Lib sc. 2: 1965; PAPER G.

Medical Radiology: Depth Classification.

(Classification problems. 11). (Design series. 9).

S R RANGANATHAN, A NEELAMEGHAN, and M A GOPINATH, *Documentation Research and Training Centre, Bangalore* 3.

After defining the terms in Radiology used in the paper, discusses the assignment of Diagnostic Radiology and Therapeutic Radiology to the Third Round in the Analysed Title of any document embracing either of them, and the extension of the (HC). Works out a Scheme *for* the depth Classification of subjects going with the (HC) Diagnostic Radiology and Therapeutic Radiology. Provides an Alphabetical Index to the Schedule. Gives a classified list of 61 examples classified according to the scheme drawn up. Gives also Class Index Entries, derived by Chain Procedure, for the examples.

ABBREVIATIONS USED

CC = Colon Classification
[3E] = Energy Facet of Round 3
[4E] = Energy Facet of Round 4
(HC) = Host Class (es)
(IN) = Isolate Number
[P] = Personality Facet
[3P1] = Personality Facet of Round 3 Level 1
[4P1] = Personality Facet of Round 4 Level 1
[4P2] = Personality Facet of Round 4 Level 2
[5P1) = Personality Facet of Round 5 Level 1
(QI) Quasi Isolate(s)

0 Introduction

01 ELECTROMAGNETIC AND PARTICULATE RADIATION

S N	Frequency cps	Wavelength m.	Name	Typical source
1	2	3	4	5
Electromagnetic Radiation				
1	10^{23}	3×10^{-15}	Cosmic photon	Astronomical
2	10^{22}	3×10^{-14}	Gamma ray	Radioactive nuclei
3	10^{21}	3×10^{-13}	Gamma ray	Radioactive nuclei
4	10^{21}	3×10^{-13}	X-ray (Hard)	Atomic inner shell
5	10^{20}	3×10^{-12}	X-ray (Hard)	Atomic inner shell
6	10^{19}	3×10^{-11}	X-ray (Soft)	Electron impact on solid
7	10^{18}	3×10^{-10}	X-ray (Soft)	Atoms in spark
8	10^{13}	3×10^{-10}	Ultraviolet ray	Atoms in spark
9	10^{17}	3×10^{-9}	Ultraviolet ray	Atoms in sparks and arc
10	10^{16}	3×10^{-8}	Ultraviolet ray	Atoms in sparks and arc
11	10^{15}	3×10^{-7}	Visible light	Atoms, hot bodies, molecules
12	10^{14}	3×10^{-6}	Infra-red (Near)	Hot bodies, molecules
13	10^{13}	3×10^{-5}	Infra-red (Intermediate)	Hot bodies, molecules
14	10^{12}	3×10^{-4}	Infra-red (Far)	Hot bodies, molecules
15	10^{11}	3×10^{-3}	Microwaves	Electronic devices
16	10^{10}	3×10^{-2}	Microwaves	Electronic devices
17	10^{10}	3×10^{-2}	Radar	Electronic devices
18	10^{9}	3×10^{-1}	Radar	Electronic devices
19	10^{8}	3	Television, FM radio	Electronic devices
20	10^{7}	3×10^{1}	Shortwave radio	Electronic devices
21	10^{6}	3×10^{2}	AM radio	Electronic devices
22	10^{5}	3×10^{3}	Longwave radio	Electronic devices
23	10^{4}	3×10^{4}	Induction heating	Electronic devices
24	10^{3}	3×10^{5}		Electronic devices
25	10^{2}	3×10^{6}	Power	Rotating machinery
26	10	3×10^{7}	Power	Rotating machinery
27	1	3×10^{8}		Cumulated DC
28	0	Infinity	DC	Battery
Particulate Radiation				
1			Photon	
2			Electron (Beta-particle)	Atomic nuclei
3			Positron	Radioactive decay
4			Meson	Cosmic ray
5			Proton	Light H nucleus
6			Neutron	Alpha-particle bombardment

02 CHRONOLOGY

S N	Name	Discovery		
		Year	By	Source
1	2	3	4	5
Electromagnetic Radiation				
1	Gamma ray ..	1896	Becquerel (H)	Natural radioactivity
		1898	Curie (M) and (P)	Radium
		1899	Villard	Uranium
		1934	Curie (I) and (J)	Artificial nuclei disintegration (Radio isotope)
2	X-ray ..	1895	Roentgen (WC)	
3	Ultraviolet ray ..			
4	Infra-red ray ..	1800	Herschel (W)	Sunlight
		1843	Becquerel (H)	Photographic effect of near infra-red
5	Radio wave ..	1935	Jansky (K)	Astronomical
Particulate Radiation				
6	Electron (Beta-Particle) ..	1897	Thompson (J J)	
		1898	Rutherford	Uranium
		1907	Millikan (R A)	
7	Positron ..	1928	Dirac (P A M)	
		1932	Anderson (C D)	Radioactive decay
8	Meson ..	1935	Yukawa (H)	Cosmic ray
9	Proton ..	1911	Rutherford	Light H nucleus
		1913	Marsden	
10	Neutron ..	1932	Chadwick (J)	Alpha particle bombardment

1 First Medical use

11 GAMMA RAY

111 TRACER STUDY

S N	Year	Reporter	Report on
1	2	3	4
1	1934	Hevesy (G)	Radioisotope tracer study (In plants)
2	1935	Lacassagne (A)	Radioactive Polonium in animal organ
3	1950	Fitzgerald (P J) *et al.*	Tritium labelling

112 THERAPEUTICS

S N	Year	Reporter	Report on
1	1903	Goldberg (S W) and London (W S)	Cancer
2	1904	Dunlos	Radium theerapy
3	1910–15	Forssell (C G A)	Uterine cancer (Stockholm method)
4	1933–39	Regaud (C)	Uterine cancer (Paris method)

12 X-RAY

121 DIAGNOSIS

S N	Year	Reporter	Report on
1	1896	Cox (J) and Kirkpatrick (R C)	Bullet location in leg
2	1896	Pupin (M I)	Intensifying screen
3	1897	Thomson (E)	X-ray stereoscope
4	1897	MacIntyre (J)	X-ray cinematograph
5	1909	Groedel (F M)	
6	1932	Gianturco (C) and Alvarez (W C)	Camera for above
7	1902	Holznecht (G)	Chromoradiometer in dosimetry
8	1903	Albers-Schoenberg (H E)	Compression diaphragm
9	1913–14	Bucky (G)	Grating diaphragm
10	1913–14	Coolidge (W D)	Vacuum tube
11	1914	Cary (W H)	Salpinography
12	1921	Sicard (J A) and Forestier (J)	Lipiodol contrast medium
13	1929	Oka (M)	Thorothrast contrast medium
14	1931	Stumpf (P)	Kymography
15	1933	Bartelink (D L)	Tomography
16	1935	Grossmann (G)	

122 THERAPEUTICS

S N	Year	Reporter	Report on
1	1897	Freund (L)	Deep therapy of Naevus pigmentosus pilosus
2	1899	Sjogren (T A V)	Cancer
3	1903	Perthes (G C)	Carcinoma
4	1906	Bergonie (J) and Tribondeau (L)	Cell sensitivity (Bergonie-Tribondeau Law)
5	1909	Domici	Protecting surrounding tissue in irradiation of malignant tumonr

13 Ultraviolet Ray

131 THERAPEUTICS

S N	Year	Reporter	Report on
1	1896	Finsen (N R)	Actinotherapy
2	1899	Finsen (N R)	Lupus

14 Particulate Radiation

The use of particulate radiation in diagnosis, therapeutics, and surgery came to be tried mainly after the production of atomic and sub-atomic particles was facilitated with the advent of particle accelerators during and after World War II.

15 Medical Radiology

Medical radiology can include the use of any radiation including elementary particles in the following areas of medicine:

1 Diagnosis; and
2 Therapeutics.

It can also include the following:

1 Protection against injuries due to radiation; and
2 Pharmacology of radiation.

16 SCOPE

This paper demonstrates the design of a scheme for the depth Classification of the subjects falling in the area of

1 Diagnostic radiology; and

2 Therapeutic radiology.

The Schedule given is provisional.

A later paper will be turned on the design of a Scheme *for* the depth Classification of Medical Radiology falling in the areas of:

1 Public health; and

2 Pharmacology

17 METHODOLOGY OF DESIGN

The methodology of design is based on the principles outlined in Paper A of Volume 1 of this periodical [9].

2 Terminology

The terminology of Medical Radiology is still in the formative stage. For definiteness, the terminology used in this paper are given below.

21 NUCLEAR RADIATION

Particles and radiations emanating from the atomic nucleus as a result of radioactive decay and nuclear reaction [5].

22 IONIZING RADIATION

Electromagnetic or corpuscular radiation capable of producing ions [4].

23 NUCLIDE

A species of atom, having a specific mass number, atomic number, and energy state [2].

24 ISOTOPE

Nuclide having the same atomic number but different mass number [3].

25 RADIOLOGY

The science and application of X-rays, gamma rays and other penetrating ionizing radiations [1].

26 INDUSTRIAL RADIOLOGY

The science and application of gamma rays, and other penetrating ionizing radiations, and X-rays for industrial purposes such as in the radiography of metals, manufacture of fuel elements for reactors, and guided missile industry.

27 MEDICAL RADIOLOGY

The branch of medical science dealing with the use of radioactive substances, X-rays, and ionizing radiations, in the diagnosis and treatment of disease [6].

271 ANNOTATION

In Sec 16 the possible extension of the term Medical Radiology to include areas in public health and pharmacology concerned with radioactive substances, X-rays, and other ionizing radiations was indicated.

28 NUCLEAR MEDICINE

The branch of medical science dealing with the effects and use of nuclear radiations.

3 Locus of the Isolate Radiation

31 LEAST RESTRICTED (HC)

The least restricted (HC) covered by this paper are

1 Medicine, Disease, Diagnosis; and

2 Medicine, Disease, Therapeutics (*see* Examples 1 to 25 in Sec 82).

32 THIRD ROUND

This implies the assignment of Diagnostic Radiology and Therapeutic Radiology to the Third Round [11] in the Analysed Title [14] of any document embracing either of them. All the titles in Sec 82 are examples.

33 RESTRICTED (HC)

The extension of the (HC) may also be found restricted in certain documents. The restriction may be caused by the occurrence in the documents of one or more of the following isolates:

1 Organ isolate in Round 1; and

2 Causal factor of disease in Round 2 (*see* Examples 26–57 in Sec 82)

34 SPECIAL TERMINOLOGY

In order to cover both kinds of (HC), the bare term 'Diagnosis' or 'Therapeutics' is used, for the sake of simplicity, to denote any (HC) restricted or unrestricted.

35 COMMON SCHEDULE

In Round 3, 'Radiation' is only one of the many possible isolates in subjects going with Diagnosis and Therapeutics (*see* Sec 71 and 72). It will be a convenience if the same Isolate Number is used to represent the Isolate-Complex 'Radiation', so as to satisfy the Canon of Mnemonics. The Mixed Notation of CC makes it possible to do so. In fact the schedule of Radiation Isolates given in Sec 7 is common to subjects going with Diagnosis and Therapeutics.

36 SCHEDULE OF PURPOSE

The schedule of Purpose and the schedule of Radiation and other means of Diagnosis or Therapy as the case may be are presented in succession in [3P1] (*see* Sec 71). If both 'Purpose' and 'Radiation' occur in a subject, the method of Superimposition [15] will be used to accommodate both of them. This is made possible by the Sector Notation of CC [12].

4 First Characteristics

The following are some of the first characteristics—that is (QI)—used as the basis for the Classification of Diagnostic Radiology and Therapeutic Radiology. The (QI) have been selected by blending the *a priori* and the pragmatic approaches.

41 LIST OF (QI)

S N	Diagnostic Radiology		Therapeutic Radiology	
	Sector	Quasi Isolate	Sector	Quasi Isolate
1	2	3	4	5
1	(S–ZA)	Purpose	(S–ZA)	Purpose
2	(S–Z1)	Kind of radiation	(S–Z1)	Kind of radiation
3	(S–Z*a*)	Energy of radiation	(S–Z*a*)	Energy of radiation
4	(S–A)	Radioisotope	(S–A)	Radioisotope
5	(S–9ZA)	Source of radiation/ isotope	(S–9ZA)	Source of radiation/ isotope
6	(S–9Z*a*) to (S–9Z1)	Form of radio-nuclide	(S–9Z*a*) to (S–9Z1)	Form of radio-nuclide
7	(S–9A)	Quantity of dose given	(S–9A)	Quantity of dose given
8	(S–9*a*)	Carrier	(S–1)	Applicator
9	(S–1)	Route of adminis-tration	(S–9*a*) to (S–99*a*)	Irradiation tech-nique
10	(S–zZ1)	Applicator	(S–zA)	Field
11	(S–z1)	Contrast medium technique	(S–z1)	Frequency of dose
12	(S–zzA)	Exposure time	(S–zz1)	Exposure time
13	(S–zz*a*)	Position of patient	(S–zz*a*)	Position of patient
14	(S–z*a*)	Combination	(S–zzA)	Number of dose
15	(S–*a*)	Dose distribution	(S–z*a*)	Combination
16			(S–*a*)	Dose distribution

42 COMMON (QI)

A study of a large number of documents on Diagnostic Radiology and Therapeutic Radiology indicates that several of the (QI) are common to them.

43 SEQUENCE OF THE (QI)

The sequence in which the (QI) are enumerated in the table in Sec 41 is taken, for the time being, to be the one satisfying the Wall-Picture Principle [16].

5 Allocation of Sectors

51 PROVISIONAL ALLOCATION

The provisional allocation of the Sectors to the (QI) is given in columns 2 and 4 in the table in Sec 41 and also at the head of Sec 71 and 72.

511 ANNOTATION

The sequence of the (QI) decided upon in the idea plane is maintained. If any document warrants the use of two or more (QI), then the resulting isolate will be a Super-Imposed Isolate in [3P1] [15].

6 Index to the Schedule

Note.—1 In addition to the contractions given at the beginning of this paper, the following is used in this index:

irt = in relation to.

2 If an isolate belongs to [3P], the symbol [3P] is omitted.

7 Schedule

71 Diagnostic Radiology

L: 4: 3, [3P1]: [3E]*cum*[4P1],[4P2]: [4E]*cum*[5P1]

Formula for the Quasi Isolate sequence in [3P]:

In words:

(Medicine, Diagnosis)—[(Purpose)-(Kind of radiation)—(Energy of radiation)—(Radioisotope)—(Source of radiation/radioisotope)—(Form of radionuclide)—(Quantity of dose given)—(Route of administration)—(Carrier)-(Applicator)—(Contrast medium)—(Exposure time)—(Position of patient)-(Combination)—(Dose distribution)].

In symbols:

L: 4: 3—(S-ZA)—(S-Z1)—(S-Z*a*)—(S-A)—(S-9ZA)—(S—9Z*a* to 9Z1)—(S-9A)—(5-91)—(S-9*a*)—(S-1)—(S-*z*1)—(S-zzA)—(S-*zza*)—(S-*za*)—(S-*a*).

Foci in [3P]

a	**By dose distribution**	*p*	Exit
		q	Free air
		r	Pastille
		s	Tumour
	Tel (A2) *into* (A1) *begins*	*t*	Specific organ
b	Field (Surface)		*Note*: *Divide as in* [P] '*L Medicine*' (*illustrative*)
c	Scatter		
d	Threshold		
f	Skin	*t*12	Tissue
g	Tolerance		*Tel* (A2) *into* (A1) *ends*
h	Maximum permissible		
j	Depth	*za*	**By combination**
k	Lethal		*By time*
*k*1	Sublethal	*zb*	Pre-
*k*5	LD50	*zc*	Concurrent
*k*7	Supralethal	*zd*	Post
n	Absorbed	*zf*	Given time
*n*5	Integral (Integrated)		

zm *By method of diagnosis combined with*

Tel (A2) *into* (A1) *begins*

jn Physical
zn4 Thermal
zn5 Radiational
zn6 Electrical
zp Pathological

Tel (A2) *into* (A1) *ends*

zza **By position of patient**
zzc Decubitus (Horizontal)

Tel 1(A2) *into* (A1) *begins*

zzd Dorsal (Supine)
zzd1 Elevated
zzd2 Recumbent
zzd3 Rigid
zzd5 Dorsosacral
zzd6 Shoe and stocking
zzf Ventral (Prone)
zzf4 Lateroabdominal
zzh Lateral (Unilateral)
zzh2 Recumbent
zzh4 Inclined
zzh5 Antero-
zzh6 Postereo-
zzm Inclined (Reclining)
zzm2 Semi
zzn Sitting
zzn2 Orthopaedic
zzn3 Genucubital
zzn4 Genupectoral
zzp Standing
zzq Other special positions

Tel 2 (A2) *into* (A1) *begins*

zzr High pelvic
zzt Jack knife
zzu Kidney
zzv Lithotomy
zzx Opisthotonos
zzy Coiled

Tel 2 (A2) *into* (A1) *ends*
Tel 1 (A2) *into* (A1) *ends*

zzA **By Exposure time**

Tel (A2) *into* (A1) *begins*

zzC In months
zzD In weeks
zzE In days
zzF In hours
zzG In minutes
zzH In seconds

Note: Given number of units to be added as an integer, in Hindu-Arabic numerals (illustrative)

zzE2 Two days
zzF3 Three hours
zzG45 Forty-five minutes

Tel (A2) *into* (A1) *ends*

z1 **By Contrast medium technique**

By route of administration

z2 Ingestion
z3 Catheter
z3N Nylon
z3P Polyethylene
z3V Vinyl
z4 Puncture
z472 Cisternal
z473 Lumbar
z6 Injection

Note: For a given route, add after the digit 6 the isolate number for the organ from [P] *of 'L Medicine' (illustrative)*

z636 Intravenous
z8 Evacuation (Enema)
z82 Double enema
z91 *By medium* (substance)

Tel (A2) *into* (A1) *begins*
z92 Barium
z98 Air
Tel (A1) *into* (A1) *ends*
z9A Others
By (AD)
z (A) Double contrast
By (AD)
(illustrative)
z (M-T) Micropaque — Thorothrast

zZ1 **By applicator**
Tel (AD) *into* (A1) *begins*
zZ2 Capsule
zZ3 Needle
zA32 Differentially loaded
zZ5 Tube
zZ51 Cell
zZ58 Seed
zZ6 Plaque
zZ8 Other methods
zZ85 Gold filtered
zZ86 Platinum filtered
zZ8S Stallar
Tel (A2) *into* (A1) *ends*

1 **By route of administration**
21 Oral
4 Inhalation
45 with mask
5 Bath
6 Injection (Parenteral)
Note: For a given route add after the digit 6 the isolate number for the organ from [P] *of* '*L Medicine*' *(illustrative)*
627 Rectal
636 Intravenous
637 Intra-arterial

9*a* **By Carrier**
Tel (A2) *into* (A1) *begins*
9*e* Chemical
9*e*1 Neohydrin (Chloromerodrin)
9*e*2 Diodrast
9*e*3 Hippuran
9*e*4 Ferrocene in CCl4
9*e*5 Triolein
9*e*6 Fluorescein
9*g* Biologicals
9*g*5 Blood cell
9*g*54 Damaged
9*g*6 Serum
9*g*7 Serum albumin
9*g*8 Fibrinogen
9*j* Plant products
9*j*1 Rose bengal
Tel (A2) *into* (A1) *ends*

By quantity of dose given (per kg)
9B Low
9E High
9F In microcurie
9H In millicurie
9K In curie
Note: The given number of units to be added as an integer in Hindu-Arabic numerals (illustrative)
9F50 Fifty microcurie
9H15 Fifteen millicurie
9K1 One curie

9Z*a* **By form of radionuclide**
Note: Divide as in '(9*a*) *By functional group*' *in* [P1] *of* '*LX*3 *Pharmacology*' [Lib sc 1; 1964; Sec 7] *(illustrative)*
9Z*b*5 Iodide
And the following
9Z5 Colloid
9Z8 Gas

9ZA **By source**
9ZB Internal
9ZC External

Tel (A2) *into* (A1) *begins*

9ZD Discharge tube

By filling

9ZD1 Vacuum

9ZD8 Gas

By cathode

9ZE4 Hot

9ZE5 Cold

By voltage

9ZG2 Grenz

9ZG4 Cascade

By special purpose

9ZJ1 Flash

9ZJ2 Contact

9ZJ3 Diagnostic

9ZJ6 Therapy

9ZM Reactor

9ZP Particle accelerator

9ZPB Cockroft-Walton generator

9ZPC Impulse generator

9ZPE Van de Graaff generator

9ZPF Resonant and pulse transformer set

9ZPH Cyclotron

9ZPJ Synchrocyclotron

9ZPK Electron cyclotron

9ZPM Proton synchrotron

9ZPN Alternating gradient synchrotron

9ZPQ Fixed-field alternating gradient synchrotron

9ZPR Betatron

9ZPS Linear accelerator

Tel (A3) *into* (A2) *begins*

9ZPT Heavy particle

9ZPV Electron

Tel (A3) *into* (A2) *ends*

Tel (A2) *into* (A1) *ends*

A574 Arsenic 74

P32 Phosphorus 32

ZR96 Zirconium 96

By energy of radiation

Zb Low

Note: Given data for eV to be corrected to two decimal places, multiplied by 100, and the resulting figure added as an integer after b (illustrative)

Zb250 2·5 eV

Ze High

Note: Given data for MeV to be added as an integer after e (illustrative)

Ze5 5 Me

By method of diagnosis

Z1 Clinical

Z2 Physical

Tel (A2) *into* (A1) *begins*

Z5 Radiation

Z52 Ultraviolet

Z53 X-ray

Z531 Soft

Z533 Hard

Z54 Gamma ray

Z541 Soft

Z543 Hard

Z56 Infra-red

Z5A Particulate radiation

Tel 1 (A3) *into* (A2) *begins*

Z5C Photon

Z5H Electron

A **By radioisotope**

To be got by (AD) *(illustrative)*

Tel (A4) *into* (A2) *begins*

Z5J Beta particle

Tel (A5) *into* (A2) *begins*Z94 Pathological

Z5M Positron

Tel (A5) *into* (A2) *ends*

Tel (A4) *into* (A2 *ends*

Z5N MU Meson

Z5F Pi meson

Z5Q K Meson

Z5R Nucleon

Tel 2 (A4) *into* (A2) *begins*

Z5S Proton

Z5T Neutron

Tel 2 (A4) *into* (A2) *ends*

Tel 1 (A3) *into* (A2) *ends*

Tel (A2) *into* (A1) *ends*

Z6 Electrical

By purpose

For Diagnosis

ZB Detection

ZC Differentiation

ZD Deduction

ZE Location

ZF Exclusion

ZG Measure

ZG1 Size

ZG3 Volume

ZJ Prognosis

For Therapeutics

ZM Palliation

ZN Arrest (Control)

ZP Cure (Therapy)

ZQ Surgery (Removal)

ZS Destruction

72 THERAPEUTIC RADIOLOGY

L: 4: 3,[3P]:[3E]*cum*[4P1],[4P2]:[4E]*cum*[5P1].

Formula for the Quasi Isolate sequence in [3P]:

In words:

(Medicine, Therapeutics), [(Purpose)—(Kind of radiation)—(Energy of radiation)—(Radioisotope)—(Source of radiation/isotope)—(Form of radionuclide) (Quantity of dose given)—(Irradiation technique)—(Applicator)—(Field)—(Fre-quency of dose)—(Exposure time)—(Number of the dose)—(Position of the patient)—(Combination)—(Dose distribution)].

In symbols:

L: 4: 6, [(S-ZA)—(S-Z1)—(S-Z*a*)—(S-A)—(S-9ZA)—(S-9Z*a* to 9Z1)—(S-9A)—(S-9*a* to S-99*a*)—(S-1)—(S-*z*A)-(S-*z*1)—(S-*zz*A)—(S-*zz*1)—(S-*zza*) (S-*Za*)—(S-*a*).

Foci in [3P]

By dose distribution

Isolates as for

'*a* By dose distribution'

in Diagnostic Radiology

Za By combination

By time

zb Pre-

zc Concurrent

zd Post

zf Given time
zm *By method combined with*

Tel (A2) *into* (A1) *begins*

zn Physical
*zn*4 Thermal
*zn*5 Radiational
*zn*6 Electrical
*zn*7 Magnetic
zp Chemotherapy
Note: *Isolate Number for particular drug to be got by* (*AD*) (*illustrative*)
*zp*P Pencillin
zq Surgery

Tel (A2) *into* (A1) *ends*

zs *By Purpose*
*zs*1 Promotion of effect
*zs*2 Partial promotion of effect
*zs*7 Annulling effect
*zs*8 Negative effect

zza **By position of patient**
Isolates as for
'*zza* By position of patient' in Diagnostic Radiology

By number of the dose
*zz*1 First dose
*zz*2 Second dose
*zz*3 Third dose

zzA **By exposure time**
Isolates as for
'*zz*A by exposure time' in Diagnostic Radiology

By frequency of dose

*z*1 Single
*z*1Z Multiple, Repeated
*z*2 Fractionated
*z*21 Ultra-
*z*4 Hourly
Note: *Add the given unit, as an integer, in Hindu-Arabic numerals* (*Illustrative*)
*z*43 Three times hourly
*z*5 Daily
Note: (*Same as for z*4)
*z*6 Weekly
Note: (*Same as for z*4)
*z*7 Monthly
Note: (*Same as for z*4)

*z*A **By field**
*z*B Small
*z*E Large
*z*M Rectangular
*z*N Circular

1 **By applicator**
Isolates as for
'1 By applicator' in Diagnostic Radiology

By irradiation technique
9*a* Implant

Tel 1 (A2) *into* (A1) *begins*
9*b* Planar
9*b*1 Single plane
9*b*2 Two plane
9*b*7 Multiple plane
9*c* Volume
9*d* Permanent

Tel 1 (A2) *into* (A1) *ends*

9e Sandwich
9f Intracavitary
9g Interstitial
9h External irradiation

Tel 2 (A2) *into* (A1) *begins*

9j Teletherapy
9k Superficial
9k7 Contact
9m Deep
9n Crossfire

Tel (A3) *into* (A1) *begins*

9p Moving field
9p2 Pendulum
9p5 Rotational
9p7 Converging beam
9q Converging field

Tel (A3) *into* (A1) *ends*

9r Grid technique

By body part irradiated

9t Partial
9u Segment
9v Whole body

91 By route of administration
Isolates as for
'1 By route of administration' in Diagnostic Radiology and the following:

99a By carrier
Isolates as for
'*9a* By carrier' in Diagnostic Radiology

9A By quantity of dose given
Isolates as for
'9A By quantity of dose given' in Diagnostic Radiology.

9Za By form of radionuclide
Isolates as for
'9Za By form of radionuclide' in Diagnostic Radiology.

9ZA By source
Isolates as for
'9ZA By source' in Diagnostic Radiology.

A By radioisotope
To be got by (AD)
(illustrative)

AS74 Arsenic 74
P32 Phosphorus 32
ZR96 Zirconium 96

Za By energy of radiation
Isolates as for
'Za By energy of radiation' in Diagnostic Radiology.

Z1 By kind of radiation
Isolates as for
'Z1 by kind of radiation' in Diagnostic Radiology

Foci in [3E] *cum* [4P1]

1 Preliminaries
11 Planning
13 Equipment set up

Tel (A3) *into* (A2) *begins*

14 Distance adjustment
142 Focus-to-film
145 Source-to-film
147 Focus-skin

15 Radiation incidence
151 Direction
152 Collimation
155 Masking (Shielding)
156 Filter
1561 Metal
1562 Non-metal
156B Tube
156C Composite
156D Wedge
158 Exposure meter
Tel (A3) *into* (A2) *ends*

17 Preparation of patient
171 Pre- and post-care
172 Pre-care
177 Post-care
18 Control
2 Scanning
By scan (pattern)
21 Dot
22 Line
221 Modulated
23 Spark
25 Photo
By body plot
B4 Linear
2B4 Rectilinear
2C Section
2C1 Longitudinal
2C4 Transverse
2C5 Cylindrical
2D Stereoscopic
2H Whole body (Total body)
3 Measurement (Counting)
By method
31 Background
32 Gross
33 Nett
34 Bremsstrahlung
35 Coincidence
36 Anticoincidence
By physical material
3E Phantom
3E1 Rice
3E2 Plastic
3E5 Water
3E7 Presdwood
3E (A) Others
To be got by (AD) (*illustrative*)
3E (M) Mix D
4 Hazard
44 Untoward reaction
Note: Particular disease to be got by (SD)
5 Recording (Visualisation)
51 Manual
56 Automatic
7 Data presentation
8 Interpretation

Foci in [4E] *cum* [5P1] *for* '4 Hazard' *in* [3E] *cum* [4P]
2 Radiation survey
3 Monitoring
35 Radiation
36 Area
37 Personnel
5 Protection
55 *By material*
551 Lead
552 Lead glass
553 Lead rubber
555 Barium concrete
556 Barium plaster
558 Tungsten alloy
5A *By kind*
5C Trap
5E Shielding

Tel (A3) *into* (A2) *begins*
5F Glove
5G Apron
Tel (A3) *into* (A2) *ends*

Foci in [4P2]
a Instrument (Equipment)

Tel 1 (A2) *into* (A1) *begins*

b	Computer
b2	Analogue
b3	Digital
b8	Mixed
c	Detector (Counter/Scanner)
c2	Crystal counter
c21	Diamond
c23	Zinc sulphide
c25	Cadmium sulphide
c2831	Thallium chloride
c2832	Thallium iodide
c3	Stereoscopic scanner
c4	Scintillation counter
c42	Crystal
c421	Inorganic crystal
c4211	NaI (Tl)
c4212	NaI (pure) at liquid N_2 point
c4213	CsI (Tl)
c4214	CsI (pure) at liquid N_2 poin
c4215	LiI (Eu)
c4216	KI (Tl)
c4217	CsF (unactivated)
c4218	ZnS (Ag)
c42191	$CdWO_4$
c42192	LiF
c425	Organic crystal
c4251	Anthracene
c4252	*Trans*-Stilbene
c4253	Quarterphenyl
c45	Liquid
c451	PPO in toluene
c452	*p*-Terphenyl in toluene
c453	PBD in toluence
c454	PBD in *p*-xylene
c456	Medicinal paraffin
c457	Plastic solution
c4571	Tetraphenylbutadiane in polystyrene
c4573	*p*-Tetraphenyl in polyvinyl toluene
c46	Loaded liquid
c46B	B
c46C	Cd
c46G	Gd
c46P	Pb
c46S	Sm
c5	Cherenkov counter
c51	Non-focusing
c512	Solid
c512F	Fitch
c515	Liquid
c5151	N_2
c5152	O_2
c5153	FC-75
c5154	Water
c5155	Water + 2 . amino-6, 8 Naphthalene disulphonic acid di-sodium salt
c5156	Freon 13
c53	Focussing
c531	Getting
c5313	Jelley modification
c532	Marshall
c533	Frisch
c534	Chamberlain-Wiegand
c535	Kinsey
c536	Spectrometer
c6	Ionization detector
	By gas filling
c61	Helium
c63	BF_3
	By type
c6C	Geiger Muller
c6D	Proportional
c6D5	End Window
c6D6	Flow type
c6F	Ionization chamber
c6F2	Parallel plate
c6F21	With grid
c6F5	Cylindrical
c6F7	Spherical
c6F8	High pressure
c6FB	Pocket type
c6G	Spark counter
c6K	Electron multiplier
c6M	4π
c6N	Thermopile
c6P	Foil activation
e	Monitor
e1	Film ring
e5	Film badge

f	Dosimeter
*f*5	Dose rate meter
*f*51	Constancy
*f*55	Photovoltaic cell
*f*7	Integrating
*f*8	Condenser
*f*C	Solid state
*f*C2	Transistorized
*f*C4	Using thermoluminescence
*f*C5	Using radioluminescence
*f*C6	Using electrical conductivity in CdS
g	Spectrometer
*g*5	Pulse height analyser
*g*51	Single channel
*g*58	Multi channel
*g*582	Quasi-
h	Particle track visualization
*h*1	Wilson cloud chamber
*h*18	Counter controlled
*h*2	Expansion chamber
*h*3	Diffusion chamber
*h*4	Bubble chamber
*h*41	Liquid H_2
*h*42	Liquid Xe
*h*43	Liquid He
*h*45	Organic liquid
*h*453	Propane
*h*5	Luminescence chamber
*h*7	Nuclear emulsion
k	Recording instrument
	Tel 2 (A2) *into* (A1) *begins*
m	Image-forming device
*m*5	Dot printer
*m*55	Photomulti-dotter
*m*56	Electromechanical
*m*6	Multi stylus
*m*7	Pin-hole camera
	Tel 2 (A2) *into* (A1) *ends*
n	Radiographic unit
*n*1	Monochromatic
*n*3	Stereoscope
*n*31	Auto-
	Tel (A4) *into* (A3) *begins*
*n*32	Parallax
*n*36	Parallaxpanoramagram
	Tel (A4) *into* (A3) *ends*
*n*5	Colour
*n*73	Scintillation camera
*n*734	Gamma ray
*n*735	Positron
*n*74	Fluoroscope
*n*741	Auto-
*n*742	Miniature film
*n*745	Cine
*n*81	Neutron
*n*84	Gamma
*n*85	Electron
	By method
*n*B	Flash
*n*C	Serial
*n*D	Kymography
*n*F	Tomography
*n*F2	Stroboscopic
*n*H	Autoradiography
*n*J	Teleradiography
*n*M	Microradiography
*n*P	Deca-radiography
*n*R	Polaroid radiography
p	Television
*p*1	Closed circuit
*p*5	Colour
r	Video tape recorder
v	Photographic equipment
*v*1	Camera
*v*2	View finder
*v*3	Distance meter (Range finder)
*v*4	Level (Clinometer)
*v*5	Compass
*v*6	Exposure meter
*v*7	Magnifier
x	Telecurie therapy unit
*x*1	Teleradium therapy unit
	Tel (A2) *into* (A1) *ends*

81 Alphabetical Index to the Entries in Sec 82

(Class Index Entries only)

Note.—1 The number (in Hindu-Arabic numerals only) in parenthesis, given after the Class Number, is the Serial Number of the entries in Sec 82.

2 As all the examples given in Sec 82 are from the field of medicine the term 'Medicine' has been omitted from all the Class Index Headings given below.

3 The Class Index Entries have been derived by Chain Procedure.

Mercury 197, X-ray, Diagnosis L: 4: 3-Z53-HG197 (10)

Mercury 203
Compared with, Serum albumin, Iodine 131, Gamma ray, Diagnosis, Brain L72: 4: 3-Z54-I131-9*g*70-HG203 (53)
Gamma ray, Location, Tumour, Brain
L72: 472: 3-ZE-Z54-HG203 (56)

Micropaque and Thorothrast, X-ray, Diagnosis, Wound, Gastrointestinal tract L23Z: 477: 3-Z53-*z*(M-T) (36)

Microradiography, Intra-arterial, Injection, Micropaque and Thorothrast, X-ray, Diagnosis, Wound, Gastrointestinal tract
L23Z: 477: 3-Z53-*z*(M-T)-*z*637: 5,*n*M (36)

Modification, Stallar, Applicator, Cobalt 60, Gamma ray, Therapeutics, Malignant, Tumour, Retina, Nerve
L74-18517: 4725: 6-Z54-CO60-*z*Z85 (57)

Modulated line, Rectilinear, Scanning, Radiation, Diagnosis
L: 4: 3-Z5: 2B4-221 (1)

Mouse, Case study, Three times a week, Whole body irradiation, X-ray, Therapeutics, Ehrlich tumour L: 4725: 6-Z53-9*v*-*z*63*y*7,ZP2 (29)

Mouth L21 (34)

Moving field technique, Cobalt 60, Gamma ray, Therapeutics
L: 4: 6-Z54-CO60-9*p* (18-20)

Multiple, Dose, Interstitial, Colloid, 110 millicurie, Gold 108, Gamma ray, Therapeutics, Malignant, Tumour, Breast, Female
L9F,556: 4725: 6-Z54-AU198-995-9*g*-*z*1Z (60)

NaI crystal scintillation counter,
Coincidence, Counting, Inhalation Cyclotron, Oxygen 15, Positron, Diagnosis, Functional, Disease,
Lung L45: 45: 3-Z5M-O15-9ZPH-4: 3F-*c*4211 (45)

Cylindrical scanning, Radioisotope, Diagnosis, Brain
L72: 4: 3-Z5-A: 27,*c*4211 (52)

Needle
Radium, Gamma ray, Therapeutics L: 4: 6-Z54-RA-3 (21)
Single plane, Implant, Radiation, Therapeutics
L: 4: 60Z5-9*b*1-3 (13)

Neohydrin
10 microcurie, Mercury 203, Gamma ray, Location,Tumour Brain
L72: 472:-3- ZE-Z54-HG203-9F10-9*e*1 (56)

Radiography (*Contd.*)
X-ray, Diagnosis, Gastrointestinal tract
L23Z: 4: 3–Z53: 5,*n* (35)

Radioisotope
Beta particle, Therapeutics
Disease, Eye L185: 4: 6–Z5J–A (32)
Tumour, Retina L18517: 472: 6–Z5J–A (33)
Diagnosis L: 4: 3–Z5–A (2–5)
Brain L72: 4: 3–Z5–A (52)
Gamma ray, Diagnosis L: 4: 3–Z54–A (11)
Brain L729 4: 3–Z54–A (53)
Heart L32: 4: 3–Z64–A (42)
Kidney L61: 4: 3–Z54–A (47)
Pancreas L293–4: 3–Z54–A (41)
Spleen L62: 4: 3–Z54–A (48)
Structural, Disease, Brain L72: 47: 3–Z54–A (54)
Tumour, Liver L291: 472: 3–Z54–A (39)
Gamma ray, Differentiation, Jaundice
L291: 453: 3–ZC–Z54–A (28)
Gamma ray, Location, Tumour, Brain
L72: 472: 3–ZE–Z54–A (56)
Gamma ray, Therapeutics L: 4: 6–Z54–A (17–21)
Hyperthyroidism L65: 452: 6–Z54–A (49)
Malignant, Tumour
Thorax L15: 4725: 6–Z54–A (30)
Retina, Nerve L74–18517: 4725: 6–Z54–A (57)
Position, Diagnosis
Functional, Disease, Lung L45: 45: 3–Z5M–A (45)
Tumour, Brain L72: 472: 3–Z5M–A (55)
Therapeutics, Malignant, Tumour, Breast, Female
L9F,556L 4725: 6–Z54–A (60)
X-ray, Diagnosis L: 4: 4–Z53–A (10)

Radium
Gamma ray, Therapeutics, Medicine L: 4: 6–Z54–RA (21)
X-ray, Therapeutics, Malignant, Tumour, Forehead
L182: 4725: 6–Z53–RA (31)

Radon, Beta particle, Therapeutics, Tumour, Retina
L18517: 472: 6–Z5J–RN (33)

Recording
3 to 15 min, Exposure, 14 Mev, Neutron, Diagnosis
L: 4: 3–Z5T–Ze14–*zz*G3—15: 5 (12)
Decubitus, X-ray, Diagnosis, Calcification, Heart
L32: 481CA: 3–Z53–*zzc*: 5 (43)
Intra-arterial, Injection, Micropaque and Thorothrast, X-ray, Diagnosis, Wound, Gastrointestinal tract
L23Z:477: 3–Z53–*z*(M–T)–*z*637: 5 (36)

X-ray
Diagnosis L:4:3–Z53 (7–10)
Calcification, Heart L32:481CA:3–Z53 (43)
Gall bladder L292:4:3–Z53 (40)
Gastrointestinal tract L23Z:4:3–Z53 (35)
Large intestine L27:4:3–Z53 (37)
Lymphatic vessel L39:4:3–Z53 (44)
Obstruction, Pyloric orifice, Child L9C,2482:478:3–Z53 (58)
Salivary gland L216:4:3–Z53 (34)
Wound, Gastrointestinal tract L23Z:477:3–Z53 (36)
Size, Measurement, Abnormality, Prostate gland
L5661:4711:3–ZG1–ZZ53 (46)
Therapeutics L:4:6–Z53 (15–16)
Ehrlich tumour L:4725E:6–Z53 (29)
Malignant, Tumour L:4725:6–Z53 (26–28)
Forehead L182:4725:6–Z53 (31)

82 Examples

L MEDICINE
L:4:3 Disease, Diagnosis
L:4:3–Z5:2 Radiation, Scanning
L:4:3–Z5:2B4 Rectilinear
L:4:3–Z5:2B4-221 Diagnosis, Radiation, Scanning, Rectilinear, Modulated line

1 N64 BOGARDUS (C R) (Jr) and GYDESEN (F R). Modulated line scanning. A new method. (Radiology. 83; 1964; 917–25).

L:4:3,Z5 Disease, Diagnosis, Radiation
L:4:3–Z5–A:2 Diagnosis, Radioisotope, Scanning

2 *p*77N63 KNISELEY (R M), ANDREWS (G A), and HARRIS (C C), *Ed.* Progress in medical radioisotope scanning. (TID–7673; 1963).

L:4:3–Z5–A:2B SCANNING, LINEAR
L:4:3–Z5–A:2B,*a* Diagnosis, Radioisotope, Scanning, Linear, Instrument

3 N63 ROSS (D A). Linear scanning. (TID–7673; 1963; 190–204).
L:4:3–Z5–A:2C SCANNING, SECTION

L:4:3–Z5–A:2C,*c*3 Diagnosis, Radioisotope, Scanning, Section. Stereoscope scanner

4 N63 KUHL (D E) Section scanning for image separation. (TID–7673; 1963; 171–89)

L: 4: 3–Z5–A: 7 DATA PRESENTATION

L: 4: 3–Z5–A: 7,*p*1 Diagnosis, Radioisotope, Data presentation-Television, Closed circuit

5 N63 BENDER (M A) and BLAU (M). Data presentation in radioisotope scanning. (TID–7673: 1963; 105–10).

L: 4: 3–Z5–Ze DIAGNOSIS, RADIATION, HIGH ENERGY

L: 4: 3–Z5–Ze–*t*561–*p* DOSE DISTRIBUTION, GONAD, EXIT

L: 4: 3,Z5–Ze–*t*561–*p*: 3 Diagnosis, Radiation, High energy, Dose distribution, Gonad, Exit, Measurement

6 N63 BOESCHE (H) and ROLAND (S). Gonad dosimetry in diagnostic radiology with the high voltage technique. (Acta radiol (Therap), New ser. 1; 1963; 351–62).

L: 4: 3–Z53 Diagnosis, X-ray

L: 4: 3–Z53: 14 EQUIPMENT SET UP

L: 4: 3–Z53: 1562 INCIDENCE, FILTER, NON-METAL

L: 4: 3–Z53: 1562;*a*17 Diagnosis, X-ray, Incidence, Filter, Non-metal, Efficiency

7 N61 DOUGLAS (J J). Re-evaluation and application of interposed non-metallic filters in diagnostic radiology. (J MED Assoc Georgia. 50; 1961; 541–3).

L: 4: 3–Z53 DIAGNOSIS, X-RAY

L: 4: 3–Z53: 15,*v*6 INCIDENCE, EXPOSURE METER

L: 4: 3–Z53: 15,*v*60*j*5,*n*745 Diagnosis, X-ray, Incidence, Exposure meter, *in relation to*, Cinefluoroscope

8 N64 HALE (J) and GEORGE (D L). Physical factors in cinefluorography. Exposure meter and phantom materials. (Amer j roent. 92; 1964; 1188–91).

L: 4: 3–Z53: 3 DIAGNOSIS, X-RAY, MEASUREMENT

L: 4: 3–Z53: 3E0j5,*n*745 Diagnosis, X-ray, Measurement, phantom, *in relation to*, Cinefluoroscope

9 N64 HALE (J) and GEORGE (D L). Physical factors in cinefluorography. Exposure meter and phantom materials. (ibid).,

L: 4: 3–Z53–HG197 DIAGNOSIS, X-RAY, MERCURY 197

L: 4: 3–Z53–HG197: 2,*n*734 Diagnosis, X-ray, Mercury 197, Scanning, Gamma ray scintillation camera.

10 N64 HERSZBERG (B), BRESSON (Y), and KELLERSHOH(C.d) X-radiography with mercury 197. (Brit j radiol. 37; 1964; 928–37).

L: 4: 3–Z54–SR85 Diagnosis, Gamma ray, Strontium 85

L: 4: 3–Z54–SR85–636 INJECTION, INTRAVENOUS

L: 4: 3–Z54–SR85–636: 2H Diagnosis, Gamma ray, Strontium 85, Injection, Intravenous, Scanning, Whole body

11 N63 SIMPSON (W J) and BAKER (R G). Total body scanning. (TID–7673; 1963; 205–35).

L: 4: 3–Z5T–Ze14 Diagnosis, Neutron, 14 MeV
L: 4: 3–Z5T–Ze14–zzG3→15 EXPOSURE, 3 TO 15 MIN
L: 4: 3–Z5T–Ze14–zzG3 15:→5,*n* Diagnosis, Neutron, 14 MeV, Exposure, 3 to 15 min, Radiography

12 N64 ANDERSON (J) and others. Neutron radiography in man. (Brit j radiol. 37; 1964; 957–9).

L: 4: 6–Z5 Therapeutics, Radiation
L: 4: 6–Z5–9*b*1 IMPLANT, SINGLE PLANE
L: 4: 6–Z5–9*b*1–3 Therapeutics, Radiation, Implant, Single plane, Needle

13 N64 HOWELLS (R). Single plane implants using needles of the same uniform linear activity. (Brit j radiol. 37; 1964; 844–6).

L: 4: 6–Z5 THERAPEUTICS, RADIATION
L: 4: 6–Z5–9*n*–*n*5 GRID TECHNIQUE, ABSORBED DOSE, INTEGRAL
L: 4: 6–Z5–9*n*–*n*5: 3 Therapeutics, Radiation, Grid technique, Absorbed dose, Integral, Measurement

14 143N63 MAMIN (R G). On the computation of the integral absorbed dose of irradiation through a grid. (Med radiol. (Mosk) 8; 1963 Oct; 52–7].

L: 4: 6–Z53 Therapeutics, X-ray
L: 4: 6–Z53–zM FIELD, RECTANGULAR
L: 4: 6–Z53–zM–*a*: 3 Therapeutics, X-ray, Field, Rectangular, Dose distribution, Measurement

15 N64 EMMETT (M L). Calculation of dose distributions for rectangular X- and gamma ray fields. (Brit j radiol. 37; 1964; 444–57).

L: 4: 6–Z53–9*p*5 Therapeutics, X-ray, Rotation technique
L: 4: 6–Z53–9*p*5–*j*: 3 DEPTH DOSE, MEASUREMENT
L: 4: 6–Z–53–9*p*5–*j*: 3,*c*6FB Therapeutics, X-ray, Rotation technique, Depth dose, Measurement, Ionization chamber, Pocket type

16 N64 TAKAHASHI (Y). Determination of depth dose in roentgen rotation therapy using the ionization pocket chamber. (Nippon acta radiol. 24; 1964; 34–6).

L: 4: 6–Z54–CO60 Therapeutics, Gamma ray, Cobalt 60
L: 4: 6–Z54–CO60–9*j* TELETHERAPY
L: 4: 6–Z54–CO60–9*j*–*zza* Therapeutics, Gamma ray, Cobalt 60, Teletherapy, Position

17 N63 HEINZEL (F) and others. Some remarks about localisation and positioning technique in telecobalt therapy. (Medica mundi. 9; 1963; 5–8).

L: 4: 6–Z54–CO60 Therapeutics, Gamma ray, Cobalt 60
L: 4: 6–Z54–CO60–9*p* MOVING FIELD TECHNIQUE
L: 4: 6–Z54–CO60–9*p*–*a*: 3 Therapeutics, Gamma ray, Cobalt 60, Moving field technique, Dose distribution, Measurement

18 N63 GEIJIN (J Van de). Dose distribution in moving beam cobalt 60 teletherapy. A generalised calculation method. (Brit. j radiol. 36; 1963; 879–85).

L: 4: 6–Z54–CO60 THERAPEUTICS, GAMMA RAY, COBALT 60
L: 4: 6–Z54–CO60–9*p*2 Pendulum Technique
L: 4: 6–Z54–CO60–9*p*2:15 EQUIPMENT SET UP, RADIATION INCIDENCE
L:4:6–Z54–CO60–9*p*2:156D Therapeutics, Gamma ray, Cobalt 60, Pendulum technique, Wedge filter

19 121N64 DALLA PALMA (L) and others. Use of wedge filters and tangential pendulum movement in telecobalt therapy. (J belg radiol. 47; 1964; 585–610).

L: 4: 6–Z54–CO60 THERAPEUTICS, GAMMA RAY, COBALT 60
L: 4: 6–Z54–CO60–9*p*2 PENDULUM TECHNIQUE
L: 4: 6–Z54–CO60–9*p*2–*a*: 3 Therapeutics, Gamma ray, Cobalt 60, Pendulum technique, Dose distribution, Measurement.

20 113N63 SCHOKNECHT (G). Calculation of distribution in tangential pendulum irradiation with CO60. (Strahlenrapie. 122; 1963; 341–8).

L: 4: 6–Z54–RA THERAPEUTICS, GAMMA RAY, RADIUM
L: 4: 6–Z54–RA–3 Therapeutics, Gamma ray, Radium, Needle

21 N63 BARBER (B). New type of needle for use or radium surface applicators. (Brit j radiol. 36; 1963; 774–5).

L: 4: 6–Z5A–Z*e* Therapeutics, Particulate radiation, High energy

22 N64 FUTURE OF particle radiation in man. (JAMA. 187; 1964; 56–7)

L: 4: 6–Z5H Therapeutics, Electron
L: 4: 6–Z5H–9ZPS SOURCE, LINEAR ACCELERATOR
L: 4: 6–Z5H–9ZPS–9*k* SUPERFICIAL IRRADIATION
L: 4: 6–Z5H–9ZPS–9k–ZE Therapeutics, Electron, Source, Linear accelerator, Superficial irradiation, Large field

23 N64 KARZMARK (J). Large-field superficial electron therapy with linear accelerators. (Brit j radiol. 37; 1964; 302–5).

L: 4: 6-Z5H5 **Therapeutics, Fast electron**
L: 4: 6-Z5H5-9ZPK SOURCE, ELECTRON SYNCHROTRON
L: 4: 6-Z5H5-9ZPK-*a*: 3 DOSE DISTRIBUTION, MEASUREMENT
L: 4: 6-Z5H5-9ZPK-*a*: 3E Therapeutics, Fast electron, Source, Electron synchrotron, Dose distribution, Measurement, Phantom

24 113N63 BREITLING (G) and VOGEL (K-H). Dose distribution in the irradiation of inhomogeneous media with fast electrons. (Strahlentherapie. 122; 1963; 321-40).

L: 4: 6-Z5J-SR90 THERAPEUTICS, BETA PARTICLE, STRONTIUM 90
L: 4: 6-Z5J-SR90-9ν Therapeutics, Beta particle, Strontium 90, Whole body irradiation

25 N64 HAYBITTLE (J L). A 24 curie strontium 90 unit for whole body superficial irradiation with beta rays. (Brit j radiol. 37; 1964; 297-301).

L: 4725: 6-Z53 Tumour, Malignant, Therapeutics, X-ray
L: 4725: 6-Z53-*p*FU *Combined with*, 5-FLUOROURACIL (FU)
L: 4725: 6-Z53-*p*FU: 44 Tumour, Malignant, Therapeutics, X-ray, *Combined with*, 5-Fluorouracil, Untoward reaction

26 N63 OTTOMAN (R E) and others. Side effects of combined radiation and chemotherapy in the treatment of malignant tumours. (Radiology. 81; 1963; 1014-7).

L: 4725: 6-Z53 TUMOUR, MALIGNANT, THERAPEUTICS, X-RAY
L: 4725: 6-Z53-Ze: 15 HIGH ENERGY, RADIATION INCIDENCE
L: 4725: 6-Z53-Ze: 155 Tumour, Malignant, Therapeutics, X-ray, Masking

27 N64 SMEDAL (M I) and others. Megavolt radiation therapy of cancer: Some aspects of field shaping and protection of vital structures. (*Ibid*).

L: 4725: 6-Z53 TUMOUR, MALIGNANT, THERAPEUTICS, X-RAY
L: 4725: 6-Z53-Ze-zA HIGH ENERGY, FIELD
L: 4725: 6-Z53-Ze-zA: 15 Tumour, Malignant, Therapeutics, X-ray, High energy, Field, Equipment set up, Radiation incidence

28 N64 SMEDAL (M I) and others. Megavolt radiation therapy of cancer: Some aspects of field shaping and protection of vital structures. (Lahey clin bul. 13; 1964; 121-7).

L: 4725E: 6-Z53 Ehrlich tumour, Therapeutics, X-ray
L: 4725E: 6-Z53-9ν-z63 WHOLE BODY IRRADIATION, THREE TIMES/WEEK
L: 4725E: 6-Z53-9ν-z63y7,ZP2 Ehrlich tumour, Therapeutics, X-ray, Whole body irradiation, Three times week, Mouse

29 N64 SIROV (M R), COOK (B B), and LOFSTROM (J. E). **Effect of total body irradiation on the response of transplanted mouse tumours to fractionated local radiotherapy.** (Radiology. 83; 1964; 807–15).

L15:4725:6 THORAX, TUMOUR, MALIGNANT, THERAPEUTICS
L15:4725:6–Z54–CO60–9*j* Gamma ray, Cobalt 60, Teletherapy
L15:4725:6–Z54–CO60–9*j*–*a*0*g*L1276 DOSE DISTRIBUTION, *Influenced by*, HETEROGENEOUS TISSUE
L15:4725:6–Z54–CO60–9*j*–*a*0*g*L1276,*a*18 Thorax, Tumour, Malignant, Therapeutics, Gamma ray, Cobalt 60, Teletherapy, Dose distribution, *influenced* by, Heterogenous tissue, Correction factor

30 N63 CIRLA (A) and others. Calculation of the correction for differences in density of tissue in cobalt teletherapy of intrathoracic neoplasms. (Radiobiol radioter fis med. 18; 1963; 100–23).

L182:4725:6 Forehead, Tumour, Malignant, Therapeutics
L182:4725:6–Z53–RA–9*a* X-RAY RADIUM, IMPLANT
L182:4725:6–Z53–RA–9*a*–*z*2 Forehead, Tumour, Malignant, Therapeutics, X-ray, Radium, Implant, Fractionated dose

31 121N63 BONI (R). Radium implants in extensive malignant tumours of the forehead and scalp and spatial fractionation of the dose, at successive intervals. (Omnia med. 41; 1963; 327–41).

L185:4:6 Eye, Disease, Therapeutics
L185:4:6–Z5J–SR90 BETA PARTICLES, STRONTIUM 90
L185:4:6–Z5J–SR90:155 Eye, Disease, Therapeutics, Beta particles, Strontium 90, Masking

32 113N62 VOLLMAR (R). Possibilities of shielding of sensitive portions of the eye during beta irradiation. (Radiobiol radio therap. 3; 1962; 133–42).

L18517:472:6 Retina, Tumour, Therapeutics
L18517:472:6–Z5J–RN–9*g* BETA PARTICLES, RADON, INTERSTITIAL
L18517:472:6–Z5J–RN–9*g*–*z*Z6 Retina, Tumour, Therapeutics, Beta particles, Radon, Interstitial, Plaque

33 N63 FINGERHUT (A G). Local treatment of retinal tumours with radon. (Radiology. 81; 1963; 1003–7).

L216:4:3 Salivary gland, Disease, Diagnosis
L216:4:3–Z53–*z*9I X-RAY, CONTRAST MEDIUM, ISOPAQUE
L216:4:3–Z53–*z*9I–*z*3P Salivary gland, Disease, Diagnosis, Contrast medium, Isopaque, Catheter, Polyethylene

34 N64 DREVATINE (T) and others. Sialography by means of a polyethylene catheter and water-soluble contrast medium (Isopaque 75%). (Brit j radiol. 37; 1964; 317–21).

L23Z: 4: 3 Gastrointestinal tract, Disease, Diagnosis
L23Z: 4: 3–Z53: 5,*n* X-RAY, RADIOGRAPHY
L23Z: 4: 3–Z53: 5,*n*0*m*745 Gastrointestinal tract, Disease, Diagnosis, X-ray, Radiography, *compared with*, Cineradiography

35 N64 STAPLE (T W) and MARGULIS (A R). Diagnostic accuracy in cine-roentgenographic examination of the upper gastrointestinal tract. A comparative study of cine and conventional roentgenography in 103 patients. (Radiology. 82; 1964; 895–7).

L23Z: 477: 3 Gastrointestinal tract, Wound, Diagnosis
L23Z: 477: 3–Z53–*z*(A) X-RAY, DOUBLE CONTRAST MEDIUM
L23Z: 477: 3–Z53–*z* (M–T) Micropaque and Thorothrast
L23Z: 477: 3–Z53–*z*(M–T)–*z*637 INJECTION, INTRA-ARTERIAL
L23Z: 477: 3–Z53–*z* (M–T)–*z*637: 5,*n*M Gastrointestinal tract-Wound, Diagnosis, X-ray, Double contrast medium, Micropaque and Thorothrast, Injection, Intra-arterial, Microradiography.

36 N64 SPJUT (H J) and others. Microangiographic study of gastrointestinal lesion. (Amer j roent. 92; 1964; 1172–87).

L27: 4: 3 LARGE INTESTINE, DISEASE, DIAGNOSIS
L27: 4: 3–Z53–*z*8*y*7 Large intestine, Disease, Diagnosis, X-ray, Evacuation, Case study

37 N63 SOLIA (P) and others. Comparative study of different methods of evacuation of the large bowel for roentgen examination. (Acta radiol. (Diag). 1; 1963; 1105–10.

L291: 453: 3–ZC Jaundice, Diagnosis, Differentiation
L291: 453: 3–ZC–Z54–I131 GAMMA RAY, IODINE 131
L291: 453: 3–ZC–Z54–I131–9F25–9*j*1 25 microcurie, Rose benga
L291: 453: 3,ZC–Z54–I131–9F25–9*j*1–636 INJECTION, INTRAVENOUS
L291: 453: 3–ZC–Z54·I131–9F25–9*j*1–636: 2,*c*42 Jaundice, Diagnosis, Differentiation, Gamma ray, Iodine 131–25 microcurie, Rose bengal, Injection, Intravenous, Scanning, Scintillation counter

38 N58 NORDYKE (R A) and BLAHD (W H). Differential diagnosis, of jaundice with radioactive Rose bengal. (Proc, Inter Conf Peaceful Uses Atom Ener. 26: 1958; 146–9).

L291:472:3 LIVER, TUMOUR, DIAGNOSIS
L291:472:3-Z54-I131 Gamma Ray, Iodine 131
L291:472:3-Z54-I131-9*j*1-636 ROSE BENGAL, INJECTION, INTRAVENOUS
L291:472:3-Z54-I131-9*j*1-636:2 Liver, Tumour, Diagnosis, Gamma ray, Iodine 131, Rose bengal, Injection, Intravenous, Scanning.

39 N63 CHRISTIE (J H) and MACINTYRE (W J). Liver scanning. (TID-7673; 1963; 405-32).

L292:4:3 Gall bladder, Disease, Diagnosis
L292:4:3-Z53-*zza* X-RAY, POSITION
L292:4:3-Z53-*zzh*4 Gall bladder, Disease, Diagnosis, X-ray, Lateral, Inclined

40 N64 AMBERG (J R), ZBORALSKE (F F), and JOHNSON (E R). Inclined Lateral decubitus position for chole-cystography. (Amer j roent. 92; 1964; 1128-30).

L293:4:3,Z54 Pancreas, Disease, Diagnosis, Gamma ray
L293:4:3-Z54-SE75-9F250 SELENIUM 75, 250 MICROCURIE
L293:4:3-Z54-SE75·9F250-636 Injection, Intravenous
L293:4:3-Z54-SE75-9F250-636-*zz*G30 EXPOSURE, 30MIN
L293:4:3-Z54-SE75-9F250-636-*zz*G30:2F Pancreas, Disease, Diagnosis, Gamma ray, Selenium 75, 250 microcurie, Injection, Intravenous, Exposure, 30 min, Photoscan

41 N64 BURKE (G) and GOLDSTEIN (M S. (Radioisotope photoscan ning in the diagnosis of pancreatic disease. (Amer j roent. 92; 1964; 1156-63).

L32:4:3,Z54 HEART, DISEASE, DIAGNOSIS, GAMMA RAY
L32:4:3Z54-KR85-9H5 Krypton 85, 5 millicurie
L32:4:3-Z54-KR85-9H5-45 INHALATION, (WITH) MASK
L32:4:3-Z54-KR85-9H5-45:2,*c*42 Heart, Disease, Diagnosis, Gamma ray, Krypton 85, 5 millicurie, Inhalation with mask, Scanning, crystal scintillation counter

42 N58 JAIMET (C H), TOMLINSON (R H), and NACE (P F). Inhalation radiocardiography. (Proc, Inter Conf Peaceful uses, Atom Ener. 26; 1958; 94-8).

L32:481CA:3-Z53 Heart, Calcification, Diagnosis, X-ray
L32:481CA:3-Z53-*zzc* POSITION, DECUBITUS
L32:481CA:3-Z53·*zzc*:5,*n*F2 Heart, Calcification, Diagnosis, X-ray, Decubitus, Tomography, Stroboscope

43 N64 RUSSEL (J G B). Stroboscopic tomography of the heart. (Brit j radiol. 37; 1964; 440-3).

L39: 4: 3 Lymphatic vessel, Disease, Diagnosis
L39: 4: 3–Z53–*z*9U X-RAY, CONTRAST MEDIUM, ULTRA FLUID LIPIODOL
L39: 4: 3–Z53–*z*9U: 44 UNTOWARD REACTION
L39: 4: 3–Z53–*z*9U: 44 (L45: 485) Lymphatic vessel, Disease, Diagnosis, X-ray, Contrast medium, Ultra fluid Lipiodol, Untoward reaction, Lung, Oedema

44 N64 GOUGH (J H) and THOMAS (M L). Pulmonary complications, following lymphography. (ibid. 416–21).

L45: 45: 3 Lung, Disease, Functional, Diagnosis
L45: 45: 3–Z5M–O15 POSITRON, OXYGEN 15
L45: 45: 3–Z5M–O15–9ZPH SOURCE, CYCLOTRON
L45: 45: 3–Z5M–O15–9ZPH–4 INHALATION
L45: 45: 3–Z5M–O15–9ZPH–4: 3F COUNTING, COINCIDENCE
L45: 45: 3–Z5MO–15–9ZPH–94: 3F,*c*4211 Lung, Disease, Functional, Diagnosis, Positron, Oxygen 15, Cyclotron, Inhalation, Counting, Coincidence, NaI crystal scintillation counter

45 N58 DYSON (N A) and others. Preparation and use of Oxygen-15 with particular reference to its value in the study of pulmonary malfunction. (Prof, Inter Conf Peaceful uses Atom Ener. 26; 1958; 103–15).

L5661: 4711: 3–ZG1eZ53 Prostrate gland, Structure, Abnormality, Measurement, Size, X-ray

46 N64 VERMOOTEN (V) and others. Radiographic estimation of the size of the prostate. (Radiology. 182; 1964; 1010–5).

L61: 4: 3 KIDNEY, DISEASE, DIAGNOSIS
L61: 4: 3–Z54–AU198–9Z5 Gamma ray, Gold 198, Colloid
L61: 4: 3–Z54–AU198–9Z5–6: 2 INJECTION, SCANNING
L61: 4: 3–Z54–AU198–9Z5–6: 2,*c*4 Kidney, Disease, Diagnosis, Gamma ray, Gold 198, Colloid, Injection, Scanning, Scintillation Counter

47 N63 MCAFEE (J G). Scanning of the liver, mediastinum, and kidney. (TID–7673; 1963; 433–67).

L62: 4: 3 Spleen, Disease, Diagnosis
L62: 4: 3–Z54–CR51 GAMMA RAY, CHROMIUM 51
L62: 4: 3–Z54–CR51–9*g*54
L62: 4: 3–Z54–CR51–9*g* 54–636 INJECTION, ITRAVENOUS
L62: 4: 3–Z54–CR51–9*g*54–636: 2 Spleen, Disease, Diagnosis, Gamma ray, Chromium 51, Blood cell, Damaged Injection, Intravenous, Scanning

48 N63 WAGNER (H N) (Jr). Radioisotope scanning of the spleen. (TID–7672; 1963; 468–83).

L65: 452: 6-Z54 Hyperthyroidism, Therapeutics, Gamma ray
L65: 453: 6-Z54-I131 IODINE 131.
L65: 452: 6-Z54-I131-*zz*2 Hyperthyroidism, Therapeutics, Gamma ray, Iodine 131, Second dose

49 N63 ADRIAN (R E) and others. Considerations on the second dose of radioactive iodine in patients with hyperthyroidism not cured by the first dose. (Dia med. 35: 1963;82-5)

L66: 47248: 6-Z-5Z5S Basophilism, Surgery, Proton

50 N63 LINFOOT (J A) and others. Alpha particle or proton beam in radiosurgery of the pituitary gland for Cushing's disease. (UCRL-11033; 1963; 29-40).

L7: 47: 3 Nervous system, Disease, Structural, Diagnosis
L7: 47: 3-Z5-*Zb* RADIATION, LOW ENERGY
L7: 47: 3-Z5-*Zb*: 5,*n*R Nervous system, Disease, Structural, Diagnosis, Radiation, Low energy, Radiography, Polaroid

51 N64 LOEW (A G) (Jr) and others. Polaroid radiographs in a neurosurgical practice. (Calif med. 100; 1964; 325-7).

L72: 4: 3-Z5 Brain, Disease, Diagnosis, Radiation
L72: 4: 3,Z5-A: 27 RADIOISOTOPE, SCANNING, CYLINDRICAL
L72: 4: 3-Z5-A: 27,*c*4211 Brain, Disease, Diagnosis, Radiation, Radioisotope, Scanning, Cylindrical, NaI crystal scintillation counter

52 N64 KUHL (D E) and EDWARDS (R Q). Cylindrical and section radioisotope scanning of the liver and brain (Radiology 83; 1964; 926-36).

L72: 4: 3-Z54 Brain, Disease, Diagnosis, Gamma ray
L72: 4: 3-Z54-I131-9*g*7 IODINE 131, CARRIER, SERUM ALBUMIN
L72: 4: 3-Z54-I131-9*g*70*j*HG203-9*e*1 Brain, Disease, Diagnosis, Gamma ray, Iodine 131, Serum albumin, *Compared with* Mercury 203, Neohydrin

53 N64 MEALEY (J) (Jr) and others. Clinical comparison of two agents used in brain scanning: Radioiodinated serum albumin *vs* Chloromerodrin Hg203. JAMA-189; 1964; 250-4).

L72: 47: 3 Brain, Disease, Structural, Diagnosis
L72: 47: 3-Z54-I131 GAMMA RAY, IODINE 121
L72: 47: 3-Z54-I131-9F50 50 MICROCURIE
L72: 47: 3-Z54-I131-9F50-9*j*1-6795 ROSE BENGAL, INJECTION CEREBROSPINAL FLUID

L72: 47: 3–Z54–I131–9F60–9*j*1–6795:2*y*7 SCANNING, CASE STUDY

L72: 47: 3–Z54–I131–9F50–9*j*1–6795:2*y*7,ZR5,72–C45 Brain, Disease, Structural, Diagnosis, Gamma ray, Iodine 131, 50 microcurie, Rose bengal, Injection, Cerebrospinal fluid, Scanning, *Macaca*, Brain, Refrigerated

54 N63 DI CHIRO (G). Anatomy of the brain and basic principles of brain scanning. (TID–7673; 1963; 347–70).

L72: 472: 3–Z5M Brain, Tumour, Diagnosis, Positron

L72: 472: 3–Z5M–AS74–636 ARSENIC 74, INJECTION, INTRAVENOUS

L72: 472: 3–Z5M–AS74–636: 2 Brain, Tumour, Diagnosis, Positron, Arsenic 74, Injection, Intravenous, Scanning.

55 N63 ARONOW (S). Positron brain scanning. (TID–7673; 1963; 371–87).

L72: 472: 3–ZE Brain, Tumour, Location

L72: 472: 3–ZE–Z54–HG203 GAMMA RAY, MERCURY 203

L72: 472: 3–ZE–Z54–HG203–9F10–9*e*1 10 microcurie, Neohydrin

L72: 472: 3–ZE–Z54–HG203–9F10–9*e*1–636 INJECTION, INTRAVENOUS

L72: 472: –3ZE–Z54–HG203–9F10–9*e*1–636–*z*F3—5→EXPOSURE 3 TO 5 HOURS

L72: 472: 3–ZE–Z54–HG203–9F10–9*e*1–9636–*z*F3→5: 2 Brain, Tumour, Location, Gamma ray, Mercury 203, 10 microcurie, Neohydrin, Injection, Intravenous, Exposure, 3 to 5 hours, Scanning

56 N63 BENDER (M A) and BLAU (M). Brain tumour localization with gamma-emitting isotopes. (ibid. 388–92).

L74–18517: 4725 Nerve, Retina, Tumour, Malignant

L74–18517: 4725: 6–Z54–CO60 THERAPEUTICS, GAMMA RAY, COBALT 60

L74–18517: 4725: 6–Z54–CO60–*z*Z851 Nerve, Retina, Tumour, Malignant, Therapeutics, Gamma ray, Cobalt 60, Applicator, Stallar, Modification

57 N63 ROSENGREN (B H O) and TENGROTH (B). Modified CO60 applicator for the treatment of retinoblastoma. (Acta, radiol, New ser. 1; 1963; 403–13).

L9C,2482: 478 Child, Pyloric orifice, Obstruction

L9C2482: 478: 3-Z53 DIAGNOSIS, X-RAY

L9C,2482: 478: 3–Z53–*z* (A) Child, Pyloric orifice, Obstruction, Diagnosis, X-ray, Double contrast medium

58 N64 CURRARINO (G). Value of double contrast examination of the stomach with pressure "spots" in the diagnosis of infantile hypertrophic pyloric stenosis. (Radiology. 83; 1964; 873–8).

L9F,556: 4725: 6 Breast, Tumour, Malignant, Therapeutics
L9F,556: 4725: 6-Z5H-*Ze* ELECTRON, HIGH ENERGY
L9F,556: 4725: 6-Z5H-*Ze*-9ZPR Breast, Tumour, Malignant, Therapeutics, Electron, High energy, Source, Betatron

59 N63 CHU (FC) and others. Treatment of breast cancer with high energy electrons produced by 24 Mev betatron. (Radiology. 81; 1964; 871–80).

L9F,556: 4725: 6 Breast, Tumour, Malignant, Therapeutics
L9F,556: 4725: 6-Z54-AU198-9H110 GAMMA RAY, GOLD 198, 110 MILLICURIE
L9F,556: 4725: 6-Z54-AU198-9H110-9Z5-9*g* COLLOID, INTERSITIAL
L9F,556: 4725: 6-Z54-AU198-9H110-9Z5-9*g*-*z*1Z MULTIPLE DOSE
L9F,556: 4725: 6-Z54-AU198-9H110-9Z5-9*g*-*z*1Z-*zg*-*zb* Breast, Tumour, Malignant, Therapeutics, Gamma ray, Gold 198, 110 millicurie, Colloid, Interstitial, Multiple dose, Pre-surgical

60 113N63 MUELLER (J H). Use of colloidal radiogold for preoperative interstitial pre-irradiation of breast cancer. (Gynaecologia. 156; 1963; 36–40).

L9F,556: 4725: 6 Breast, Tumour, Malignant, Therapeutics
L9F,556: 4725:6 -ZM-Z54 PALLIATION, GAMMA RAY
L9F,556: 4725: 6-ZM-Z54-*Ze* Breast, Tumour, Malignant, Palliation, Gamma ray, High energy.

61 N64 STOLL (B A). Rapid palliative irradiation of inoperable breast cancer. (Clin radiol. 15; 1964; 175–8).

83 ANNOTATION

1 Each of some of the documents listed in Sec 82 deal with more than one subject. The document has been classified under one of the subjects only. The examples, being merely for the purpose of illustrating the construction of class numbers, cross references have not been given from the other subjects dealt with in a document.

2 Example 54. A schedule for 'Experimental Animal' will be given in a later paper in this series.

9 Majority *vs* Minority Interests

91 Solution based on Bond Strength

The facet structure of the (HC) to which the isolate 'Radiation' can be attached to derive a subject falling within the area of Medical Radiology should be looked into. According to that facet structure, the isolate 'Radiation' can occur only in Round 3 in a subject falling within the area of Diagnostic Radiology or of Therapeutic Radiology. In a subject falling within the area of Public Health, it can occur in Round 2. In either case, the isolate 'Radiation' occurs at the Weak End of Bond Strength [7] of the facet structure of a subject involving it. Therefore, the documents in those subjects will lie scattered. From the point of view of the use of Radiation, such a scattering will be of help to the majority of medical specialists. For, their interest centres round an organ isolate or a disease isolate or a handling-of-disease isolate. All these are always brought near the Strong End of Bond Strength. As a result, the documents on them get packed together. In the case of Pharmacology of Radiation, the very (BC) Pharmacology stands quite apart from the class Medicine.

92 Solution through Catalogue

While the above-mentioned kind of organization of the documents involving Radiation as an isolate is helpful to the majority of readers, there is an important minority whose interest centres round the isolate 'Radiation'—the technique involved in its production, application, and the equipment needed. As usual, this interest is to be served in one of the three recognised ways [10], *viz.*,

1 Providing Index Entries in the Alphabetical part of the Catalogue having 'Radiation' as the First Heading. This is done by Chain Procedure and the First Heading may be 'Radiation' in general or the name of a specific Radiation.

2 Repeating the appropriate main entries under the heading 'Radiation' in the Alphabetical part of the Catalogue—the duplicates of the main entries are arranged by Call Numbers; and

3 Pulling out all the documents involving 'Radiation' and forming a Specialist Collection of them.

The third method will be adopted in a Specialist Library for Radiologists. The first method will be adopted in a Generalist Library and even in a Generalist Library in Medicine. The second method will be adopted in the few libraries not falling in either of the above two categories.

93 Partially and Fully Comprehensive Documents

There is likely to be a still another problem. This is created by the existence of documents partially comprehending two or more of the different areas in Medical Radiology. A document may also comprehend all the areas. One method of dealing with such partially or wholly comprehending documents is to make Cross Reference Entries (that is, Subject Analytical Entries) But, at present, this may be a weak and least helpful method.

94 Digit for Partial Comprehension

It is desirable to have a special Class Number for such a partial or full comprehension. Here, the postulation of Z as an Emptying and Comprehending Digit [13] is of use. Perhaps, we may represent such documents by the Class Number L: 4: 2Z5.

941 ANNOTATION

1 In this (CN) the digit '2' has been emptied of its semantic value by the addition of the Emptying Digit 'Z'. The combination of the digits 2 and Z alone has semantic content. The combination 2Z comprehends several of the isolates occurring later in the schedule of [2E] *cum* [3P] in subjects falling in the area of Medicine.

2 The subject represented by L: 4: 2Z has been provisionally subdivided as follows:

L: 4: 2Z5 Medical Radiology

L: 4: 2Z54 Nuclear Medicine

3 These (CN) are to be used only for comprehensive works on Medical Radiology or Nuclear Medicine as the case may be.

These classes should not be subdivided beyond the point where it leads to cross-classification. This means that, if a (CN) can be constructed with the Schedules given in this paper and also by the subdivision of the two partially comprehensive classes enumerated above, then the former method of constructing the (CN) alone should be followed. This is to avoid violence to the Canon of Exclusiveness [8].

95 Bibliographical References

1 Sec 25 British Standards Institution. Glossary of terms used in radiology. (BS 2597: 1955; N 1101).

2 Sec 23 ibid. (N 1241).

3 Sec 24 ibid. (N 1242).

5 Sec 22 ibid. (N 1302).

5 Sec 21 McGraw-Hill encyclopedia of science and technology. 1960. (V 9; P 196).

6 Sec 27 ibid. (V 11; P 315).

7 Sec 91 Ranganathan (S R). Bond Strength (*In* author's Colon Classification. A description. 1964. (Rutgers seminars on Systems for the intellectual organization of information. 4.) (Chap V.)

8 Sec 93 —— Canon of exclusiveness. (*In* author's Prologomena to Library Classification. Ed. 2. 1957, (Sec 142)).

9 Sec 17 ———. Design of depth classification: Methodology. (Lib sc. 1; 1964; Paper A).

10 Sec 92 ———. Conflict in classification for document retrieval. DRTC seminar (2) (1964). Paper 1–10.

11 Sec 32 ———. Facet analysis: Rounds. (*In* author's Elements of Library Classifications. Ed 3. 1962. (Chap J).

12 Sec 36 ———. Notational Plane. (*In* author's Design of Depth Classification: Methodology. Sec 4.) (Lib sc. 1; 1964; Paper A)).

13 Sec 93 ———. Partial Comprehension. (*In* author's Notational plane: Interpolation and Extrapolation. Sec 31. (An lib sc. 10; 1963; Paper A)).

14 Sec 32 ———. Practical classification. (*In* author's Elements of Library Classification. Ed 3. 1962. Chap N).

15 Sec 36 511 ———. Sequence of (QI). (*In* author's Design of Depth Classification: Methodology. Sec 61. (Lib sc. 1; 1964; Paper A)).

16 Sec 43 ———. Wall-Picture Principle. (*In* author's Elements of Library Classifications. Ed 3. 1962. Sec N32).