SUBJECT INDEX KEY

First Order Division

1. General (no specific material)
2. Iron and steel
3. Corrosion- and heat-resistant materials
4. Aluminum alloys
5. Copper alloys
6. Magnesium alloys
7. Titanium alloys
8. Other metallic materials
9. Wood and plastics
10. Ceramic materials
11. Cement, mortar, concrete
12. Joints and joining methods
13. Other nonmetallic materials

Second, Third, and Fourth Order Divisions

*X.1 — Basic research, nature of fatigue
X.1.1 — Experimental materials
X.1.2 — Single and large crystals
X.1.3 — Correlations, physical properties
X.1.3.1 — Resistivity
X.1.3.2 — Thermal expansion
X.1.4 — Correlations, mechanical properties
X.1.4.1 — Anelasticity
X.1.4.2 — Damping
X.1.4.3 — Tensile and impact
X.1.4.4 — Creep
X.1.5 — Deformation and fracture mechanisms

X.2 — Composition and processing variables
X.2.1 — Composition
X.2.1.1 — Alloying elements
X.2.1.2 — Interstitials
X.2.1.3 — Reinforcing, laminating or filler materials
X.2.1.4 — Prestressing members or materials
X.2.2 — Microstructure
X.2.2.1 — Grain size or particle size
X.2.2.2 — Grain orientation
X.2.2.3 — Anisotropy
X.2.3 — Melting, molding, and casting techniques
X.2.4 — Primary and secondary fabrication
X.2.4.1 — Forging
X.2.4.2 — Rolling
X.2.4.3 — Forming
X.2.5 — Defects
X.2.5.1 — Inclusions
X.2.5.2 — Porosity
X.2.6 — Heat treatment (excluding surface hardening)
X.2.7 — Other factors

X.3 — Geometric Factors
X.3.1 — Size
X.3.2 — Shape
X.3.3 — Stress gradient[a]
X.3.4 — Stress concentrations[a]

X.4 — Surface factors
X.4.1 — Machining techniques
X.4.2 — Polishing techniques
X.4.3 — Surface finish
X.4.4 — Scratch direction
X.4.5 — Surface hardening, cold work (shot peening, etc.)
X.4.6 — Surface hardening, heat treatment
X.4.6.1 — Carburizing
X.4.6.2 — Nitriding
X.4.7 — Residual stresses
X.4.8 — Surface coatings
X.4.8.1 — Electroplated
X.4.8.2 — Other coatings
X.4.9 — Other surface factors

X.5 — Other influencing variables
X.5.1 — Speed
X.5.2 — Mean stress, alternating stress
X.5.3 — Combined stress
X.5.4 — Type of loading

X.6 — Environmental factors
X.6.1 — Temperature
X.6.1.1 — High
X.6.1.2 — Low
X.6.2 — Corrosion and chemical attack
X.6.3 — Fretting
X.6.4 — Radiation
X.6.5 — Thermal cycling, strain cycling, low cycle fatigue
X.6.6 — Humidity
X.6.7 — Acoustic
X.6.8 — Vacuum

X.7 — Fatigue damage and measurement
X.7.1 — Detection of damage
X.7.1.1 — Prior to cracking
X.7.1.2 — After cracking
X.7.2 — Crack propagation
X.7.3 — Cumulative damage
X.7.3.1 — Prior stress or strain history
X.7.3.2 — Rest periods
X.7.3.3 — Understressing, overstressing
X.7.3.4 — Coaxing
X.7.3.5 — Step, sequential, spectrum tests

X.8 — Test methods and machines
X.8.1 — Fatigue machines
X.8.2 — Control apparatus
X.8.3 — Statistical approaches
X.8.3.1 — Design of experiments
X.8.3.2 — Analysis
X.8.4 — Programming of tests

X.9 — Engineering problems and design
X.9.1 — Service failures
X.9.2 — Empirical reduction of fatigue information to formulas
X.9.3 — Application of fatigue data in design
X.9.4 — Stress-range diagrams

X.10 — Fatigue properties of structures and machines
X.10.1 — Joints and joining methods
X.10.1.1— Rivets and riveted joints
X.10.1.2— Bolts and bolted joints
X.10.1.3— Spot welds and other fusion welded joints
X.10.1.4— Adhesives and adhesive joints
X.10.2 — Other components of machines and structures
X.10.2.1— Gears
X.10.2.2— Bearings
X.10.3 — Large scale structural and machine members

X.11 — Fatigue properties of materials (data-generating studies)

X.12 — Theoretical discussions, general reviews
X.12.1 — Theoretical treatments, fatigue and related effects
X.12.2 — Historical summaries
X.12.3 — Bibliographies
X.12.4 — Books

*X denotes first order division number indicating material classification.

[a] Notch effects may be assigned either to stress gradient or stress concentration, depending on emphasis.