

* Speed, etc. depends on strength of
stimulus.

Orthokinesis

Klinokinesis

Rapid energy

Locomotion behaviour

* To qualify classes in GHX
retroactively, follow 'Add'
instructions at GHW with the following
additions:

Add to - K letters H/X following GHW.
Add to - L letters B/Y following GHX.

Flying

Aerodynamics

Modes of flight

Gliding

Swimming

Diving

Floating

Walking & running

Bipedal

Quadripedal

Jumping, hopping, leaping

Climbing

Creeping, crawling

Burrowing

(Other forms, A/Z)

Travel

Orientation

Magnetic

Solar

Non-visual orientation

Dorsal-light reaction

Ventral-light reaction

Pharotaxis

Migration

Homing

Regular migrations

Single migrations

Vertical migrations

Across-country migrations

Exploration

* For appetative behaviour in general, see GHU Q.

Carrying

Resting

(Cycles)

Sleeping

(Posture)

Mechanisms

Patterns of sleep

Dreaming

Waking

Dormancy

Winter sleep, hibernation
(Animals)
(Behaviour)

(Winter sleep, hibernation)
(Forms special to a species)
* For example, hibernaculum

Summer dormancy, aestivation
(Play) see Cognitive behaviour GHU FTM.

L
(Behaviour associated with regulatory or
nervous system)

M
(Behaviour associated with respiratory system)

N
Feeding behaviour, food-related behaviour

NP
Locating food
NR
Recognizing, selecting
NS
Collecting, gathering
O
Scavenging
QP
Begging
OQ
Opportunist feeding
OS
Hoarding

OV
Stenophagous
* With limited food range.
W
Monophagous
OX
Euryphagous
* Extensive food range.

OY
Omniverous food habits

P
Vegetarian food habits, herbivorous food habits
PR
Xylophagous
Q
Carnivorous food habits, predation

R
* For parasitism see GHD.
RK
Hunting
RN
Locating prey
RNP
Visually
RNR
Aurally
RNS
Olfactory
RO
Capture of prey
ROP
Immobilization
ROR
Ambush
RP
(Special methods, A/Z)
RQ
Killing
S
Consuming, eating
SP
Liquid feeding
SQ
Filter feeding
SR
Regurgitation
SS
Rumination
ST
Gluttony
SU
Feeding frenzies

(By type of food)
SW
Cannibalism
SZ
Coprophagy

T
Drinking

TS
Excretory behaviour
(Animals)

(Behaviour)

(Excretory behaviour)

Breeding behaviour, sexual behaviour

<table>
<thead>
<tr>
<th>GHX</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>UJM</td>
<td>P</td>
</tr>
<tr>
<td>UN</td>
<td></td>
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<td>VW</td>
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<tr>
<td>XO</td>
<td></td>
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<tr>
<td>XV</td>
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</table>

(Displays)

Communal displays

Courtship

Search for mate

Selection of mate

Breeding success

Breeding failure

Non-breeding

Multiple brood

Mating

Monogamy

Polygamy

Polygyny

Polyandry

Ethological isolating mechanisms

(Behaviour during pregnancy)

Brooding

Birth, hatching

Oviparous

Viviparous, oviparous

GHY A

Care of young

* To quality classes in GHY, retroactively, follow 'Add! instructions at GHV with the following additions:

Add to - K letters L/Y following GHW.

Add to - L letters B/Y following GHX.

Add to - M letters A/Y following GHY.

(AJ)K

Alloparental care

Parental role

Father

Mother

Mother-child bond

Recognition of young

Transport

(Special to species)

* For example, Marsupial pouch.

Suckling

Weaning

Warming

Protection of young

C

(Behaviour of young)

* See Young as a type of organism, GJL L

D

Social spacing

Individual distance

Total range

Home range

Core range

Territory, territorial behaviour

Marking behaviour

Establishing territory

193
(Animals)

(Behaviour)

(Establishing territory)

Rutting

Shelter home-making activities
Construction activities
Nests
Caves, dens
Burrows
(Special to a species)

(Special social behaviours)
* These are taken from Class K (Human society) with adjustments.

Cooperation, communal behaviour
See also note at GH V K.

Eusociality
* Displaying cooperation in care of young, division of labour in reproduction & overlap of generations providing labour.

Recognition of neighbours
Greeting
Hierarchy (general)
* For differentiation, see GH V Q.

Power relationships
Leadership
Social control
Socialization

Cohesive processes
Divisive processes
Conflict

Competition
Agonistic behaviour
Aggression, hostile behaviour
Reaction to danger
Flight, retreat
Withdrawal into defensive posture
App easement, submission

Protective devices, defensive behaviour
Recognition of attacker
Camouflage
Criptic colouration

Freezing
Mimicry
Batesian mimicry
Mul lerian mimicry

Manatosis
Fighting
(Signals)
Belligerence signals
(Special modes)
Electrical assault

Chemical assault
O ther

Reaction to injury
(Animals)
(Reaction to injury)

(Reaction producing social structure)
Social organization, social structure

Permeability, openness

Differentiation & stratification
Division of labour, polyethism
Compartmentalization
* Degree to which subgroups are independent.

Status
Role
Castes

Traditions
* Specific forms of behaviour passed from one generation to another by learning.

Invention, innovation

GIS
(PARTS, ORGANS, SYSTEMS) Organology

GE, GAD

* The preferred arrangement is to subordinate to a given part, organ or system all those aspects which have already appeared in the schedule on physiology & anatomy, cytology & histology, etc., as well as any regions of the body with which it is associated (e.g. Muscles - Head).

* Alternatives to this arrangement have been indicated under preceding classes (e.g. physiology) whereby part, organs & systems may be subordinated to the special aspect.

* Two separate schedules are provided:
(1) A general parts, etc. facet which may also be used to qualify vertebrate animals.
This is based closely on the very detailed schedule for humans in Class H. Generally speaking, all the detail in H is available in this schedule also.

(2) A parts, etc. facet for non-vertebrate animals. This is consistent with the general schedule in its order & draws on it for more detail in some classes, where this seems desirable. See GKA.

* The classifier should always establish what specific type of animal is under consideration, if any, before applying this schedule.

* For an example of how the general schedule can be used to accommodate the specialized vocabulary of a particular type of animal see Class GP for Birds.

* Order & notation conform to that in HT/HX from which further details are available without alteration of notation.
AUXILIARY SCHEDULE G1

for division under a Part, Organ or System (GIT/GIY)

* This schedule applies to any Part, Organ or System treated independently
  of any particular type of animal, or belonging to any vertebrate animal
  (or other Chordate) in classes GMW/GRV.
* For division of a Part, Organ or System belonging to non-vertebrates see
  Auxiliary Schedule G2 (following GKA).
* The function of this schedule is to allow the full range of detail in
  Class H (Human biology) to be available for qualifying any Part, Organ or
  System, with minimum amendment of the notation in Auxiliary Schedule H3
  (for the division of a Part, etc. in Class H).
* The order is completely consistent with the order in GA/GL with one
  exception. The classes GN/GDY (Constituents, and General structures)
  is moved down so that it files after all Processes and immediately
  precedes specific structural subclasses. This makes a more helpful
  arrangement when qualifying a specific part, etc.
* When a special provision has been made in ET/HY for qualifying a part,
  etc. this is used in preference to the synthetic provision; e.g.
  Nervous system (GIUR) of Muscles (GIT U) is GIT UR (not GIT UQU R).

Add to the classmark of the part, etc. (represented below by a hyphen)

as follows:

- A  Principles, general physiology
      Add to - letters A/EX following G in GA/GDX.
- DL Pathology
      * Detailed division of this is unlikely to be required.
      But if it is, proceed as follows:
      Add to - DL letters DYO in Schedule H3 of Class H, with
      its further divisions as instructed.
- E  Cytology & histology, development & genetics, evolution,
     ecology & behaviour
     Add to - letters E/H following G in GE/GH.
- N  (Constituent materials)
     Add to - N letters N/O following GD in GIN/GDO.
     (General structure)
     Add to - N letters P/W following GD in GDP/GIW.
- Q  (Elements derived from other parts, organs, systems)
     Add to - Q letters T/Y following GI in GIT/GIY,
     e.g. muscles of the mouth GIW JQT U.
(Animals)

(Parts, organs, systems: general & vertebrate)

*Order...notation*

* Any given part may be qualified by all preceding facets (& by other Parts, organs or systems). See Special Auxiliary Schedule G1 on the opposite page.
* For non-vertebrates, see modified schedule following GKA.

---

**GIT F**

(Regions of the animal body)

* For shape & other morphological properties, see
  CDP/GDW.

* Notation is same as HTF/HTH & further details may be taken from there.

**GB**
Head & trunk

**GC**
Head

**GH**
Face

**GHT**
Cheek

(Mouth) see Feeding organs, GIW J

(Jaw) see Feeding organs GIW JX

**GI**
Neck

**GK**
Trunk

**GO**
Chest, thorax, pectoral region

**GR**
Diaphragm

**GS**
Abdomen

**GV**
Pelvis

**GW**
Sacral region

---

**HD**
Extremities

**HE**
Limbs

**HF**
Upper limbs, forelimbs, wings

**HG**
Arm

**HK**
Hand

**HL**
Digits

* Including digits of lower limbs.

**HN**
Lower limbs, hind limbs

**HO**
Leg

**HQ**
Knee

**HR**
Foot & ankle

**HT**
Foot

**HW**
Digits

**HY**

(Functional organs & systems)

Systematic anatomy (general)

---

**J**
Locomotor system, musculo-skeletal system

(Special processes)

**JDJ N**
Work

**JDJ R**
Locomotion

* As function of the system. For specific forms of locomotion behaviour, see GHX B
### (Parts, organs, systems: general & vertebrate)
#### (Locomotor system)
##### (Locomotion)

<table>
<thead>
<tr>
<th>GIT</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Cartilage</td>
</tr>
<tr>
<td>Xx</td>
<td>Skeleton, endoskeleton</td>
</tr>
<tr>
<td></td>
<td>* For exoskeleton, see GIT Xx.</td>
</tr>
<tr>
<td>L</td>
<td>Bones</td>
</tr>
<tr>
<td></td>
<td>(Special elements)</td>
</tr>
<tr>
<td></td>
<td>* Layers, cavities, Haversian system, etc.</td>
</tr>
<tr>
<td>L/TC</td>
<td>(Types of bones)</td>
</tr>
<tr>
<td></td>
<td>(Bones by region)</td>
</tr>
<tr>
<td>MB</td>
<td>Axial skeleton</td>
</tr>
<tr>
<td>MD</td>
<td>Skull</td>
</tr>
<tr>
<td>ML</td>
<td>Spinal column, notochord</td>
</tr>
<tr>
<td>NB</td>
<td>Appendicular skeleton</td>
</tr>
<tr>
<td>O</td>
<td>Joints, articulations</td>
</tr>
<tr>
<td>R</td>
<td>Ligaments</td>
</tr>
<tr>
<td>U</td>
<td>Muscles</td>
</tr>
<tr>
<td>X</td>
<td>Tendons</td>
</tr>
<tr>
<td>Yx</td>
<td>Exoskeleton &amp; integument</td>
</tr>
</tbody>
</table>

### GIU A
#### Integumentary system

| AT  | Nails, claws                |
| B   | Hair, fur, feathers         |
| BS  | Scales                      |
| BV  | Plates                      |
| C   | Skin                        |
| CR  | Epidermis, cuticle          |
| CW  | Glands                      |
| D   | Sweat glands                |
| E   | (By region)                 |

### G
#### Cardio-vascular system

| GBF | Haemodynamics, blood flow   |
| GDC | Pressure                    |
| H   | Heart                       |
| HDI | Heartbeat                   |
| HQT | (Muscles)                   |
| HR  | Pericardium                 |
| HS  | Endocardium                 |
| HT  | Myocardium                  |
| HU  | Ventricles                  |
| HW  | Atria                       |
| HX  | Valves                      |
| I   | Blood vessels, circulatory system |
| J   | Arteries                    |
|     | (By region)                 |
| JSU | Pulmonary artery            |
| JSY | Systematic arterial system  |
| JT  | Aorta                       |
| K   | Capillaries                 |
| L   | Veins                       |
| LBP | Blood                       |
| LCT | (Biochemistry)              |
| LCTU| Blood proteins, serum       |
| LDI | Haemopoiesis                |
| LE  | (Cytology)                  |
|     | * For blood cells, see GIU LF.|

---

**GER**

**GCR**
(Animals)
(Parts, organs, systems: general & vertebrate)
(Cardio-vascular system)

((Cytology))

GIU LOY B
LOY C
LP
M
MX
N
NR
NV
OP
ON
P
PT
PU
Q
QR
QS
QT
QU
QV
QW
R
S
S BK
S BLD
S DFQ
S DFS
S S
S W
TH
TI
TN
UB
US
UT
UV
V
V TG
VU
VY
WE
WES L
WES M
WP
WPU
WFX
WS
X

Bleeding, haemorrhage
Coagulation, clotting
Blood cells, corpuscles
Erythrocytes, red cells
Blood platelets, thrombocytes
Leukocytes, white cells
Granulocytes
Lymphocytes
Monocytes
Blood groups
Lymphatic system
Glands
Lymph
Reticulo-endothelial system
Phagocytes
Microphages
Macrophages
Histiocytes
Spleen
Thymus gland
Nervous system
Nerves
Transmission, neural transmission
Stimulus & response
Potential, membrane potential
Conduction, neural conduction
(Cells & tissues)
Neurones, neurons
Nerve-endings
(Types of fibres)
Dendrites
Axons
Synapses
Ganglia
Afferent nerves, sensory nerves
Efferent nerves
Motor nerves
Peripheral nervous system
Nerve roots
 Cranial nerves
Spinal nerves
Autonomic nervous system
Preganglionic fibres
Post-ganglionic fibres
Parasympathetic nervous system
Cranial nerves
Vagus
Sympathetic nervous system
Central nervous system

GED
GEB
GFC
### Central Nervous System

- **GIU XPB**
  - Cerebrospinal fluid
- **XR**
  - Meninges
- **XBR**
  - Dura mater
- **XRV**
  - Arachnoid
- **XSE**
  - Ependyma
- **XSG**
  - Fissures

#### Nerves, nerve tracts

#### Neural pathways

- **XUP**
  - White matter
- **XW**
  - Myelin
- **XWR**
  - Grey matter

#### Brain

**Y**

- **YQU I**
  - Circulatory system
- **XX**
  - Forebrain, prosencephalon
- **GIW AB**
  - Cerebrum
- **AN**
  - Diencephalon
- **AT**
  - Brain stem
- **AV**
  - Midbrain, mesencephalon
- **BB**
  - Pons
- **BD**
  - Hindbrain, rhomboencephalon
- **BE**
  - Metencephalon
- **BF**
  - Cerebellum
- **BH**
  - Myelencephalon, medullary brain
- **BJ**
  - Medulla oblongata
- **BK**
  - Spinal cord
- **Bku B**
  - Ganglia
- **Bku P**
  - Pyramidal tracts
- **Bku Q**
  - Extra-pyramidal tracts

### Sense organs & special senses

- **CB**
  - *For neural mechanisms of stimulus & response, see GIU S.*
  - *For psychology of sensation & perception, see GHU*

- **CC**
  - Lateral line system
  - *Special to aquatic vertebrates

- **CD**
  - Proprioception
  - *For taxes, see Behaviour

- **CSA**
  - Orientation sense, position sense

- **CSE**
  - Kinaesthesia, movement sense
  - *For equilibrium, see Inner ear

- **CF**
  - Interoceptive sense, visceral sense

- **CFY**
  - Somaesthesia, bodily senses

- **CG**
  - Cutaneous sense, exteroceptive sense

- **CH**
  - Touch, tactile sense

- **CIB**
  - Pain

- **CID**
  - Temperature sense

- **CID USE**
  - Thermoreceptors

- **CIF**
  - Pressure sense
(Animals)
(Parts, organs, systems: general & vertebrate)
(Sense organs)
(Pressure sense)

Higher sensations
Chemical senses
Smell, olfactory sense
Taste, gustatory sense
Time, temporal perception
Weight perception
Perception of particular objects, A/Z

Communication senses
Language
Light perception, eye
Vision, sight
Refraction
Accommodation
Visual perception
Colour
Monocular vision
Binocular vision
Space perception
Depth perception
Stereoscopic vision
Movement perception

(Parts of eye)
(Muscles)
(Nerves)
Eyelids
Tarsal glands
Nictitating membrane
Eyeball
Sclera
Conjunctiva
Cornea
Uvea
Iris
Pupil
Retina
Optic nerve
Humours, ocular fluids
Chambers of the eye
Lens

Hearing organs, ear
Hearing (process)
Auditory perception
External ear
Middle ear
Inner ear, labyrinth
Vestibular apparatus
Equilibrium, balance sense

Endocrine system
Glandular system, secretary system
Gastrointestinal system
Acrobatic organs
Excretory system
(Animals)
(Parts, organs, systems; general & vertebrate)
(Glandular system)
(Endocrine system)

**GIW BS**

**Hormones**
* As factor in the functioning gland which secretes them. For chemistry of hormones, see GCW and ECW.

| BW | Pineal body, epiphysis cerebri |
| C  | Pituitary gland |
| DA | Thyroid gland |
| DC | Thymus gland |
| DD | Adrenal gland |
| DG | Chromaffin system |

**EDK**

**Respiratory system**
* External & internal respiration together.
For internal respiration, see Metabolism GBX T.

| ER | Upper respiratory tract |
| BS | Nose |
| BSD X | Olfaction, smell sense |
| F  | Pharynx |
| PR | Branchial arches |
| FRS | Gills |
| G  | Larynx |
| GV | Voice |
| GVT | Lower respiratory tract |
| GX | Trachea |
| H  | Lungs |
| HT | Bronchi |
| HV | Pleurae |

**I**

**Digestive system, nutrition process**
* Nutrition process broadly & the parts & organs by which it is effected. For nutrition at molecular level see Metabolism GBW.

**IDD**

**Digestion (process)**

| IS | Alimentary tract, digestive tract |

**J**

| JW | Mouth, feeding organ |
| JWX | Lips |
| JY | Cheek |
| JX | Chin |
| K  | Jaw, beak, bill |
| MD | Dental system |
| MG | Periodontium |
| MH | Gums, gingivae |
| O  | Teeth |
| OW | Tongue |
| OX | Palate |
| PB | Salt gland |
| PD | Pharynx & oesophagus (together) |
| PDR | Oesophagus, gullet |
| PDT | Crop, inguviscs, rumen |
| FF | Gizzard |
| PG | Viscera in general |
| PK | Peritoneum |
| Q  | Mesentary |
| R  | Gastro intestinal system |
|   | Stomach |
(Animals)
(Parts, organs, systems: general & vertebrate)
(Digestive system)
(Stomach)
GIW S
Intestines
TB
Small intestine
TG
Large intestine
TN
Anus
TNY
(Associated glands of digestive system)
TP
Pancreas
TX
Biliary tract
U
Liver
US
Gall, bile
UW
Gall bladder
V
Urinary system
WX
Urinary tract
X
Kidneys
YL
Bladder
YU
Urethra

Reproductive system

* The classes below constitute a selection of major concepts from the general schedule at HIX/EXA. For vertebrates, nearly all the literature refers only to sexual reproduction & most of the classes taken from HIX & EXA will be redundant.
* Order & notation is generally parallel with HX/HY & further details may be obtained from there.

GIX Q
(Asexual reproduction)
GEM

GIY
(Sexual reproduction)
GBO
GIY DJ
(Sexual activity)
GGA

DL
(Pathology)
E
(Cytology)
F
(Gametes)
FDJ
(Gametogenesis)
PG
(Meiosis)
G
(Receptor, donor)

* For sexually dimorphic animals (including all vertebrates) the female & male gametes are subordinated to female & male animals GJC/GJH.

J
(Release & union)
L
(Fertilization)
LZ
(Zygotes)
MBS
(Histology, development & variation)
MH
(Ecology & behaviour)
S
(Reproductive organs, genitalia)

Add to GIY letters S/X following EXA.
See also Male & female animals GJC/GJH.

T
(Gonads)
V
(Sex hormones)
VW
Male, androgens
VX
Female, oestrogens
Y
Sexuality

GJA
(Forms of sexual reproduction)
(Animals)
(Parts, etc: general & vertebrate)
(Reproductive system)
(Form of sexual reproduction)
(Types of animals)
* Any given type of animal may be qualified by all
preceeding facets (GA/GJ) by normal retroactive
synthesis.
* The classes below constitute a selection of major
classes from EJB/SJS with some modifications.

GJB C
(Non-taxonomic categories)
* Specific classes, orders, families, genera or species
of animals should go with their taxon in G & not in a
non-taxonomic class.

F
(Fossil forms)
* See note at EJ.

X
(By sex)
* Use for all sexually dimorphic animals (including
all vertebrates).

GJC
Males
* Use GJC J for Reproductive system (not GJC IX)
and GJC K for Sexual reproduction (not GJC IY)

GJC J
(Reproductive system)
Add to GJC J letters A/Y following GIX.
Add to GJC K letters A/K following GIY.
Add to GJC letters L/Y following GIY.

KF
(Gametes) Spermatogenesis * For sexglands, see GJC T.
KFD J
Spermatogenesis
KFG XD
Maturation of sperm
KFG XF
Mobility of sperm
KFG XH
Transport of sperm
KFT
Sperm head
KFV
Acrosome
KFW
Sperm tail
KGG
Spermatogonia
KGK
Spermatocytes
KGS
Spermatids
KH
Spermatozoa

S
(Reproductive organs)
(T Sex glands, gonads)
(Products)

U
Semen
(Germ cells) see Gametes GJC KF.
(Other secretions in semen)

UR
(Other parts, etc.)
Add to GJD letters B/R following HXE
- e.g. penis GJD M; sexuality GJD Q.

GJD

GJE
Females

GJE J
(Reproductive system)
Add to GJE J letters A/Y following GIX.
Add to GJE K letters A/K following GIY.
Add to GJE letters L/S following GIY.

GJE KF
(Gametes) Ova

X
(Rape products)
Adnexa uteri

Y
Ovaries, sex glands
Add to GJE Y letters Q/X following HXC.
(Types of animals)

(By sex)

(Females)

| GJF YX | Oviducts, Fallopian tube |
| GJF | Uterus |
| GJF U | External genitalia |
| GJG | Pregnancy |
| GJG Y | Foetus |
| GJH | Parturition |
| GJH X | Multiple pregnancy |
| XQ | Sexuality |

(By application) See notes at EJJ.

(By geographical distribution)

| GJI | Faunas |
| GJJ | Add to GJJ letters D/Z from Schedule 2 |
| - e.g. Fauna of British Isles GJJ E. |

(By physiological characteristics)

| GJK B/D | (By developmental characteristics) |
| GJL E | Embryonic forms |
| G | Metamorphic forms |
| H | Larval forms |
| J | Chrysalis form, pupae |
| L | Young animals |
| M | Mature animals |
| MP | Single-brood animals |
| MQ | Two-brood animals |
| MR | Repeatedly-breeding animals |

(By ecological factors)

| GJN D | (Parasites) |
| GDN | Temporary parasites |
| GDF | Endoparasites |
| GDR | Ectoparasites, blood suckers |
| GJR | (Flying animals) |
| GKL | (Aquatic animals) |
| GLL | Marine animals |
| GPL | Benthos animals |
| MFF | Pelagic animals |
| OBS | Riparian animals, bank dwelling animals |
| OJ | Amphibious animals |
| OL | Land animals |
| OL JR | (Aerial) |
| OLF | * With flying ability |
| OL K | (Aquatic) |
| | * With swimming ability |

(By behaviour)

| GJP T | Sessile animals |
| VY | |
(Types of animals)

(By behaviour)
(Sessile animals)

<table>
<thead>
<tr>
<th>GJP</th>
<th>XDR</th>
<th>Running animals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XER</td>
<td>Jumping animals</td>
</tr>
</tbody>
</table>

(By structural characteristics)
(Cytological & histological)

| E    | GAS   |

(By part, organ, system characteristics)

| GJR  | GAN, GAO |

(By covering)

<table>
<thead>
<tr>
<th>GJR TYX</th>
<th>GKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA</td>
<td>GKK</td>
</tr>
<tr>
<td>UAT</td>
<td>GKN</td>
</tr>
</tbody>
</table>

(By digestive system)

| WI    |         |

(By nutritional form & diet)

* Retroactive synthesis with GIW V/GJA is suspended here to allow the insertion of the large array below. Normal synthesis is resumed at GJS below (q.v.)

Add to GJR X letters C/S following EIQ.

| X    |         |

<table>
<thead>
<tr>
<th>Y</th>
<th>Polyphages</th>
</tr>
</thead>
<tbody>
<tr>
<td>YL</td>
<td>Omnivores, pantophages</td>
</tr>
<tr>
<td>YN</td>
<td>Oligophages</td>
</tr>
<tr>
<td>YP</td>
<td>Monophages</td>
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<tr>
<td>YR</td>
<td>Hoarders</td>
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(By non-biological materials)

<table>
<thead>
<tr>
<th>YS</th>
<th>Holophytic animals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* Utilize chlorophyll.</td>
</tr>
<tr>
<td>YT</td>
<td>Sand-eaters, mud-eaters</td>
</tr>
<tr>
<td>YU</td>
<td>Dust-eaters</td>
</tr>
<tr>
<td>YW</td>
<td>Stone borers, litholytes</td>
</tr>
</tbody>
</table>

(By biological materials)

<table>
<thead>
<tr>
<th>GJS AD</th>
<th>Saprophages</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>Humiphages, humus-eaters</td>
</tr>
<tr>
<td>AM</td>
<td>Coprophages, dung eaters</td>
</tr>
<tr>
<td>AO</td>
<td>(Microorganisms)</td>
</tr>
<tr>
<td>AP</td>
<td>Plankton eaters</td>
</tr>
<tr>
<td>AR</td>
<td>Fungus rearers</td>
</tr>
<tr>
<td>B</td>
<td>(Plants) Herbivores, phytophages</td>
</tr>
<tr>
<td>BL</td>
<td>(Roots) Rhizophages</td>
</tr>
<tr>
<td>BN</td>
<td>(Stem) Caulophages</td>
</tr>
<tr>
<td>BP</td>
<td>(Leaf) Phyllophages</td>
</tr>
<tr>
<td>BR</td>
<td>(Secretions) Sap-eaters, juice suckers, chymophages</td>
</tr>
<tr>
<td>BS</td>
<td>(Flowers) Anthophilous animals</td>
</tr>
<tr>
<td>BT</td>
<td>(Fruit) Carpophages</td>
</tr>
<tr>
<td>BW</td>
<td>Wood borers, xylaphages</td>
</tr>
<tr>
<td>BX</td>
<td>Gallery borers</td>
</tr>
<tr>
<td>BY</td>
<td>(Other specific plants, A/Z)</td>
</tr>
<tr>
<td>C</td>
<td>(Animals) Carnivores, sarcophages, predators</td>
</tr>
<tr>
<td>CL</td>
<td>(Carriion) Necrophages</td>
</tr>
<tr>
<td>CN</td>
<td>(By part) Hair eaters, feather eaters</td>
</tr>
</tbody>
</table>

| GKV |

* For parasites, see Parasitism GHD.
(Types of animals)
(By diet)

(Hair eaters, feather eaters)

(Other)

(By prey)

Add to GJS D letters K/V following G
- e.g. insectivores.

(By genito-urinary system)
* Retrospective synthesis is resumed here after
  interruption at GJR X.

Add to GJS F letters W/Y following GI.

G
Add to GJS G letters C/Y following EJ
- e.g. hermaphroditic animals GJS GN.

J

(Other special types)

R
(Taxonomic categories, taxa, Animalia)
* The schedule below follows closely that in
  A Classification of living animals by Lord
  This is supplemented by a number of terms from
  other taxonomies which are necessary on the
  grounds of literary warrant. These have been
  inserted at those points to which they most
  closely correspond in terms of class containment;
  e.g. the branch or grade Radiata (GKG B
  ) immediately precedes those phyla (Chordaria, etc.)
  which exemplify it. But the strict policy of
  indenting to show hierarchy is modified in some
  of these cases since they do not always reflect
  exactly the same hierarchical structure as the
  basic (Rothschild) classification.

GJT
(Taxonomy)

GJU
(Fossil forms)
* For the alternatives relating to Palaeozoology
  see notes at GGF/EGJ, EJU and GGF/GJU.
* The preferred arrangement is to locate here
  general works on fossil animalia and to sub-
  ordinate to the particular type of animal works
  on the fossil forms of that type.

GKA
Invertebrata (general)
* Not in Rothschild.
* See next page for special Auxiliary Schedule G2
  for Parts, organs & systems of non-vertebrates.
for division under a Part, Organ or System of Non-Vertebrate animals (GKA/GMV)

* The function of this schedule is to allow the full range of detail in GA/GI to be available for qualifying any part, organ or system of a non-vertebrate, together with certain other provisions.
* The order is completely consistent with the order in GA/GI with one exception. The classes GDN/GDY ( Constituents, and General structures) is moved down so that it files after all Processes and immediately precedes specific structural subclasses. This makes a more helpful arrangement when qualifying a specific part, etc.

Add to the classmark of the part, etc. (represented below by a hyphen) as follows:

- **A**
  - Principles, general physiology
    - Add to - letters A/DK following G in GA/GDM.

- **DL**
  - Pathology
    - Detailed division of this is unlikely to be required.
      - But if it is, proceed as follows:
        - Add to - DL letters DY/O in Schedule H3 of Class H, with
          - Its further divisions as instructed.

- **E**
  - Cytology & histology, development & genetics, evolution, ecology & behaviour
    - Add to - letters E/H following G in GE/GH.

- **I**
  - (Constituent materials)
    - Add to - I letters N/O following GD in GDN/GDO
      - General structure
      - Add to - I letters P/W following GD in GDP/GDW.

- **J**
  - (Elements derived from other parts, organs, systems)
    - Add to - J letters B/Y following GKA I in GKA IB/GKA IY
      - e.g. Arthropoda - Digestive system - Glands
      - GLK IB JPE.

- **K**
  - (By region)
    - This applies only to certain systems & some of these
      - e.g. muscles GKA IFJ) have a special provision which
        - should be preferred to this synthetic provision.
      - Add to - K letters M/Y following GKA IB.
      - Add to - L letters D/W following GKA IC.
      - Add to - M letters A/X following GKA LD.
(Animals)

(Non-vertebrates)

(Parts, organs, systems: non-vertebrate)

* See explanatory notes at GIS. This schedule is to be used for qualifying non-vertebrate animals only.

* The schedule for Parts, etc. in general biology & in vertebrates (GIT/GIX above) has a notation designed to correlate exactly with the detailed notation of HIT/HY & to facilitate synthesis from the latter. This notational requirement does not apply to non-vertebrates & so the notation here is spread over the whole of GL as it is in the general Parts, etc. schedule at EI. The order of conceptual classes, however, is generally consistent with that in GIT/GIX for general & vertebrate zoology.

* Instructions for qualifying a given part, etc. are given in Auxiliary Schedule G2 (opposite).

GKA IB

(Regions of the animal body)

* Including some multi-functional organs - e.g. proboscis.

IB M Body

IB N Idiosoma

IB P Segments, segmentation

(Membranes)

IB PS Intersegmental membranes, conjunctiva

IB Q Somites

IB S Tube body

IB V Cephalothorax

ICD (Head)

* For antennae, see GKA INW.

ICH (Face)

ICH S Frons

(cheek)

Genae

(Mouth)

See Feeding organs GKA IRP.

(Jaw)

See Feeding organs GKA IRR.

ICI Procorisc

ICT V Introvert

(Neck)

ICJ Cervix

ICK (Trunk)

ICO Thorax

ICQ Pectus

* For pleuron & sternum, see Exoskeleton GKA IES.

ICS Abdomen

ICT Telson

(Posterior)

ICW Opisthosoma

IDA (Extremities)

IDB Stalk, peduncle

* Of sessile forms.

IDC Flaps

* E.g. in Annelida.

IDD Tentacles

IDDN Ciliated tentacles

IDDP Lophophore tentacles

IDDQ Lophophore

209
(Animals)
(Parts, organs, systems = non-vertebrate)
(Extremities)
(Lophophore)
GKA IDE Suckers
GKA IDF Legs
IDG Forelegs
IDMX Midlegs
LDN Hindlegs
LP T Tibiae
IDQ Tarzi
IDT (Feet)
Podia
IDU Tube feet
(Parapodium) see GKA IPS
LDV Claws
LDW Wings
LDWN Brachypterae
IDWP Macrotactae
IDWR Forewings
IDX Hindwings
IDXN Halteres

(Functional organs & systems)
LDY Systematic anatomy (general)
IE Musculo-skeletal system, locomotor system
(Special processes)
IED JR Locomotion
* As function of the system. For specific
forms of locomotion behaviour, see
GHX B.

LEN Cartilage
LEP Skeleton (general)
LEP N (Materials)
P Chitin
Q Spongin
(Types by composition)
S Calcareous skeleton
ST Silicaceous skeleton
V Horny skeleton
LEQ Endoskeleton
LEQ N Axostyle
P Spicules
R Apodema
T Apophyses
LER Exoskeleton & integument (together)
(Integumentary system) see GKA IG.

LES Exoskeleton
LES M Carinae
N Mantle, pallium
O Collar
P Pen
Q Shell, theca, investment
R Carapace
S Plates, scales, loria
T Scolerites
V Tergum
W Sternum
X Pleurone
(Animals)
(Parts, organs systems: non-vertebrate)
(Skeleton)
(Pleuron)
(Appendages & special elements)

GKA IEV

Vestiture
See also Integumentary system GKA IG.

IEW
Setae, bristles
IEW
Chaetae
P
Chaetotaxy
Q
Macrotrichia
(Cilia) see GKA IFR
S
Microtrichia

IEX
Cirri, tendrils
IEX
Operculum
Q
Lacunar system
S
Velum

IFB
Articulations, joints
IPC
Hinge joints
IFD
Sutures
IFE
(by region)
Add to IFE letters M/V following GKA HB.
Add to IFF letters D/W following GKA IC.
Add to IFG letters A/X following GKA ID.

IFH
Ligaments
IFH
Conchiolin
IFH
Hinge ligaments

IFJ
Muscles
(Cells)

IFJ HRT
Contractile cells
(Tissue)

HYS
Contractile fibres
(Regional)

IFK
Add to GKA IFK letters M/V following GKA IB.
Add to GKA IFL letters D/W following GKA IC.
Add to GKA IFM letters A/X following GKA ID.

IFN
Tendons, aponeuroses, fasciae

IFP
(Locomotory elements)
(Flagella) see Protista ESD.

IFR
Cilia
(Tissue)
Ciliary epithelium

IFS
Parapodium

IFT
Cement organ

IFV
Tube feet, ambulacria

IFW
Pleopodia

IFX
Pedipalpus

IG
Integumentary system

IGM
Coloration, pigmentation

IGM
Changes in colour
N
Patterns
P
Colours
R

IGN
Wax secretion

IGN Q
Waxes

IGP
Epidermis, hypodermis

IGQ
Cuticle, skin, pellicle

IGR
Endocuticle
(Animals)
(Parts, organs, systems: non-vertebrate)
(Integumentary system)
(Edocuticle)

GKA IGR N
Cuticulin

IGS
Exocuticle

IGT
(Relational)
Add to GKA IGT letters M/V following GKA IB.
Add to GKA IGU letters D/W following GKA IC.
Add to GKA IGV letters A/X following GKA ID.

IGX
Gastrovascular system
* Serving both circulatory & digestive functions.

IH
Circulatory system, transport of materials

IHD DF
Diffusion

IHD DN
Haemodynamics

IHD ELX
Turgor
(Cytology)

IHE RT
Amoeocytes
(Structural elements)

IHM
Vascular systems (general)

IHU
Pulsatile organ, heart, aortic arches

IHU DJN
Heartbeat

DJQ
Diastole

DJR
Diastasis

DJS
Systole

IHO
Accessory heart

IHO Y
Lacunae, cavities (general)

IHP
Pericardium, pericardial cavity
* For perivisceral cavity, see Coelom GKA ITE.

IHP O
Ostia

Q
Haemocoel

S
Sinuses

IHQ
Channels, blood vessels

IHR
Ventral vessels, efferent channels, arteries

IHR T
Aorta
(Relational)
Add to GKA IHS letters M/V following GKA IB.
Add to GKA IHT letters D/W following GKA IC.
Add to GKA IHU letters A/X following GKA ID.

IHV
Dorsal vessels, afferent channels, veins
(Relational)
Add to GKA IHW letters M/V following GKA IB.
Add to GKA IHX letters D/W following GKA IC.
Add to GKA IHY letters A/X following GKA ID.

IIA
Segmentals

IIB
Open circulatory systems

IIC
Closed circulatory systems

IID
Transported fluids
* For body fluid in general, see GDO.

IIE
Blood

IIE CY
(Pigments)

CYR A
Achroaglobin

CYR G
Chlorocruorin

CYR E
Echinochrome

CYR H
Haemerythrin

CYR J
Haemocyanin

(Cells)

KRT
Haemocytes
(Animals)
(Parts, organs, systems; non-vertebrate)
(Circulatory system)
(Haemocytes)
Coagulocytes, cystocytes
Lymph
Haemolymph
(Reticulo-endothelial system) See Vertebrates

IX
(Regulatory, coordinating system).

I
Nervous system
* In the case of some of the higher non-vertebrates at least, the complexity of vocabulary & conceptual relations in the field of neural transmission justifies using the detailed schedule in HUR/HVG for those concepts which apply.

IJ
(Development)

Nervous

Add to GKA IK letters B/W following HUS.
Add to IL letters A/W following HUT.
Add to IM letters B/V following HUU, with the modifications indicated below.

Transmission, neural transmission

IK
Stimulus
Response
Potential

IKB
Neurones, nerve-cells
Dendrites
Axons
Synapses
Ganglia
Networks, nerve net
Nerve ring
Peripheral nervous system
Autonomic nervous system, stomatogastric nervous system
Sympathetic nervous system
Brain, supraoesophageal ganglia
Ventral nerve cord
Lateral nerve cord
Longitudinal nerve cord
Frontal ganglia
Optic lobe
Protocerebrum
Tritocerebrum
Sense organs & special senses

Antennae

Pedicel

Clubbed antennae
Geniculate antennae
Pectinate antennae
Dorsal antennae
(Animals)
(Parts, organs, systems: non-vertebrate)
(Nervous system)
(Sense organs)
(Dorsal antennae)

<table>
<thead>
<tr>
<th>GKA</th>
<th>INX</th>
<th>Palpi</th>
</tr>
</thead>
<tbody>
<tr>
<td>INX</td>
<td>N</td>
<td>Labial palpi</td>
</tr>
<tr>
<td>INX</td>
<td>N</td>
<td>Bristles, tactile hairs</td>
</tr>
</tbody>
</table>

(Particular senses)

- Add to GKA IO letters B/K following HVC with the amendments indicated below.

<table>
<thead>
<tr>
<th>IOD</th>
<th>Proprioception</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOE</td>
<td>Equilibrium</td>
</tr>
<tr>
<td>IOE</td>
<td>Statocysts</td>
</tr>
<tr>
<td>IOI</td>
<td>Olfaction</td>
</tr>
<tr>
<td>IOI</td>
<td>Nuchal organ</td>
</tr>
<tr>
<td>IOJ</td>
<td>Communication</td>
</tr>
</tbody>
</table>

(Sight, visual sense, eye)

(Processes)

- Add to GKA IOM letters D/V following HVD D.

(Parts)

- Add to GKA ION letters FW/Y following HVD.
- Add to GKA IOP letters A/N following HVE.

<table>
<thead>
<tr>
<th>IOQ</th>
<th>Eye spots, auricles, stigma</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOR</td>
<td>Eye cups</td>
</tr>
<tr>
<td>IOS</td>
<td>Vesicular eyes</td>
</tr>
<tr>
<td>IOT</td>
<td>Ocelli, simple eyes</td>
</tr>
<tr>
<td>ION</td>
<td>Compound eyes, faceted eyes</td>
</tr>
<tr>
<td>IOV</td>
<td>Ommatida</td>
</tr>
<tr>
<td>IOW</td>
<td>Stemmata</td>
</tr>
<tr>
<td>IPA</td>
<td>Hearing, vibration sense</td>
</tr>
<tr>
<td>IPB</td>
<td>Chordotonal organs, ecolopophorus organs</td>
</tr>
<tr>
<td>IPB</td>
<td>Tympanal organs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IPE</th>
<th>Chemical control system, secretory system, glandular system</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPF</td>
<td>Exocrine system</td>
</tr>
<tr>
<td>IPG</td>
<td>Endocrine system</td>
</tr>
<tr>
<td></td>
<td>(Neurosecretory system) see GKA IPK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IPH</th>
<th>Hormones, hormone production system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* For hormones as chemical substances, see GCW.</td>
</tr>
<tr>
<td></td>
<td>(By seat of production)</td>
</tr>
<tr>
<td>IPO</td>
<td>Thoracic glands</td>
</tr>
<tr>
<td>IPJ</td>
<td>Prothoracic glands, ecodysial glands</td>
</tr>
<tr>
<td>IPJ</td>
<td>Ecdysone, moulting hormones</td>
</tr>
<tr>
<td>IPK</td>
<td>Neurosecretory system</td>
</tr>
<tr>
<td></td>
<td>(Cells)</td>
</tr>
<tr>
<td>IPK</td>
<td>Neurosecretory cells</td>
</tr>
<tr>
<td>IPK</td>
<td>Neurohumours, neurohormones</td>
</tr>
<tr>
<td>IPL</td>
<td>Corpora allatum gland</td>
</tr>
<tr>
<td>IPL</td>
<td>Neotensin, juvenile hormone</td>
</tr>
<tr>
<td>IPM</td>
<td>Corpora cardiacum</td>
</tr>
</tbody>
</table>
(Animals) (Parts, organs, systems: non-vertebrate) (Chemical control system) (Corpora cardiaca)

GKA IPN  Ring glands
IPP  Tarsal glands
IPQ  Lacrimal glands
IPR  Peritracheal glands
(By function)
* Generally speaking, hormones or secretions serving a specific purpose go with the purpose. But in many cases they serve more than one function & for that reason these are collected here.

IPU  Morphogenic hormones
IPV  Pheromones
IPV N  Attractants
P  Sex attractants
IPW B  Scent glands
E  Poison glands
G  Sting glands
H  Nematocysts
K  Spinning glands
L  Spinnerets
N  Sebaceous glands, sebific glands
P  Byssus glands
R  Honeydew

IQ  Respiratory system
IQD I  Respiration, breathing
* External respiration (gaseous exchange) & internal respiration together. For internal respiration, see Metabolism G2X T. Add to GKA IQD I letters K/W following HWE D so far as applicable - e.g. Ventilation GKA IQD IM.

IQD JB  Telescopic movement
JD  Water movement
JG  Air storage
JJ  Air bubbles
JL  Plastra

(IQL) Breathing surfaces, gaseous exchange surfaces
IQM  Skin breathing, cutaneous respiration
IQN  Swallowing, intestinal respiration
IQP  Tracheae, tracheal system
IQP N  Air sacs
P  Spiracles
R  Tracheoles

IQQ  Gill, ctenidia, branchiae
IQQ N  Branchial arch
IQR P  Gill books, lamellate lungs, book lungs
IQR R  Tracheal gills
S  Spiracular gills
T  Blood gills
V  Internal gills
W  External gills

215
(Animals)

(Parts, organs, systems: non-vertebrates)

(Respiratory system)

(External gills)

GKA IGS

IQS

Lungs

Lung books

P

Lamellate lungs

Q

Aquatic lungs

(IQT)

(Special structures)

Swim bladders

(IQU)

(Special systems)

Siphons, gas ventricles, funnels

(IQV)

Apneustic respiration

(IQW)

Polypneustic respiration

(IQX)

Oligopneustic respiration

(IS)

Digestive system, nutrition process

* Nutrition process broadly & the parts & organs by which it is effected. For nutrition at molecular level, see Metabolism GBW.

(ISD D)

Digestion

(Special processes)

ISD I

Digestion outside mouth or body

JC

Intracellular digestion

JE

Choanocytes

JF

Cytopharynx

JG

Cylostome

K

Channel system

KL

Cilia, ciliated tentacles

KO

Ostia

KS

Ingestion

(ISJ)

_DIGESTIVE GLANDS (GENERAL)

Accessory glands

(ISN)

Alimentary tract, gut, coelenteron

ISP

Mouth, feeding organs

(Processes)

ISP DJN

Mastication

JPE

(Glands)

JPS

Salivary glands

JPT

Saliva

(Appendages)

P

Symbionts

Q

Aristotle's lantern

S

Proboscis

(ISQ)

Lips

ISQ N

Labrum

P

Labium

(ISR)

Jaw

ISR N

Maxilla

P

Mandible

(IISS)

Teeth

IST

Tongue

ISU

Lingua

ISW

Hypopharynx

216
(Animals)
(Parts, organs, systems: non-vertebrate)
(Digestive system)
(Alimentary tract)
(Hypopharynx)
Cibarium
Pharynx, gullet
Pharyngeal pump
Crop
Oesophagus, foregut, stomodaenum
Diverticula
Coelom, perivisceral cavity, haemocoel
Coelomoduct
Gizzard, proventriculus
Mastax
Mesenteron, midgut
Gastric caeca
Peritrophic membrane
Stomach, ventriculus
(Glands)
Gastric glands
Pouches
Chylific stomach
Hindgut, prociodaenum
(Excretion) see Excretory system GKA IV
Cloaca
Anus

(Associated glands & structures in digestion)
Hepatopancreas
Liver
Mycetoma
Mycetocytes
Secretion & storage systems (together)
* For secretion as chemical control see IPE.
Storage
Urogenital system (general)
Waste disposal system, excretory system
Excretion
Filtration
Reabsorption
Secretion
Excretophores
Urinary system
Renal gland
Bladder
Blind tubules
Proxonephridia
Flame-cell system
Malphigian tubules
Intracytoplasmic canals
Metanephridia
Nephridia
Nephrostome
Nephridiopore
Secondary excretory system
Nephrocytes
Osculum
(Animals)
 (Parts, organs, systems: non-vertebrate)
 (Urogenital system)
 (Osculum)

<table>
<thead>
<tr>
<th>GKA</th>
<th>IWJ</th>
<th>Antennary gland system</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWK</td>
<td></td>
<td>Green glands</td>
</tr>
<tr>
<td>IWL</td>
<td></td>
<td>Coral glands</td>
</tr>
<tr>
<td>IWM</td>
<td></td>
<td>Ventral glands</td>
</tr>
</tbody>
</table>

IX  Reproductive system

IXQ  Asexual reproduction

<table>
<thead>
<tr>
<th>IXT</th>
<th>N</th>
<th>Strobilation, strobilisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td></td>
<td>Zooids</td>
</tr>
<tr>
<td>R</td>
<td></td>
<td>Proglottides</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Heteronereis) see Development stages</td>
</tr>
</tbody>
</table>

IXU  (Budding)

<table>
<thead>
<tr>
<th>IXU</th>
<th>Q</th>
<th>Gemmules</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td></td>
<td>Statoblasts</td>
</tr>
</tbody>
</table>

IY  Sexual reproduction

<table>
<thead>
<tr>
<th>IYD</th>
<th>J</th>
<th>Sexual activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>JL</td>
<td></td>
<td>Detecting opposite sex</td>
</tr>
<tr>
<td>JN</td>
<td></td>
<td>Intercourse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Including all associated activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Excitation, arousal behaviour, preliminaries to copulation</td>
</tr>
</tbody>
</table>

JP  Signals

| JQ  |     | Scent                   |
| JQN |     | Coloration              |
| JQP |     | Vocal signals           |
| JQS |     | Erotopogenous zones     |
| JR  |     | Cutaneous excrescences  |
| JRN |     | Copulation, coitus      |
| JW  |     | Fertilization           |
|     |     | Fertility, fecundity    |

IYW  (Special structures)

| C   |     | Claspers                |
| E   |     | Gonadophyses            |
| G   |     | Pterygopodia            |
| J   |     | Cerci                   |
| L   |     | Bursa copulatrix        |
| O   |     | Ovotestis               |

(JBX)  (By sex)

(JC)  (Males)

(Add to GKA J letters C/D following GJ)

(Reproductive organs: other parts)

218
(Animals)

(Types of non-vertebrates)

(Males)

(Reproductive organs; other parts)

<table>
<thead>
<tr>
<th>GKA</th>
<th>JDB</th>
<th>Gonopore (males)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDJ</td>
<td>Ejaculatory duct</td>
<td></td>
</tr>
<tr>
<td>JDM</td>
<td>Penis, aedeagus</td>
<td></td>
</tr>
</tbody>
</table>

(Females)

Add to GKA J letters E/H following CJ with the following adjustments:

<table>
<thead>
<tr>
<th>JEW</th>
<th>V</th>
<th>Genital chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>Accessory glands (general)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JEY</th>
<th>T</th>
<th>Ovarioles</th>
</tr>
</thead>
<tbody>
<tr>
<td>TW</td>
<td>Germarium</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>Vitellarium</td>
<td></td>
</tr>
<tr>
<td>YD</td>
<td>Ovipositor</td>
<td></td>
</tr>
<tr>
<td>YL</td>
<td>Receptaculum ovarum</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JF</th>
<th>(Uterus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFQ</td>
<td>WB</td>
</tr>
<tr>
<td>WDN</td>
<td>Nidamental glands</td>
</tr>
<tr>
<td>WDP</td>
<td>Shell glands</td>
</tr>
<tr>
<td>JFU</td>
<td>Gonopore (female)</td>
</tr>
<tr>
<td>JFY</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>Receptaculum seminis, spermatheca</td>
</tr>
</tbody>
</table>

**GKA U** (Protozoa)

*Alternative (not recommended) to locating under Protista, at ESC. If this option is taken, proceed as follows (where the hyphen represents the classmark added to):

Add to GKA letters U/Y following ES.
Add to GKB letters A/Y following ET
Add to GKC letters A/B following EU.

**GKC Y** Metazoa

*Multicellular as compared with the largely unicellular Protozoa. This term is often used to exclude Porifera; for this narrower connotation, see Eumetazoa GKF Y. Not in Rothschild.
(Animalia)

(Metazoa)

**GK C J**

Agnotozoa (sub-kingdom)
*Not in Rothschild.*

**M**

Mesozoa (phylum)
See also Platyhelminthes GKK

**O**

Dicycida (order), Rhombozoa

**Q**

Orthonecida

**S**

Rhopalura

**W**

Parazoa (sub-kingdom)

**GKD**

Porifera (phylum), Spongiida, sponges
(Fossil forms)

**GKD JYC**

Archaeocyathidae

**GKD L**

Nuda (sub phylum)
See also Ctenophora GΚ J C.
Hexactinellida (class), glass sponges
Amphidiscophora (subclass)
Amphidiscosa (order)
Hyalonema
Hexasterophora
Hexactinosina
Farrea
Lychniscosa
Lyssacinosina
Asconema
Euplectella, Venus's flower basket

**GKE B**

Gelatinosa (sub-phylum)
Calcarea
Calcinea
Clathrinida
Leucettida
Calcaronea
Leucosolenida
Sycettida
Scypha, Sycon
Leuconia, Leucandra
Pharetronida

Demospongiae
Tetactinomorpha
Homosclerophorida
Flakina
Choristida
Stelletta
Geodia
Chondrosia
Lithistida

Glavaxinellida
Tethya
Suberites
Azinella

Ceractinomorpha (subclass)
Keratosa (order) Horny sponges
Dendroceratida
Dictyoceratida
Spongia, Eupongia, bath sponges
Verongia, Aplysina

GLU

GLW

GLV

GLY

GLY K
(Animalia)
(Parazoa)
(Porifera)
(Verongia, Aplysina)

Haplosclerida
Spongilla, Euspongilla
Poecilesclerida
Desmacidon
Halichondrida
Halichondria

Eumetazoa (sub-kingdom)
* Not in Rothschild.

(By symmetry)

Radiata (branch or grade)
* Radially symmetrical. Not in Rothschild.

CNIDARIA (phylum), COELENTERATA
Hydrozoa (class), Hydromedusae, hydroids, medusae

(Fossil forms)
Stromatoporoids
Athecata (order), Gymnoblastea, Anthomedusae
Hydra
Tubularia
Coryne
Veella, By-the-wind-sailor
Millepora
Douxainvillia
Stylaster
Budendrium
Porpita
Thecata, Calyptoblastea, Leptomedusae
Obelia
Sertularia
Plumularia
Campanularia

Limnomedusae (order)

Trachymedusae
Geryonia, Carmarina
Narcomedusae
Aegina
Siphonophora
Physalia, Portuguese man-of-war
Agalma

Actinulida
Scyphozoa (class), Scyphomedusae, jelly fish
Stauromedusae
Lucernaria
Cubomedusae
Carybdea
Chirodropus
Coronatae
Periphylla
Semaeostomeae
Pelagia
Cyanca

GKH B

D
E
JVC
F
G
H
J
K
L
M
N
P
Q
R
S
T
V
W

GKA A

B
C
D
E
F
G
H
J
K
L
M
N
O
P
Q
R
S
T

221
(Animalia)  
(Cnidaria)

<table>
<thead>
<tr>
<th>(Cyanca)</th>
<th>Aurelia, Aurelia</th>
<th>GML F</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Rzizostoma</td>
<td>GMM</td>
</tr>
<tr>
<td>GKI B</td>
<td>Anthozoa (class), Actinozoa, corals</td>
<td>GMM</td>
</tr>
<tr>
<td></td>
<td>(Fossil forms, (Palaeozoic))</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tabulata</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Favositidae, honeycomb corals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Halysitidae, chain corals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Syringoporidae</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Cerianthipatharia (sub-class)</td>
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</tr>
<tr>
<td>D</td>
<td>Antipatharia (order), black corals</td>
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<tr>
<td>E</td>
<td>Ceriantharia</td>
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<tr>
<td>F</td>
<td>Octocorallia, soft corals</td>
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</tr>
<tr>
<td>G</td>
<td>Alcyonacea</td>
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</tr>
<tr>
<td></td>
<td>(Fossil forms)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alcyonaria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alcyonium, dead men's fingers</td>
<td>GMP A</td>
</tr>
<tr>
<td>G JYC</td>
<td>Gorgonacea</td>
<td>GMP Q</td>
</tr>
<tr>
<td></td>
<td>Antillogorgia, sea fans</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gorgonia</td>
<td></td>
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<tr>
<td></td>
<td>Pennatulacca (order)</td>
<td>GMP P</td>
</tr>
<tr>
<td></td>
<td>Pennatula, sea pen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zoantharia (sub-class)</td>
<td>GMP N</td>
</tr>
<tr>
<td></td>
<td>(Fossil forms)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Palaeozoic)</td>
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<tr>
<td></td>
<td>Rugosa, Tetracoralla</td>
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<tr>
<td>NJV E</td>
<td>Zaphrentidae</td>
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<tr>
<td></td>
<td>(Mesozoic/Recent)</td>
<td></td>
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<tr>
<td></td>
<td>Scleractinia, Hexacoralla</td>
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<tr>
<td></td>
<td>Zoanthiniaria (order), zoanthids</td>
<td>GMP C</td>
</tr>
<tr>
<td></td>
<td>Corallimorpharia</td>
<td>GMP N</td>
</tr>
<tr>
<td></td>
<td>Actiniaria, sea anemones</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sagartia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ptychodactiaria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scleractinia, true corals, stony corals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fungia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Porites</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acropora, Madrepora</td>
<td>GMO</td>
</tr>
<tr>
<td></td>
<td>Caryophyllia</td>
<td></td>
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<tr>
<td>GJK C</td>
<td>CTENOPHORA (phylum), sea gooseberries</td>
<td>GMR</td>
</tr>
<tr>
<td></td>
<td>Tentaculata (class)</td>
<td>GMS</td>
</tr>
<tr>
<td></td>
<td>Cydippida (order)</td>
<td>GMT</td>
</tr>
<tr>
<td></td>
<td>Lobata</td>
<td>GMU</td>
</tr>
<tr>
<td></td>
<td>Mnemiopsis, comb jelly</td>
<td>GMV</td>
</tr>
<tr>
<td></td>
<td>Cestida, Cestoidea</td>
<td>GMY</td>
</tr>
<tr>
<td></td>
<td>Platycetena, Ctenoplanea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coeloplanea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nuda</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See also Porifera GKD.</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Beroidea</td>
<td>GMW</td>
</tr>
<tr>
<td>N</td>
<td>Beroe</td>
<td>GMW</td>
</tr>
<tr>
<td>Q</td>
<td>Bilateria (branch or grade)</td>
<td></td>
</tr>
</tbody>
</table>
* Bilaterally symmetrical. Not in Rothschild. |       |
(Animalia)

(Bilateria)

Vermes

* Obsolete term, usually covering worms of all kinds.
NOT in Rothschild.

(By nature of coelomic development)

Acoelomata (sub-grade)

* Not in Rothschild.

PLATYHELMINTHES (phylum), flat worms
Turbellaria (class)

Accela (order)

See also Opisthobranchia GLA A.

Convoluta

Rhabdocoela (order)

Catenula

Dalyellia

Microstomum

Alloeocoela

Plagiostomum

Monocelis

Tricladida

Maricola (sub-order)

Paludicola

Planaria

Dugesia, Ruplanaria

Terricola

Geoplan a

Rhyynchodemus

Bipali um

Polycladida

Acotylea (sub-order)

Planocera

Leptoplana

Cotylea

Eurypleta

Pseudoceros

Temnocephaloidea (class)

Temnocephalidea (order), Dactylifera, Dactyloida

Temnocephala

Monogenea, Heterocotylea

Monopisthocotylea (sub-class)

Capesaloidea (order)

Tristoma

Udonelloidea

Gyradactyloidea

Acanthocotyloidea

Proto gyro dactyloidea

Polyopisthocotylea

Chimaerocoloidea

Diclidophoroidea

Microcotyle

Dicy bothrioidea

Polystomatoidea

Cestodaria
(Animalia)

(Platyhelminthes)

(Cestodaria)

Amphilinidea (order)
Gyrocotylidea

Cestoda (class), tapeworms
Didesmida (subclass)
Pseudophyllidea (order), Bothriocephaloidea
Diphyllobothrium, Dibothriocephalus
Tetradesmida (subclass)

Haplobothrioidea (order)
Tetrarhynchoidea, Trypanorhyncha
Diphylidea
Tetrathyrididea, Phyllobothriidea
Lecanicephaloidea
Tetrabothrioidea
Proteocephaloidea

Nippotaenioidea
Cyclophyllidea, Taenioidea
Dipyldium
Hymenolepis
Taenia, Cysticercus
Mesocestoides
Dilepis

Trematoda, flukes

Aspidogastrea (subclass), Aspidocotylea, Aspidobothria
Aspidogaster

Digenea, Malacocotylea
Schistosoma, Bilharzia
Fasciola, Distoma, Distomum
Dicrocoelium, liver flukes
Clonorchis
Paramphistomum
Cyclocoelum

NEMERTINA (phylum), Rhynchocoela, ribbon worms, proboscis worms
Anopla (class)
Palaeonemertina (order), Mesonemertina
Cephalothrix
Tubulanus
Heteronemertina
Cerebratulus
Lineus, bootlace worms
Baseodiscus, Polia

Enopla (class)
Hoplonemertina (order)
Monostylifera (suborder)
Amphiporus
Otyphonemertes
Prostoma
Polystylifera
Pelagonemertes

Bedellonemertina, Bedellomorpha
Malacodbella

Pseudocoelomata (subgrade).
* Not in Rothschild.
(Animalia)
(Bilateria)
(Pseudocoelomata (subgrade))

ASCHERMINthes (phylum)
Rotifera (class), Rotatoria, wheel animalcules
Seasonidea (order)
Edelloidea
Monogononta
Ploima (suborder)
Flosculariacea
Trochosphaera
Collobothecacea
Gastrotricha
Macrodeoxyidea
Chaetonotoidea
Chaetognathus

Echinoderida, Kinorhyncha

Priapulida

See also Echiura GLF ; Sipuncula GLE V.

Priapulus

Nematelminthes

* Nematomorpha & Nematoda together.

Nematomorpha (class), Gordiacea, horse-hair worms
Nectonematoidea (order)

Cordicidae

Cordius

Nematoda, Nemata, round worms

Phasmatida (subclass)

Rhabditida (order)

Rhabditina (suborder)

Rhabditis

Strongylina (suborder)

Necator, hookworms

Pilaroides

Ascaridina

Ascaris, large roundworm

Enterobius, threadworm, pinworm

Dicotophyomatina

Dicotophyomatina

ACANTHOCHEPHA (phylum), thorny-headed worms,
hook-headed worms

Archiacanthocephala
Palaeacanthocephala
Esacanthocephala

ENTOPROCTA, Endoprocta, Calysozoa, Kamptonzoa, Polyzoa
endoprocta, Polyzoa endoprocta

Loxosomatidae
Pedicellinidae
Urnatellidae
(Animalia)
(Entoprocta)
(Urnatellidae)
GKT V
Coelomata (subgrade)
* Not in Rothschild.
(By coelom formation)
X
Lophophorates
* Not in Rothschild.

GKU
POLYZOA (phylum), Bryozoa, Polyzoa Ectoprocta,
Ectoprocta
GOC

GKU L
Phylactolaemata (class), Lophopoda
Cristatella
GOF

GKU M
Plumatella, Alcyanella
GOG

GKU N
Gymnolaemata, Stelmatopoda
GOG C

GKU P
Cyclostomata (order), Stenolaemata, Stenostomata
See also Marsipobranchii GNW.

GKU Q
Crisia

GKU R
Eurystomata

GKU S
Chelostomata (order)

GKU T
Bugula

GKU U
Membranipora

GKU V
Ctenostomata (order)

GKU W
"Alcyonidium"

GKU X

GKV B
PHORONIDA (phylum)

D
BRACHITIODA (phylum), lampshells

E
Inarticulata (class)

F
Atremata (order)

G
Lingula
(Fossil forms)
Lingulella

G JYC
Neotremata

H
Crania

I
Discinisca

J
Articulata (class)
(Fossil forms)

L JYC
Orthidae

L JTE
Strophomenidae

L JTG
Richthofenidae

L JYJ
Spiriferidae

L JYL
Pentameridae

M
Protremata (in general) * Obsolete class
Telotremata (in general) * Obsolete class

N
Thecideoide (superorder)

P
Rhynchozelloidea

Q
Rhytibractuloidea

R
Terebratuloidea

S
Terebratelioidea

T
Magellania

X
Schizocoelomates
* Not in Rothschild.

GKW
MOLLUSCA (phylum), malacology
(Fossil forms)

GKW JU
Shells, conchology

GKW L
Amphineura

GKW M
Polyplacophora (class), Loricata,
Placophora

GS

GSA

GSB

GSB B

GSB D

226
(Animalia)
(Mollusca)

(Polyplacophora)

Lepidopleurida (order)  GSC D
Chitonida  GSD T
Cryptochiton  GSD N
Lepidochitona  GSD D
Ischnochiton

Aplacophora (class), Solenogastres  GSC
Neomeniomorpha (order)  GSC N
Neomenia
Proneomenia  GSC T
Chaetodermomorpha  GSC T
Chaetoderma

Monoplacophora
Tryblidioidea
Gastropoda

Prosobranchia (subclass), Streptoneura  GSF
Archaeogastropoda (order), Dictocardiacea,  GSG M
Aspidobranchia

Acmaea, limpet  GSG S
Haliotis, earshell, ormer, abalone  GSG H
Patella, limpet  GSG L
Trochus, top-shell  GSG F
Fissurella

Mesogastropoda (order), Monotocardia,  GSG V
Pectinibranchia

Strombus  GSH F
Cypracea, cowrie
Charonia, Tritonia, trumpet-shell
Cassia, helmet-shell
Pterotrachea
Bulimus, Bithynia
Pomatias, Cyclostoma
Atlanta

Stenoglossa, Neogastropoda  GSH O
Buccinum, whelk  GSH U
Nassarius, Nassi
Turris, Pleurotomaria  GSG J
Xancus, Turbinella  GSG N

Euthyneura (subclass)

Opisthobranchia (subclass), sea slugs  GSJ
* Partly synonymous with Euthyneura.

Pleurocoela (order), Tectibranchia  GSJ F
Acteon  GSJ D
Aphysia, sea-hare  GSJ D
Bulla
Pteropoda
Cavolina
Spiratella, Limacina, sea-butterfly
Clione
Sacoglossa, Ascoglossa  GSJ R
Elysia
Limapontia
Acoela
Notaspidea (suborder)  GSJ H
Elurobranchus  GSJ T
Nudibranchia

227
(Animalia)
  (Mollusca)
    (Opisthobranchia)
      (Nudibranchia)
        GLA T Arminia, Pleurophyllidia
        Doris, sea-demon
        Acolida, Bolis
        Polycera
        GLB A Pulmonata (subclass)
          * Partly synonymous with Bathyneura.
        Basommatophora (order)
          Lymnaea, Lymnaea, pond-snail
          Chilina
          Siphonaria, Trimusculus
        Stylommatothorapha
          Helix, land-snail
          Testacella, shell-bearing slug
          Limax
          Arion, land-slug
          Succinea
          Onchidiium
          Scaphopoda (class), tusk shells, tooth-shells
          Dentalium
          Siphonodentalium
          GLC B Bivalvia, Lamellibranchia, Pelecypoda
          Protophyllidia
          Nucula, nut-shell
          Solemya
          Enterodonta, Prionodonta
          Arca, Noah's ark shell
          Anisomyaria (order)
          Anomia, saddle-oyster
          Mytilus, mussel
          Ostrea, oyster
          Pecten, scallop
          Pinna, fan-mussel
          Pteria, Avicula
          Spondylas, thorny oyster
          Schizodonta
          Heterodonta
          (fossil forms)
        GLD A Crassatellidae
        Rudistae
        Cardium, cockle
        Mactra, clam
        Margaritifera, pearl-mussel
        Tellina
        Unio, fresh-water mussel
        Venus
        Desmodonta
        (fossil forms)
      K JYC Solenopsidae
      M N P Mya, gaper
      Pholadomya
      Teredo, ship-worm
      Septibranchia
      Cuspidaria
      Poromya, gaper
      GLE A Cephalopoda (class), Siphonopoda
      Tetrabranchia (order)
(Animalia)  
(Mollusca)  
(Cephalopoda)  

GL  
(Tetrabranchia)  
(Fossil forms)  

GLE C  
CJY D  
CJY G  
CJY H  
CJY N  

Nautiloidea  
Ammonoidea  
Goniatitidae  
Ceratitidae  
Ammonites  

GLE F  
F  
Decapoda (suborder)  

See also Eucarida (Crustacea) GMM F  

(GM F  (Fossil forms)  

G JYC  
H  
I  
J  
K  
M  

Belemnoidea  
Loligo, squids  
Sepia, Eupedia, cuttle-fish  
Spirula  
Ommastrephes, Ommatostrephe  
Vampyromorpha (suborder)  

Octopoda  

GLE V  
W  

Sipuncula (phylum)  
Sipunculus  

GLE ECHIURA (phylum)  

See also Priapulida GKR B.  

GLE L  
N  

Echiurida (order)  
Xenopneusta  

GLE ANNELIDA (phylum), ANNULATA (Microfossils)  

GLE G  
JYC  

Conodont*  
* Systematic status uncertain.  

GLE L  
N  

Polychaeta (class)  
Errantia (subclass)  

P  
Q  
R  
S  
T  
U  
V  
W  
X  

Amphinome  
Aphrodite  
Phyllococe  
Tomopteris  
Syllis  
Nereis  
Nephtys  
Glycera, Rhynchelobus  
Eunice  

GLE B  

Sedetaria (subclass)  

D  
E  
F  
G  
H  

Chaeopterus  
Arenicola, lugworm  
Cirratulus  
Capitella  
Maldane  

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<table>
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<th>Taxon</th>
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<tr>
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<tr>
<td>J</td>
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<td>K</td>
<td>Sabella, Spirographis, peacock fan worm</td>
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<td>L</td>
<td>Sternaspis</td>
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<td>M</td>
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<td>P</td>
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<tr>
<td>Q</td>
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<td>(Oligochaeta)</td>
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<tr>
<td>C</td>
<td>Tubifex</td>
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<td>D</td>
<td>Euchytraeus, white worm</td>
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<td>E</td>
<td>Lumbricus</td>
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<td>F</td>
<td>Eisenia, earth worm</td>
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<td>G</td>
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<td>O</td>
<td>Rhabdellida</td>
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<td>Gnathobdellida</td>
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<tr>
<td>S</td>
<td>Hirudo, medical leech</td>
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<td>T</td>
<td>Erpobdella, Herpobdella</td>
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<td>Archiannelida</td>
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<td>Saccocirrus</td>
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<tr>
<td>X</td>
<td>Polygordius</td>
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<tr>
<td>GLK</td>
<td>ARTHROPODA (phylum)</td>
</tr>
<tr>
<td>GLK J</td>
<td>(Fossil forms)</td>
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<tr>
<td>YC</td>
<td>Trilobites</td>
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<td>Agnostidae</td>
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<td>Eodiscidae</td>
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<td>JYJ</td>
<td>Calymenidea, Dudley bug</td>
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<td>GLK L</td>
<td>Onychophora (class)</td>
</tr>
<tr>
<td>M</td>
<td>Peripatus</td>
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<tr>
<td>N</td>
<td>Opisthopatus</td>
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<tr>
<td>P</td>
<td>Pauropoda</td>
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<tr>
<td>Q</td>
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<tr>
<td>R</td>
<td>Eurypauropus</td>
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<tr>
<td>V</td>
<td>Mandibulata (sub-phylum)</td>
</tr>
<tr>
<td>*</td>
<td>Not in Rothschild.</td>
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<td>X</td>
<td>Myriapoda</td>
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<td>GLL A</td>
<td>* Not in Rothschild.</td>
</tr>
<tr>
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<td>Diplopoda (class), millipedes</td>
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<td>Polyxenida (order), Schizocephala, Penicillata</td>
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<td>G</td>
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<td>Pentazonia (super-order), Opistharia</td>
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<td>Glomerida (order), Oniscomorpha</td>
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<td>Glomeridesminia, Limacocorhaph</td>
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<td>Helminthomorpha, Eugnatha, Proterandria</td>
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<td>N</td>
<td>Chordeumida, Nematophora</td>
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<td>Polydesmidida</td>
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230
(Animalia)
  (Arthropoda)
    (Diplopoda)

GLN N (Polydesmidida)
  Juliformia
    Julida (order)
    Spirobolida (order)
    Spirostreptida
    Cambalida
  Colobognatha (super-order)
    Polyzonium

GLM W Chilopoda (class), centipedes
    Epimorpha (subclass)
      Geophilomorpha (order)
      Scolopendromorpha
      Scolopendra
      Anamorpha
      Lithobiomorpha
      Lithobiomorpharia (suborder)
      Craterostigmomorpharia
      Scutigeromorpha
      Scutigera

GLY Y Symphyla
  Insecta (class), Hexapoda, entomology

GLN L Apterygota (subclass), Ametabola
  Collembola (order), spring tail
    Arthropleona (suborder)
      Podura
      Isotoma
      Symphleona
      Sminthurus, lucerne flea

GLO A Protura, Myriagnostoma
    Diplura, Aptera
      Campodea
      Thysanura, bristle-tail
      Machilis
      Lepisma, silver-fish

GLO F Pterygota (subclass), Metabola
  Palaeoptera (division), Exopterygota, Hemimetabola
    * When Exopterygota & Hemimetabola exclude
      Polyneoptera & Paraneoptera.
    Ephemeroptera (order), Plecoptera, mayfly
      Ephemerida

GLP M Neoptera (division)
  Polyneoptera (section), Exopterygota, Hemimetabola
    * When Exopterygota & Hemimetabola exclude
      Paraneoptera & Palaeoptera.
    Dictyoptera (order)
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<td>GLP O</td>
<td>Blattodea (suborder), cockroach</td>
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<tr>
<td>P</td>
<td>Blatta</td>
</tr>
<tr>
<td>Q</td>
<td>Extobius</td>
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<td>Blattella</td>
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<td>T</td>
<td>Mantodea, mantid</td>
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<td>Chaetessa</td>
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<td>Isoptera (order), termite, white ant</td>
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<td>Zoraptera</td>
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<td>Grylloblattodea, Notoptera</td>
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<td>Phasmina, Cheleutoptera</td>
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<td>Donua, stick-insect</td>
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<td>I</td>
<td>Phyllium, leaf-insect</td>
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<td>K</td>
<td>Orthoptera, Saltatoria</td>
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<td>Ensifer (suborder), long horned grasshopper, cricket</td>
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<td>N</td>
<td>Tettigonia, Phasgornura, bush cricket</td>
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<tr>
<td>O</td>
<td>Gryllotalpa, mole cricket</td>
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<td>P</td>
<td>Acheta, Gryllus, cricket</td>
</tr>
<tr>
<td>Q</td>
<td>Stenopelmatus</td>
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<tr>
<td>S</td>
<td>Caelifera, shorthorned grasshopper</td>
</tr>
<tr>
<td>T</td>
<td>Locusta, locusts</td>
</tr>
<tr>
<td>U</td>
<td>Chorthippus, grasshopper</td>
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<tr>
<td>V</td>
<td>Tetrix, Acrydium, grous-locust</td>
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<td>GLR A</td>
<td>Embioptera (order), web-spinner</td>
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<td>Dermaptera (order)</td>
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<td>Forficulina (suborder), earwigs</td>
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<td>Arixenina</td>
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<td>Hemimerina, Diploglossata</td>
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<td>Paraneoptera (section), Exopterygota, Hemimetabola</td>
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<td>* When Exopterygota &amp; Hemimetabola exclude Polyneoptera &amp; Palaeoptera</td>
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<td>Psocoptera (order), Copeognatha, Corrodenia, book lice</td>
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<td>Q</td>
<td>Phtihaptera, lice</td>
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<td>Anoplura (suborder), Siphunculata, sucking lice</td>
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<td>S</td>
<td>Pediculus, human louse</td>
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<td>V</td>
<td>Haematopinus, hog louse</td>
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<td>W</td>
<td>Mallophaga, biting louse</td>
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<td>Thysanoptera, Physopoda, thrips</td>
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<td>Homoptera (suborder)</td>
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<td>Cercopis</td>
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<td>K</td>
<td>Psylla, jumping plant louse</td>
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<td>L</td>
<td>Aphis, greenfly, plant louse</td>
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<td>N</td>
<td>Phylloxera, vine pest</td>
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<tr>
<td>Q</td>
<td>Coccus, scale insect</td>
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<td>R</td>
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<td>Oligoneoptera (section), Endopterygota, Holometabola</td>
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(Animalia)
(Insecta)

GLT A
C
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N
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V

Neuroptera (order)
Megaloptera (suborder)
Sialis, alder fly
Raphidia, snake fly
Corydalis, Dobson fly
Planipennia
Chrysopa, green lace wing
Hemerobius, brown lace wing
Myrmeleota, ant lion fly
Mantispa
Ascalaphus
Nemoptera
Coniopteryx

GLU
GLU L
N
P
Q
R
T
V

Coleoptera (order), beetles
Adephaga (suborder)
Cicindela, tiger beetle
Carabus, ground beetle
Dytiscus, water beetle
Gyrinus, whirligig
Archostemata
Cupes

GLV A
C
D
E
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G
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M
N
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S
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W

Polyphaga
Agriotes, wireworm (larva)
Arachnothera
Bruchus
Coccinella, lady bird
Dermecestes
Hister
Hydrophilus, Hydrons
Ips, Tomicus
Lampyris, firefly
Leptinotarsa, Colorado potato beetle
Lucanus, stag beetle
Meloe, oil beetle
Paussus
Ptilus
Scarabaeus, chaffers
Silpha, carrion-beetle
Sphex, sawfly
Staphylinus
Tenebrio, mealworm (larva)

GLW B
D
F
H
J
L
N

Strepsiptera, stylopids
Stylops
Mecoptera, Panorpatae, scorpion fly
Panorpa
Trichoptera, Phygaenoidea, caddis fly
Zeugloptera
Micropteryx, Eriocephala

GLX
GLX L

Lepidoptera, butterflies & moths
Monotrysia (suborder)
Eriocrania

BC1
GQR
GQR A
GQR B
GQR F
GQR C
GQR T
GQR H
GQR M
GQR N
GQR P
GQM
GQM A
GQM B
GQM C
GQM D
GQM G
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<td>Dacnaus, Anosia</td>
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<td>* Not in Rothschild.</td>
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<td>Chironomus, non-biting midge</td>
<td>GWV D</td>
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<td>Culex</td>
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<td>Sciara, fungus-gnat</td>
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<td>Tipula, daddy-long-legs</td>
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<td>Calliphora, blue bottle, blow fly</td>
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<td>Drosophila, small fruit fly</td>
<td>GQV S</td>
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<td>Hippobosca</td>
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<td>Hypoderma</td>
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234
(Animalia)  
(Insecta)  
(Diptera)  

(Anopodera)  
Muscza, house fly  
Nycteribia  
Oestrus  
Phora, providal, scuttle fly  
Psila  
Sarcophaga  
Scatophaga  
Stomoxys  
Tachina  
Siphonaptera (order), Aphaniptera, suctoria, flea  
Pulex  
Ceratophyllum  

Hymenoptera  
Symphyta (suborder), Chalastogastraa  
Cephus, stem saw fly  
Sirex, giant wood wasp  
Waldheimia  
Apocrita, Clistogastra  
Andrena  
Anthophora  
Aphidius, lysiphlebus  
Apis, honey-bee  
Bombus, bumble-bee  
Chalcis, chalcid fly  
Chrysis  
Cynips, Dryophanta  
Diplolepis, Rhodites  
Emenes  
Evania  
Formica, ant  
Habrobracon, bracon  
Ichneumon  
Megachile  
Mutilia  
Platygaster  
Sphex  
Vespa, hornet  
Vespula, wasp  
Xylocopa  

Crustacea (class)  

Branchiopoda (subclass)  
Anostraca (order), fairy shrimp  
Chirocephalus  
Branchiopus  
Artemia  
Notestraea  
Triops, Aegus  
Leydiosus  
Conchostraca, clam shrimp  
Cyzicus, Estheria  
Limnadia  
Cladocera, water flea  
Sida  

235
(Animalia)
(Crustacea)
(Branchiopoda)

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236
(Animalia)
(Crustacea)

(Anaspidaeace)
  Anaspidace
  Bathyrididae (order)
    Bathyrella
  Pancarida (super-order)
    Thermosbaenaceae (order)
  Peracarida
    Mycidaceae, opossum-shrimp
      Lophogaster
      Mysis
    Cumacea
      Diastylis
      Cumella
  Tanaidacea
    Apsides
    Tanaides
    Leptochelia
  Gnathiclea

Isopoda
  Ligia
  Armadillidium, wood louse
  Asellus
  Idotea
  Limnoria, gribble
  Bopyrus
  Cymothoa
  Ectomisca
  Sphaeroma
  Oniscus
  Trichoniscus

Spelaeogriphacea
  Amphipoda
    Gammarus, shrimp
    Talitrus, sand hopper
    Caprella, ghost shrimp
    Hyperi
    Cymus, whale louse
    Corophium
    Pontoporeia
    Orchestia
    Chelura

Haplocarida
  Stomatopoda, mantis shrimp
  Squilla
  Eucarida (super-order)
    Euphausiacea (order), krill, whale feed
      Euphausia
      Meganyctiphanes
      Thysanoemora
  Decapoda
    See also Dibranchia CLE F.

Natantia (suborder)
  Penaeus

Palaeon, Leander
  Hippolyte, prawn

M Land crabs
(Animalia)
  (Crustacea)
    (Eucarida)

  GMM R
    (Hippolyte, prawn)
    Crangon, Crago, shrimp
    Caridina
  GPS E

  GMM S
    Reptantia (suborder)
      Astacus, Potamobius
      Calappa
      Cambarus, freshwater crayfish
    GPS L

  GMM T
    Cancer, edible crab
    Dorippa
    Dromia
    Galatheia, plated lobster
    Gecarcinus
    Grapsus
    Hippa, Remipes
    Homarus, lobster
    Lithodes, stone-crab
    Maia, maja
    Nephrops, Norway lobster
    Ocypode
    Pagurus, Eupagus, hermit crabs
    Palinurus, langoust, crawfish
    Panuliris, rock lobster
    Pinnothere
    Platypodia
    Porcellana
    Fortunus, Neptunus
    Potamon, Telphusa
    Thalassina
  GPS N

  GMM C
    * Not in Rothschild.
  GPU C

  GMO A
    Chelicerata (subphylum)
  GPT N

  GMO B
    Eurypteridae
    Pterygotus
  GPU P

  GMO C
    Merostomata (class)
    Xiphosura (order), Limulida, King crab
    Limulus
  GPT L

  GMO D
    Arachnida (class)
    Scorpion (order), scorpion
    Scorpio
    Bothus
    Pseudoscorpiones, Chelonethi, Chernetes, false scorpion
    Holopeltida, Thelyphonida, *whip scorpion*
    Thelyphonus
    Schizopeltida, Schizomida, Tartaridae
    Amblypygi, Phrynicida
    Palpigradi, Microthelyphonida, micro-whip scorpion
    Ricinulei, Podogonata
    Solifugae, Solpugida, false spider, sun spider, wind scorpion
    Galeodes
    Solpuga
    Opiliones, Phalangida, harvest spider, harvestmen
  GPT C

  GMO E
    Araneae, spider
    Agelena
    Araneus, Epeira
    Avicularia, tarantula
    Clubiona
    Dysdera
    Lycosa
  GPT I

238
(Animalia)
(Arachnida)
(Araneae)

GMP G
   (Lycosa)

H   Onops
J   Pholcus
K   Salticus, Epiblemmum
L   Theridion
M   Thomisas
N   Uloborus
Q   Acari (order)
R   Argas
S   Bdella
T   Demodex
V   Deranyssus
W   Eriophyes
GMQ A
   Gamassellus
   Ixodes
   Ornithodoros, ticks
   Sarcoptes
   Tetanyssus
   Trombicula, mites

K   Pycnogonida (class), Pantopoda, sea spider
   Colossendeomorpha (order)
   Colossendeis
   Nymphonomorpha
   Nymphon
   Ascorhynchosomorpha
   Pycnogonomorpha
   Pycnogonum
   Pentatomida, Linguatulida
   Cephalobaenida
   Poroccephalida
T   Tardigrada, water-bear
U   Heterotardigrada
W   Phalangida
X   Butardigrada

GMR A
   Enterocoelomata
   * Not in Rothschild.

C   CHAETOGNATHA (phylum), arrow worms
E   Sagitta
F   Spadella
G   Krohnitta
P   POCONOPHORA (phylum), BRACHIATA, beard worms
R   Athiscaneaphria (order)
S   Thecanephria

GMS A
   ECHINODERMATA

B   Palmatozoa (sub-phylum)
C   Crinoidea (class)
   Articulata (order)
   See also Brachiopoda
   Rhizocrinus
E   Eileutherozoa
G   Holothuroidea, sea cucumbers
H   Aspidochirata
   Holothuria
   Euspinosoma
   Elpisida
   Pelagotheria
   Dendrochirotida
   Cucumaria
   Cucumaria
   Pentacta
   Molpadonia
   Molpadia

GRV

GRT

GRL

GRI

GRT A

GRT L

GRT N

GRT G

GRT D

GRT P

GRT R

GRTU

GRV

GRW

GOM

GT

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(Animalia)

(Ichthya)

((Fossil forms))

GNM

Marsipobranchii (class), Agnatha, jawless fish

(Fossils)

GNM JU

(Agnathids)

JYC

Gnathostomata

JYE

Ostracoderms

JYG

Cephalaspidae

JYJ

Pteraspidae

JYL

Thelodus

L

Cyclostomata (subclass)

M

Hyperoartii (order), Petromyzones, lamphreys

P

Petromyzon

Q

Hyperotreta (order), Myxini, hag fishes

Eptatretus, Bdellostoma

GNQ

(Jawed fishes)

* Not in Rhothschild. See also Grathostoma

GUV

(Fossil forms)

GNQ JU

Placoderms (general)

JYC

Arthrodina

JYE

Antiarchi

JYG

Bothriolepi

JYJ

Selachii (class), Chondropterygii, Chondrichthyens,

Elasmobranchi, cartilage fishes

GNO

Euselachii (subclass)

M

Pleurotremata (order), Selachoidei, sharks, etc.

N

Notidanidei (suborder), Hexanchiformes

P

Chlamydoselachus

Q

Galeoidei, Lamniformes

R

Odontaspis, Carcharias

S

Scyliorhinus, Scyllium, dogfish

T

Sphyra, hammerhead shark

GYP A

Squaloidei, Textospondyli

B

Squalus, Acanthias

C

Heterodontus, Cestracion

D

Spinax, Etmopterus

E

Oxynotus, Centrina

G

Squatina, angel-fish

H

Hypotremata, rays

J

Narcohatoidei, Torpediniformes, electric rays

K

Torpedo, Narcopterygii, Narcacion

L

Batoidei

M

Raja, ray

N

Pristis, sawfish

P

Dasyatis, Trygon, sting-ray

Q

Myliobatis, eagle-ray

R

Rhinobatus

S

Bradyodonti

T

Holocephali, rabbit-fishes

Chimaer

GNQ

Fishes, osteichthyes, bony fishes

GON

Ganoidei

* Obsolete class, not in Rhothschild.

Characterized by ganoid scales.

LJU

(Paleonotostomi)

M

Pisces, osteichthyes, bony fishes

LJU

Ganoidei

* Obsolete class, not in Rhothschild.

Characterized by ganoid scales.

(Paleonotostomi)
(Animalia)

(Ichthya)

(Palaeopterygii)

GNQ N
Chondrostei (order)
Acipenseriformes
(GLV C)

NJV
(Palaeoniscidii)

NJY C
Acipenseridae

NJY E
Acipenser, sturgeon

P
Polyodon, paddle-fish

Q
Cladistia, Polypteriformes

R
Polypterus, bichir

S
Neopterygii, (subclass), Teleostei

GNR L
Holostei
Protospondyli (order), bow-fins

GNR N
Amaia

GNR P
Ginglymodi (order), Lepisosteiformes, garpike

GNR Q
Isospondyli (order), Malacopterygii, Clupeiformes

GNR S
Clupeoidei (suborder)
Clupea, herring

GNR T
Sarda, sardine, pilchard

GNR U
Megalops, tarpon

RS T
Blochus

GNR W
Emigrulis, anchovy

GNR X
Albula

GNR Y
Stomiatoidei

GNR Z
Thymallus

GNR A
Salmoidei
Salmo, Trutta, salmon, trout

GNR B
Osmerus, smelt

GNR C
Coregonus, whitefish

GNR D
Osteoglossoidei

GNR E
Notopteroidei

GNR F
Normyroidei

GNR G
Haplochromi, Esocoidei

GNR H
Esox, pike

GNR I
Dallia, black fish

GNR J
Umbra, mid-minnow

GNR K
Inimi, scopeliformes

GNR L
Mycetophoidei (suborder), Scopelidae

GNR M
Mycetophum

GNR N
Lampanyctus, lantern-fish

GNR O
Syndus, lizard fish

GNR P
Alepisauroidae (suborder)

GNR Q
Chondrobranchi (order)

GNR R
Cetunclii

GNR S
Miripinnati

GNR T
Giganturoidea

GNR U
Lyomeri, Saccopharyngiformes, gulper eel

GNR V
Saccopharynx

GNR W
Eurypharynx

GNR X
Ostariophysi

GNR Y
Characoidae (suborder)

GNR Z
Citharinus

GNY A
Gymnotoidei

GNY B
Gymnotus, gymnotid eel

GNY C
Cyprinoidei, Evenognathi

GNY D
Electrophorus, electric eel
(Animalia)
  (Ichthya)
    (Ostariophysi)

(Electrophorus, electric eel)
  Phoxinus, Phonixus, minnows
  Cypinus, carp, goldfish

Catostomus
  Cobitis, loach
  Siluroidei, Nematognathi, catfish

Silurus
  Malapterus, electric catfish
  Ameiurus
  Bagrus
  Doras
  Pimelodus

Heterom, Notacanthiformes, Halosauriformes
  Halosaurus
  Apodes, Anguilliformes, eels

Anquilla
  Conger
  Muraena, moray,
  Syngnathorni, scombrosces, Beloniformes
  Scomberescoidei
  Scomberesox, skipper
  Beloni, garfish
  Exocoeloidae
  Exocoetus, flying-fish
  Salmoperae (order), Percopsiformes
  Aphredoderus, pirate-perch

Microcaudini, Cyprinodontidae, Cyprinodontiformes
  Cyprinodontoidei (suborder)

  Platypoecilus, platypus, swordfish
  Poecilia
  Amblyopoeidoi
  Phallostathoidei

Solenichthyis, Syngnathiformes, Aulostomiformes
  Hippocampus, sea-horse

Anacanthini, Gadiformes, Macruroides
  Gadus, cod, whiting
  Merluccius, hake
  Macrourus
  Gaidropsarus, Matella, Onas
  Allocyprinathis, Lampridiformes
  Lampris, moon-fish
  Trachypterus, ribbon-fish
  Regaliicus
  Berycomorphi
  Beryx
  Holocentrus
  Zeomorphi

Perciformorphi
  Perciformoidei (suborder)
    Ammodytes
    Apogon
    Bathymaster
    Brama
    Caranx

GVO B

GVO O, GVO K

GVO P

GVO V

GVP Z

GVP B

GVP &

GVP *

GVO J

GVO L

GVP T

GVP Y

GVS M, GVS R

GVS M

GVP Q

GVP G

GVP H

GVP B

GVP N

GVP Z

GVP V

GVP U

GVS G

GVS H

GVT

GW L

GVU B

GW M

GVT S
(Animalia)
(Ichthya)
(Periopomorphi)
(Caranx)

GOA H  Centropomus
       Chaetodon
       Chromis
       Cichla
       Coris
       Coryphaene
       Embiotoca
       Epinephalus, Cernia
       Girella
       Labroides, goldfish

GOB A  Labrus
       Lutjanus, Lutianus
       Morone, bass
       Mullus, mullet
       Perca, perch
       Pomacentrus
       Pomatomus
       Sciena
       Serranus
       Sparus
       Trachinus
       Uranoscopus

GOB Q  Teuthidoidei (suborder), Siganoidei
       Acanthuroidei
       Kurtoidei
       Trichiuroidei
       Gempylus

GOB R  Scombroidei
       Scomber, mackerel
       Thunnus, Thynnus, tunny
       Xiphius, swordfish?
       Istiophorus
       Goioticidae
       Gobius, goby
       Callionymoidei, dragonet
       Blennioidei
       Blennius
       Zoarces, blennies
       Ophidioidei, cuskeel
       Stromateoidei
       Nomeus
       Chanioidei, Ophicephaloidei
       Anabantoidei
       Anabas, climbing perch
       Osphronemus

GOD A  Mugiloidae, Percesoces, grey mullet
       Mugil
       Atherina
       Sphyraena, barracuda
       Polynemoidei (suborder), Rhegmopteri
       Scleroparei (order), Cataphracti, Loricati,
       mail-cheeked fish
       Scorpaenoidae (suborder)
       Trigla, gurnard

245
(Animalia)
(Ichthya)
(Scleroparei)

Trigla, gurnard

Cottus, bull-head, miller's thumb
Cyclopterus, lump fish
Hexagrammos, Labrax
Liparis
Cephalacanthoidei, Dactylopteroidei, flying gurnard
Thoracostei, Gasterostoidea, stickle back
Gasterosteus

Hypostomides, Pegasiformes, dragon-fish
Pegasus
Heterosomata, Pleuronectiformes, flat-fish
Bothus
Pleuronectes, turbot, plaice
Limanda, flounder
Solea, sole
Paralichthys
Hippoglossus, halibut
Discocephali, Echeneiformes, sucker-fish
Echeneis
Pemora

Plectognathii, Tetraodontiformes, trigger-fish, globe-fish
Balistoides, Scolerodermi
Balistes
Monacanthus

Tetraodont, Gymnodontes  

Tetraacanthus

Mola, Orthogoriscus, sun-fish
Diodon, globe-fish
Ostracion

Malacichthyes (order), Icosteiformes, rag-fish
Xenopterygh, Gobiesociformes, Cornisher suckers, cling-fish

Haplodoci, Batrachoidiformes, toad-fish
Pediculati, Lophiiformes

Lophioides (suborder)
Lophius, angler
Antennarioides, sea-toad, frog-fish
Antennarius
Ogcocephalus

Ceratoides, deep-sea angler-fish

Opisthomi, Mastacembeliformes, spiny-eel
Synbranchii
Alabotei
Synbranchodei

Amphipnos

Crossopterygii (subclass)

Actinistia (order), Coelacanthini
Latimeria, coelacanth
Dipnoi, Dipneusti, Ceratodiformes, lungfish
Protopterus
Lepidosiren

Neoceratodus, Ceratodus

Tetrapoda

* Not in Rothschild.

246
(Animalia)

(Tetrapoda)

GOH X  Amphibia & reptilia together
* Not in Rothschild.

Heptalogy

GW

GOI  Amphibia (class)

GWA

GOI JU (Fossil forms)

(GOV)

JVI (Devonian)

JVI L Ichthyostega

JVI L (Carboniferous)

JVJ L Labyrinthodontia (general)

See also Stegocephali GOI PJY C

JVV N Symmoria

L Gynophiona (order), Apoda, caecilians

See also Apoda (Holothuroidea)

M Caecilia

GVD

P Gaudata (order), Urodeia

(Fossil forms)

(PJU)

PJU C Stegocephali

PJU E Temnospondyli

PJU G Lepospondyli

PJY J Phyllospondyli, Branchiosauria

Q Cryptobranchiodae (suborder)

R Ambystomatidae

S Ambystoma, Sirex, mole salamander, axolotl

GOJ A Salamandridae

GWJ

C Salamandra, fire salamander

D Triturus, Triton, newt

E Desmognathus, dusky salamander

F Plethodon, woodland salamander

G Amblyamia, Congo eel

J Proteida

K Proteus, olm

L Necturus, mud-puppy, waterdog

N Trachystomata

P Siren, mud-eel

Q Pseudobranchus, dwarf siren

GOK L Salientia, Anura

GOK M Amphicoela (suborder)

Leiopelma, Leiopelma, New Zealand frog

Opisthocoela

DWJ

N Discoglossus, painted frog

P Alytes, midwife toad

Q Bombina, Buminator, fire bellied toad

R Xenopus, clawed toad

S Pipa, Surinam toad

T Amphibola

GWI

GOL A Pelobates, spade foot toad

Frocoela

C Bufo, toad

E Alytes, midwife toad

G Hyla, tree frog

H Dendrobates, poison frog

J Leptodactylus

247
(Animalia)
   (Amphibia)
      (Salientia, Anura)
         (Leptodactylus)
         Diplosauroidea
         Rana, frog
         Rhacophorus, Polypedates, tree frog
   V Sauropsida
      * Not in Botha's index. Includes many fossil reptiles, all living reptiles & birds, but excludes Therapsids (mammal-like reptiles)
      X Birds & reptiles (together)
      GON Reptilia (class)
         GON (Fossil forms)
            * The great expansion & radiation of the reptiles in the Mesozoic resulted in a very large number of fossils, mostly of now extinct groups. The Thecodonts in particular radiated extensively in the Triassic and were ancestral to the modern lizards, snakes, crocodiles & birds, as well as producing the pterosaurs & dinosaurs.
            * It does not seem helpful to break up this great assemblage by attempting to subsume them to particular modern categories, except where their ancestral relationship is quite specific. So they are located here, before the modern categories. Because of their number, the synthetic notation is modified & the provision for fossil forms in Schedule C1 is expanded.
            (Seymouria) See Amphibia
            GON Synapsid reptiles
               See also Fossil mammalia GQJ U
               M Cetiosauria, stem reptiles
               N Pelycosauria
               F Dimetrodon
               R Therapsida
                   See also Fossil mammalia GQJ U
                   S Cynodontia
                   T Dicynodontia
                   X Archosauromorpha
                       * With teeth in deep sockets
                       GON Thecodontia
                           GON Aetosauria
                           C Phytosauria
                               See also Crocodylia GOW
                               D Dinosauria
                                   GON Saurischia
                                       * 'Reptile-hipped' dinosaurs
                                       F Coelurosauria
                                           * Including 'ostrich dinosaurs'.
                                           G Compsognathia
                                           H Carnosauria
                                           J Ornithosuchia
                                           K Megalosauria
                                           L Allosauria
                                           M Tyrannosauria

248
(Animalia)
 (Reptilia)
 (Fossil forms)
 (Dinosauria)

(Tyrranosauria)
 Sauropodia
 Plateosauria
 Camarasauria
 Brachiosauria
 Atlantosauria
 Brontosauria
 Diplodocia

Ornithischia
 * 'Bird-hipped' dinosaurs.
 Iguanodontia
 Duck-billed dinosaurs, hadrosauria
 Anatosauria
 Stegosauria
 Ankylosauria
 Ceratopsia, horned dinosaurs
 Protoceratopsia
 Monoclonia
 Triceratopsia

Pterosauria
 See also Birds GP
 Rhampophyochia
 Pterodactylia
 Ichthyosauria
 Mixosauria
 Plesiosauria
 Mosasauroidea

Testudines (order), Chelonia, turtles & tortoises
 (Fossil forms)

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<th>Subcategory</th>
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<td>Caretta, Thalassochelys</td>
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<td>Chelonia, green turtle</td>
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<td>Chelydra</td>
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<td>Chrysemys, terrapin</td>
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<td>Clemmys</td>
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<td>Dermochelys, leathery turtle</td>
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<td>Emydidae</td>
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<td>Craytidae</td>
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<td>Terrapene</td>
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<td>Testudo, Greek tortoise</td>
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<td>Trionyx, Amyda, soft-shelled turtle</td>
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<td>Pleurodira</td>
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<td>Chelid, matamata</td>
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<td>Chelidina, long-necked turtle</td>
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<td>Rhynchocephalia</td>
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<td>Squamata</td>
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<td>Sauria, Lacertilia, lizards</td>
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<td>Agama</td>
<td>GWC</td>
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<td>Amphisbaena</td>
<td>GWC A</td>
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<td>GWC U</td>
</tr>
</tbody>
</table>

249
(Animalia)
(Reptilia)
(Lizards)

(GWQ I)
Anguis, slow-worm

(GWQ P)
Chamaelea, chameleon

(GWQ J)
Gerrhonotus

(GWP G)
Heloderma, Gila monster

(GWQ D)
Hemidactylus, gecko

(GW Q)
Iguana

(GWQ F)
Lacerta, green lizard, wall lizard

(GWQ Q)
Phrynos

(GWQ L)
Scinicus

(GWP G)
Varanus

(GWQ G)
Xenosaurus

(GWQ H)
Zonurus

(GWT)
Serpentes (suborder), Ophidida, snakes

(GWT U)
(Poisonous snakes)

(GWT F)
Boa constrictor, boa

(GWT H)
Python

(GWT A)
Leptotyphlops

(GWT M)
Coluber

(GWT O)
Ptyas, Zamenis

(GWT R)
Boiga, Dipsadomorphus

(GWT Y)
Hydrophis, sea-snake

(GWT N)
Natrix, Tropidonotus, grass-snake, water-snake

(GWT W)
Naja, cobra

(GWT V)
Micrurus, Klaps

(GWU)
Vipera, Pelias, viper, adder

(GWU L)
Crotalus, rattlesnake

(GWU B)
Bitis

(GWU D)
Cerastes, horned viper

(GWU N)
Lachesis, fer-de-lance

(GWU P)
Agkistrodon, Acanthodan

(GWW)
Crocodylia (order), Loricata
(Fossil forms)

(GWW A)
Mesosuchia

(GWW C)
Telesauridae

(GWW F)
Macrochondridae

(GWW J)
Atoposauridae

(GWW L)
Goniopholidae

(GWW V)
Enosauchia

(GWW Y)
Crocodylus, crocodile

(GWW T)
Cavialis, Indian gavial

(GWW U)
Tomistoma, Malayan gavial

(GX)
Caiman

(Aves (class), birds, ornithology

* The terms added below are designed to exemplify how any
given taxon may be indexed in special detail within the
framework of the normal retroactive synthesis.

250
(Animalia)
(Aves, birds)

GPF E
(Embryology)
(Poextal membranes)

GPF I
Egg, oology
JJ
Yolk, yolk sac
M
Albumen of egg
Q
Shell of egg

(Post-embryo development)

* For birds at various stages see Types of birds GPJ L

GPF T
(Behaviour)
VL
(Communication)
VP
Bird song

(Flying)

XC
Flight
XCT
Attitudes in flight
XCU
Take off
XCV
Landing
XCW
Flapping
XCW Q
Undulating
XCX
Gliding
XCX S
Soaring
XY
Diving
XY Q
Hovering
XY S
Flightlessness

GPI TJ
(Musculo-skeletal system)

TMM W
(Clavicle)
TNN X
Furcula
TMC
(Sternum)
TMR
Ratite sternum
* Without ridge or keel.
TMS
Carinate sternum
* With ridge or keel.

UA
(Integumentary system)

UB
Feathers
UBF SMS
(Moult ing)
UBS
Shaft of feather
UBS V
Barb
UBS W
Barbule
UBW D
Down-feathers

X
'Reproductive system')

GPI G
(Pregnancy)
H
Egg-laying
(By developmental characteristics)

LL
(Infancy)

LLL O
Pullus, nestlings, chicks
LLP
Middicolous chicks
L LQ
Midi fugous chicks
LLR
Fledgeling birds
LLS
(Juvenile birds, immature birds)
LM
(Adult bird)

NK
(Aquatic birds)
U
(Fossil forms)
YC
Archaeornithes

251
(Animalia)
(Aves, birds)
(Fossil forms)

(Archaeornithes)
Archaeopteryx
Neornithes
Hesperornithiformes
Ichthyornithiformes
Diatrymiformes

Palaeognathae, Ratitae, flightless birds (general)
* Not in Rothschild.

Struthioniformes (order), ostriches
Struthio
Rheiformes, rheas
Rhea
Casuariiformes
Dromiceius, emu
Casuarius, cassowary
Apterygiformes, kiwis
Apteryx

Neognathae, carinatae (general)
* Flying birds. Not in Rothschild.
Tinamiformes, Crypturid, tinamous
Rhynochotes
Crypturellus
Nothura
Nothoprocta
Gaviiformes, Pygopodes, Columbiformes, divers
Gavia, Columbida
Podicipediformes, Pygopodes, Columbiformes, grebes
Podicops
Sphenisciformes, penguins
Spheniscus
Aptenodytes
Eudyptes
Procellariiformes, Tubinares, petrels
Hydrobates, storm petrels
Procellaroides, Puffinus, shearwater
Diomedea, albatross
Pelecanoides, diving petrel
Pelecaniformes, Steganopodes
Phaethon, tropic-bird
Pelecanus, pelican
Phalacrocorax, cormorant
Sula, gannet
Fregata, frigate-bird
Anhinga, darter
Ciconiiformes, Ardeiformes, Cressores
Ardea, heron
Botaurus, bittern
Balaeniceps, whale-headed stork
Scopus, hammerhead
Ciconia, stork
Threskiornis, ibis
Platalea, spoonbill
Phoenicopteriformes, flamingo
(Animalia)

(Aves, birds)

(Phoenicopteriformes, flamingo)

(Fossil forms)

Palaeolodus

Phoenicopterus

Anseriformes (order)

Anhima, screamer

Anas, mallard

Mergus, duck

Anser, goose

Cygnus, swan

Aythya, Fuligula, Nyroca

Somateria, eider-duck

Oidemia, Oedemia

Tadorna, sheldrake

Falconiformes (order), Accipitres, raptores, birds of prey

Cathartes, turkey vulture

Sarcorhamphus, condor

Sagittarius, secretary bird

Aegypius, black vulutre

Accipiter, Astur, goshawk, sparrow hawk

Vultur

Gyps

Gypaetus

Aquila, eagle

Buteo, buzzards, kites

Falco, Certhmela, kestrel, falcon

Pandion, osprey

Galliformes

* Use for game birds.

Crax, curassow

Megapodus

Lagopus, ptarmigan, grouse

Coturnix, quail

Tetrao

Phasianus, pheasant

Gallus, fowl

Pavo, peacock

Perdix, Perdrix, partridge

Numida, guinea-fowl

Aealeagris, turkey

Opisthocomus, hoatzin

Gruiformes

Mesoenas, rostelo

Turnix, button quail

Grus, crane

Aramus, limpkin

Psophia, trumpeter

Rallus, rail

Heliornis, sun-grebe

Rynchobelos, kagu

Eurypyga, sun-bittern

Cariana

Otis, bustard

Fulica, coot

Charadriiformes (order), Laro-Limicoec

Jacana, lily-trotter
<table>
<thead>
<tr>
<th>Animalia</th>
<th>(Aves, birds)</th>
<th>(Charadriiformes)</th>
<th>(Jacana, lily-trotter)</th>
<th>Charadrius, ringed plover, sand plover</th>
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<td>(Fossils)</td>
<td>Didus, dodo</td>
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<td>Musophaga, plantain-eater</td>
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<td>Motmot, motmot</td>
<td>GXT J</td>
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<td>Bucco, puff bird</td>
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<td>Rhamphastos, toucan</td>
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254
(Animalia)
(Vertebrata, birds)
(Piciformes)
(Rhamphastos, toucan)

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<td>Tyranni</td>
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<td>O</td>
<td>Furnarius, oven bird</td>
<td>GXX Q</td>
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<td>Cotinga</td>
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<td>Q</td>
<td>Cephalopterus, umbrella bird</td>
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<td>Pipra</td>
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<td>Pitta</td>
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<td>ST</td>
<td>Menura, lyre-bird</td>
<td>GXX C</td>
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<td>V</td>
<td>Attrichornis</td>
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<td>Alauda, lark</td>
<td>GXX G</td>
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<td>Hirundo, swallow</td>
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<td>Sylvia, warbler, European robin</td>
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<td>Corvus, raven, crow</td>
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<td>Garrulus, magpie, jay</td>
<td>GXX K</td>
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<td>Troglodytes, wrens</td>
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<td>Motacilla, wagtail, pipit</td>
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<td>C</td>
<td>Sturnus, starling</td>
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<td>Meliphaga</td>
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<td>Nectarina</td>
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<td>Fringilla, chaffinch</td>
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<td>P</td>
<td>Ploceus, weaver-bird</td>
<td>GXX V</td>
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(Mammalia (class))

(Special types)

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<td>Quadrupeds</td>
<td>GY S</td>
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<td>SJ</td>
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(Fossil forms)

(YC) Reptiles

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(Prototheria (subclass))

(Fossil forms)

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<td>JYE</td>
<td>Docodonta</td>
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<tr>
<td>JYJ</td>
<td>Pantotheria, trituberculata</td>
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<tr>
<td>JYL</td>
<td>Multituberculata</td>
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<td>JYN</td>
<td>Plagianlactida</td>
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<td>M</td>
<td>Monotrema (order)</td>
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<tr>
<td>P</td>
<td>Tachyglossus, Echidna, spiny anteater</td>
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<tr>
<td>Q</td>
<td>Ornithorhynchus, Platypus, duckbill platypus</td>
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</tr>
<tr>
<td>T</td>
<td>Theria</td>
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(Metatheria (infra-class))

<table>
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<td>JYC</td>
<td>(Fossil forms)</td>
<td>GYD U</td>
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<table>
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<tr>
<th>Code</th>
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<th>Code</th>
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<tbody>
<tr>
<td>JMP</td>
<td>Triconodonta</td>
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</tr>
<tr>
<td>L</td>
<td>Didelphis, American opossum</td>
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</tbody>
</table>
(Animalia)
  (Mammalia)
    (Metatheria)
      (Didelphis, American opossum)
      Antechinomys, jerboa, pouched mouse
      Dasypus, 'native cat'
      Thylacinus
      Myrmecobius
      Notoryctes
      Perameles, bandicoot
      Trichosurus, common phalanger
      Vombatus, Phascolomis, wombat
      Tarsipes
      Phascolarctos, koala
      Macropus, Kangaroo
      Hypsiprymnodon
      Potorous
      Caenolestes
      Eutheria (infra-class), Placentalia
      Unguiculata
      * Obsolete class; not in Rothschild.
      Insectivora (order)
      (Fossil forms)
        Leptictidae
        Adapisoricidae
        Dimylidae
        Tenrec, Centetes
        Erinaceus, hedgehog
        Echinosorex, Gymnura, moon-rat
        Sorex, shrew
        Talpa, common Old World mole
        Desmana
        Chrysochloris, golden mole
        Macroscelides, elephant shrew
      Dermoptera
        Galeopithecus
        Chiroptera, bats
        Megachirotpera (suborder)
        Pteropus, flying fox
        Microchirotpera
        Rhinolophus, horseshoe bat
        Desmodus, vampire
        Emballonura
        Noctilio
        Rhinopoma
        Vespertilio
      Primates (order)
      * Alternative (not recommended) is to
        locate at end of Mammalia.
        See note at GRQ.

      (Prosimii (suborder), Lemuroidea)
      Tupaia, tree-shrew
      Lemur, common-lemur
      Hapalemur, gentle lemur
      Galago, bush-baby
      Loris
(Animalia)
  (Mammalia)
  (Primates)
  (Prosimii)

(Loris)
- Daubentonia, Chiromys, aye-aye
- Tarsius, tarsier

(Simiae (suborder), Anthropoidea, Pithecoida)
- Callithricidae (family)
  - Callithrix, Hapale, marmoset
  - Tamarinus, tamarin
  - Celebes, New World monkeys
    - Cebus, capuchin
    - Saimiri, squirrel monkey
    - Ateles, spider monkey
- Cercopithecidae, Old World monkeys
  - Macaca, macaque
  - Cercocebus, mangabey
  - Papio, baboon
- Cercopithecus, African tree monkey
- Presbytis, langur

(Hominioidea (super family))
- Pongidae, apes (family)
  - Hylobates, gibbon
  - Pongo, Simia, orangutan
- Pan, Anthropopithecus, Troglobytes, chimpanzee
- Gorilla

(Hominidae (family))
- Not in Rothschild.
- An alternative (not recommended) is to collocate this class with Physical anthropology in HGM.

If this option is taken proceed as follows:
- Add to GQU letters J/W following HGM in HGM J/HGM W.
- Add to GQV letters J/S following HGN in HGN J/HGN S.

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<tr>
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<td>GQW L</td>
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<tr>
<td>GQW LJYC</td>
<td>Dasypodidae (family), armadillo</td>
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<tr>
<td>GQW LJYE</td>
<td>* Not in Rothschild.</td>
</tr>
<tr>
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<tr>
<td>GQW N</td>
<td>Dasypus, armadillo</td>
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<td>GQW O</td>
<td>Priodontes, giant armadillo</td>
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<tr>
<td>GQW P</td>
<td>Mrymecophagidae, anteaters</td>
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<tr>
<td>GQW Q</td>
<td>Pholidota (order)</td>
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<td>GQW R</td>
<td>Manis pangolin, scaly anteater</td>
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<tr>
<td>GQW S</td>
<td>Lagomorpha</td>
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<td>GQW T</td>
<td>Ochotona, pika</td>
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<tr>
<td>GQW V</td>
<td>Lepus, hare</td>
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<th>(Lagomorpha)</th>
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<td>Rodentia</td>
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<td>Marmota, Arctomys, marmot, woodchuck</td>
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<td>Tamias, chipmunk</td>
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</table>
(Animalia)  
(Mammalia)  
(Cetacea)  
(Odontoceti)  
Mesoplodon, beaked whale  
Physeter, sperm-whale  
Dolphin, dolphin  
Orcinus, killer whale  
Phocaena, porpoise  
Mysticeti (suborder)  
Echthysaurus, grey whale  
Balaenoptera, orca  
Balaena, right whale  
Carnivora (order)  
(Fossil forms)  
Creodontia  
Oxyaenidae  
Hyaenodontidae  
Canidae (family)  
* Not in Rothschild.  
Canis, wolf, dog, jackal  
Vulpes, fox  
Ursidae (family)  
* Not in Rothschild.  
Ursus, bear  
Thalarctos polar bear  
Procynidae (family)  
* Not in Rothschild.  
Procyon, raccoon  
Potos, kinkajou  
Ailurus, panda  
Mustelidae (family)  
* Not in Rothschild.  
Mustela, Putorius, ferret, weasel, mink, ermine, GYO E  
Mephitidae, polecat, stoat  
Martes, marten, sable  
Meles, badger  
Spilogale, spotted skunk  
Lutra, otter  
Herpestes, mongoose  
Hyaena  
Viverra, civet  
Felidae (family), cats  
* Not in Rothschild.  
Felis silvestris, wild cat  
* Not in Rothschild.  
Felis domestica  
* Not in Rothschild.  
Felis, Puma, mountain lion, cougar  
Panthera leo, lion  
Panthera tigris, tiger  
Panthera jaguar, jaguar  
Panthera, panther, leopard  
Acinonyx, cheetah  
Pinnipedia (order)  
Otaridae (family)  
* Not in Rothschild.  
Otaria, sea-lion  
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(Animalia)
  (Mammalia)
  (Pinnipedia)
  (Ontaria, sea-lion)
GRF N  Zalophus, Californian sea-lion
  P  Callorhinus
  Q  Archocephalus
  R  Odobenus, walrus
  S  Phocidae (family)
    * Not in Rothschild.
  T  Phoca, seal
  V  Halichoerus, grey seal, Atlantic seal
  W  Mirounga, elephant seal
  X  Crystophora
GRG Tubulidentata
GRG L  Orycteropus, aardvark
GRH Proboscidea, elephant
  (Fossil forms)
GRH JYC  Moeritheridae
  JYE  Deinotheridae
  JYG  Mastodons
  L  Loxodonta, African elephant
  N  Elephas, Asiatic elephant
  Q  Hyracoidea
  R  Dendrohyrax, tree hyrax
  S  Procavia, coney
  T  Sirenia
    (Fossils)
  T JYC  Desmostylidae
  V  Dugong
  W  Trichechus, manatee
GHI Ungulata
  * Obsolete class, mostly comprising
    Perissodactyla & Artiodactyla.
    Not in Rothschild.
  (Fossil forms)
GRI JYC  Condylarthra
  JYE  Taligrada
GRJ  Perissodactyla (order)
    (Fossil forms)
GRJ JYC  Titanotheriidae
  JYE  Brontotheriidae
  JYG  Chalicotheriidae
  L  Hippomorpha (suborder)
  M  Equus
  N  Horse
    (Fossil forms)
  P  Ass
  Q  Zebra
  S  Ceratomorpha (suborder)
  T  Tapirus, tapir
    (Fossil forms)
  T JYC  Lophiodontidae
  V  Rhinoceros
GRK  Artiodactyla (order)
    (Fossil forms)
GRK JUC  Oromerycidae
JYC  Leptochoeridae
JYE

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(Animalia)
(Mammalia)
(Artiodactyla)
(Possin forms)
(Leptococheridae)
Dichobunidae
Anthracotheriidae
Suiiformes (suborder)
Sus, pig
Tayassu, peccary
Hippopotamus
Tylopoda (suborder)
Lama, Auchenia, llama, alpaca, vicuna, guanaco
Camelus, camel, dromedary
Ruminantia
(Fossil forms)
Caenotheriidae
Xiphodontidae
Hypertragulidae
Tragulus, chevrotain
Cervidae (family), deer
*C Not in Rothschild.
Moschus, musk deer
Dama, fallow deer
Cervus, red deer, wapiti, American elk
Alces, European elk, moose
Rangifer, reindeer, caribou
Giraffidae (family)
*C Not in Rothschild.
Okapi
Giraffa, giraffe
Bovidae (family)
*C Not in Rothschild.
Taurotragus, eland
Bubalus, buffalo
Bos, cattle, yak
Bison, American 'buffalo'
Hippotragus, roan antelope
Antilope, Indian antelope
Cephalophus, duiker
Gazella, gazelle
Rupicapra, chamois
Ovibos, musk ox
Capra, goat, ibex
Ovis, sheep
Hydropotes, Chinese water deer

Primates (order)
* The preferred place for this class, reflecting its taxonomic position in modern phylogenetic classification, is at GQQ. However, in view of BC2 (as of BC1) it is that it interprets all classes following Zoology as reflecting special aspects of the behaviour of the primate Homo sapiens. In BC1, this led to the locating of Primates as the last in the orders of Mammalia.
(Animalia)
(Mammalia)
(Primates)

* For libraries wishing to preserve this collocation of Primate biology with Human biology & behaviour at H onwards, an alternative (not recommended) is provided here. It should be noted that for libraries adopting the alternative for Applied biology at GT/GY, this collocation is in any case already compromised & this alternative (locating Primates at GRQ/GINV) becomes less attractive.

* For libraries adopting this alternative, proceed as follows:
  Add to GR letters Q/V following GQ at GQQ/GQV.

GRX Applied biology
  Resource Management

* This position is an alternative (not recommended) to locating this class in Technology, at UA/UG.

* Libraries adopting this option should proceed as indicated below.

GS Agriculture, farming (plant & animal husbandry together)
  Add to GS letters A/Y following UA.

GT Animal husbandry
  Add to GT letters A/Y following UB.

GU Veterinary science
  Add to GU letters A/Y following UG.

GV Forestry
  Add to GV letters A/Y following UD.

GW Wild life exploitation, hunting & fishing
  Add to GW letters A/Y following UE.

GX Conventional areas that see EBW National Parks
  Add to GX letters A/Y following UF.

GY Human and general ecology, human environment in general
  Most of the literature on general ecology is concerned overwhelmingly with the effect on the environment of human intervention & in its turn the effect of this on mankind.

* This class takes general considerations only (including the 'ecological movement'). Most of the literature on purposive control of the environment is collocated at Environmental technology (Class U). Specific environmental disasters go with their subject (e.g. natural disasters in DY; epidemics in H).

GYO (Ecology of homo sapiens)
  Add to GY letters O/Y following EU.
  Add to GZ letters A/S following EH - e.g. Urban ecology GZS C.

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