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**Examining the Hypotheses of de Bakker et al.  
on the “Evolutionary Aspects of  
Kidney Development”**

1. A BRIEF RETROSPECT: In my article *Haeckel’s “Biogenetic Law” and Vestigiality: Is Man “a Veritable Walking Museum of Antiquities”?* I have cited and discussed at length the paper of B. S. de Bakker, M. J. B. van den Hoff, P. D. Vize and R. J. Oostra (2019): *The Pronephros; a Fresh Perspective* published in *Integrative and Comparative Biology* **59**: 29–47, as well as that of P. D. Vize (2023): *A beautiful, complex simplicity: the origins of nephron segmentation uncovered by single-cell sequencing of the pronephros*. In *Kidney International* **103**: 23–25.

To repeat the **Main Point**:

In agreement with the research of comparative embryologist Elizabeth A. Frazer (“The term pronephros should *only be applied to the organ in larval Anamnia and to that of a few adult teleosts*”) and the human embryologist Erich Blechschmidt (who, although focusing his extensive research especially on the first weeks of human embryology, *did not mention a pronephros at all*) as well as Theodore W. Torrey (“It is judged that in the human embryo, as in other eutherian mammals, *the pronephros actually does not exist*, and that support is thus given to the general concept that the pronephros has reality only in anamniotes with larval stages”), – the authors B. S. de Bakker, M. J. B. van den Hoff, P. D. Vize and R. J. Oostra summed up the main point of their investigations as follows (p. 43): “The pronephros proper consists of nonintegrated nephrons, whereas the mesonephros and metanephros consist of only integrated nephrons. *We observed that the pronephros as such is not detectable in human embryos.*”<sup>1</sup>

Now, after more than a century of the endless evolutionary refrain in scientific papers and textbooks around the world that the pronephros in humans would be nothing but a rudimentary organ just “providing a glimpse of evolutionary history”, and even that “the pronephros *and* mesonephros are vestigial structures in mammals and degenerate before birth” etc. see <http://www.weloennig.de/Kidney1x.pdf> (strangely enough often followed by an enumeration of several important functions – although Darwin and Haeckel had clearly stated concerning rudimentary organs and structures “that the part of the body in question, although morphologically present, nevertheless does not exist physiologically, in that it does not carry out any corresponding functions”<sup>2</sup> (Haeckel 1866, p. 268, similarly Darwin 1872)) – **now**, apart from the many assumed functions, we have *the ‘discovery’ that the pronephros does not exist at all in humans* and eutherian mammals in general.

Certainly not the best recommendation for the truth of evolution which no sane person can any longer be in doubt of (according to Lorenz, Coyne, Dawkins and many others *cf.* <http://www.weloennig.de/Kidney1x.pdf>).

<sup>1</sup> see for the additional references in <http://www.weloennig.de/Kidney1x.pdf>

<sup>2</sup> Original German Text: : “dass der betreffende Körperteil, obwohl morphologisch vorhanden, dennoch physiologisch nicht existiert, indem er keine entsprechenden Funktionen ausführt.”

As for their additional topic “*Evolutionary Aspects of Kidney Development*” it is almost as if the evolutionary biologists de Bakker et al. are now trying to supply/provide their readers and evolutionary science in general with some kind of counterbalance to the loss of the important evolutionary argument on the so-called rudimentary pronephros.

2. But before I’m going to address the evolutionary hypotheses of B. S. de Bakker et al. in detail, I would like to very briefly focus the reader’s attention on the views of four further embryologists: **Karl Ernst von Baer** (also called “**the father of embryology**”<sup>3</sup>) (1792 – 1876), **Louis Bounoure** (1885 – 1966), *professeur à la Faculté des Sciences de l’Université de Strasbourg*<sup>4</sup> and *directeur Le Musée Zoologique de Strasbourg*<sup>5</sup>, **Erich Blechschmidt** (1904 – 1992)<sup>6</sup> and **Yan-Der Hsuuw** (born 1966)<sup>7</sup>, who was recently introduced to a wider audience as *professor and director of embryo research at Taiwan’s National Pingtung University of Science and Technology*.<sup>8</sup>

All four embryologists have rejected not only Haeckel’s “Biogenetic Law” and the existence of rudimentary organs in human embryology but also dismissed

<sup>3</sup> <https://www.nature.com/articles/015138c0> On Karl Ernst von Baer (14 December 1876) “...These works, which are yet of great value, have earned for their author the title of **Father of Comparative Embryology**.”

<https://www.encyclopedia.com/science/dictionaries-thesauruses-pictures-and-press-releases/baer-karl-ernst-von-0> (2019) “His embryological observations led him to believe that there are four fundamental animal types that differ from each other according to their symmetry: the peripheral or radial, the segmental, the massive and the double symmetrical (vertebrate). These types were very similar to the four embranchements described at approximately the same time by Cuvier. Baer held some belief in limited transformationism, the idea that one kind of animal species might during the course of history be transformed into another, but when Darwin’s Origin of Species was published (1859) **Baer could not agree that all organisms could have evolved from a single or a few progenitors. Unfortunately, Baer’s valid objections to Meckel’s interpretations were ignored by Darwin’s immediate followers, who made the recapitulation doctrine a key to evolution theory.** But when the new analytical and experimental approach to the study of development began to be followed in the late nineteenth century, the new pathways led out not form the ideas of the recapitulationists, but from those of Baer.

Fine photograph of K. E. von Baer in <https://www.lowellmilkceneter.org/programs/projects/view/karl-ernst-von-baer-the-father-of-embryology> (personally would not use the term “Hero”. Also, he is not “unsung”).

<https://pubmed.ncbi.nlm.nih.gov/11625278/>

[https://en.wikipedia.org/wiki/Karl\\_Ernst\\_von\\_Baer](https://en.wikipedia.org/wiki/Karl_Ernst_von_Baer) “Baer was a naturalist, biologist, geologist, meteorologist, geographer, and is considered a, or the, founding father of embryology.” (Retrieved 6 September 2023)

<https://www.britannica.com/biography/Karl-Ernst-Ritter-von-Baer-Edler-von-Huthorn> (2023) “...Prussian-Estonian embryologist who discovered the mammalian ovum and the notochord and established the new science of comparative embryology alongside comparative anatomy ... Although he believed that some very similar animals, such as goats and antelopes, might be related, **he was vehemently against the concept expressed in the Origin of Species that all living creatures might have evolved from one or a few common ancestors.**”

<https://pubmed.ncbi.nlm.nih.gov/1478173/>

<https://embryo.asu.edu/pages/karl-ernst-von-baers-laws-embryology> by M. Elizabeth Barnes (2014) According to von Baer “...**the embryo of a higher form never resembles any other form, but only its embryo.**”

<sup>4</sup> <https://www.alsace-histoire.org/netdba/bounoure-louis-augustin-jean/> “As soon as he arrived in Strasbourg, he took his scientific research in a new direction with his studies on the origin of primordial sex cells in frogs. **His work demonstrated for the first time in vertebrates the existence of a particular category of cells, detectable from the very beginning of the organism’s development and destined to form the gametes that link successive generations.** This set of cells, or germens [germ cells], forms a true lineage, known as the germline, which is distinguished by its ‘immortality’, with all the other cells in the body, or soma, disappearing when the individual dies. Bounoure’s scientific merits, attested by several important dissertations (2,3), earned him a chair in general biology in 1933. The fertile notion of germline continuity, implying that of the continuity of the species, led him to approach the major problems of biology from their philosophical angle. In several works on the propagation of life (4,5,6,7) he affirmed the finality of the sexual being and recognised the advantageous choice adopted by nature for the determination of sex. The immortality of life with, as a corollary, the immortality of form, i.e. the maintenance through the generations of morphological characters, is, in his last works (8,9), the main idea which led Bounoure to the notion of the fixity of species. Haunted by the essential mystery of life and, in his own words, by the “spiritual forms of human life”, he clearly asserted himself as a finalist biologist. Throughout his teaching career, **he exerted an ever-renewed attraction on his students through his clear lectures and admirable style.** He also tirelessly followed the progress of biology, **which he was able to describe in brilliant summaries** (10). **Knight of the Legion of Honour.**” Translated from French to English by DeepL

<sup>5</sup> [https://www.persee.fr/doc/revue\\_0040-3865\\_1956\\_num\\_10\\_2\\_3821](https://www.persee.fr/doc/revue_0040-3865_1956_num_10_2_3821) (retrieved 30 August 2023)

[https://fr.wikipedia.org/wiki/Mus%C3%A9e\\_zoologique\\_de\\_la\\_ville\\_de\\_Strasbourg](https://fr.wikipedia.org/wiki/Mus%C3%A9e_zoologique_de_la_ville_de_Strasbourg) “Nombre d’objets 2 380 000 spécimens” (Adding the following numbers, I counted 2 195 054 specimen.) 1 350 000 invertébrés, 810 754 insectes, 18 000 oiseaux, 10 000 mammifères, 5 000 poissons, 1 300 reptiles et amphibiens.”

Bounoure: “Now, one can remark that the phylogenetic trees of the zoologist proceed, in a specious manner, from the same gratuitous imagination: **the leaves do indeed represent groups of real beings, but the trunk and the large branches are only an illusion or a subterfuge,** insofar as they establish an inexistent continuity between groups; they are only a hypothesis introduced to support another hypothesis, and on the whole have no more value than a *petitio principii*.” Original French text: “Or, on peut remarquer que les arbres phylogéniques des zoologistes procèdent, sous une forme plus trompeuse, de la même imagination gratuite : les feuilles représentent bien des groupes d’êtres réels, mais le tronc et les grosses branches ne sont qu’une illusion ou un subterfuge, en tant qu’ils établissent entre les groupes une continuité inexistante ; ils ne sont qu’une hypothèse introduite ici pour appuyer une autre hypothèse, et n’ont en somme que la valeur d’une  *pétition de principe*.” Bounoure, Louis. *Déterminisme et finalité* (French Edition) (p. 65-66). FeniXX réédition numérique. Kindle-Version.

<sup>6</sup> See <http://www.weloennig.de/Kidney1x.pdf>

<sup>7</sup> <https://www.researchgate.net/scientific-contributions/Yan-Der-Hsuuw-38343074>

<sup>8</sup> <https://www.jw.org/en/library/magazines/awake-no2-2016-april/professor-yan-der-hsuuw-embryologist/> In the German edition: “Professor Yan-Der Hsuuw Leiter der Embryonenforschung...” Edition/number of copies 57,761,000 in 103 Languages. Quote:

“**A goal of scientific research is to find the truth, not to support preconceived ideas. My study of embryo development led me to change my view [on evolution] — that is, I concluded that life was created. To illustrate, engineers design assembly lines so that the right parts are fitted together in the right order and in the right way. Embryo development is somewhat similar but vastly more complex. ... The right cells must be produced in the right order and at the right places.** First they assemble into tissues that will in turn assemble themselves into organs and limbs. **What engineer even dreams of writing instructions for such a process?** Yet, the instructions for embryo development are superbly written in DNA. When I consider the beauty of it all, I’m convinced that life was designed by God.”

the postulate of the all-embracing evolution of the realm of living beings from one and the same common ancestor (for some details on their views, see please the footnotes on the previous page).<sup>9</sup>

The critical in-depth analyses of Haeckel's often dogmatically presented but basically false opinions on embryology and evolution have been a fruitful endeavor to advance the scientifically correct understanding in these research branches (starting with Karl Ernst von Baer<sup>10</sup>).

Moreover, the result of the meticulous studies of the evolutionary biologists B. S. de Bakker et al. on the question of the existence or non-existence of a pronephros in man certainly belongs to the milestones of progress in understanding human embryological development.

3. In the following comments I'm going to contrast the evolutionary views of de Bakker et al. (2019) with an intelligent design interpretation (ID) of the embryological development of the kidney in different vertebrates. As for the basics of the ID theory see <http://www.weloennig.de/Rhinoceros.pdf> (2023, p.8) as well as <http://www.weloennig.de/HumanEvolution.pdf> (2019, pp. 46 – 47) and <http://www.weloennig.de/PlantGalls.xyz.pdf> (2020, pp. 50 – 55) and the many links on original articles presented there.

4. **Now to B. S. de Bakker, M. J. B. van den Hoff, P. D. Vize and R. J. Oostra**

In contrast to the basic views of the four embryologists just cited, now some considerations of the opinions of the evolutionary biologists de Bakker et al. (2019). Under the subheading “*Evolutionary Aspects of Kidney Development*”? they state, among other points (p. 41):

“We sought to verify the existence of a pronephros in the different vertebrate taxa to get a grasp on the evolutionary aspects of the three subsequent kidney forms (see Fig. 6 and Supplementary Table S1<sup>11</sup>). **Although evolution has provided more advanced vertebrates with complex adult kidneys**, these species continue to utilize simple evanescent kidneys during embryogenesis (Vize et al. 1997).”

Concerning “Although *evolution* has provided more advanced vertebrates with complex adult kidneys,...” – Well, the origin of the ingeniously designed multifunctional *complex adult kidneys* (see Scott et al. 2019, p. 9 in <http://www.weloennig.de/Kidney1x.pdf>) through gradual evolution<sup>12</sup> by selection of accidental, haphazard, random DNA mutations “with slight or even invisible effects on the phenotype”<sup>13</sup>? Does it not require ***much faith*** to accept this opinion

<sup>9</sup> Others embryologists were at least skeptical of Darwinism: Although believing in evolution in general “**Like most embryologists** and many biologists at the turn of the century, [Nobel Laureate] **Morgan found the Darwinian theory of evolution lacking in plausibility.**” However, Hans Driesch and Hans Spemann went far beyond their rejection of the Darwinian Theory of evolution. <https://www.britannica.com/browse/biographies/sciences/embryology>

<sup>10</sup> See a detailed discussion on von Baer's view on the origin of man, the paper by R. Stölzle (1900): *Nochmals Karl Ernst v. Baer's Stellung' zur Frage nach der Abstammung des Menschen. Biologisches Zentralblatt* **20**: 465-479.

<sup>11</sup> For the Figures and Supplementary Table see please the original paper.

<sup>12</sup> In their paper, the authors speak several times of “**gradual evolutionary change**” or “**gradual evolutionary transition**” etc.: P. 34, Fig 4: “This intermediate type of nephron might actually represent the **gradual evolutionary change** from pronephros to mesonephros”; p. 40: “...we do not consider the peritoneal funnel as an exclusive feature of pronephros or mesonephros, but advocate this characteristic to be a reflection of **a gradual evolutionary change** from pronephros to mesonephros...” p. 41: “...substantiates the theory that pro- and mesonephric development represents merely **a gradual evolutionary transition** from external- to internal glomerulus...” P. 42: “The used kidney form thus **gradually** shifts from simple pronephric kidney.” p. 43: “Intermediate nephrons represent the **gradual evolutionary change** from pronephros to mesonephros...”

<sup>13</sup> Ernst Mayr 1970, p. 169 (Populations, Species, and Evolution. Cambridge: Belknap Press of Harvard University Press.

being in contradiction to a large mass of facts and mathematical computations<sup>14</sup> definitely refuting this view.

Just to mention a few basic points: Virtually all new animal groups appear abruptly in the fossil record (*cf.* paleontologist Günter Bechly and many others<sup>15</sup>), including those for which de Bakker et al. name evolutionary transitions in kidney development. And the following I have also mentioned in my article on human evolution concerning probability calculations on the basis of careful experimental molecular research: See, for example, the papers of Douglas Axe, well summed up by Stephen C. Meyer in his books *Signature of the Cell* and *Darwin's Doubt*. See, moreover, the topic of the *Waiting Time*<sup>16</sup>, incidentally also showing that the evolutionary refuge to long time periods is unfounded.

As for the abrupt origins of the mammalia, <http://www.weloennig.de/Hunderassen.Bilder.Word97.pdf> pp. 366-370.

So, what about the possibility that “*intelligent design* has provided more advanced vertebrates with *complex adult kidneys*”?

Back to the sentence of de Bakker et al. but now with emphasis on the last part of their statement:

“Although evolution has provided more advanced vertebrates with complex adult kidneys, **these species continue to utilize simple evanescent kidneys during embryogenesis** (Vize et al. 1997).”

Could these species not ‘utilize simple evanescent kidneys’ for clearly functional reasons considering their levels of complexities and their tasks under definite environmental conditions? The authors themselves give the answer (see below).

“...these species *continue* to utilize...” “*continue*” obviously refers to the long line of thousands (unrevised punk eek) to hundreds of thousands and more transitional links<sup>17</sup> (Neo-Darwinism) of evolutionary ancestors postulated for the “*gradual evolutionary change*”, which are simply presupposed by the authors although these have never been found.

The authors continue (still p. 41):

“**Basal vertebrates with simple adult kidneys use even more uncomplicated versions during early developmental stages** (see also Figs. 6 and 7 and Supplementary Table S1) (Vize et al. 1997). In the end it is much easier to form a pronephros, than it would be to form a more complex meso- or metanephros in a short period of time. The advantages of a simple temporary kidney to serve the free-swimming larva are obvious: borrow time for a complex kidney to form.”

So, this is their convincing answer: “In the end it *is much easier to form a pronephros, than it would be to form a more complex meso- or metanephros in a short period of time.*” However, presupposing the truth of the disproved theory of “*gradual evolutionary change*” this will be, of course, understood and interpreted by its

<sup>14</sup> <https://www.storyofmathematics.com/glossary/computation/> “Computation is the process of performing mathematical operations such as addition, subtraction, multiplication, and division to obtain a numerical result. The process of computation can be carried out manually, with the assistance of a calculator, or by using computer software.”

As already noted in <http://www.weloennig.de/Rhinoceros.pdf> for facts against this theory, *cf.* the books and articles on this topic by Douglas Axe, Günter Bechly, Michael J. Behe, David Berlinski, Tom Bethell, William A. Dembski, Michael Denton, [Douglas Dewar,] Marcos Eberlin, Phillip E. Johnson, [Henning Kahle,] Matti Leisola, Wolf-Ekkehard Lönning, Casey Luskin, Stephen C. Meyer, J. P. Moreland et al. (eds.), Walter James ReMine, Paul Nelson, John C. Sanford, Siegfried Scherer, Granville Sewell, David W. Swift, James Tour, Jonathan Wells and many others.

<sup>15</sup> In my article <http://www.weloennig.de/SauropodDinosaur.pdf> I noted: “Incidentally I would like to recommend Bechly’s series of articles Fossil Friday on the abrupt appearances of most fossil forms with special emphasis on the insight of paleontologists Mike Foot and John J. Sepkoski Jr as presented in a Nature paper: “As this pattern [of abrupt appearances of new life forms] has become more and more pronounced, it has become ever more improbable that the absence of intermediate forms reflects a sampling bias.” All the Fossil Friday articles from 3 June 2022 **up to the present (2023)**: <https://evolutionnews.org/tag/fossil-friday/> See perhaps also the Discussion: Paleontology and the Explosive Origins of Plant and Animal Life A Dialogue with an Evolutionary Geologist on Gradualism and Intelligent Design: <http://www.weloennig.de/ExplosiveOrigins.pdf>

<sup>16</sup> Some points here: C. Luskin (2021): <https://evolutionnews.org/2021/08/in-mainstream-journal-id-theorists-on-waiting-times-for-coordinated-mutations/> and here: G. Bechly (2022): <https://evolutionnews.org/2022/09/fossil-friday-walking-whales-and-why-all-critiques-of-the-waiting-time-problem-fail/>

<sup>17</sup> For some concrete numbers by evolutionary biologists, see please my book about the giraffe, pp. 129/130 [http://ad-multimedia.de/evo/long-necked-giraffe\\_mU.pdf](http://ad-multimedia.de/evo/long-necked-giraffe_mU.pdf) and <http://www.weloennig.de/Rhinoceros.pdf> (pp. 6-8) as well as <http://www.weloennig.de/ElephantEvolution.pdf> for the revised punk eek theory and some key points on ID with additional references.

protagonists evolutionarily, yet in my view it can be much better understood and explained by the theory of intelligent design.

And yes, *“The advantages of a simple temporary kidney to serve the free-swimming larva are obvious: borrow time for a complex kidney to form.”* Thus, one thing appears to be clear for me: (a) a short period time (presence) and to borrow time for a complex kidney to form (future) are intelligently considered for these developmental stages. Hence, there are obviously key functional reasons why “these species continue to utilize simple evanescent kidneys during embryogenesis”, which is in full agreement with the necessities of their overall levels of their physiologic, anatomic and morphological complexities in definite developmental phases in harmony with their corresponding tasks to cope with their environmental conditions. In other words: The continuation and utilization of ‘simple evanescent kidneys’ during embryogenesis of the ‘basal vertebrates’ appears to be the optimal solution for their physiological and other tasks present and future. Hence, these phenomena are likewise in full harmony with the ID theory.

Subsequently de Bakker et al. state:

**“The same genes are involved in the development of all three vertebrate kidney forms** [long list of authors<sup>18</sup>]. No genes have yet been identified that are exclusively involved in pronephric development.”

As a geneticist, I must admit that I’m surprised. If this statement will be corroborated by further careful genetic research *it would mean that the differences between these three kidney forms are definitely not genetically determined*. They would be just **modifications**. *Merriam-Webster* on “modification: a noninheritable change in an organism caused by the influence of the environment.”<sup>19</sup> Or: *Biology online* “A nonhereditary change in an organism; e.g., one that is acquired from its own activity or environment.”<sup>20</sup>

<sup>18</sup> “Carroll and Vize 1996; Heller and Brandli 1997; Kuure et al. 2000; Nishinakamura 2003). Among these genes are **Pax2** (Dressler et al. 1990; Dressler and Douglass 1992; Carroll and Vize 1996; Heller and Brandli 1997; Kuure et al. 2000; Bouchard et al. 2002; Nishinakamura 2003; Kobayashi et al. 2007), **Pax8** (Bouchard et al. 2002; Kobayashi et al. 2007), **Tbx2** (Cho et al. 2011), **BMP** (Gilbert 2010), **Hey1** (Cho et al. 2011), **Gremlin** (Cho et al. 2011), **Xlim1** (Nishinakamura 2003), and **Wt1** (Carroll and Vize 1996; Heller and Brandli 1997; Kuure et al. 2000; Nishinakamura 2003).”

<sup>19</sup> Merriam-Webster 1993 on “modification”.

<sup>20</sup> <https://www.biologyonline.com/dictionary/modification> (2001-2023) (retrieved 12 September 2023). Much more could be said about the topic of non-heritable variation. “Modification w [from Latin. modificatio = measurement; Verb modify], modification, 1) **generally in biology: non-hereditary change in form, shape and properties (phenotype) of living beings due to environmental influences (modification factors, modifiers, e.g. light, temperature, food, oxygen partial pressure [oxygen], salinity ; abiotic factors, biotic factors)**. The **range of variation** in the modifications (modifications range) **is determined by a hereditary reaction norm and is different in different species**. Examples of modifications (see figure): 1) When the **oxygen partial pressure** in mammals is low, the number of erythrocytes and the hemoglobin content (hemoglobins) increase individually (respiratory regulation). 2) **Musculature** can be strengthened through training. 3) Plants show altered growth under increased **UV radiation** (light factor, ultraviolet). 4) If seedlings are grown in the dark, the leaf green (chlorophyll) will later be missing. Adaptation, cyclomorphosis (Fig.), **permanent modification, dimorphism, dominance, generational dimorphism, sex determination, modular organisms, morphoses**, Naegeli (C.W. von), **ecomorphosis, pheen** [Phän], **pheenism, polyphenism, polymorphism, seasonal dimorphism, sexual dimorphism, variability; Temperature**. 2) **Biochemistry**: a) for **nucleic acids**: base methylation, base modification, modified bases. b) **for amino acids and proteins**: the post-translational, enzymatically controlled change of individual amino acids, e. g. through **glycosylation (glycoproteins) or phosphorylation (e. g. histone)**. The modification of proteins is a way to regulate their functions (structure-function relationship), with protein phosphorylation in particular playing an important role in the intracellular reaction cascades triggered by growth factors and some hormones, in antiviral intracellular defense mechanisms (virus infection) and in the action of some cellular oncogenes. Modification genes, post-translational protein modification. 3) Ethology: modifiability of behavior.” As translated by Google translator and Deepl and me. In part these a key-words for further definitions and explanations in the original German article: <https://www.spektrum.de/lexikon/biologie/modifikation/43462>

And the entire topic of **EPIGENETICS** could be discussed in this context. Some key points here: In biology, epigenetics is the study of stable changes in cell function (known as marks) **that do not involve alterations in the DNA sequence**. [1] The Greek prefix epi- (ἐπι- "over, outside of, around") in epigenetics implies features that are "on top of" or "in addition to" the traditional genetic basis for inheritance. [2] **Epigenetics most often involves changes that affect the regulation of gene expression**, and that persist through cellular division. [3] Such effects on cellular and physiological phenotypic traits **may result from external or environmental factors**, or be part of normal development. It can also lead to diseases such as cancer. [4] The term also refers to the **mechanism of changes: functionally relevant alterations to the genome that do not involve mutation of the nucleotide sequence**. Examples of mechanisms that produce such changes are **DNA methylation and histone modification**, each of which alters how genes are expressed without altering the underlying DNA sequence. [5] Further, **non-coding RNA sequences have shown to play a key role in the regulation of gene expression**. [6] Gene expression can be controlled through the action of **repressor proteins that attach to silencer regions of the DNA**. These epigenetic changes may last through cell divisions for the duration of the cell's life, **and may also last for multiple generations, even though they do not involve changes in the underlying DNA sequence of the organism**; [7] instead, non-genetic factors cause the organism's genes to behave (or "express themselves") differently.

Thus, accepting the present state of the art according to de Bakker et al. about the genes involved in kidney formation, i.e. that the different kidney forms are essentially nothing but **strong modifications** caused by a vast range of starkly different inner and outer environmental influences (the respectively enormously wide variety of animal forms, developmental stages and environments from fish, amphibians, reptiles, birds, and mammals including humans), – this would mean that ***all possible intermediate kidney forms would be fully irrelevant for any evolution by “mutations with small or invisible effects on the phenotype”***.

The authors de B. et al. go on to state:

“This **strong genetic conservation of kidney organogenesis** (Kuure et al. 2000) ironically hampers differentiation between pro-, meso-, and metanephros on a genetic level and also substantiates the theory that pro- and mesonephric development represents **merely a gradual evolutionary transition** from external- to internal glomerulus.”

Well, what is “a gradual evolutionary transition” ***without a genetic basis?*** If anything, it would be **a gradual modificational transition**.<sup>21</sup> To explain the origin of any organ and life form by *nonhereditary* transitions, gradual or abruptly, would be a hopeless undertaking. “*Strong genetic conservation of kidney organogenesis*” – **was “strong genetic conservation” predicted** by a theory according to which “**everything flows**” (Heraklit: “*panta rei*”) and on top of that under so many strongly varying circumstances?<sup>22</sup>

B. et al.: “The main tool of vertebrates to survive in varying circumstances, from fresh to salt water and from desert to rain forests, is the renal system which provides the vertebrates to either excrete large amounts of water or retain as much water as possible. ***The three vertebrate kidney forms are suitable for different habitats and are used in diverse combinations by the vertebrates with specific physiological requirements in the various stages of their life*** (Raciti et al. 2008).”

This has been clearly and convincingly stated, I can only agree with authors, yet interpreting and understanding the phenomena in line with the ID theory.

B. et al.: “Water excretion seems to be the most common characteristic for species that show pronephros development (Vize and Smith 2004). This is in line with Fraser’s theory, that the pronephros seems to be absent in those Elasmobranchii that have no larval stage, and in the Amniota which develop within the body of the parent (Fraser 1950).”

Also accepted, yet in my view to be better understood teleologically.

B. et al.: “As mentioned before, the need for a pronephros also **depends on the amount of yolk** available for the embryo. Embryos supplied with large amounts of yolk (macrolecithal) generally show less developed pronephric tubules, whereas embryos with comparatively little yolk at their disposal develop extensive and functional pronephroi (Sedgwick 1880; Rabl 1896; Fraser 1950).”

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See more here: <https://en.wikipedia.org/wiki/Epigenetics> (retrieved 13 September 2023) or this site in simple words: “What is Epigenetics? **Your genes play an important role in your health, but so do your behaviors and environment**, such as what you eat and how physically active you are. **Epigenetics is the study of how your behaviors and environment can cause changes that affect the way your genes work**. Unlike genetic changes, epigenetic changes are reversible and do not change your DNA sequence, but they can change how your body reads a DNA sequence. Gene expression refers to how often or when proteins are created from the instructions within your genes. While genetic changes can alter which protein is made, epigenetic changes affect gene expression to turn genes “on” and “off.” Since your environment and behaviors, such as diet and exercise, can result in epigenetic changes, it is easy to see the connection between your genes and your behaviors and environment: <https://www.cdc.gov/genomics/disease/epigenetics.htm> See also here: <https://www.genome.gov/genetics-glossary/Epigenetics>

<sup>21</sup> The authors do not, of course, exclude the future discovery of organ-specific genes. Perhaps a first step: Kuure et al. 2000, p. 40: “Some information is already available based on which *WT-1* may operate prior to amphiregulin, *GDNF/c-ret* and *integrin α8* and in this way play a **role mainly in the early kidney mesenchyme**.” Nevertheless, also *Wt-1* seems “to be involved in the development of all the kidney types” and before that information they write: “***It is noteworthy that similar cellular interactions, signalling molecules and pathways seem to be involved in the development of all the kidney types***” (Kuure, et al. p. 32) See <https://pubmed.ncbi.nlm.nih.gov/10704886/>

<sup>22</sup> Cf. <http://www.weloennig.de/mendel20.htm> and <http://www.weloennig.de/mendel21.htm> see

This could be in agreement with the definition given above on modification: “generally in biology: non-hereditary change in form, shape and properties (phenotype) of living beings due to environmental influences (modification factors).”

B. et al.: “**The placenta also influences the degree of kidney development.** *The mesonephros is less developed in species that exhibit an intimate relation between extraembryonic membranes and placenta (e.g., humans and mice), whereas species with less effective placental systems (e.g., pigs) show better developed mesonephroi* (Nelson 1953; Carlson 1988; Vize et al. 1997). Thus, in the presence of a yolk sac or a placenta as efficient waste disposal systems, kidney development is not essential for waste disposal or osmotic regulation prior to birth (Vize et al. 2003). ***It can therefore be reasoned that the evolutionary appearance of the yolk sac and placenta featured the gradual disappearance of the pronephros in more advanced vertebrates.*** It would be interesting to study the presence of a pronephros in egg laying mammals (Prototheria) since Fraser stated that Marsupiala (Metatheria) do develop a pronephros that functions in the larval stage (Supplementary Table S1). To better grasp the evolutionary development of the pronephros, more research is also needed to dispel the ambiguity about the presence of a pronephros in egg laying amniotes, i.e., birds and reptiles (Supplementary Table S1).

“It would be interesting to study the presence of a pronephros in egg laying mammals (Prototheria)”: Yes, let’s hope that a research group will do that important work with due consideration of the welfare of the animals involved.

As for: “*It can therefore be reasoned that the evolutionary appearance of the yolk sac and placenta featured the gradual disappearance of the pronephros in more advanced vertebrates.*” For the ID theory this sentence could perhaps be rephrased as follows: *The intelligently designed appearance of the yolk sac<sup>23</sup> and placenta was linked with the abrupt disappearance of...*” (see please again the ***abrupt appearance*** of virtually all mammal families in the fossil record) as well as the last sentence “*To better grasp the intelligently designed development of the pronephros, more research is needed....*”

Peter D. Vize et al. have also stated in their review (1997, p. 189): *Model Systems for the Study of Kidney Development: Use of the Pronephros in the Analysis of Organ Induction and Patterning*<sup>24</sup> the ensuing points:

“Model Systems for the Study of Kidney Development: Use of the Pronephros in the Analysis of Organ Induction and Patterning Despite some differences in anatomy, ***similar developmental pathways seem to be responsible for the induction and the response to induction in both evanescent and permanent kidney forms.*** Gene expression patterns can, therefore, be added to the morphological and functional data indicating ***that all forms of the kidney are closely related structures.*** Given the ***similarities between the development of simple and complex kidneys,*** the embryonic kidneys may be an ideal model system in which to investigate the genesis of multicomponent organ systems.”

And on their topic 7. *Why Have Different Kidney Forms?* The authors first emphasize again that:

“The data presented above indicate that **all three vertebrate kidney forms perform the same function,** have **similar nephrons** (with the exception of internal versus external glomeruli/glomera), **are all derived from the intermediate mesoderm, and all use similar patterning genes.**”

<sup>23</sup> C. Luskin (2023): <https://evolutionnews.org/2023/09/another-vestigial-organ-turns-out-to-have-absolutely-critical-functions-the-human-yolk-sac/>

<sup>24</sup> Peter D. Vize, Daniel W. Seufert, Thomas J. Carroll, and John B. Wallingford (1997): Model Systems for the Study of Kidney Development: Use of the Pronephros in the Analysis of Organ Induction and Patterning. *Developmental Biology* **188**: 189-204. Search the title by Google and then the paper can be downloaded by CORE <https://core.ac.uk> > download > pdf (retrieved 19 September 2023)

Just to illustrate the organization of nephrons into kidneys in the following figure by Vize et al. and below a glimpse on human kidney anatomy and gene and protein expression

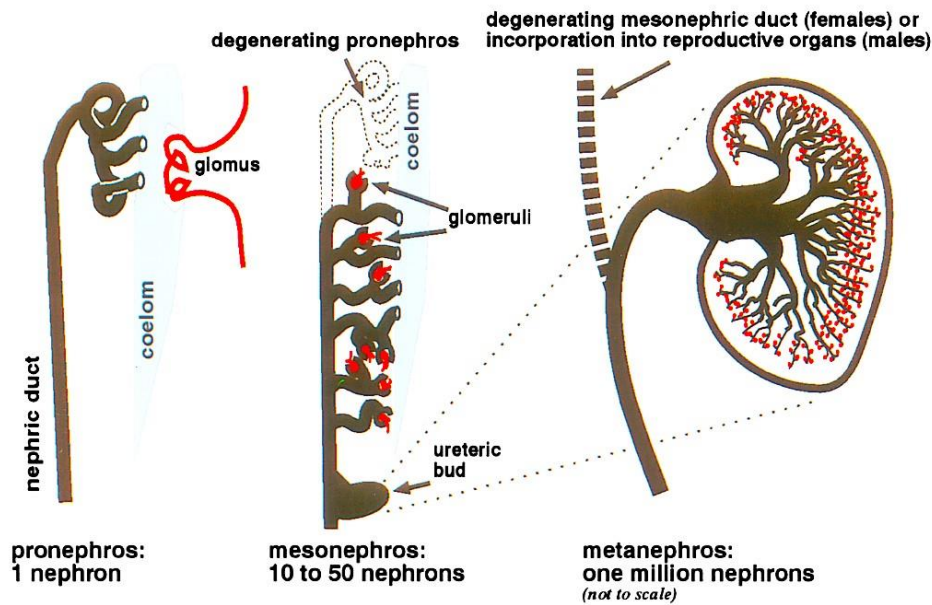
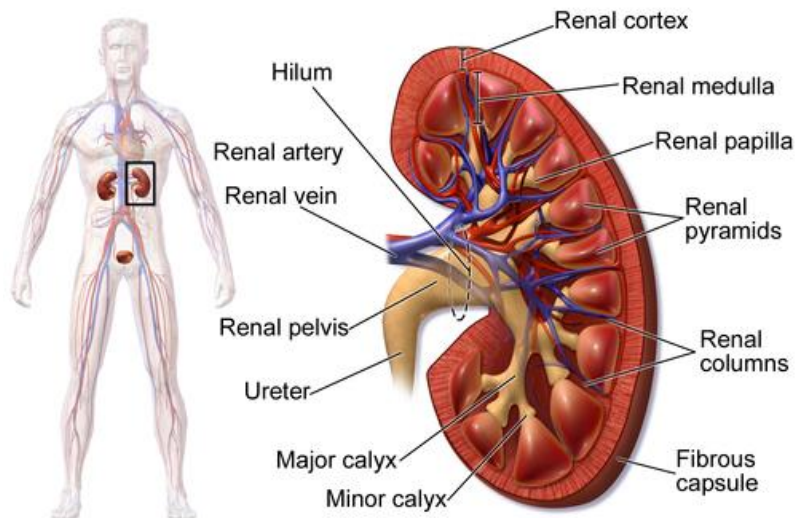


FIG. 3. Organization of nephrons into kidneys (based on Goodrich, 1930; and Balinsky, 1970).

Above: Fig. 3 by Peter D. Vize, Daniel W. Seufert, Thomas J. Carroll, and John B. Wallingford (1997): Model Systems for the Study of Kidney Development: Use of the Pronephros in the Analysis of Organ Induction and Patterning. DEVELOPMENTAL BIOLOGY 188, 189–204 (1997).



## Kidney Anatomy

Blaussen.com staff (2014). "Medical gallery of Blaussen Medical 2014. [https://commons.wikimedia.org/wiki/File:Blaussen\\_0592\\_KidneyAnatomy\\_01.png](https://commons.wikimedia.org/wiki/File:Blaussen_0592_KidneyAnatomy_01.png)  
My comment: Excellent as the figure is, yet the line to the renal artery has to be added.

## Gene and protein expression

“In humans, about 20,000 protein coding genes are expressed in **human cells** and almost 70% of these genes are expressed in normal, adult kidneys.<sup>[25][26]</sup> Just over 300 genes are more specifically expressed in the kidney, **with only some 50 genes being highly specific for the kidney**. Many of the corresponding kidney specific proteins are expressed in the cell membrane and function as transporter proteins. The highest expressed kidney specific protein is uromodulin, the most abundant protein in urine with functions that prevent calcification and growth of bacteria. **Specific proteins are expressed in the different compartments of the kidney with podocin and nephrin expressed in glomeruli, Solute carrier family protein SLC22A8 expressed in proximal tubules, calbindin expressed in distal tubules and aquaporin 2 expressed in the collecting duct cells.**<sup>27]</sup><sup>25]</sup>

Much more up-to-date information (figures and text) is presented in this article. Unfortunately, the false story of the pronephros in humans has been repeated by the anonymous author(s)

<sup>25</sup> <https://en.wikipedia.org/wiki/Kidney> "This page was last edited on 17 September 2023, at 21:09 (UTC)." (Retrieved 22 September 2023)



For topic 7 the authors continue to raise the following question (p. 200):

“So why reiterate organogenesis two or three times during the life of the organism? There are four possible reasons: **function, time, evolutionary dependance, and evolutionary baggage** (Smith1943; Smith, 1953).”

Their first answer, **function** (“the simple kidneys, with their open connections to the coelom and cilia-driven fluid may function better with the very low blood pressures found in early embryos (Girard, 1973)”) as well as their comment on the second possibility, **time** (“Early embryos need some form of functional kidney or they die from a failure to control water balance (Howland, 1921)”) appear to be immediately obvious and can be easily integrated into the ID theory.

Their third possibility (p. 201), **evolutionary dependance**, is essentially an evolutionary interpretation of biological facts, which equally or even better can be understood by ID. They raise the question: “*Why hasn’t natural selection disposed of the “redundant” simple kidneys?*” Their answer:

“The functionality and timing arguments outlined above are two strong possibilities. Another possible reason is the mechanism by which the more complex kidneys evolved. Both mesonephroi and metanephroi utilize the pronephric duct, or derivatives of the pronephric duct, to dispose of urine. ***If the pronephros were to disappear from these organisms, they would have to develop a new duct system.*** Likewise, as discussed in Section 4, the pronephric duct has been strongly implicated to be the terminal inducer of the mesonephric mesenchyme, and an outgrowth of the pronephric duct, the ureteric bud, ***is absolutely required for induction of the metanephric mesenchyme.*** Once again, if the simple kidneys were disposed of by evolution, the inducers of the more complex kidneys **would have to be reinvented or redeployed.**”

So, could there be any problem to explain time, function and optimal developmental solutions due to intelligent design instead of selection of an endless series of accidental, haphazard, random DNA mutations? Absolutely not!

Concerning the fourth possible reason “*avored by much of the literature*” “*that the pronephros is simply a nonfunctional remnant of evolutionary history that has not been disposed of yet* (see Smith, 1953; Torrey, 1971), Vize et al. state:

“In our view, ***some combination of the first three arguments outlined above is more likely to explain the preservation of the unusual mode development utilized by the nephric system.***”

I can only agree. Applying this conclusion now to Fig. 4 C of the paper of de Bakker et al. (2019), i.e., the “evolutionary transition zone”, as far as it is correct, “some combination of the first three arguments outlined above [by Vize et al] is more likely to explain the preservation of the unusual mode development utilized by the nephric system” *also for the “intermediate nephrons*”. My question to Peter D. Vize (15 and 16 September 2023) and Bernadette S. de Bakker (18 September 2023) concerning the “evolutionary transition zone” (2019, Fig 4, p. 34) “*Which animal species display such kidneys*” has been kindly answered by the lead author as follows: “I have not read about animals who display this type of kidneys, ***it is purely hypothetical***” (e-mail from 20 September 2023).

Many more points could be discussed and a larger article on the topic of “*Evolutionary Aspects of Kidney Development*” could be written.

Considering such research results as that of 2022 “*Penn scientists identified over 500 genes associated with kidney disease that could be therapeutic targets*”<sup>26</sup>, as a geneticist I would predict that – although the topic of modifications will remain an important part of the whole developmental story – further regulator and especially many target genes involved in human embryology (and generally of the ‘lower’ and ‘advanced’ mammals) will be detected by further genetic research.

I am going to preliminarily close this article with a brief analysis of the basic evolutionary theory of the 2004 republished paper originally written by Homer W. Smith, now under the title: *A Homeric View of Kidney Evolution: A Reprint of H. W. Smith’s Classic Essay with a New Introduction* by Peter D. Vize (and which Smith published in 1953 under the title: *From Fish to Philosopher*)<sup>27</sup> – because *here the possibility of design is directed addressed and subsequently denied for, in my view, doubtful reasons.*

Neo-Darwinian evolutionary biologist Homer W. Smith<sup>28</sup> (1895-1962) states in this essay (1943/1953/2004, p. 353):

“*There are those who say that the human kidney was created to keep the blood pure, or more precisely, to keep our internal environment in an ideal balanced state. I would deny this.* I grant that the human kidney is a marvelous organ, but I cannot grant that it was purposefully designed to excrete urine, or even to regulate the composition of the blood, or to subserve the physiological welfare of *Homo sapiens* in any sense.”

So, why would he deny “*that the human kidney was created to keep the blood pure, or more precisely, to keep our internal environment in an ideal balanced state*”? His answer:

“Rather I contend that the human kidney manufactures the kind of urine that it does, and it maintains the blood in the composition which that fluid has, because this kidney has a certain functional architecture: and it owes that architecture not to design or foresight or any plan, but *to the fact that the earth is an unstable sphere with a fragile crust, ...*”

<sup>26</sup> <https://www.pennmedicine.org/news/news-releases/2022/july/new-research-maps-possible-molecular-origins-of-kidney-disease> or see another paper already published in 2003: “...This rigorous screen *identified 428 genes with significantly elevated expression in the embryonic kidney*. Approximately 10% of these genes are involved in the **regulation of transcription** Table 1. Some of these (*Taf1a*, *Gtf2e2*, *Gtf2h1*, and *Taf9*) can be grouped as general **transcription factors**. Others play an important role in **regulating gene expression through their effects on chromatin configuration**. These include the histone deacetylases genes *Hdac1* and *Hdac2*, the *SWI/SNF*-related *Smarca1*, BRG/brm-associated factor *53A*, the HMG box genes *Hmgb2* and *Hmga2*, the chromobox homolog *Cbx2*, the histone methylase gene silencer *Setdb1*, and the Polycomb group genes *eed* and *EZH2*, which form a complex together [34], and **inactivate Hox genes** through histone methylation [35]. <https://www.sciencedirect.com/science/article/pii/S0085253815495092> See also the Wikipedia article already cited above: <https://en.wikipedia.org/wiki/Kidney> (2023)

<sup>27</sup> Full article here: <https://anatomypubs.onlinelibrary.wiley.com/doi/full/10.1002/ar.a.20017> (retrieved 19 September 2023)

<sup>28</sup> Here is his statement of ‘believe/faith’ (1943/1953/2004, p. 346): “According to modern experimental biology, the *vis a tergo* [E19 Latin. A force operating from behind; a propulsive force. Opposite of *vis a fronte*. Oxford Reference] of evolution is the production of new varieties in consequence of **random mutations in the chromosomes**; such of these varieties as are unfitted to survive are pruned away by natural selection, leaving the better-fitted mutants to get along as best they can. **Mutation is fundamental to evolution**, but mutation itself would be of little avail to modify organic pattern did not the *vis a fronte* of natural selection foster the survival of exotic individuals, of the new mutations, by offering them a **special environment** in which their unique characters are advantageous, by preserving them from genetic extinction through back-breeding with the unmutated forms, and probably in other ways. *We may believe* that in the shaping of the final evolutionary product as we see it now, mutation and environment have played balanced and equal roles. Though we **cannot assign to either mutation or selection any teleological direction**, they tend within certain limits to have one result: after a few million years, when many millions of mutations have occurred and most of them have become extinct, we can expect to find among the surviving organisms **some that are much better fitted to endure severe environmental changes than was the parent form**. It is only here, in the **accidental development** of increased independence of environment, of increased physiological freedom in Bernard’s sense of the word, that we can speak of evolution as being upward, rather than just sideways.” My comment: Sounds logical. It’s just unfortunate that the conditions/presuppositions aren’t right. See, for example: [http://www.weloennig.de/Gesetz\\_Rekurrente\\_Variation.html](http://www.weloennig.de/Gesetz_Rekurrente_Variation.html) <http://www.weloennig.de/Loennig-Long-Version-of-Law-of-Recurent-Variation.pdf> [http://www.weloennig.de/ShortVersionofMutationsLawof\\_2006.pdf](http://www.weloennig.de/ShortVersionofMutationsLawof_2006.pdf) <http://www.weloennig.de/NaturalSelection.html> <http://www.weloennig.de/OmnipotentImpotentNaturalSelection.pdf> <http://www.weloennig.de/jferrorchipmunks.pdf>

Well, what is the *Kausalnexus*, the *causal connection* between *the earth being an unstable sphere with a fragile crust* with the generation/production of gigabytes and terabytes (and more) new DNA and further novel unique complex information<sup>29</sup> for the origin of entirely new life forms including the functional architecture of the kidneys? “Random mutations in the chromosomes”?

Homer W. Smith goes on to argue:

“...to the geologic revolutions that for 600 million years have raised and lowered continents and seas, to the predacious enemies, and heat and cold, and storms and droughts, the unending succession of vicissitudes that have driven the mutant vertebrates from sea into freshwater, into desiccated swamps, out upon the dry land, from one habitation to another, perpetually in search of the free and independent life, perpetually failing for one reason or another to find it.”

Sounds almost poetically. In my analysis of Ulrich Kutschera’s similar explanation of the Cambrian explosion, to wit his hypotheses (2018/19, p. 35)<sup>30</sup>:

U. Kutschera (UK): “There were underwater volcanic eruptions in the early Cambrian, global warming, ice melt, sea level rise, evidenced by corresponding geological studies, flooding of shore areas, erosion of rock layers, calcium phosphate levels rose. There was then algal growth, increase in oxygen levels, increase in calcium levels especially in the oceans. And that led to biomineralization. I.e. that living beings can, so to speak, create a shell for themselves using these calcium ions, calcium carbonate in the water, and this scenario, i.e. this model of the Cambrian explosion, is supported by a wealth of facts, explains much more, of course, than the statement now that there was a designer god, because this statement explains everything and therefore nothing.”<sup>31</sup>

To which I replied (2019, pp. 35-39):

W.-E. L.: “As if we didn’t have that today (climate catastrophe!): “Underwater volcanic eruptions, global warming, ice melt, sea level rise, proven by corresponding geological studies, flooding of shore areas, erosion of rock layers, calcium phosphate ion levels have risen.”

**How and where is this supposed to create new blueprints in the animal kingdom? *Where is the causal nexus* supposed to be between global warming, ice melt, sea level rise, flooding of shore areas, erosion of rock layers, increasing calcium phosphate ion levels, increase in oxygen content and the formation of completely new species, genera, families, orders, classes and blueprints? Does he not confusing necessary with sufficient conditions here?**

According to Kutschera and other evolutionary biologists, *where is the causal nexus supposed to be, especially between increasing oxygen levels and the formation of new genetic information? How is increasing oxygen content supposed to generate specific new DNA sequences*, for example for the

<sup>29</sup> Cf. for example: Jonathan Wells J (2013) The membrane code: A carrier of essential biological information that is not specified by DNA and is inherited apart from it. In: Marks RJ II, Behe MJ, Dembski WA, Gordon BL, Sanford JC, eds. Biological Information: New Perspectives. World Scientific (Singapore) pp 474-488. And J. Wells (2014): Membrane patterns carry ontogenetic information that is specified independently of DNA. *BIO-Complexity* 2:1–28. doi:10.5043/BIO-C.2014.2.

<sup>30</sup> <http://www.weloennig.de/KutscheraPortner.pdf> pp. 35-39

<sup>31</sup> The Original German comment of Kutschera: “Es kam im frühen Kambrium zu Unterwasser-Vulkanausbrüchen, zur Erderwärmung, zur Eisschmelze, zum Anstieg des Meeresspiegels, belegt durch entsprechende geologische Studien, Überflutung der Uferbereiche, Erosion von Gesteinsschichten, Kalziumphosphationen-Level sind angestiegen. Es kam dann zu einem Algenwachstum, zum Anstieg des Sauerstoffgehalts, zum Anstieg der Kalziumkonzentration vor allem in den Meeren. Und das führte zu einer Biomineralisation. D. h. also dass sich Lebewesen quasi unter Ausnutzung dieser Kalziumionen, Kalziumkarbonat im Wasser eine Schale zulegen können und dieses Szenario, also dieses Modell der kambrischen Explosion, wird durch eine Fülle von Fakten belegt, erklärt natürlich viel als jetzt die Aussage, da war ein Designer-Gott, denn diese Aussage erklärt alles und somit nichts.“

Lönnig: Als hätten wir das heute nicht (Klimakatastrophe!): „Unterwasser-Vulkanausbrüche, Erderwärmung, Eisschmelze, Anstieg des Meeresspiegels, belegt durch entsprechende geologische Studien, Überflutung der Uferbereiche, Erosion von Gesteinsschichten, Kalziumphosphationen-Level sind angestiegen.“

Wie und wo sollen dadurch neue Baupläne im Tierreich entstehen? Wo soll der Kausalnexus zwischen Erderwärmung, Eisschmelze, Anstieg des Meeresspiegels, Überflutung der Uferbereiche, Erosion von Gesteinsschichten, zunehmendem Kalziumphosphationen-Level, Anstieg des Sauerstoffgehalts und der Bildung völlig neuer Arten, Gattungen, Familien, Ordnungen, Klassen und Bauplänen sein? Werden hier nicht notwendige mit hinreichenden Bedingungen verwechselt?

Wo soll nach Kutschera und anderen Evolutionsbiologen der Kausalnexus insbesondere zwischen zunehmendem Sauerstoffgehalt und der Bildung neuer genetischer Information sein? Wie soll zunehmender Sauerstoffgehalt spezifische neue DNA-Sequenzen generieren, etwa für die Bildung von tausenden funktionalen orphan genes, von autapomorphic structures, 'specified and irreducible complexity, DNA repair processes and the often large input of new complex information for the origin of new genera and families, for cybernetic systems in organisms being a thousandfold more complex than all human inventions dwarfing the latter almost beyond recognition, “indeed, the entire cell can be viewed as a factory that contains an elaborate network of interlocking assembly lines, each of which is composed of a set of large protein machines”?

Und seine fragwürdige Begründung und Darstellung nennt Ulrich Kutschera „Eine Fülle von Fakten“ oder noch einmal mit seinen Worten: Kutschera: „... dieses Szenario, also dieses Modell der kambrischen Explosion, wird durch eine Fülle von Fakten belegt, erklärt natürlich viel [mehr] als jetzt die Aussage, da war ein Designer-Gott, denn diese Aussage erklärt alles und somit nichts.“

Könnte es sein, dass UK eine noch unzureichende Vorstellung von der die Intelligent-Design-Theorie hat? Es ist ein weit verbreitetes Missverständnis, dass der ID-Theoretiker „alles“ auf direkte Eingriffe des Designers zurückführt. Vielmehr werden zur Erklärung eines bestimmten Phänomens zunächst die Fragen nach Naturgesetzmäßigkeit und Zufall gestellt. Sehen wir uns zur Methodik des ID-Theoretikers William Dembskis Explanatory Filter<sup>133</sup> näher an:

formation of thousands of functional orphan genes, of autapomorphic structures, 'specified and irreducible complexity', DNA repair processes and the often large input of new complex information for the origin of new genera and families, for cybernetic systems in organisms being a thousandfold more complex than all human inventions dwarfing the latter almost beyond recognition, "indeed, the entire cell can be viewed as a factory that contains an elaborate network of interlocking assembly lines, each of which is composed of a set of large protein machines"?

And [t]his questionable reasoning and presentation is what Ulrich Kutschera calls 'A plethora of facts' or, in his words once again: Kutschera: "...this scenario, that is, this model of the Cambrian explosion, is supported by an abundance of facts, explains of course much [more] than now the statement, there was a designer god, because this statement explains everything and therefore nothing."

Could it be that **UK has a still inadequate understanding of intelligent design theory?** It is a common misconception that the ID theorist attributes "everything" to direct intervention by the designer. ***Rather, to explain a particular phenomenon, the questions of natural law and chance are first raised.***

For the methodology of the ID theorist, let us take a closer look at William Dembski's Explanatory Filter133: See p. 36 of <http://www.weloennig.de/KutscheraPortner.pdf>

Ulrich Kutschera knows my answers but did not continue this discussion.

For the time being, I would like to conclude this contribution with a very clear, and I hope not overly provocative, word on the topic of evolution from the French embryologist Louis Bounoure (1885 – 1966) being in stark contrast to the views of his contemporary embryologist Homer W. Smith (1895-1962):

"The living world only really shows us how constant the species [sesu lato<sup>32</sup>] are. ...As a student, at the beginning of this century, I was myself subjected to the heavy yoke of evolutionist thought, but when, **after much research**, I discovered that evolution is an illusory and unjustified myth, I considered it my duty as a scientist to fearlessly expose this theory as an error to be rejected."<sup>33</sup>

Incidentally, "Bounoure's persuasive argumentation is greatly reinforced by the numerous illustrations, photos and drawings that support his scientific arguments" (comment by historian Gérard Gertoux who gratefully sent me photographs of the original paper<sup>34</sup>). Yes, Professor Bounoure's article is so well researched with 14 (15<sup>35</sup>) figures and a painstakingly in-depth discussion of the main evolutionary arguments of his time – interestingly ***most of which are still presented in contemporary textbooks and elsewhere*** – that it is even now, after 60 years, worthwhile to study his article carefully.

## Back to Internet Library

<sup>32</sup> See Lönnig (1986/2002): Artbegriff, Evolution und Schöpfung. (622 pp.) Naturwissenschaftlicher Verlag, Köln and <http://www.weloennig.de/Artbegriff.html>

<sup>33</sup> Abbreviated English translation from *Le monde et la vie*. October 1963. EVOLUTIONISME et PROGRES HUMAIN "Un article du Professeur Louis Bounoure" pp. 52-57. Original French text p. 57: "Oui le monde vivant ne nous montre, réellement, que la constance des espèces. Dans le livre dans je viens de vous parler, l'un des chapitres dénonce tout ce qu'il y a de pure hypothèse, d'illusion et même d'imposture dans la trop fameuse théorie de l'évolution, **devenue un dogme tyrannique**, qui pèse sans la moindre prévue et sans aucune utilité sur la vraie connaissance de la vie. J'avais moi-même, au début de ce siècle, subi, comme élève, le lourd carcan de la pensée évolutionniste, et après avoir reconnu, **au prix d'une longue enquête, combine ce mythe était illusoire et injustifié, j'ai considéré comme mon devoir d'homme de science de dévoiler sans timidité ce que j'avais reconnu une erreur à rejeter.**"

Translation mostly according to DeepL: "Yes, the living world really only shows us the constancy of species. In the book I've just mentioned, one of the chapters denounces everything that is pure hypothesis, illusion and even imposture in the all-too-famous theory of evolution, **which has become a tyrannical dogma**, weighing without the slightest foresight or usefulness on our true knowledge of life. At the beginning of this century, I myself had been subjected, as a student, to the heavy straitjacket of evolutionist thought, and after having recognized, **at the cost of a long investigation, that this myth was illusory and unjustified, I considered it my duty as a man of science to reveal without timidity what I had recognized as an error to be rejected**". See, please, the entire original article by professor Louis Bounoure at: <http://www.weloennig.de/Bounoure.pdf> as well as an English translation (by DeepL) here: <http://www.weloennig.de/Bounoure%20translation.pdf>

<sup>34</sup> His mail to W.-E. L. of 25 September 2023.

<sup>35</sup> Counting an additional photograph de "La découverte du Coelacanthé" (p. 56).