

CONTENTS

Foreword	ix
Preface	xi
Part One Geological and Evolutionary Setting of the Biota	1
1 Geological time and the evolution of early life on Earth	3
2 The evolutionary significance of the Chengjiang biota	8
3 The discovery and initial study of the Chengjiang Lagerstätte	10
4 The distribution and geological setting of the Chengjiang Lagerstätte	16
5 The taphonomy and preservation of the Chengjiang fossils	23
6 The paleoecology of the Chengjiang biota	25
Part Two Chengjiang Fossils	29
7 Algae	30
<i>Fuxianospira gyrata</i> Chen & Zhou, 1997	30
<i>Sinocylindra yunnanensis</i> Chen & Erdtmann, 1991	32
8 Phylum Porifera	34
<i>Triticispongia diagonata</i> Mehl & Reitner, 1993	34
<i>Saetaspongia densa</i> Mehl & Reitner, 1993	36
<i>Choiella radiata</i> Rigby & Hou, 1995	38
<i>Choiella xiaolantianensis</i> Hou <i>et al.</i> , 1999	40
<i>Allantospongia mica</i> Rigby & Hou, 1995	42
<i>Leptomitella teretiusculus</i> Chen <i>et al.</i> , 1989	44
<i>Leptomitella conica</i> Chen <i>et al.</i> , 1989	46
<i>Paraleptomitella dictyodroma</i> Chen <i>et al.</i> , 1989	48
<i>Paraleptomitella globula</i> Chen <i>et al.</i> , 1989	50
<i>Quadrolaminiella diagonalis</i> Chen <i>et al.</i> , 1990	52
9 Phylum Cnidaria	54
<i>Xiangiangia sinica</i> Chen & Erdtmann, 1991	54
10 Phylum Ctenophora	56
<i>Maotianoascus octonarius</i> Chen & Zhou, 1997	56
11 Phylum Nematomorpha	58
<i>Cricocosmia jinningensis</i> Hou & Sun, 1988	58
<i>Palaeoscolex sinensis</i> Hou & Sun, 1988	60
<i>Maotianshanella cylindrica</i> Sun & Hou, 1987	62

12 Phylum Priapulida	64
<i>Palaeopriapulites parvus</i> Hou et al., 1999	64
<i>Protopriapulites haikouensis</i> Hou et al., 1999	66
<i>Acosmia maotiania</i> Chen & Zhou, 1997	68
<i>Paraselkirkia jinningensis</i> Hou et al., 1999	70
<i>Archotuba conoidalis</i> Hou et al., 1999	72
13 Phylum Hyolitha	74
<i>Lineovitus opimus</i> Yu, 1974	74
<i>Burithes yunnanensis</i> Hou et al., 1999	76
<i>Ambrolinevitus maximus</i> Jiang, 1982	78
<i>Ambrolinevitus ventricosus</i> Qian, 1978	80
14 Phylum Lobopodia	82
<i>Luolishania longicruris</i> Hou & Chen, 1989	82
<i>Paucipodia inermis</i> Chen et al., 1995	84
<i>Cardiodictyon catenulum</i> Hou et al., 1991	86
<i>Hallucigenia fortis</i> Hou & Bergström, 1995	88
<i>Microdictyon sinicum</i> Chen et al., 1989	90
<i>Onychodictyon ferox</i> Hou et al., 1991	92
15 Anomalocarididae (phylum uncertain)	94
<i>Anomalocaris saron</i> Hou et al., 1995	95
<i>Amplectobelua symbrachiata</i> Hou et al., 1995	96
<i>Cucumericrus decoratus</i> Hou et al., 1995	98
<i>Parapeytoia yunnanensis</i> Hou et al., 1995	100
16 Phylum Arthropoda	102
<i>Urokodia aequalis</i> Hou et al., 1989	103
<i>Fuxianhuia protensa</i> Hou, 1987	104
<i>Chengjiangocaris longiformis</i> Hou & Bergström, 1991	106
<i>Pisinnocaris subconigera</i> Hou & Bergström, 1998	108
<i>Dongshanocaris foliformis</i> (Hou & Bergström, 1998)	110
<i>Canadaspis laevigata</i> (Hou & Bergström, 1991)	112
<i>Kunmingella douvillei</i> (Mansuy, 1912)	114
<i>Isoxys auritus</i> (Jiang, 1982)	116
<i>Isoxys paradoxus</i> Hou, 1987	118
<i>Yunnanocaris megista</i> Hou, 1999	120
<i>Leancoilia illecebrosa</i> (Hou, 1987)	122
<i>Jianfengia multisegmentalis</i> Hou, 1987	124
<i>Tanglangia caudata</i> Luo & Hu, 1999	126
<i>Fortiforceps foliosa</i> Hou & Bergström, 1997	128
<i>Occacaris oviformis</i> Hou, 1999	130
<i>Forfexicaris valida</i> Hou, 1999	132
<i>Pseudoullia cambriensis</i> Hou & Bergström, 1998	134

<i>Waplia ovata</i> (Lee, 1975)	136
<i>Clypecaris pteroides</i> Hou, 1999	138
<i>Combinivalvula chengjiangensis</i> Hou, 1987	140
<i>Odaraia? euryptala</i> Hou & Sun, 1988	142
<i>Pectocaris spatiosa</i> Hou, 1999	144
<i>Branchiocaris? yunnanensis</i> Hou, 1987	146
<i>Parapaleomerus sinensis</i> Hou et al., 1999	148
<i>Naraoia longicaudata</i> Zhang & Hou, 1985	150
<i>Naraoia spinosa</i> Zhang & Hou, 1985	152
<i>Eoredlichia intermedia</i> (Lu, 1940)	154
<i>Kuanyangia pustulosa</i> (Lu, 1941)	156
<i>Yunnanoccephalus yunnanensis</i> (Mansuy, 1912)	158
<i>Retifacies abnormalis</i> Hou et al., 1989	160
<i>Squamacula clypeata</i> Hou & Bergström, 1997	162
<i>Kuamaia lata</i> Hou, 1987	164
<i>Skioldia alda</i> Hou & Bergström, 1997	166
<i>Saperion glutaceum</i> Hou et al., 1991	168
<i>Cindarella eucalla</i> Chen et al., 1996	170
<i>Xandarella spectaculum</i> Hou et al., 1991	172
<i>Sinoburius lunaris</i> Hou et al., 1991	174
<i>Acanthomeridion serratum</i> Hou et al., 1989	176
17 Phylum Brachiopoda	178
<i>Diandongia pista</i> Rong, 1974	178
<i>Longtancunella chengjiangensis</i> Hou et al., 1999	180
<i>Lingulellotreta malongensis</i> (Rong, 1974)	182
<i>Lingulella chengjiangensis</i> Jin et al., 1993	184
<i>Heliodusa orientalis</i> Sun & Hou, 1987	186
18 Phylum? Vetulicolia	188
<i>Vetulicola cuneata</i> Hou, 1987	188
<i>Banffia confusa</i> Chen & Zhou, 1997	190
19 Phylum Chordata	192
<i>Mylokunmingia fengjiao</i> Shu et al., 1999	192
20 Enigmatic animals	194
<i>Allonnia phrixothrix</i> Bengtson & Hou, 2001	194
<i>Batofasciculus ramificans</i> Hou et al., 1999	196
<i>Dinomischus venustus</i> Chen et al., 1989	198
<i>Eldonia eumorpha</i> (Sun & Hou, 1987)	200
<i>Facivermis yunnanicus</i> Hou & Chen, 1989	202
<i>Jiucunia petalina</i> Hou et al., 1999	204
<i>Maanshania crusticeps</i> Hou et al., 1999	206
<i>Parvulonoda dubia</i> Rigby & Hou, 1995	208

<i>Rotadiscus grandis</i> Sun & Hou, 1987	210
<i>Yunnanozoon lividum</i> Hou et al., 1991	212
21 Species recorded from the Chengjiang biota	214
References	218
Index	229