severely limited."[20] And F. Clark Howell's admission is to the point:

> We still do not know the source of the hominids, but it is possible that their origin may lie between 7 and 15 million years ago, and perhaps not only in Africa. This time range is still not well known. Anyone who feels that we already have the problem solved is surely deluding himself.[21]

The importance to the evolutionist of the hominid status of *Ramapithecus* cannot be overestimated. If *Ramapithecus* is not the first hominid then the already remarkable "sudden appearance" of *Homo* in the fossil record becomes overwhelming. It means that for more than 20 million years of supposed primate evolution there are no known ancestral forms for man. Elwyn Simons admits: "*Ramapithecus* is ideally structured to be an ancestor of hominids. If he isn't, we don't have anything else that is."[22]

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[16] Eckhardt, Robert B., 1972. "Population genetics and human origins," *Scientific American* 226(1):94-103. (January) See especially p. 101.

[17] Leakey, Richard E. and Roger Lewin, *op. cit.*, p. 56.

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[19] It should be made clear that *Australopithecus* cannot be called a hominid by creationists. "Hominid" in the evolutionary biological taxonomy is the family name for man. The name implies both morphological similarities and common evolutionary, and, therefore, biological origin. Both *Homo* and *Australopithecus* appear suddenly in the fossil record. Common biological origin has not been demonstrated. If we must use the term, then we believe that only members of genus *Homo* are "hominid". Australopithecines are extinct apes who happened to have a few morphological features in common with man.

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THE CEPHALOPODS IN THE CREATION AND THE UNIVERSAL DELUGE

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"Then God said, 'Let the waters teem with swarms of living creatures' (For He commanded and they were created: Psalm 148:5b . . . calls into being that which does not exist: Romans 4:17d) . . . with which the waters swarmed after their kind: and God saw that it was good . . . And there was evening and there was morning, a fifth day."

—Genesis 1:20-23 (NASB)

The study of claims of Cephalopod evolution reveals many fossil-gaps; but the outstanding result is the discrediting of the Biogenic Law and the discovery of the large degree of similarity in forms considered to be unrelated by evolution.

Much of the stratigraphic order (generic; specific) ascribed to ammonoids is actually due to time-stratigraphic concepts and to taxonomic manipulations. Indeed, "condensed" sequences demonstrate rather mixing with cataclysmic burial.

The known ecological positions of cephalopods independently fit together into a mutually contemporaneous ecologically zones coexistence. The actual stratigraphic order (ordinal; familial) owes its existence to the burial of these ecological zones in the Flood, while physical sorting during burial gave rise to interfamilial stratigraphic order.

Outline

Introduction
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  - A. Origin of Phylum Mollusca and its class Cephalopoda
  - B. The Genesis of Orders and Lower Taxons
  - C. Fallacies of Recapitulation as Illustrated by Cephalopods
  - D. "Convergence" in Cephalopods as Evidence for Creation
- II. Explaining Ammonoid Biochronological Horizons: a Challenge for Diluviology
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III. The Stratigraphically-Ordered Flood Burial of Cephalopods
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Introduction

The Cephalopods, a Class of the Phylum Mollusca, are a group of predacious marine creatures which have had a long, illustrious fossil-record history but of which only few forms are extant. The Cephalopods deserve Creationists' scholarly attention because (1) They are the most complex, most advanced, and naturally the most studied of all the invertebrates; (2) Most evolutionistic tenets lend themselves to clearer, more revealing examination through Cephalopods than through vertebrates; (3) Some Cephalopods (Ammonoids) play a major role in the intercontinental biostratigraphic "time"-correlation and geologic-"age" claims because of their unrivaled degree of stratigraphically-ordered (wide geographical extent with short vertical range) succession; this group providing the stiffest challenge to Diluviology because of its successional order. Accordingly, this work evaluates claims of their evolution and impeccable successional order, and then provides a carefully-supported ecological explanation for their successional order in the (Flood deposited) Phanerozoic fossil record.

The extant *Nautilus* (Fig. 1) provides a useful reference for a brief synopsis of Cephalopod morphology. The internal organs reveal a high degree of tissue/organ/physiology specialization and efficiency uncommon among invertebrates. The extended tentacles catch food; the radula tears flesh; digestion follows. Reproduction is sexual, from eggs. Some cephalopods have no larval stage (unlike other molluscs). Swimming takes place by means of rocket propulsion when the Mantle Cavity is allowed to fill with water (simultaneously aerating the Gills) and this highly-muscular organ forcibly expels the water out the Funnel (Hyponome), propelling the animal. The conch partly encloses the body.

The conch is the most important part (from the present viewpoint) because only it survives as a fossil. The shell is not molted as in other molluscs, but progressively larger sections are grown (camarae, sealed off by septa). Unlike Gastropods, most cephalopods thus seal off most of their shells by septa during ontogeny. The shell serves as a versatile hydrostatic organ for swimming because (recently discovered) gas amounts in the sealed off camarae are actively regulated by the siphuncle (the only living part of the organism in the conch once that part of it is sealed off).

The Class Cephalopoda is composed of (somewhat controverted) 25 Orders (Fig. 2), 360 Families, 3000 Genera, and 10,000 species. Of these, merely 650 species of 4 Orders survive: the Octopodida (Octopus), Teuthida (Squids), Sepiida (Cuttlefish), and Nautilida (*Nautilus*).

The *Nautilus* (Fig. 1) may serve as a model of this class. The following variations in conch morphology are important: Among subclass Coleoidea (the most radically differing from *Nautilus*), the extinct Belemnitida had completely straightened-out (bullet-shaped) conch with a heavy calcareous rostrum ("shield") in front and the conch length devoted to the body, long in relation to cameral sections (unlike *Nautilus*). The Order Sepiida went further: the entire ventral (bottom) half of the conch was occupied by the body. Still further goes the extant Squid (Order Teuthida) which has an internal, thin, bullet-shaped shell with only vestigial septa (not supportive of evolution: may be a genetic-code remnant of the more common conchiferous design employed by God elsewhere). It is the largest, fastest, and most advanced of all the invertebrates. The Order Octopodida is a sluggish swimmer with no shell.

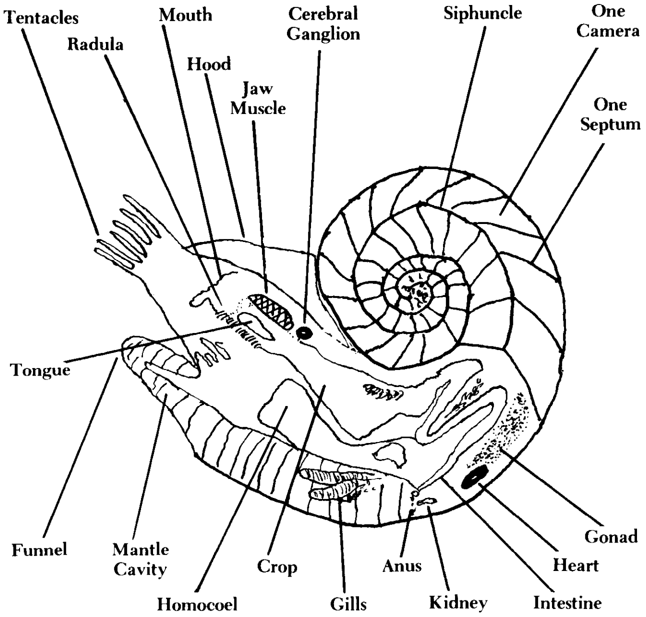

Figure 1. The Nautilus: the sole living representative of the conchiferous Cephalopods. Explained and discussed in the text. Modified after Sweet, Reference 1.

Other than the just-discussed Coleoidea, all other Cephalopod subclasses and their orders are quite similar to the *Nautilus* (Fig. 1): differences being primarily of size, shell shape (coiled, uncoiled, tightly or loosely coiled) intraconchoidal deposits, suture shape, etc.

Specifically, the very important (biostratigraphically) subclass Ammonoidea (Orders Anarcestida, Prolecanitida, Clymeniida, Goniatitida, Ceratitida, Phyllocerida, Lytocerida, and Ammonitida) differs in having thinner shells, shell ornamentation (external ribs, keels, spines, nodes, etc.) and—most importantly— corrugated septa. The Endoceratoidea (Endocerida, Intejocerida) are noted for conical sheaths around the siphuncle (for ballast) and uncoiled, crescent-shaped conches. The Actinoceratoidea (Actinocerida) has cameral deposits (for ballast), as do many of Orthocerida, Belemnitida, Discosorida (which is of Subclass Nautiloidea). Most early Paleozoic forms are orthoconic (straightened-out shells) but all other lineages become coiled much like the *Nautilus*, except the aforementioned Coleoids and Bactritida (which remain straight) and a few aberrantly-coiled and torticonic Ammonoids. Most other differences from *Nautilus* are ones of proportion.

I. Creation Versus Evolution of the Cephalopods

A. Origin of Phylum Mollusca and Its Class Cephalopoda

The Cambrian explosion, which immediately eliminates 80% of any supposed (in this case) molecules-to-molluscs evolution, is very striking. In fact, for Fischer[3] the puzzle is "... the simultaneous appearance of exoskeletons in so many different kinds of plants and animals." "To date, the PreCambrian has yielded no molluscs ..."[4] and there is only an imagined "... hypothetical ancestral mollusc ..."[4]

Dozens of theories have been proposed to explain this explosion; and if Kuhn,[5] a philosopher of science, is correct in stating that the arising of many versions of a theory is a sign of its growing failure to face facts, evolution thus begins to collapse. Just one of many of these subsidiary hypotheses proposes that the Phyla Mollusca, Annelida, and Arthropoda arose from a non-preservable seriated, pseudo-metamorous flatworm[6] which underwent rapid, major (regulatory gene) mutations.[7] Needless to say, such grand-transforming mutations (like gradual mutations/natural selection) have never been demonstrated (much less proved) and "... form a fundamental question in evolutionary biology."[7] The oft-repeated claim that molluscs have arthropod/annelid affinities is based on embryological similarities and the supposedly metameric mollusc *Neopalina.* Many now maintain[8] that this is only a superficial resemblance of true metamerism and therefore not convincing.

Not only is the evidence for an evolutionary origin of mollusca (like other phyla) unconvincing, but so is that of the resulting classes. "The *unrecorded* Precambrian creatures were antecedent to about ten classes of mollusks."[9] Besides, "... survey of the first obscurely crawling molluscs could have afforded *no faintest indication* of possibilities eventually realized in the (among others) ... predacious, rapidly darting squids."[10] (emph. added, and so on unless specified.) "The origin of the cephalopods, like that of other mollusks, is shrouded in the darkness of the PreCambrian."[11] "... the roots of the cephalopod tree lie somewhere deep in the PreCambrian."[12] "As with nearly every other group of organisms, *there is no objective record* of the earliest stages of cephalopod history."[13] Many decades ago, the *Volborthella* was proposed[14] as the first cephalopod, but recently it has been pointed out that this fossil is very enigmatic and may be a Tunicate,[15] etc. Recently, the monoplacophoran *Kirenyella,*[16] which is septated (unusual for non-cephalopods) and similar to the cephalopod *Plectronoceras* has been cited as the monoplacophoran-to-cephalopod transition. However, just as there are no (incipient-structure) transitions in vertebrate evolution[17] (no part-fin/part-leg (fish-to-amphibian), no half-scale/ half-feathers (reptile-to-bird), etc., transitions),[17] so likewise the supposedly-transitional *Kirenyella* shows no sign of a siphuncle, or even a partly-evolved one.[16] The origin of siphuncle, like most else, is relegated to speculation.

Although the Cambrian explosion goes contrary to all expectations of evolution, paleontological speculations to explain it away are prevalent, because—as the Soviet paleontologist Sokolov[18] remarks: "I know geologists who regard the whole of Darwin's theory and the present day synthetic theory of evolution (which do in fact have weak spots) as a type of religion; but we may readily imagine the chaos that would face us in geology were the evolution concept to become a myth ..."

B. The Genesis of Orders and Lower Taxons

A diagram very similar to Fig. 2 shows dotted lines (gaps) between the Ellesmerocerida rootstock and most subclasses and Nautiloid orders.[19] The long debate as to whether the ammonoids evolved from coiled Nautiloids (Tarphycerida) or the Bactritida continues:[25] reinforced by a conch-coiling gap in the latter alternative[20] as well as the former.[21] Donovan[22] contends for a Belemnitid ancestry for all the Coleoids in contradistinction to Teichert[2] (Fig. 2); Jeletzky[23] simply leaves dotted lines with question marks in portraying how the six Coleoid orders relate to the supposedly-ancestral Bactritids and to each other. Among "advanced" ammonoids: "A phylogenetic classification here breaks down. There are so many ammonites ... which cannot reliably be traced back to their parent stock that it is still a practical necessity to retain a polyphyletic suborder Ammonitina for all those ammonites (the vast majority).[24]

The evolutionist Boucot[26] excellently summarizes the role of transition-lacks: "Since 1859 one of the most vexing properties of the fossil record has been its obvious imperfection. For the evolutionist this imperfection is most frustrating as *it precludes any real possibility for mapping out the path of organic evolution* owing to an infinity of 'missing links' ... once above the family level it becomes very difficult in most instances to find any solid paleontological evidence for morphological intergrades between one suprafamilial taxon and another. This lack has been taken advantage of classically by opponents of organic evolution as a major defect in the theory ... the inability of the fossil record to produce the 'missing links' has been taken as solid evidence for disbelieving the theory." It is not "taking advantage" to see that, even if time is gratuitously granted to the fossil record, it does not empirically demonstrate bio-transformism: all life—including cephalopods—was directly created by God and some of it buried (why in such stratigraphic order to be discussed in detail) during the Noachian Deluge.

Evolutionists seek to explain the gaps either by claiming that preservation-failures[27] (as from sedimentation breaks, etc.) or "punctuated equilibria"[28] (bursts of evolution too rapid to be fossil-recorded) explain the absent transitions. But the fact remains that admittedly transitions are absent;[31] and no arguments from ignorance or secondary hypotheses (akin to "Epicycles" proposed to "patch-up" the failing Ptolemaic geocentric theory) can remove it. In fact, if anything, evolutionary steps are so deduced to make the smallest gaps: Harper[29] stating, other factors about equal, ancestor-descendant lineages should be constructed that leave "fewer or shorter stratigraphic gaps." All fossil taxonomy is so designed to abet evolutionary speculations: "... any paleontological classification should be ... phylogenetical at all levels ... the concepts of tie and derivation must, indeed, be brought to define all its categories ..."[30]

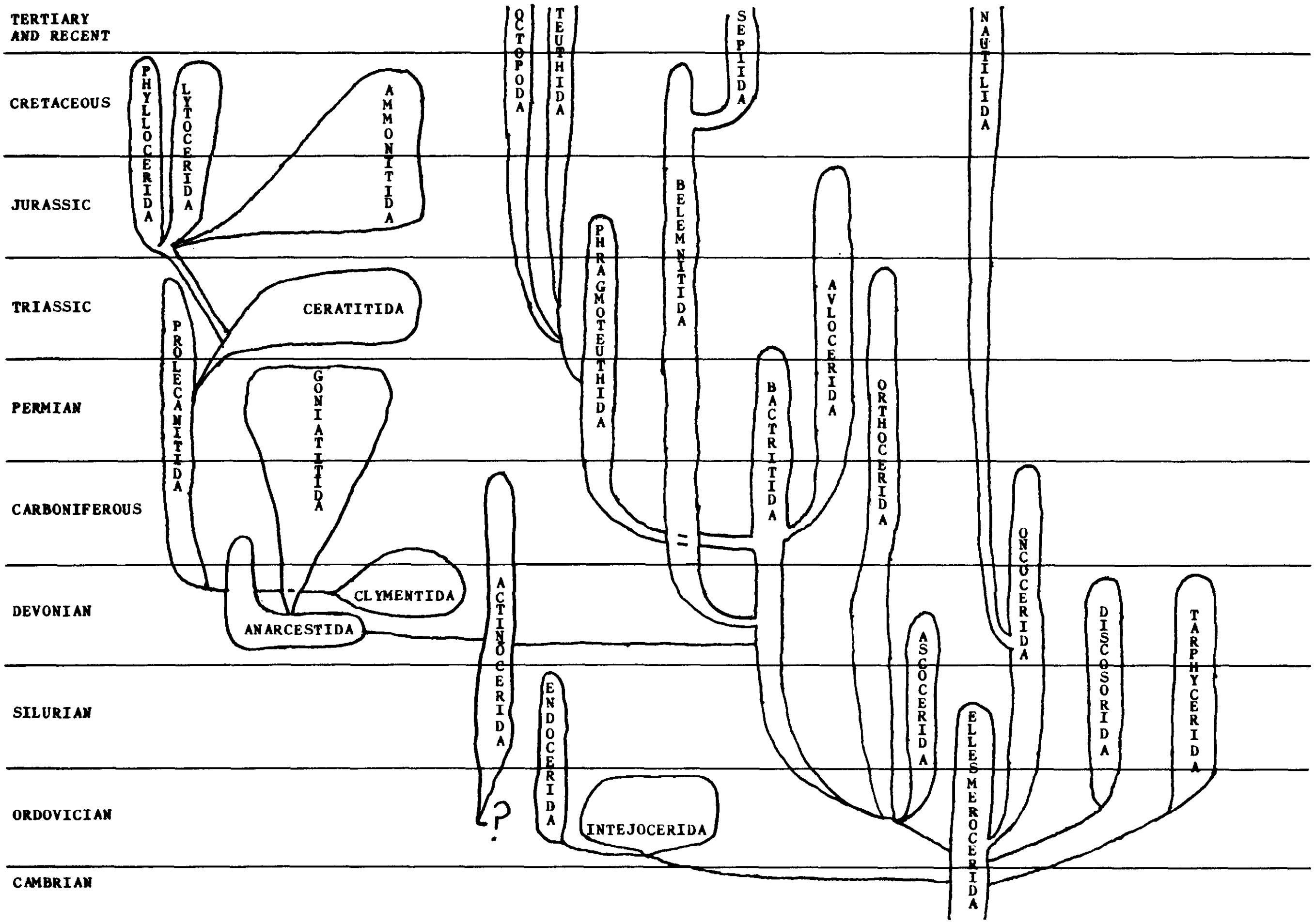

Figure 2. The stratigraphic positions and claimed evolutionary affinities of the 25 orders of Cephalopods. Modified after Teichert, Reference 2.

Not fact, but imaginitive speculation thereby dominates evolution: evolutionary steps can only be ". . . inferred"[32] and, "Of course, *we can never prove that the sequence we see actually mirrors the evolutionary process.*"[33] The sequence is considered probable if it repeats in different places and "facies," but Flood burial will later be considered an equal or superior explanation. Cephalopods, especially ammonites, specifically yield speculative evolutionary lineages: "The chief obstacle to such studies is that a lineage is an oversimplified concept; *it is impossible to pick out a stratified succession of individuals which can with certainty be said to be genetically connected in the strict ancestor-descendant relationship* . . . it is difficult to be sure that our choice of individuals is not guided by preconceptions of what we are looking for."[34] Creationists must remember this recent statement by Gould, *et. al.*:[35] "Paleontologists (and evolutionary biologists in general) are famous for their facility in devising plausible stories; but they often forget that plausible stories need not be true."

Gaps abound at even lower taxon-levels: ". . . a great number of species of Jurassic ammonites appear and disappear suddenly and have neither known ancestry nor descendants."[36] These are not exceptions: ". . . explosive evolution of radically new types . . . is so common in the history of the Cephalopoda."[37] Many out-of-nowhere fossils exist.

Many claims, however, are made that a large number of gradual (transition-filled) sequences are now known. Closer examination reveals that abrupt changes of structure actually happen in these "continuous" supposed evolutionary lineages. Reyment,[38] for example, while noting the rarity of transition-filled sequences, claimed that he had some good examples of them: yet he noted that one trend was the disappearance of shell ornament, and this "loss of ventrolateral tubercles" was not gradual; suddenly it was completely gone in the otherwise identical superjacent "descendant." Many apparent lineages, as indeed the stratigraphic distribution of all cephalopods, are simply the result of the ecologically-controlled Floodwater burial of the cephalopod fossils (a whole area which will be discussed and documented in detail): most others seem continuous because they are so defined taxonomically. Thus cephalopod "species" and "genera" are incredibly subjective designations (will be fully documented) readily manipulable to so designate "species" and "genera" that they arbitrarily single out some morphological-attribute trend as an evolving lineage: ignoring others. Fig. 3(i) using general symbols for fossils, illustrates this; whereby a gradual arm-addition trend is taxonomically singled out (enclosed) by completely disregarding arm patterns which do not fit this "gradually evolving" trend, making this semi-random

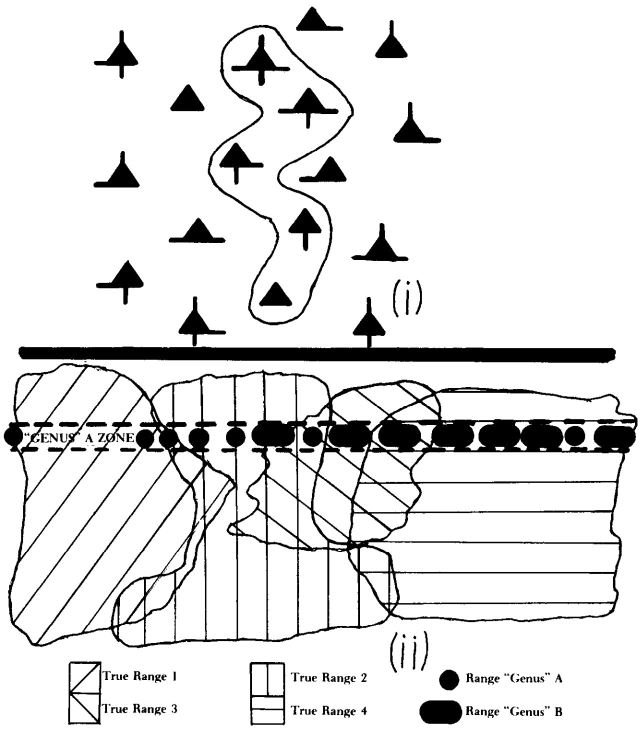

Figure 3. Taxonomic practices contributing to the fallacies of: (i) gradual (transition-filled) evolution within Cephalopod families, and (ii) world-wide zones of ammonoid genera.

distribution of fossils seem evolutionary. Extremely important is this fact: "Paleontologists have observed that rapidly evolving groups appear to have far less phenotypic variation than is true for more slowly evolving groups."[39] This low phenotype variation unmasks the taxonomic splitting which has artifically produced a seemingly transition-filled evolutionary trend. All relevant fossil evidence indicates that cephalopod groups were (and are) always distinct divine creatures (which never evolved).

C. Fallacies of Recapitulation as Illustrated by Cephalopods

The Biogenic Law (ontogeny recapitulates phylogeny) can be readily tested because the cephalopod conch retains juvenile features, since the oldest septa remain throughout lifetime as part of the conch (oldest septa nearest the tip, etc.). Yet it has failed: ". . . 'recapitulation,' embraced uncritically by Hyatt and Buckman, c. 1870-1930, but found to be unworkable, and now generally abandoned by ammonitologists."[40] Yet this matter is most definitely not merely historical, as many still believe it (for example Wiedman,[41] many Russian paleontologists, and sporadically others: a specific use of it reviewed by Haas[42]).

". . . some lineages of Mesozoic ammonites exhibit little or no recapitulation."[43] Not recapitulation, but a whole spectrum of supposed relations between ontogeny and phylogeny is observed: Clark,[44] studying ammonoids, noted paedomorphosis[44] (adults having characteristics of ancestors' juveniles), acceleration[45] (juveniles with characteristics of adult ancestors), and caenogenesis[46] (animals differ when young, but are similar when adult).. Cenogenesis also implies dissimilarity to related forms, opposite of palingenesis (recapitulation). Yet supposed ". . . evolution could be either cenogenetic or palingenetic . . ."[47] But they admittedly cannot be distinguished; and: "Clearly one is involved in a *circular argument*; one cannot safely assume that palingenesis has occurred unless the course of evolution is already known."[47]

Acceptance of recapitulation led to admittedly absurd logical conclusions: "The papers of the 2nd and 3rd decades of the 20th century, written in the recapitulationist faith, make strange reading now. If, as was often found, all the expected stages were not present in ontogeny, they must have been skipped; then the 'fact' that a stage had been skipped became itself of great significance, and forms were classed together because of characteristics which none of them possessed! All this was, of course, wrapped up in a scientific jargon . . ."[48]

"The Biogenetic Law . . . had enough adherents among biologists to provoke repeated refutation, for example, by Sedgwick, . . Garstang, . . De Beer . . . Biological critics argued largely from the *obvious fact that developmental stages do not usually resemble adult types* . . ."[49] (Paleontologists) "Pavlov and Spath opposed the universal application by certain paleontologists of recapitulation theory and drew attention to sequences of fossils which did not support it . . . The theory was abandoned by English ammonite workers by the end of the 1920's."[50]

Yet a limited similarity trend does in fact exist between ontogeny and "phylogeny" (not evolutionary; but in reality the Flood-burial order). The to-be-discussed antediluvian marine ecological zonation had near-shore poorly-swimming, simple-sutured (low hydrostatic pressure resistance), nektobenthonic forms and offshore forms of opposite characteristics. During ontogeny, the first septa had simple sutures because of the hydrostatic capabilities of small septa sufficing; growing required acquisition of complexly-sutured septa for larger adult camerae. This ontogenic trend parallels the Flood-burial order ("phylogeny"): hence the "recapitulation." Since a developing complex cephalopod must be simple before becoming a complex adult, it may well resemble the simple, unspecialized, first-buried nektobenthonic forms; hence "recapitulation" of many other characteristics. Some shell ornament on advanced groups is for camouflage; younger forms being more benthonic and not needing it.[51] The unornamented-then-ornamented-camerae ontogenic trend mirroring the nektobenthonic (juvenile)-then-pelagic (adult) lifestyle change in ontogeny parallels the nektobenthonic-then-pelagic Flood-burial trend: thus yet another common "recapitulation."

D. "Convergence" in Cephalopods as Evidence for Creation

Whenever very dissimilar living forms, obviously regarded as being different evolutionary lineages, resemble one another in some morphological attribute, this is termed "convergent evolution." Such cross-similarities are incredibly common among cephalopods: "The most striking feature that emerges from study of the Mesozoic ammonites from the evolutionary point of view is the frequency with which history repeats itself . . ."[52] "Examples of *striking resemblance*, both in shape and ornamentation between forms or even groups of ammonites *of quite different geological age* have long been known . . ."[53]

Two examples of "convergence" at the generic level follow: ". . . the resemblance of *Euomphaloceras cornatum* (Kossmat) to *Plesiacanthoceras wyomingense* (Reagan) is striking indeed."[54] *Trachyphyllites* resembled Lytoceratina to such an extent that the former is now classed within the latter; formerly the similarity was ascribed to convergence,[55] and the former assigned to Phylloceratina.

An example of family-level convergence is provided by *Idiohamites ellipticoides* Spath, whose ornament is identical[56] to those of family Labeceratidae (*I. ellipticoides* is of family Anisoceratidae). "Even in families widely separated stratigraphically and quite unrelated, shells with round or stout whorl section have similar sutures."[57] "The openly coiled heteromorph ammonites such as the hamitids, crioceratids, and ptychoceratids still remain less well understood than most ammonites . . . The great degree of parallelism in ornamentation and homeomorphy among otherwise dissimilar heteromorphic species has been recognized only recently."[58] "In the Silurian, there is again a striking and, indeed a confusing, convergence between *Sthenoceras* of the Phragmoceratidae, and *Danoceras* of the Oncoceratidae."[59]

The following are some examples of ordinal-level convergence: "It is interesting to note that systems of radial lamellae developed repeatedly and independently in the siphuncles of several groups of cephalopods: . . . Actinocerida . . .Intejoceratids . . . Oncocerida . . ."[60] "A remarkable case of homeomorphy is the development of constricted ('visored') apertures of the *Phragmoceras*-type several times independently in entirely different lines of descent: . . . ellesmerocerid . . . Discorsorid . . . Oncocerid . . ."[61] "There is so much external resemblance between many oncoceroid and discosorid genera . . ."[59] Four-lobed first sutures cannot any longer distinguish between orders since it is now known to appear independently in different ammonite lines.[62] Some of heteromorphs (meathook-shaped uncoiled conches) are of order Lytocerida, while others of Ammonitida.[63] Among subclass Coleoidea, ". . . sheath-like structures arose quite independently in the Aulocerida, Belemnitida, and Tertiary Sepiida."[64]

Class Cephalopoda converges with Class Gastropoda: "It is very much of a puzzle to separate cause from effect in contemplating the fact that certain only distantly related cephalopods acquired at different geologic times shells that were coiled in a helicoid spire like a gatropod instead of being straight or coiled in a plane as cephalopods normally are. Such situations are found in the nautiloids *Lechritrocheras* and *Trochoceras* of the Silurian and Devonian, respectively, the ceratite *Cochloceras* of the Triassic, and the Cretaceous ammonoids *Turrilites* and *Emperoceras* . . . the convergence is thus heterochronous between different groups of cephalopods as well as between cephalopods and gastropods."[65] Ward[66] adds that this is a "close convergence." Septation on the monoplacophoran *Kirenyella*[16] is another convergence at the class level.

The convergence between Cephalopods and members of other phyla is without peer. Tests occur not only in Phylum Mollusca, but also Phylum Brachiopoda, Fusulina (of Phylum Protozoa), Bryozoa (Phylum Ectoprocta), and others.[3] One of the most outstanding examples of convergence in the animal kingdom has to be that of the cephalopod eye and the vertebrate eye: ". . . every feature fundamental to its operation for vision in cephalopods appears to be encountered also in fish."[67] The octopod statocyst (otolith) is much like that in vertebrates.[68] The open circulatory system found in most cephalopods nevertheless approaches the closed circulatory system found in vertebrates: the arterial muscle is difficult to distinguish[69] histologically in some cephalopods from that of vertebrates. Overall, Packard[70] contends that the similarity between cephalopods and fish is among the greatest of higher organisms in different phyla.

All of the above-mentioned examples of "convergence" are but a few examples of this cross-similarity which utterly permeates the Class: "Parallelism and convergence within the cephalopods, especially amongst fossil lines, are sufficiently common . . . to have made it difficult for an agreed classification to be reached even at the ordinal level."[71] The amount and extent of cross-similarity is thus so great that a great problem arises in separating primary similarities from secondary ones: "Indeed, relationships within the group are such that no tenable classification can be erected dividing the nautiloids into a few clearly defined morphological groups capable of a succinct definition. It is evident that neither the shape of the shell, the form and structure of the siphuncle wall, the presence or absence of actinosiphonate deposits, endocones, concavosiphonate siphuncles, annuli, or cameral deposits are in themselves necessarily a reliable guide to major taxonomic categories."[72] "Septa and sutures, like all other ammonite characters yet recognized—coiling, whorl shape, aperture, ribs, keels, furrows, etc.—are subject . . . to repetition of different variants at all levels in the phylogenetic tree and stratigraphic column. No single key to phylogeny has yet been discovered."[73]

Evolutionists, of course, explain convergence as being the result of evolutionary adaptation to a similar environment; or even direct competition (octopus evolving an eye because the fish with which it competed had them, etc.) Any major scientific-Creationist work may be consulted to document the fact that no grand biotransformism (from mutations with natural selection, etc.) has ever been demonstrated (much less proved): the evolutionary hypothesis is therefore incapable of explaining (other than by unsubstantiated speculation) the origin of even one living morphological pattern, let alone the same pattern several times. Yet even if evolution occurred, "Given the indeterminate nature of inherited variability it would be more natural to expect new characters to be unrepeatable even in the case of the adaptation of closely related organisms to similar environmental conditions."[74]

Pertaining specifically to cephalopod "convergence," evolutionists claim that evolution would repeat because there are only a few theoretically-possible designs. This point is controversial. Raup[75] attributes the narrow parameters of conch geometry to optimum survivability, but this is speculative and he was uncertain as to the cause of limitations on some parameters. Even many theoretical phyla could exist.[76]

It isn't the Creationist who must explain why the Creator would create "such a bewildering variety of similarly-living forms" as some evolutionists have charged. God designed His creatures for differences in glory (1 Corinthians 15:38-41). Life is not evolutionarily diverse, but in reality of a very limited, Divine-designed diversity which strays not far from taxon "blueprints." The convergence among cephalopods reflects a high degree of mixture of design features in all forms: "Heterochronous convergence" suggests that geologic-time designations to the fossil record are false: all fossil/extant forms Created simultaneously and mutually contemporaneous.

II. Explaining Ammonoid Biochronological Horizons: a Challenge for Diluviology

Introduction: Demonstrating that the fossil record does not support evolution is only half of the Creation-Flood paradigm: the other half (which occupies the remainder of this work) is to provide scientifically-based explanations for the order of Cephalopod burial by the Flood as is observed in the fossil-rock column.

It is necessary to determine just how much true stratigraphic order the fossil record has: evolutionists-uniformitarians frequently claiming that fossil succession-order is too precise to be explained by anything other than evolution with long ages. Since ammonoids are indisputably the best index fossils, unrivalled in the Mesozoic and useful in the Upper Paleozoic, their successional order must be carefully examined. The Jurassic Period alone is claimed to have been biostratigraphically divided into 52 worldwide successional ammonoid-genera zones.

"The motives and procedures of biostratigraphy are: 1, the collection and description of taxa; 2, the identification of local assemblages in rock sequences (assemblage-zone); 3, the measurement of the total stratigraphic range of significant taxa (range-zones); 4, the definition and recognition of time units based on the stratigraphic range of fossils (Period, Ages, etc.); and 5, the calibration of the biological time scale by isotopic and other numerical dates."[77] Obviously biostratigraphy, and especially that of ammonoids, is the combination foundation/backbone of the uniformitarian geologic column. One zone not mentioned is the acme-zone, or zone of abundant occurrence of a given taxon.[78] Legendary are the mid-19th century stratigraphers Albert Oppel and Alcide D'Orbigny for setting up the above-mentioned zones from ammonoids in Western European rocks.

A. The Substantial Subjectivity of Fossil "Species" and "Genera"

Many paleontologists now agree that ". . . the assignment of groups of organisms to taxonomic categories involves a large element of subjectivity . . .,"[79] and Shaw[80] states that ". . . the species concept is *entirely subjective* . . ." He (quite radically) advocates that designating fossil species be entirely abandoned and replaced by a stratigraphy of morphological attributes because the designation of fossil species depends on what the individual paleontologist considers significant,[81] frequently lumping objective differences as variation.[82] It is not difficult to see that true species have wide degrees of intraspecific morphological variation,[32] so "fossil species" could hardly be recognized. Although cephalopods preserve their juvenile septa, Mapes[83] nevertheless recently warned that mistaking juvenile and adult forms ". . . can and has led to confusion in the literature."

It is not so much "fossil species" as "fossil genera" of ammonoids that are employed in the hair-splitting subdivision of geologic ages. Yet: "When ammonites are considered in the context of the whole invertebrate fauna, which is rarely done, it becomes apparent that ammonite "genera" frequently have the status in terms of morphological variation, of what generally are regarded as species in other groups."[84] The above-mentioned criticisms of fossil species would then apply to "fossil ammonoid genera." It is not uncommon for "genera" to be recognized, named, and allowed to define zones on the presence of but single specimens, as in a case which was condemned.[85] Many so-called genera have been drawn into synonymy by treating their differences as sexual dimorphism;[86] but this may actually be polymorphism,[87] similar to the type found in some hymenopteran insects. This would then be another major element of speculation, internal inconsistency, and arbitrary practice used in designating ammonoid genera, irrespective of whether the "genera" were so when living or if the generic label is only considered operational.

After reviewing the study of Cretaceous ammonites, Haas[88] called attention to ". . . the indistinctness of the hitherto assumed generic characters . . ." The Cephalopod paleontologist Wiedman[89] noted that counting the number of genera is "surely unreliable." Twenty years of study have reduced the number of Lower Lias (Jurassic segment) ammonite genera from 106 to 76.[90] No isolated instance; the amendation of the very plastic generic designations is routine: "The evolutionary diversity of the ammonoids . . . has been exaggerated by . . . dubious theories of descent which have led to unnecessary multiplication of generic names. Close study of a fossil group *almost always reduces the number of valid species or genera*; for example . . . genera in the family Echioceratidae . . . reduced from nineteen to five.[91] An example of ammonoid species subjectivity is provided by the genus *Sonninia*, of which 70 species have been reduced to only 2,[92] and of these 64 reduced to but 1.[93] Even family-level subjectivity is a fact, illustrated by the shifting of *Fanninoceras* from the family Hildoceratidae to the Oxynoticeratidae.[94]

The bearing of the subjective nature of specific and generic designations upon biochronology is best given by Hess,[95] who asks: "Could not . . . shaky or non-precise nature be attributed to the biostratigraphic methods . . . when stages or zones are defined and mapped, for example in the Middle Jurassic, on the basis of the presence of fragmentary ammonite material, which at the time served as holotypes for a dozen new genera and species just to commemorate the name of the investigator?" How all the subjectivities discussed in this section relate to the assignment of "genera" into zones will be discussed in a later section.

B. Procedures Which Eliminate Successional Discrepancies

This section studies some methods by which fossils found where they are not "supposed" to be are effectively eliminated, making the successional order of ammonoid fossils appear much greater than it really is, and reinforcing claims of consistent successions.

It must be realized, first of all, that "genera" which are used to support uniformitarian claims of a very precise worldwide biostratigraphic "onion skin" system of tens of successions per geologic age are selected from many of varying stratigraphic range. Even if the "genera" used in world-biostratigraphic claims were objective entities, there is still a considerable overlap of cephalopod fossils in the geologic record. Many examples of long-ranging forms exist. The genus *Bactrites*, for example, ranges from Silurian to Permian,[96] and many consider it to be nothing more than a straightened-out ammonoid. "The Phylloceratina are . . . almost unchanged through the Jurassic and Cretaceous . . ."[97] Some significant morphological attributes, such as the ten-arm tentacle structure found in modern squids and shown by trace fossils[98] to have persisted since the early Paleozoic forms, span the uniformitarian geologic column.

Many so-called genera of supposed short stratigraphic range are found to have longer ranges, and some of these are then discarded in future claims of precise world successions. In the Spanish Jurassic "The stratigraphic range of some genera was found to be more extensive than previously known."[99] The French Jurassic zones of *Macrocephalites* and *Reineckeia anceps* now admittedly overlap, and these "biostratigraphic anomalies observed repeatedly in the Callovian cannot always be explained by faunal *'remaniement.'* "[100]. "In the lower Triassic, the *Flemingites* zone is overlain by the *Owenites* zone, but now many characteristic Owenitan "genera" are found with *Flemingites*.[101] *Leiostegium*, once thought to be a distinctive Canadian-stage genus, is now known far into the overlying Demingian stage.[102] Stratigraphic-boundary controversies test accept fossil-ranges and often prove them vastly incorrect, as did the Permian-Triassic boundary perplexity: "*Cyclolobus* is regarded as an indicator of latest Permian rocks . . . but . . . now presented evidence . . . that *Cyclolobus* makes it appearance well below the top of the Permian . . ."[103]

Fossils which are found where they are not "supposed" to be as part of an inviolable biochronological order are likely to be completely ignored. It took nearly 120 years after an original find (1843, Belgian Devonian) before Belemnoids were recognized to appear that early; previously they were believed to be no earlier than the Triassic. Concerning that early find, ". . . For nearly a century this report has been generally ignored or discounted."[104] Pertaining to a century-later Mississippian find: ". . . a report which has met with skepticism, though no good basis for this incredulity has been expressed. One can only conclude that the lack of widespread acceptance . . . stems from a widely-held conviction that there are no belemnoids as old as the Mississippian . . ."[104] Although rare in the Paleozoic,

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the Belemnites are easily recognized (by their bizarre bullet shape); and since they have no value as index fossils—it is difficult to see why their early appearance was not recognized. This non-recognition is a dramatic example of how fossils which do not fit preconceived notions of their stratigraphic range may be blindly ignored. The successional order of ammonoids (which, in contrast to belemnoids, are not easy specifically to identify) is greatly exaggerated because there are no doubt many "out-of-place" forms ignored.

More commonly they are not ignored, however; the "out-of-place" fossils are given different names. In making identification, there is needed ". . . an evaluation of all characters, *taken in conjunction with stratigraphical evidence*, in making a classification."[105] In fact, classification ". . . depends *absolutely* on stratigraphical information."[106] Clearly then, the identification and classification of "genera" is not independent of their claimed successional status, and the same fossils often are given different names, depending on their stratigraphical position.

An exceedingly common rationalization for "out-of-place" fossils is the concept of "migration"; the claim being that ". . . many different lineages were evolving and migrating simultaneously and so the succession is bound to vary in different places . . ."[107] Pertaining to worldwide correlations, the "migrations" " . . . created a very complex faunal pattern."[108] Another result was contradiction between the successional order of ammonoids and other index fossils: "A number of pelecypods, gastropods, and brachiopods enter the North American succession at a lower horizon than in Europe."[109] The finding of given "genera" among other specific "genera" of different "age" (and explained as "migration") is so common that Hedberg[110] advocates that biostratigraphic and chronostratigraphic designations not be used interchangeably.

C. The Scattered—Not Worldwide—Distribution of Fossil Zones

Arkell[112] categorically states that no "worldwide" ammonoid zone is *de facto* worldwide: Schindewolf[111] adding that it is a time concept which makes it worldwide, not presence of particular genera. " . . . Zones . . . do not apply universally. For instance, no one can recognize the rocks belonging to Kosmoceratan, Quenstedtoceratan, or Cardioceratan 'ages' in the southern hemisphere, where these genera do not exist. It is, however, possible to recognize the Callovian and Oxfordian stages, because those are abstractions, not dependent on occurrence or absence of any particular index species or index genera, but recognized by the general grade of evolution of the ammonite fauna as a whole and by a chain of overlapping correlations carried link by link around the world."[112] Similarly, in the Cretaceous, "The zones of the standard European section cannot be set up in Texas with any great accuracy. Instead, a parallel zonation must be set up in each area, and a correlation estimated, on rarely occurring fossils, stage of evolution, homotaxial superposition of family and generic groups, and intuition."[113] In Montana, *Inoceramus stantoni* Sokolov is an index to the *Scaphites depressus* zone.[114]. Fig. 3(ii) illustrates the fallacy of worldwide "onion skin" zonal claims: the zone of ammonoid "Genus" A seems worldwide only because "Genus" B is considered to be a stratigraphic time equivalent.

"Another interesting example of confusion resulting from lumping two concepts under one set of terms is evident in the common usage of the term 'Fossil zone,' *Fulanus smithi* Zone for example. Thus, one group of paleontologists would interpret *Fulanus smithi* Zone as the body of strata characterized by a certain assemblage of fossils of which *Fulanus smithi* happened to be a prominent member. Another group would understand *Fulanus smithi* Zone to mean the total body of strata in which the species *Fulanus smithi* occurred regardless of its associates. (Moreover, in neither group would there be uniform opinion as to whether actual specimens of either *Fulanus smithi* or the assemblage fossils would have to be present for strata to be included in the zone, or whether simply supposed time equivalence would qualifiy strata for inclusion)."[115] Zonal claims hide under vague terminology.

Not only are there no nearly worldwide "genera" zones and rather a woven quilt of imagined time equivalences; but also fossils tend to be absent in the most unlikely places: ". . . barren segments may intervene between definable zones."[116] Pertaining to Jurassic ammonoids, "It is remarkable that some species abundant in one locality are rare or absent in others of the same region."[117] Speaking of surprising absences in intercontinental ammonoid correlation, von Hillebrandt[118] notes: "These observations illustrate the difficulty of biostratigraphic correction." A criticism of existing Triassic biostratigraphy notes ". . . in large part a hypothetical arrangement of zones defined in widely scattered areas."[119] Just as there are missing geologic "ages" with no unconformity to indicate the supposed tens of millions of years of nondeposition/erosion, so also there are frequent mini-disconformities; for example, between the Toarcian and Sinemurian stages, "Although the section . . . is seemingly continuous, Pliensbachian ammonites . . . appear to be missing."[120]

Zones and even stages are such arbitrary designations that they can easily be dissolved at will. For example, a newly-constructed Cenomian-Toarcian boundary does away with the *Belemnites plenus* zone,[121] whereas the long-held Volgian stage of the Jurassic is recommended to be dropped.[122]

Ammonoids (especially in the Upper Paleozoic) are used with other index fossils, especially conodonts and brachiopods. Conodonts may be found far from where they stratigraphically "belong"; and "reworking" of older rocks' fossils into more "recent" ones is claimed. But in a recent Kansas case of Devonian conodonts in Mississippian rock, "Specimens exhibit *little evidence of reworking*."[123] "Brachiopods are notoriously difficult to use in correlation, and Permian ones especially so because of their provinciality . . ."[124] Not trivial, but major contradictory age-indicators may result from different groups over wide regions, as in this Eastern Siberian example: "The same deposits were long classified as belonging to the Carboniferous on the basis of ammonoids, and to the Permian on the basis of brachiopods and other groups."[125] (The ammonoids proved right.) Biostratigraphic subdivisions are calibrated by radiometric dates to produce the numerical uniformitarian geologic time scale. Yet "Only very few useful Jurassic radiometric dates are available, and the biostratigraphic position of most of these is vague."[126] "Radiometric dates for the Lower Cretaceous are scarce, and nearly all are based on glauconites which become less reliable with increasing age of the section.[127] "The expressed cautions on choosing the radiometric dates and their scarcity only further arouse suspicions that isotopic dates are accepted only if they agree with the biostratigraphic distribution and support and old earth. Biostratigratigraphic/magnetostratigraphic relation is vague.[126]

D. Biochronologic Ammonoid Zones as Taxonomic Concoctions

Not only are the "Worldwide" zones not worldwide and in reality a "patchwork" of supposedly isochronous lateral equivalents, but (as this most-important section will show) the previously considered subjectivities of ammonoid "species" and "genera" are universally manipulated in a way that makes even the lateral-component "patches" appear far more geographically widespread and—more importantly—thinner (shorter stratigraphic range) than actual ammonoid genera were.

The fact that cosmopolitan genera appear over-represented in the fossil record[128] suggests concoction that makes them appear cosmopolitan. Ager,[129] in agreement, states that ubiquity of fossils is often actually paleontologists' imagination, and that geographic distribution of fossils parallels political boundaries. "Taxonomists have long known that geographically widespread species tend to display far more variation than is the case with highly endemic species of the same genus or family."[39] Concerning Texas Cretaceous ammonoids: "The endemic faunas exhibit lower generic diversity than the cosmopolitan ones."[130] "The high variation observed within "cosmopolitan genera" is only the natural result of the lumping of different fossil forms into the so-called genus to make it appear geographically wide-spread.

Similarly, taxonomic splitting makes "generic" successional-order highly exaggerated, both in precision and repetitive consistancy. "Thus all 'horizontal' generic, specific, or intraspecific boundaries in paleozoology are *artificial cuts* in uninterrupted 'vertical' evolutionary lines which are *intended to serve the practical ends of biostratigraphy* and geology."[131] "We are . . . acutely aware . . . of the arbitrary decisions and disparity of methods among taxonomists. The clade statistics reflect the true history of groups only through these filters. Clades of genera within families for Mesozoic ammonites, for example, are extremely short and fat . . . *prodigious oversplitting* inspired by *stratigraphic utility* may be the primary cause of these unusual shapes."[132] Hallam,[84] Campbell and Valentine,[133] and others all call attention to this vertical taxonomic splitting of ammonoid genera.

All of the following are examples of ammonoid-"genus" splitting, starting with the Permian: "Definition of *Cyclolobus* involves a progression of evolutionary stages within the family in which *Timorites* . . . is the immediate predecessor. Separation of these two genera is *arbitrary*."[134] "*Glyptophiceras*, *Ophiceras*, and *Otoceras* of the lowermost Scythian are extremely plastic stocks. Nearly every researcher who has worked with these genera has testified to this fact."[135] A survey of the Triassic notes: "*Tropites* . . . the limits of this genus are indefinite."[136] There is in the Cretaceous an (upward) succession of *Scaphites depressus*, *S. binneyi*, *S. vermiformis*. In this succession a split occurred because *S. binneyi* was once regarded as just a variety of *S. vermiformis*.."[137] Another important problem that arises in recognizing first occurrences of taxa in an evolutionary sequence and their subsequent use in correlation is the discrepant taxonomic practices of different workers. As an example, one worker may place the first stratigraphic occurrence of a taxon where one-half or more of the sample contains the diagnostic morphologic attribute. A second worker may, with the same data, choose the first occurrence of the diagnostic attribute at the level of its first appearance, no matter how small a part of the sample it is."[138]

All of the considered factors contributing to the illusion of inviolable ammonoid succession-order are summed up in Fig. 3(ii). Selective lateral lumping has fused true genera 1 to 4 into "genera" A and B. A and B, imagined to be time-equivalents, thus comprise the "worldwide" ammonoid zone A. Extreme vertical splitting simultaneously makes both A and B seem very successional (thin, precise, "onion-skins") which in reality are small vertical segments of true genera 1 to 4. Several such zones (all arbitrary, fallacious, taxonomic concoctions) are superposed to define a stage; several stages make up a geologic "period." The fallacies snowball and culminate in the uniformitarian geologic age system. Diluviology need not be burdened with claims of these precise generic successions, as much of this order is imaginary. The order which does exist in the stratigraphic record will be explained in terms of Flood-depositional sequence.

E. "Condensed" Ammonitiferous Deposits Indicate Rapid Burial

Evidences for cataclysmic sedimentation, commonly studied in Diluviology, are excellently manifested among cephalopods. Kranz,[139] following an experimental study of the burial of mollusks, concluded that only rapid burial will preserve a fossil in the first place. "The attractive preservation of many of the ammonites, in particular, is due to pyritization."[140] Pyritization results from reduced-iron conditions caused by bacterial decomposition of pre-fossilized material, the decay of which was halted by rapid burial and culminated in fossilization.

Not only do well-preserved ammonites reflect rapid burial, but poorly preserved, crushed conches do likewise. Crush-fractures often reveal[141] that the conch was flattened before fossilization (before the aragonite recrystallized into calcite). This indicates that conches were not only rapidly buried but also were quickly covered by a heavy overburden of superjacent sediment.[142]

These evidences, however, do not deflate the astronomical-time claims of uniformitarian geology nearly as thoroughly as do thin, ammonite beds containing mixtures of different "age" fossils called condensed beds, a unit of but little thickness in which faunal elements of various ages occur side by side without being any longer separated stratigraphically. Such deposits occur in varicolored, cephalopod-bearing limestones of many Tethyan localities, such as, in the Triassic, at five localities in the Hallstatt limestones of the northern calcareous Alps, one each in Bosnia and Greece, in the Himalayas and on Timor; in the Jurassic, at eight localities of the northern calcareous Alps, four in the southern Alps, seven in Hungary, and one in western Sicily."[143] In Italy, "Paleontological condensation occurs frequently in these deposits . . ."[144] In the Bajocian (mid-Jurassic) of Midlands, England, are ". . . thin and condensed sequences . . . non-sequences . . . all these are characteristic, even in the basins."[145] These condensed deposits are ". . . thin layers of clay or limestone crowded with ammonites from more than one horizon."[146]

"Condensed" beds are this thin: one Himalayan bed spans 7 ammonite zones (7-10 million supposed years) in merely 3 feet of sediment.[147] Heim[148] calls attention to a glauconitic sandstone 10-80 cm. thick with ammonites from ten horizons. In Sicily, there are ". . . 30 ammonite zones represented in one foot of sediment . . . "[149]

The common uniformitarian explanation is that "Condensed deposits are formed by stagnant sedimentation and reworking causing faunal elements of various ages to occur side by side."[150] Ammonoids of millions of years' duration are imagined to fossilize with little or no sediment and accumulate fossil-by-fossil at the ancient sea-bottom, the sediment accumulating to only a negligible degree (inches or feet in millions of years) and/or being washed away. Ammonoids thus supposedly separated by millions of years' time coexist within inches or are mixed outright.

A number of factors make the uniformitarian explanation incredible. "To maintain an unchanging environment for such long periods suggests conditions that could only be provided in the deep sea."[151] Yet there is evidence for current action,[152] and because of these and other strong evidences, Jenkyns[153] concludes non-tranquil shallow-water deposition. Reworking is claimed on grounds of abrasion, corrosion, etc., of fossils. Many non-condensed, "properly" sequenced ammonoid fossils show these features, and in "condensed" beds actually "... occur in various states of preservation ..."[154] "One of the arguments adduced against reworking ... for the west Sicilian Jurassic is that the older faunal elements in a 'Condensed' assemblage are often as well preserved as, and sometimes better than, the younger."[155] As a matter of fact, "... the best fossils are in the thinnest sequences ... !"[156] While the differences of mineral matrices in "condensed"-bed fossils are used to support reworking, many others are "... indistinguishable by the matrix."[157]

Far more significant are questions of prolonged preservability. Even if ammonites fossilized without sediment, continuously accumulated, and this condition persisted undisturbed for millions of years, they would have miraculously to survive countless episodes of current action, being mixed around many times to incorporate million-years-later ammonites with them. Mass-preservation despite millions of years of turbation associated with reworking would have had to have occurred since "Ammonites may occur in *immense concentrations* in the condensed beds."[158] It is highly reasonable that these highly-fragile fossils would all be ground to powder, incapable of surviving even a few reworkings, let alone countless episodes spanning millions of years.

Many other evidences for short-duration "condensed"-bed deposition exist. If many "condensed" limestones are biogenic in origin, an argument from ignorance is required to explain their scarcity of nanno-organisms.[159] Also, evolution fails: "It is ... remarkable that ... genera, such as *Physodoceras*, *Amoeboceras*, *Glochiceras* continue to range through the condensed beds without change."[160] Calcareous concretions in "condensed" limestones may be from decaying organic matter,[161] indicating sudden stoppages in the decay process (as happen during fossilization). "It is worth considering that although the condensed sequences represent vast periods of time, the stromatolitic laminae may be at most an annual or even a *noctidiurnal* phenomenon ... and hence the growth of an algal clump could take place very fast. Hence, some factor must control the growth (or preservation) of the stromatolites since these horizons are of such limited vertical extent."[162] The "factor" is the fact that "Condensed" beds are of short-durational formation.

One of the lesser implications of "condensation" is the wholesale upsetting of elaborate biostratigraphic zonations: "In the Triassic of Europe and Asia, where most Triassic ammonoid genera were first discovered and named, two kinds of problems confront the paleontologist concerned with recognizing natural assemblages ... The Triassic rocks in Tethys ... provide mainly frustration for the ammonoid zonal stratigrapher."[163] Discrepant fossil presences are mitigated by "condensation," as in this Hungarian Jurassic case: "The author is inclined to ... explain the occurrence of 'strange' forms with a mixture of faunas in its lower part and with faunal condensation in the upper."[164] In the Permo-Triassic boundary-controversy, the observed mixing of the *Otoceras* and *Ophiceras* zones is ascribed to "condensation."[165]

The "Condensed" sequences have an infinitely greater significance than that of mixing biostratigraphic horizons. Once "condensed" sequences are seen to be rapidly deposited, the result is nothing less than the complete collapse of all the uniformitarian time-claims ascribed to the fossil record. "Condensed" beds may potentially become the most powerful overall evidence for the cataclysmic, mutually contemporaneous, short-duration burial of the entire fossil record. This is because all the mixed ammonoids must have lived at the same time and have been cataclysmically buried at the same time. Correlation of these "condensed" beds may "condense" most of the Mesozoic, deflating its sedimentation time from hundreds of millions of years to only several weeks (the closing phases of the Noachian Deluge). Without the thin, "condensed" sequences and their mutually-coexisting ammonoids representative of widely-different age-designations, one would need a miraculously long, upright tree trunk extending through miles of sediment of all geologic ages so unequivocally to demonstrate cataclysmic burial with mutual contemporaneity of all fossils.

Weidenmeyer[166] points out that "condensed" beds are often associated with penecontemporaneous tectonism and sedimentation. The high proportion of condensed beds in mountains (especially the Alps) reflects disturbed Flood-burial patterns caused by Floodwater flow-off variability around emerging mountains.

III. The Stratigraphically-Ordered Flood Burial of Cephalopods

A. Ecological Zonation and the Deluge: Preliminary Considerations

The factors causing stratigraphic order in Flood burial most often studied in Diluviology include hydrodynamic selectivity, differential escape possibilities, etc. (emphasized by Whitcomb and Morris[167]) and also ecological zonation (emphasized by Clark[168]). The latter consideration is more likely to have been the major factor in the desposition of the Cephalopods during the Universal Deluge owing primarily to the fact that the cephalopods show a striking stratigraphic eco-pattern.

Extremely significant is this overall fact: "It is worth mentioning that *continuous 'evolutionary' series derived from fossil record can in most cases be simulated by chronoclines*—successions of a geographical cline populations imposed by the changes of some environmental gradients."[169] Thus uniformitarians agree that ecological, not evolutionary factors, can definitely give rise to orderly successions! In speaking of evolutionary vs. ecological fossil-successions, Bell[170] even remarks: "There is, I think, no widely accepted belief in geology that so stultifies paleontologic interpretation as does the belief that successive faunal assemblages in a succession of rocks can be interpreted *only* as comprising species that succeed each other in time." (emphasis his) He also notes that it is very difficult to distinguish between ecologic and evolutionary successions, especially without unconformities, radiometric dates, etc.[171] Once it is accepted that none of these—and other—evidences is valid, and consequently neither geologic time nor biological evolution have any basis, all successions may be viewed as primarily ecological: not merely eco-

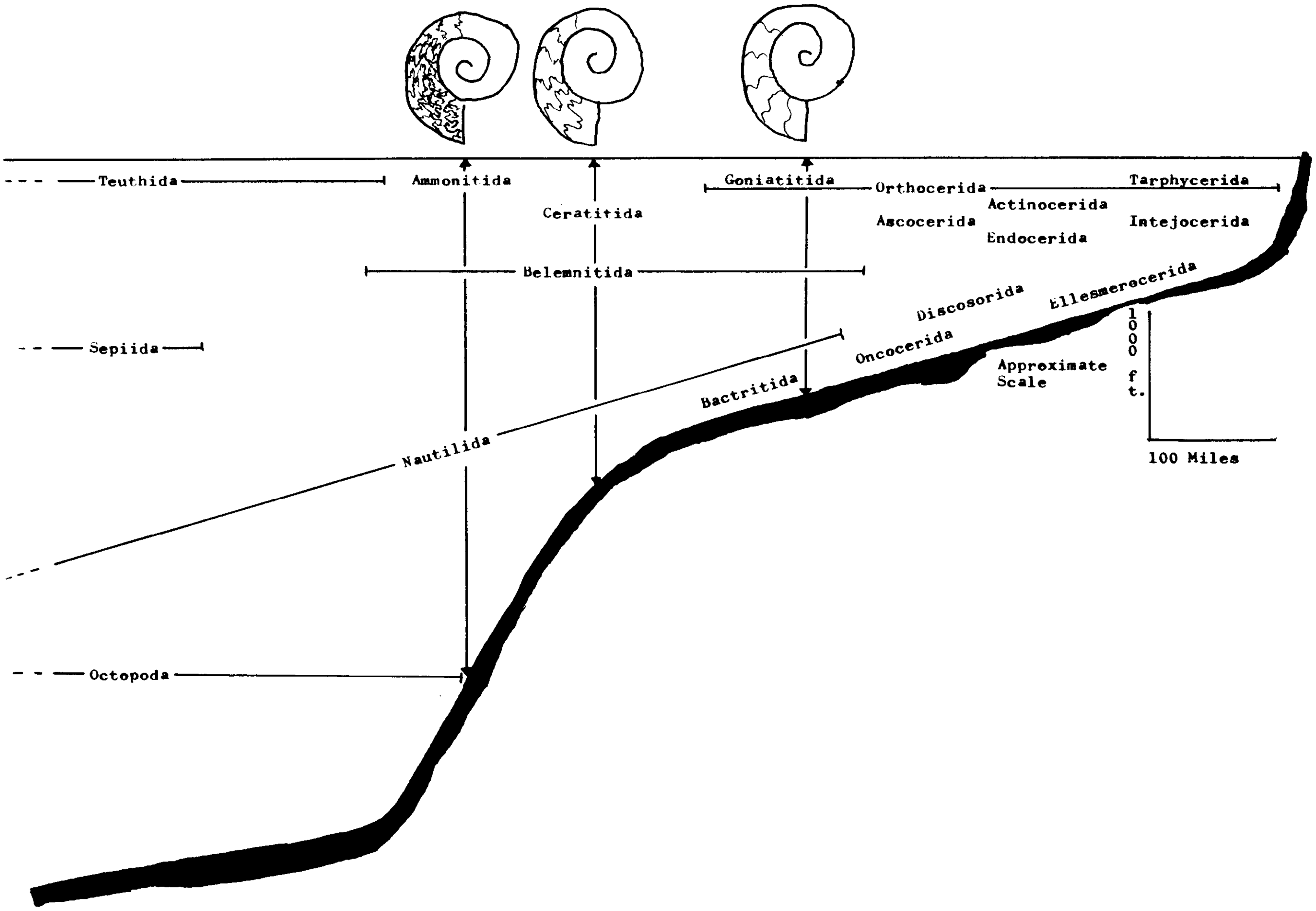

Figure 4. The ecological distribution of Cephalopods in the antediluvian seas: a representative cross-section.

successions, but contemporaneously-living Flood-buried successions. One recent example of non-evolutionary but ecological succession is provided by Thayer,[172] who noted an upper Devonian supposed deltaic progradation causing an ecological succession mimicking evolution.

In mixing evolution-time with ecology (paleoecology), such a practice relies heavily on deductive, *a priori* ecological designations: "... a useful approach is to *assume a given theory* from community and population biology and then to infer what the community would have been like had it obeyed the requirements of the chosen theory."[173] Testing such a designation is not conclusive: "Rather, paleontological tests are often *simply clues* that suggest the likelihood of verification or falsification from evidence that cannot be definitive."[174]

Many evidences suggest that paleoecological designations lumped with supposed time are not real. In noting, for example, hierarchical completeness, "... in general, the completeness decreases at each higher step; at the community level ... many (individuals) are missing, and many populations are missing completely ... at provincial and biospheric levels th[3] holes are progressively worse ..."[175] These gaps suggest that these are not *in situ* fossil communities but Flood-modified groups. Bambach[176] reviews the widely (but not universally) held view that diversity among all fossils was considerably less than it is today; Teichert and Glenister[177] cite the same for cephalopods. Abnormally low diversity is inevitable as long as actually contemporaneous forms are artificially divided into time-partitioned paleoecological designations.

B. The Antediluvian Ecologically-Zoned Coexistence of Cephalopods

Fig. 4 illustrates the original ecological distribution of the Cephalopods, from the Creation until the Universal Deluge. The Cephalopods, as other marine creatures, were created on the fifth day of the Creation Week (Genesis 1:20-23); entire populations coming into existence out of nothing (Romans 4:17d) at God's command (Psalm 148:5b). Since God designed each part of the individual organism to have a specific function that works as a whole (1 Corinthians 12:14-26), it is easy to envision Him having created different types of Cephalopods, each designed for a specific ecological habitat.

A study of present-day marine ecology notes that by far the main factors involved are the depth to which an organism goes, its distance from the shore, and whether it is a floater (planktonic), active swimmer (nektonic), or bottom-dweller (benthonic).[178] Exactly the same trends are observable in the stratigraphic record. Once the fallacies of evolution and geologic time are rejected and mutual contemporaneity accepted, the stratigraphic-upward ecological trends fit perfectly together as part of one vast ecologically-zoned cephalopod distribution (Fig. 4). Of even greater significance is the fact that the scientifically-determined ecological positions of cephalopods are (going stratigraphically upward) virtually identical with expected stratigraphic-upward trends of Flood burial (nearshore-then-offshore; benthonic-then-nektonic, etc.).

Overall trends are as follows: Fisher[3] calls attention to the stratigraphic-upward trend of heavily-conched to lightly-conched to conchless (squids). "Poorly streamlined shells . . . do not become common until post-Devonian times. Poorly streamlined and well streamlined shells are both common throughout the late Paleozoic and early Mesozoic, but after the Jurassic well streamlined shells become dominant."[179] (Hence there is benthonic-to-nektonic stratigraphic-upward trend.) Another important trend, noted by Packard,[180] is that the early cephalopods lived in water considerably more shallow than presently-living types; an overall stratigraphic-upward trend towards life in progressively-deeper water is noted. These overall trends are but the general outline of the antediluvian ecological distribution (Fig. 4).

Even greater support for Figure 4 is provided by more specific ecological positions of the cephalopod orders. According to Cowen,[181] Cambrian forms were primarily deposit-feeders; roaming scavengers appear in the Ordovician. The following were the ecologic positions of the Endoceratoids, Actinoceratoids, and Nautiloids: The Ellesmerocerida, Oncocerida, and Discosorida are rated as benthos.[182] The Endocerida, Intejocerida, and Ascocerida are nektobethos.[182] A nektonic rating is given to orders Actinocerida, Orthocerida, and Tarphycerida.[182]. Donovan,[183] agreeing that early Paleozoic forms were benthonic, adds that these forms were capable of neutral buoyancy and therefore capable of some swimming; a conclusion more recently confirmed.[184] Thus these early groups were not totally benthonic and could have been transported onto land during the early Flood stage.

"The earliest nautiloids, with peripheral siphuncle but concave septa, were probably confined to shallow water . . . as confirmed . . . from a different line of reasoning."[185] The ammonoids lived further offshore than the above-discussed early forms,[186] justifying the lateral separation portrayed in Fig. 4; the above-discussed ecologic findings already vertically grouping in early forms. The Bactritids were nektobenthonic as were the earliest ammonoids.[187]

A most important stratigraphic-upward trend is that of progressive septal corrugation in the ammonoids: ". . . the appearance of an intricately curved septum and its corrugation at the point where it articulates with the shell wall (in the places where stresses are the greatest); which are obvious adaptations enabling the septum to withstand high pressures."[188] This is generally regarded as the best explanation for this corrugation-trend.[189] Many independent groups show such a trend.[190] The stratigraphic-progression is as follows: the goniatites, (Figs. 2, 4 conch-suture diagrams going away from the shore) characteristic of the Paleozoic, have a non-corrugated septal morphology (and thus an undenticulated suture-pattern); the ceratites (Triassic) have some denticulation of sutures from slightly-corrugated septa; the ammonites (Jurassic and Cretaceous) have totally denticulated sutures reflecting total corrugation of their septa.[191] This supposedly evolutionary trend may instead by readily veiwed as being mutually-contemporaneous designs for varying depth-capabilities: ". . . elaboration of sutures would denote adaptation to active swimming habitats in deep water, and simplification of sutures would imply . . . shallower waters, or sluggishness."[192]

The fact that the complexly-sutured ammonites are heavily ribbed[193] to withstand greater hydrostatic pressure further corroborates the fact of their greater depth capacities as compared with simple-sutured forms.

The calculations of Heptonstall[194] on the weight burden of attached oysters on ammonites strongly indicates that ammonoids must have been capable of adding and removing water from their septa to regulate buoyancy as does the extant *Nautilus*. Overall, "It might . . . be possible that the primary mode of life of the ammonoids involved the need for continual adjustments to a pressure gradient. There is some indirect evidence for this interpretation."[195] The small teeth and the shape of jaws of ammonoids is one such evidence of plankton-feeding habits that require vertical migration. In addition, ". . . most ammonoids were fairly efficient at moving themselves vertically but less efficient as swimmers."[196] The heavy vertical lines spanning the water surface and sea-bottom (Fig. 4) illustrate how progressively more complex-sutured goniatites, ceratites, and ammonites were designed for ecologically-zoned lives involving vertical migrations to progressively greater depths.

The aforementioned small, shovel-like jaws of ammonites prompted Lehmann[197] to suggest that they were benthonic. If so, then sutural complication would reflect progressively deeper sea-floor-dwelling habitats. Most, however, regard ammonites as being nektonic: for example, Chamberlain[198] maintains that ". . . nearly all ammonoids required some swimming proficiency." The near-lack of trace-fossils attributable to ammonoids and the rarity of encrusting animals on them argues strongly against their benthonism, whereas the assymmetry of sutures[199] does not compel belief on ontogeny on the sea floor. The gastropod-like helicoidally-coiled ammonoids had been accepted as being benthonic on the basis of comparison with gastropod habitats; but there is no real evidence for any ammonoid-torticone losing buoyancy.[200] The openly-coiled heteromorphs need not have been benthonic because of their fragile, non-streamlined shells; a deep-water existence would apparently suffice,[201] also corroborating deep-water complex-sutured lives.

The precise depth to which ammonites went has not been settled by modern scholarship. Mutvei,[202] having supported great vertical migrations, contends on the basis of assumed pre-diagenetic conch thickness that ammonoids may have descended to 1000 meters deep, which is many times deeper than the stratigraphically-lowest forms. While most others disagree with the great depth figure, it is nevertheless agreed that the simple-sutured ammonites went only 100 meters deep—scarcely more than the earliest forms—whereas the complexly-sutured ammonites went as deep as the extant *Nautilus*,[203] which is over 600 meters. Thus there is further scientific basis for mutual coexistence (Fig. 4).

Although goniatites (PermoCarboniferous), ceratites (Triassic), and ammonites (entire Mesozoic) with their respective sutural complication trends are so distributed (Figs. 2, 4), there is nevertheless total overlap. Members of Clymeniida have simpler sutures than their supposed ancestors and five-lobed forms precede four-lobed groups.[204] Furthermore: ". . . highly complex, typically ammonitic sutures are found in some families of the Early Permian; ceratitic sutures appear in some families of the Early Mississippian; goniatitic sutures occur in some Triassic and Cretaceous ammonites . . . and more or less ceratitic sutures reappear in both the Jurassic and Cretaceous in numerous families totally unrelated to the Triassic ceratites."[205] This mixing is an indicator of the inevitable overlap of ecological zones and even more inevitable mixture of mutually foreign groups during Flood deposition.

Fig. 4 does not list all cephalopod orders (Fig. 2), but each listed one is also quite representative of adjoining orders. All the ammonoid orders are represented by the above-mentioned three groups. The far-offshore Belemnites are neritic,[206] as are the similar Phragmoteuthids and Aulocerids. The squids (Teuthida) are ten times more efficient as swimmers (far less drag) than the most streamlined coiled-conch forms[207] and 100 times more efficient than non-streamlined conches. The Coleoids, as exemplified by squids, were oceanic forms (Fig. 4) created for rapid, rocket-propelled swimming in contrast to the nearshore groups discussed.

Quantitative pressure-tolerance tests, a major area of cephalopod research in this decade, support Fig. 4. "Assuming that actual habitats ranged to approximately ⅔ of the mechanical limits of the shells, the following maximum depth ranges are indicated by this preliminary survey: Endoceratoidea 100-450 m; Actinoceratoidea 40-150 m; Nautilida, Ellesmerocerida 50-200 m, Orthocerida 150-500 m, Oncocerida < 150 m, Discosorida < 100 m, Tarphycerida < 150 m, Nautilida 200-100 m; Bactritoidea < 400 m; Coleoidea, Aulocerida 200-900 m, Sepiida 200-1000 m, Belemnitida 50-200, exceptionally 350 m.[208] "Particularly noteworthy are the facts of wide range for nektonic forms (in contrast to benthonic forms) and the very great depth capabilities of the Coleoids (except the early-appearing (Fig. 2) Belemnites). The quantitative values, however, are approximate: "The wide range for implosion values and lack of strong correlation between such parameters as septal thickness and implosion indicate that determination of depth ranges for fossil cephalopods may be difficult."[209] Yet, with the major exception of ammonoids (whose range was septally restricted) and Bactritids (nektobenthonic), nektonic (Fig. 2) orders have far longer stratigraphic ranges than do benthonic or even nektobenthonic orders, suggesting greater ecological independence of free-swimming forms as opposed to the narrowly-restricted benthos.

The observed great extent of mutual overlap, expected in marine ecology, nevertheless is restricted by competition; forms flourishing only in marine regions for which they were designed. In fact, when mutual contemporaneity is accepted, patterns of competitive exclusion become evident. Nautiloids are most prevalent (lower Paleozoic) where no ammonoids were; whereas they are very rare in the Mesozoic (when ammonoids flourished). Specifically, "The Silurian . . . was perhaps the heyday of the nautiloids . . ."[210] but ". . . as compared with other molluscan groups, including ammonoids, 'nautiloid' cephalopods are rare fossils.[211] They are always in minority; outnumbered by other molluscs commonly by 10,000:1 to 1000:1.[211] The gregarious nature of many cephalopods, such as ammonoids,[212] undoubtedly sharpened many ecological boundaries. The lack of larval stages for most cephalopods, notably the ammonoids[213] and belemnoids,[214] further restricted their migrations. The lack of great temperature differences, absence of storms (Genesis 2:6), etc., all characteristic of the antediluvian earth, contributed to a relative lack of sea turmoil (and oceanic currents), further reducing mixture of ecologically-zoned cephalopods—as did the short duration of time between the Creation and the Noachian Deluge (approximately 1,700 years).

C. The Sequential Flood Burial of Cephalopods

Before a description is given as to how the ecologically-zoned cephalopod orders (Fig. 4) were for that reason stratigraphically (Fig. 2) separated during Flood deposition, other factors are noteworthy—which also explain the intra-ordinal stratigraphic order. Examining the original[2] of Fig. 2, it is apparent that most families within an order cover more than half of the stratigraphic range of the entire order; hence ecological zonation was the major factor in family-level as well as ordinal-level stratigraphic ordering. Although fossil cephalopod "genera" and "species" are found to be concocted—not real—entities, somewhat consistent intrafamilial stratigraphic trends are observed. Since these trends are physical (size, shape, mass, etc.), they are evidently caused by Floodwater sorting (see Whitcomb and Morris[167]).

Intrafamilial conch-size increases are very common[215] and are regarded as being an example of Cope's Law of evolutionary size increase, but many exceptions are known.[216] Also "One repeatedly made observation is that the sharp-edged discoidal shell . . . associated with a . . . calcareous and detrital shelly facies."[217] These two trends may be caused by the denser (because smaller and/or mass not spread out in unornamented forms, etc.) forms tending to be buried earlier than ornamented and larger forms; the "facies" separation reflecting sequential increasing-maximum sediment carrying capacity of the Floodwater mass movement. Other separations are caused by differential escape from burial. Since "Properly roughened shells may have conserved as much as 50% of the propulsive power required by smooth shells of the same size and shape,"[218] progressive roughening trends indicate the superior escape-postponement of roughened—as opposed to smooth—forms. The common trend of progressively more ventral siphuncle (greater buoyancy con-

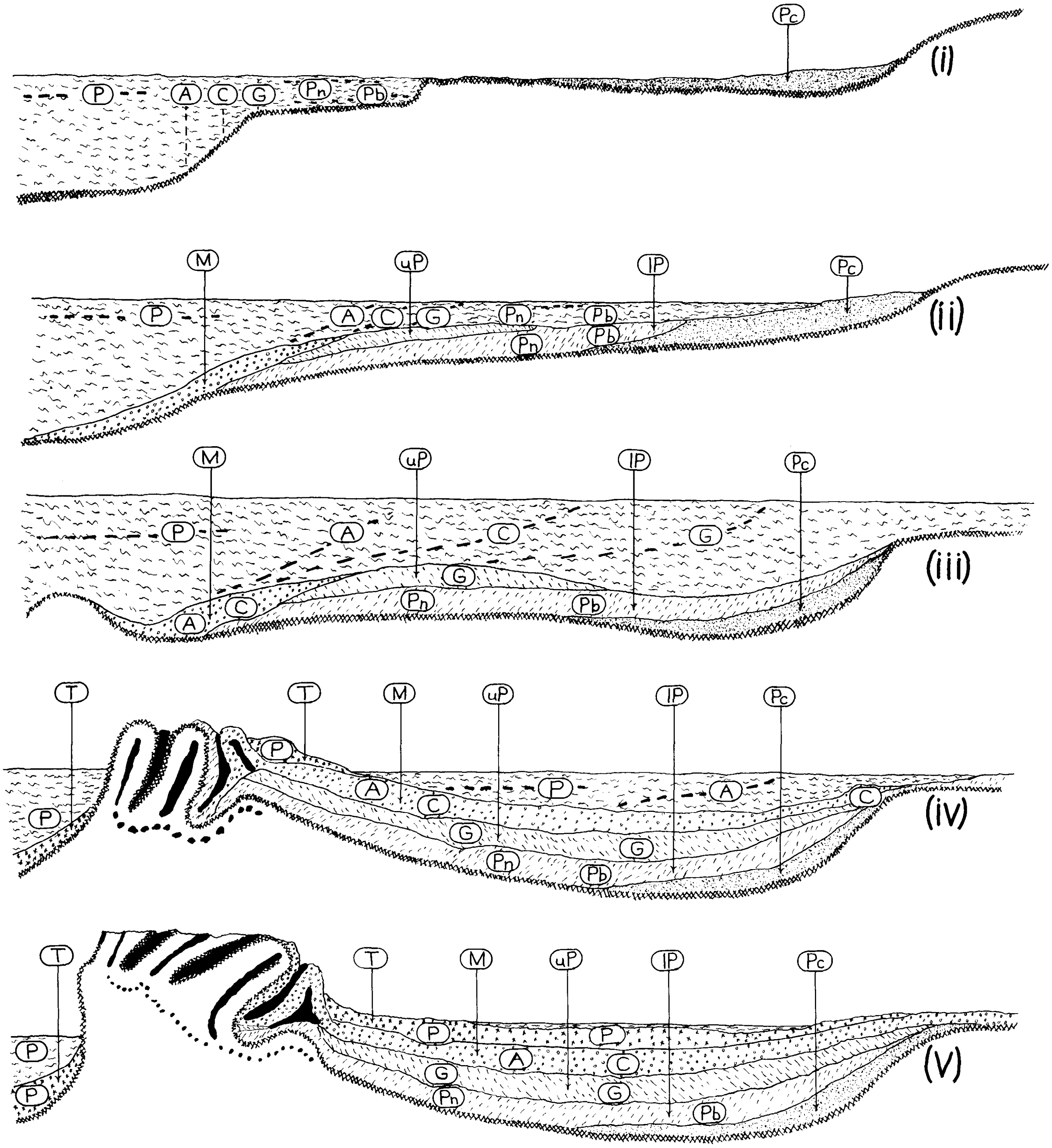

Figure 5. The result of burial in the Flood, according to ecological zonation. The alleged geological ages are indicated as follows: Pc: Precambrian; lP: lower Paleozoic; uP: upper Paleozoic; M: Mesozoic; T: Tertiary. The other symbols, if not obvious, are explained in the text. Note that the left part of (i) is the same situation as that shown in Figure 4.

trol) as exemplified by the *Nicomedites-Gymnotoceras-Frechites* series[219] also mirrors the superior burial-escape of stratigraphically higher forms.

So numerous, however, are major exceptions to these and other trends that Arkell[217] contents that ". . . there are many obstacles to the acceptance of any generalization." These intrafamilial-order exceptions are to be expected owing to the variability of the physical action of flowing Floodwater. Large-scale sortings are manifest in the Caucasus,[220] whereas in southern Germany "Current orientation of coiled ammonites . . . indicates fairly strong currents."[221]

Noting that sorting (intrafamilial order) is secondary and ecological zonation (familial and ordinal stratigraphic order) primary in Floodwater sequential burial, and keeping the zonation (Fig. 4) and result (Fig. 2) in mind, the following (Fig. 5) is the indicated scenario of Flood burial:

The earliest stage (i) sees the falling rains and water from the fractured fountains of the deep eroding into the antediluvian mountains and depositing the sediment as the Late Precambrian; the antediluvian seas not immediately overflowing the continental mass(es). (During the entire time span of the deposition, basins subside as they are being smothered by sediment. The antediluvian highland areas (Fig. 5, far right) provide the majority of the clastic sediment in the early (i, ii) and middle (iii) Flood stages; late-Flood uplifts (iv, v, far left) providing sediment during the recessional phases of the Universal Deluge.

The breaking up of the fountains of the deep and all the associated volcano-tectonic results on the ocean floor cause the oceans to rise sharply, overflowing completely the continent(s). The cephalopod habitats are driven unto land, preserving the ecological zonation (Fig. 4) owing to the great lateral extent (several hundred miles) of the zonation in relation to the water depth (a few thousand feet). The ecological zones, separated laterally, become vertically superposed during Flood entombment of their cephalopod constituents, giving rise to the geologic column (Fig. 2).

Thus, as the oceans begin to inundate vast land areas (ii) in the first few weeks of the Deluge, the most frontal waters carry the most-nearshore orders. Accordingly, it is they (Pb-Paleozoic benthos, Pn-Paleozoic nektobenthos and nektos) which are the first deposited in any area as the ocean water moves ever landward, giving rise to the early Paleozoic rock systems. Other systems are laid down contemporaneously not far behind, each area passed-over by ecological zones.

The Flood reaches its greatest depth (covering everything) towards the end of the 150-day prevailing period. At this time (iii), the lower Paleozoic is nearly all laid down, while much of the Upper Paleozoic (with G-Goniatites) is being laid down, followed vertically by the complex-sutured ceratites (C) and then ammonites (A); the last two of which comprise the Mesozoic systems.

The earlier-deposited Paleozoic systems become intensely folded (iv) in the orogenies which mark the Flood—recessional half—year. The recession sees completion of deposition of Upper Paleozoic, most of the Mesozoic, and part of the Tertiary, which contains the pelagos (P), or far off-shore forms which are the sole survivors of the class.

Diluviological research strongly indicates that most (but not all) of the Tertiary is post-Flood. Hence (v) much of the Tertiary is the result of huge inland waterways which persisted perhaps decades after the Flood year. The continental-shelf Tertiary (v, lower left), on the other hand, represents the fixing of the shoreline between ocean and land at the very end of the Flood.

The extinction of cephalopods at various stratigraphic intervals is enigmatic to the evolutionist—uniformitarians, especially the disappearance of the ammonoids at the end of the Cretaceous. The Paleozoic forms and all ammonoids became extinct because they were all driven on the land; the presently-living forms being spared extinction because they are deep-water oceanic forms which were not all forced on land during the Flood. The narrow ecological tolerance of the nearshore forms also contributed to extinction; any sparse ammonoid survivors being incapable of holding their own against the overwhelming populations of deep water forms which had soon begun explosively to proliferate in the Flood-shattered marine ecosystem.

The Flood deposition portrayed by cross-sections in Fig. 5 does not indicate the many exceptions of cephalopod-carrying Floodwaters. Varying local zonations caused observed missing "ages", whereas localized inversions of flow gave rise to "reverse-age" sequences. Interplay with similarly-zoned land fossils and other marine fossils are reflected by the endless variations in stratigraphy. A bed of only ammonites and marine fossils is called "marine Jurassic" whereas the same fossils interspersed with dinosaur bones is called a "continental Jurassic."

In conclusion, this paramount marine-invertebrate class provides an amazing amount of evidences for and ramifications of the Creationist-Diluvialist paradigm. The unifying factor is the way God used combinations of morphological attributes in any given form and placed these forms in different ecological positions.

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AG—American Association of Petroleum Geologists Bulletin
AJ—American Journal of Science
BP—Bulletins of American Paleontology
BR—Biological Reviews
CE—Canadian Journal of the Earth Sciences
DE—Doklady: Earth Science Sections (translated from Russian)
EV—Evolution
GA—Geological Society of American Abstracts with Programs
GM—Geological Magazine
JG—Journal of Geology
JP—Journal of Paleontology
LE—Lethaia
NA—Nature
NP—Neues Jahrbuch Fur Geologie und Palaontologie (M—Monatschefte; A—Abhandlungen)
PA—Palaeontology
PB—Paleobiology
PJ—Paleontological Journal (translation from Russian)
PZ—Palaeontologisch Zeitschrift
TP—Treatise on Invertebrate Paleontology
UP—University of Kansas Paleontological Contributions Paper

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A SOLUTION TO SEEING STARS

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The question is sometimes raised: how distant stars, created only a few thousand years ago, could be visible even now, let alone at the Creation. Here a solution to the problem is proposed. The solution also offers an explanation of the red-shift of the light from stars, without any need of assuming that the universe is expanding.

Introduction

I was very interested to read the article by Lewis Neilson[1] on Certainties, Less Than Certainties, and Evolution. I was struck by the one problem that arose in the article, and would like to introduce a theory that would attempt to answer Mr. Neilson and many other Creation Scientists. This theory is completely speculative, with no experimental evidence to back it up as yet; but it does answer certain points that are difficult to explain in a young universe. This is not a fully developed theory; and I would welcome any contributions of further development that other members, perhaps more qualified than myself, could make. The question is how can we see stars that are apparently billions of light years away, if the universe is only thousands of years old? The answer proposed not only deals with that question, but also proposes a reason, not requiring expansion of the universe, for the red-shift observed in starlight.

The Problem

While I was pondering the difficulty of reconciling the fact that we can see stars that are apparently billions of light years away, with the fact that the universe is probably only thousands of years old, I suddenly remembered what a colleague from my university suggested to me last year: "What if the speed of light were only nearly always constant?" Suddenly a theory formed in front of me, and I would like to present this to the members of the Society.

Since God created the stars on the fourth day, and apparently they were visible on the sixth day to Adam and Eve on the Earth, if the stars were indeed billions of light years away, we have the problem of how this would be possible at a finite speed of light. As rightly noted by Mr. Neilson, some Creationists propose the theory that a continuous span of light was also created by God from the star to the Earth. However, assuming the stars were billions of light years away, there is another possible answer.

A New Model

When Sir Isaac Newton put forward the laws of motion, they were true, up to a point, that of relativistic laws proposed by Einstein. It is quite possible that Einstein's postulation of the constancy of the speed of light is also only true up to a point. Suppose that it were not constant over all time or space, we could build another model of the universe on this.

Suppose that at the time of creation the speed of light were in fact infinite, then the stars would be seen immediately they were created. However, we do know that in this portion of the universe, at this time, the speed of light is not infinite, so somewhere there must have been a change. It is reasonable to assume that this change came in with the fall of man, as did many other changes such as decay and death, or as many creationists believe, the second law of thermodynamics. (See Genesis 2:17-19, Romans 5:12).

Obviously if this meant that everywhere the speed of light became a constant, that of 300,000 kilometers per second, c, we would have exactly the same problem as before. In fact the position would have been even worse

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