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Johan Amos Comenius and “Organic” Education

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According to Johan Amos Comenius, books are God's creation and "all men have *the world* always and everywhere before them as the great book of creation: let them therefore learn to read it" (64). The world around Comenius was hardly enjoyable, yet alone peaceful. His world was not one of creation, nor was it great. Comenius witnessed the entirety of the Thirty Years War (1618-1648) and his life was surrounded by death. The Thirty Years war was primarily a religious conflict between the Protestants and Catholics in Bohemia and Hungary. It began with the Bohemian Revolt (1618-1620). This revolt centered on the new heir to the throne. Bohemia, who desired for Frederick V to be the heir, feared that their Protestant nation would be infringed upon by electing Ferdinand II, Hungary's choice. Ferdinand II ended up winning the throne, but by the end of the Revolt in 1620, Ferdinand II was removed and replaced by Frederick V. This began a series of battles between Ferdinand II and Frederick V. Frederick V, representing the Protestants, was terribly defeated by 1625. Shortly thereafter, the war developed into a general conflict that included the Dutch, Swedes, French, and Spanish. The war ended with the signing of the Treaty of Munster on October 24, 1648.

While the war was taking lives, however, plagues and diseases yielded even more casualties. Comenius' lifetime of trouble began twelve years after his birth, March 28, 1592 (somewhere in present day Czech Republic), with the spread of these plagues when his entire family except for one sister died from disease. As a result, Comenius relied upon the Moravian church for his source of income and education. Still, the majority of his earlier years were spent in hiding because of the Thirty Years War and the religious persecution that came alongside it, threatening his Protestantism. In his adulthood, the shadow of his childhood never left his side. Between 1619 and 1628, Comenius lost two

wives and all of his children, again from disease. Finally in 1628, he came upon a community in Poland where he sought shelter and began working in schools. It was at this time that Comenius developed his affection for education and began writing books such as his Janua and Pansophy in Czech (his mother tongue). This stepping-stone in his life was significant in two ways. First, since The Thirty Years war was swallowing the Czech culture and language, Comenius desired to retain his Czech roots while encouraging all of his readers to do the same. Second, and perhaps more important of the two, these books would develop into life-long crusades for universal education. Comenius took another devastating blow in 1656 when the entire city of Leszno was burned down by the Polish during the war. He managed to bury most of his manuscripts in time, but like most of the family in his life, some of his manuscripts including his prized Czech to Latin dictionary were destroyed and lost forever. Before Comenius died November 13, 1670, he would marry once last time, this time dying before her death.

It wasn't until 1657 at the age of 65, that Comenius published what has been considered the very first picture book for children, Orbis Pictus. To Comenius, however, Orbis Pictus was far more than the first picture book; it was, as he put it, the “book of creation” or, as it is translated from Latin, a “world of pictures” that would express his two great intellectual passions: the retention of his mother tongue, Czech, and the promotion of *pansophy*—an ideal of universal education. John Edward Sadler writes in his book J. A. Comenius and the Concept of Universal Education, “All his books were in Czech or Latin and therefore available to a diminishing circle of readers” (27). This is because all Czech and Latin books were ordered to be destroyed and replaced by books published in national European languages such as German. The book is a look into the

world that Comenius never had, a world filled with learning and pictures, guided by a friendly *magister* (teacher). The entire book is written as a candid exchange between a teacher and a boy in which the teacher urges the boy to follow him and learn everything on the earth. The reader can follow along with the text or simply study the woodcut pictures on each page. To help the beginning reader, Comenius placed numbers next to items in each picture that correspond with words in the text. This encouraged reading and active learning for the student. Comenius did not stop here; he also paralleled the original German text with the same text in Latin in order to promote second language attainment. In later editions, Orbis Pictus would be translated into several other languages such as English, Czech, Hungarian, Italian and French, all with the same corresponding Latin text.

The content of Orbis Pictus attempts to encompass the world both visually and textually. The opening pages are devoted to the alphabet, which Comenius establishes with the use of nature by connecting each letter to the sound that an animal makes. Next, he explains the universe and the position of the earth, which he claims, “stand[s] in the middle” of the universe (Comenius 7). He continues with a discussion of fire and climate as well as geography. The information is multitudinous and spans nearly every aspect of the world, from daily life issues such as taking a bath and the importance of having patience, to instructions on how to make a birdhouse. The end does not imply closure of the world to the reader, but rather consists of an invitation to continue the learning process. The *magister* urges his young pupil to continue to read and expand his wisdom.

Orbis Pictus is at the same time an invitation to the senses, a capsule of universality, an instruction manual, a keystone in pedagogy, and lastly, a pioneer of

children's picture books. When Comenius wrote Orbis Pictus, his intent was to instruct the world about the world and he did so through a whole language system of "pictures, nomenclatures, and descriptions of things (Comenius xiv)." His book is different from earlier works for children, for instance, Aesop's Fables or, the less known, Acts and Monuments by John Foxe, on account of its tripartite system - the pictures, nomenclatures, and descriptions of things – that asserts its standing as a primal text.

Both of these earlier texts contained pictures, but using Caxton's edition of Aesop's Fables as a specific example, there is much dispute about the purpose of the illustrations. William W. Wooden's book titled Children's Literature of the English Renaissance suggests that modern scholarship has raised several questions concerning the illustrations: "why is the book illustrated? How do text and picture coordinate in Caxton's edition? What was Caxton's target audience and is there evidence that he intended to appeal to youthful readers?" (Wooden 3). These questions have been raised because in many cases, the illustrations have little to do with the context in Caxton's book; they resemble decorations more so than aids to the text. Still, nothing can be completely determined because there are no clear answers to these questions from Caxton, but when these questions are asked to Comenius in Orbis Pictus, there are clearly defined answers to be found in Orbis Pictus itself, and still more precise and vivid explanations in his Great Didactic. Comenius justifies and compares his illustrations with this statement: "This great theatre of the world, also God has filled with pictures, statues, and living emblems of His wisdom, that He may instruct us by their means" (Comenius 83). Comenius justifies the inclusion of his illustrations by implying that they are natural and ordained by God, and along with this, they are also natural alongside the

text. They do not serve as accessories to the text, rather, the text and pictures are equally valuable. The cohesive, highly structuralized book that Comenius creates is itself a living, breathing body that is an echo of nature; it has the ability to invite, embody, instruct, and serve as a foundation and pioneer.

Orbis Pictus reshaped the image of the instruction manual/text book, and replaced it with a more child-centered and child-friendly picture book. England in the early seventeenth century had astonishingly low literacy rates – 10 percent for women and 30 percent for men – so Comenius’ book was certainly answering a need in Renaissance England. Also, the value of this edition that mothers, teachers and later pedagogical theorists have come to find is twofold: on a basic level, the text achieves the magic combination of appealing to the student while teaching the student. The student experiences both pleasure and instruction while reading Orbis Pictus and this is why it was used so widely for centuries and translated into several languages. The book is also extremely efficient. It was designed to be read by the student without much input from the instructor; the pictures are an aid to the text, providing extra clarification of the subject matter. Thus, the book is the teacher. One of the prefaces to Orbis Pictus entitled, Comments Upon The Orbis Pictus, states that during the Thirty Years war, the book proved to be a valuable resource for mothers as it was used for instruction at home while the schoolhouses were closed (vi). Comenius acknowledges this in his introduction when he writes, “See here then a new help for schools” (xiv).

The second facet of its twofold nature is found in the ideas surrounding the creation of the text. It is a historically valuable text particularly in its pedagogical grounding. In fact, Comenius opens his book with a preface explaining his theory of

education and how Orbis Pictus adheres to his standards. He intends his book to “entice witty children...stir up the attention [of children]...serve for the perfect learning of the whole English tongue...and serve for the more ready and pleasant learning of the Latin tongue” (Comenius xvii). Because of this, his book is transformed from an ordinary picture book, moves beyond a simple school text and becomes a rich source of pedagogical theory that future theorists such as Piaget come to treasure and use in their own theories.

Comenius’ preface concerns itself with natural learning and, within this, it explores how the senses can relate to and be involved with nature. He writes extensively about the senses in some of his other works, however, he is clear and concise in his preface to Orbis Pictus that “the senses...evermore seek their own objects, and if they be away, they grow dull” (xv). He continues saying, “this book then will do a good piece of service in taking (especially flickering) wits [senses]” (xv). Comenius believes that the senses are key to a student’s educational development, and this is further emphasized in the extended version of the title: Orbis Pictus: Nihil est in intellectu, quod non prius fuit in sensu (nothing is in the mind that was not first in the senses). Although these words were taken from Aristotle, they have come to be more closely associated to Comenius. The senses, when enticed and nourished with pictures, will produce the most substantial learning, and at this time, or as Comenius says, at this perfect climate of learning, “reading cannot but be learned” (xvi).

While choosing to call attention to the senses, Comenius also embraces yet another pedagogical/historical notion that he expands upon in his book Pampaedia. From Greek, *pampaedia*, or *pansophy* as it is more commonly used, literally translates to mean

“universal education.” Universality is addressed on nearly every level of Orbis Pictus, starting with its content. His book is itself universal as indicated by the title Orbis Pictus (a world of pictures or pictures of the world) and it is accessible to *all* humans. Also, the senses are a universal element of human experience, and Comenius uses this to his advantage. On the other hand, on a more finite level, Comenius takes something as small as a letter of the alphabet and transforms it into the epitome of universality by connecting it to nature and pictures of the world. By the end of the book, it is the universality of nature and language that ushers universal education, *pansophy*, into a realm of possibility.

These qualities, alongside a host of others that will be addressed in this paper, are what have made Comenius’ Orbis Pictus an accessible and invaluable resource for educators and students over the last several centuries. Strangely, as several pedagogical theorists as well as historians have agreed, Comenius or as Burnham says, “The Prince of Schoolmasters” has been neglected (Burnham 141). In neglecting him, though, not only do we lose track of the origin of the first picture book and the ideas surrounding it, but we also forget the origins of education. More specifically, we forget that the classroom was not always a child-centered atmosphere, but instead a machine that focused on the information taught rather than the child learning the information. Comenius’ studies of the senses and universality of education prompted him to realize that effective learning did not come from the teacher, it came from exciting the child to learn. Today we have a plethora of children’s books that have encouraged students to want to learn, instead of just having to learn. But the two key elements to Comenius’ works that I have been

discussing above, *pansophy* and the role of the senses, are pivotal to understanding how this came to be.

Comenius creates a world, an *Orbis*, when he created his book. He creates an orb of life in which all things function and thrive together like a balanced ecosystem. As expressed earlier, all things work together in his book; the pictures correspond to the text, the text matches the translated Latin text, and the content flows evenly from one subject of the world to the next. In creating this book, I would like to argue that Comenius creates a fully functional world of education that takes on the qualities of a natural world. In taking on the desires for a universal language (because of the suppression of Czech and Latin) and universalized education, Comenius does not attempt to create a brand new system or program of literacy education, but rather show us how nature can tell us how to learn. He shows us that education is a natural process and is echoed all around us in nature. I call Comenius' theories about literacy, specifically those represented in *Orbis Pictus*, "organic." The term "organic" signifies the order and universality that is represented in nature. His theories are representative of the world around us and the world that Comenius captures in the pages of his book. In the following pages I aim to further define and explain Comenius' organic literacy and by the conclusion, show why this is important to our system of education today.

Now, in the words of Comenius:

"But enough: Let us come to the thing it self." (xix)

Defining the “Pan” in Pansophy: exploring universality

Religious conflicts from the Thirty Years War opened the seventeenth century. Remnants of the Holy Roman Empire were being disbanded, cities were being taken over and destroyed and there was serious damage financially and structurally to the education system that was produced from the Thirty Years War. Before the war, a typical seventeenth century schoolhouse was a large room inhabited by boys, and boys only. They were taught the rudimentary skills, namely reading, writing, and arithmetic, along with language instruction (usually Latin). Learning occurred mainly through strict instruction, repetition, and memorization (Comenius 75). Although a proper education was considered pivotal for boys, the instruction itself was rigid and inflexible. Students were expected to learn what was put forth in front of them without exception.

As a result, the learning process was not entirely a *process*. Education was a simple transaction between teacher and student; there was little interaction among students and students were to listen intently on the teacher at all times. How effective was this method? Not very considering the literacy rates were below 30 percent in England at the time. It was out of this damaged system that a new approach to education, the Universal Language Movement, emerged. In The Order of Things, Michel Foucault defines the ideal of the Universal Language Movement as “a tongue that would have the ability to provide every representation, and...be able to accommodate itself to all possible orders” (84). This means that a single language could encompass all cultures and societies to the degree that it would unify them. The ideal did not try to establish a new language, but rather explore all languages and find similarities and try to bridge them. The Universal Language Movement concentrated on a belief that universality was needed

within a world that was quickly growing larger and larger. The creation of the printing press nearly a half-century before had played no small part in this belief. Knowledge and communication was spreading, and with that, so was the desire to maintain a unified way to keep this communication regulated and universally understood (Chartier). In several cases, Latin was the language that seemed to be the best suited to this goal.

Comenius found himself extremely interested in the Universal Language Movement in his own work. Although portions of his work cater to the idea of a universal language, particularly Latin instruction, Comenius was even more interested in the *universality* part, and was deeply invested in the idea that people could universally learn. He saw this more “natural approach” as a solution to the ineffectiveness of the condition of the school systems. This was the foundation upon which Comenius was able to build his idea of *pansophy*—universal education. Comenius felt that education needed to be reformed and Universal Language needed to be expanded to encompass Universal Education. Comenius defined universality as something equally visible and tangible to all humans. Because of this, universality is a natural climate for humans, thus accessible to all.

It was the word *Pansophy* or *Pansophia*, from Greek meaning “universal education”, that Comenius used to define his academic goal in life. The educational theorist, Jean Piaget writes nearly three hundred years later that “not only was Comenius the first to conceive a full-scale science of education but, let it be repeated, he made it the very core of a “pansophy” which, in his thinking, was to constitute a general philosophic system” (3). The key to this philosophic system, namely *pansophy*, is not so much the *sophy*, but the *pan*—that is, the “universal” is more important than the “education” part of

the word. But how can education be universal when humans are all such different beings? Is it possible to create such universality? The key concept informing this connection is the idea of *nature*. This is exemplified in Foucault's description of the ideas surrounding the Universal Language movement. He writes, in the seventeenth century, "nature and the word can intertwine with one another to infinity, forming, for those who can read it, one vast single text" (34). It is likely that Comenius identified with this general idea with his conclusion being that the key to universality is nature, and with it, comes the accessibility to the development of language, or "words". Nature and then language combined could then intertwine thereby forming a double helix that encodes learning. When a human reads, he is receiving this learning, and simultaneously, he is being infected with this new strand of universal DNA composed of nature and words. This is where universality of education begins—within this endless strand of linguistic DNA.

Comenius would have taken a keen interest in the parenthetical insert from the above statement: "for those who can read it." It is, however, the pivotal part of the success of the double helix and is precisely why Comenius was so fixed on *pansophy*. In order for the child to use this DNA to read, he must be educated, but in order for a child to read, he must first gain the DNA. This is where Comenius goes to what he claims is the core of education, nature. How then does the student gain this DNA before being able to read? Comenius' Orbis Pictus tries to combat this exclusionary nature of education. Rather, he emphasizes that the reader can be educated by simply being in contact with nature and the world. It is the organic quality of the book that ushers the reader into a climate of literacy. The reader slowly learns first by the pictures and then

by slowly transitioning to the text. Orbis Pictus exhibits universality through nature and language.

Because Comenius' ideal of learning is so dependent upon all aspects of nature and learning that derives from nature, it is important to comprehend Comenius' understanding of the term "nature." According to Comenius, a book, especially, Orbis Pictus, is itself a piece of nature, or natural in the most basic sense of its physical constitution from paper, which in turn is made from trees. In the Translator's Preface to Orbis Pictus, Mr. Hezekiah Woodward says that this book in its entirety, including the text and the pictures "comes closest to Nature" for the reader. It can be argued that the nature of the book is not only limited to its content, but its actual fabrication. The book is indeed physically and quite literally natural. It comes from the universality of nature.

The next step is what lies on top of the pages of refined trees: letters, words, drawings, and lines. Language itself is nature, says Comenius. Foucault argues that a central view of language in seventeenth century was that "Language...must, therefore, be studied itself as a thing in nature" (35). It is important to study language as something in nature because it came from nature. This naturalistic or organic vision of language says that if we trace language back to Adam and Eve, we could see that the very first signs of language occurred when Adam started naming the animals around him (Sadler 152). With the naming of animals and things also comes the development of language. They exist hand in hand. Foucault continues his description of the organic vision of language when he claims that, "language was an absolutely certain and transparent sign for things, because it resembled them" (36). This is why Comenius writes in *The Great Didactic*, "Words should be studied in combination with the things to which they refer" because he

wanted to underscore those “natural resemblances” (Comenius 86). So, while Adam named each living thing, he was creating a sign for them; the sign and the creature look alike. And just as nature has its repelling and attracting forces, so too do words because “words group syllables together, and syllables letters” (35). Therefore, an early concept of language development would suggest that words and language are the image of nature and act like nature.

The reverse of this claim is also true: nature is language. Again in Comenius’ *The Great Didactic* he believes that, “the walls of the temple of Aesculapius were covered with the precepts of the art of medicine, and that Hippocrates entered in secret and copied them down. This great theatre of the world, also, God has filled with pictures, statues, and living emblems of His wisdom, and He may instruct us by their means” (Comenius 83). Comenius compares the walls of the temple to God’s natural canvas and shows us how men like Hippocrates have “entered [into nature] in secret” to copy down its hidden language in order to learn. Hippocrates did not go to the language in order to learn; rather, he visited the nature to learn its hidden lessons. To this effect, Orbis Pictus would then be a body of nature into which readers can enter openly and receive the intertwining of nature and words.

Comenius prefaces Orbis Pictus saying, “It is *a little book*, as you see, of no great bulk, yet a brief of the whole world, and a whole language” (Comenius xiv). In his book, Comenius does indeed offer us a spread of the world with a spread of language along side it. The “whole language” that he states represents the language in the “whole world,” and I think, is his reconfigured definition of the Universal Language Movement. It can be seen that there is a relationship between nature and language. From an early

documentation of language to Adam and Eve naming animals, there are significant representations of language in nature. Comenius desires to draw attention to these signatures in nature in order to bring education back to its origin: nature. I believe that the comment made by Mr. Hezekiah Woodward, "For Pictures are the most intelligible Books that Children can look upon. They come closest to Nature", explains this perfectly. What a child needs to learn exists in nature and Comenius sees this and creates this proper atmosphere of learning in his book. His approach to literacy is natural in both senses of the word natural: it is of the world and it is an easy, "natural" process.

Pansophy and the Senses: Creating a “Climate for literacy” in Orbis Pictus

The key to accessing the natural tendencies that drive students to learn lies in the five senses. If we see that learning is natural, and language, the fundamental component of learning, is represented by nature around the student and is essentially natural, then the key to this learning process is the senses. According to Comenius, “there is nothing in the understanding, which was not before in the sense. And therefore to exercise the senses well about the right perceiving the differences of things, will be to lay the grounds for all wisdom, and all wise discourse, and all discrete actions in ones course of life” (Comenius xiv). This statement of his beliefs is located in the preface to Orbis Pictus and is the core of his system of universalized learning, or, what I have been calling, organic education. Comenius would agree that senses are what leave imprints on the brain that allow us to remember. By specifically targeting each of the senses in Orbis Pictus, and exciting students through sensory stimulation, Comenius hopes to access the natural process of learning in a human being. Then, because his book is created on the auspices of nature, he aims to create a “climate of literacy” in Orbis Pictus where “reading cannot but be learned.” He does so by targeting three specific senses within his book: hearing, sight, and touch. The relationship between the senses and his book is key to understanding the book’s treatment of nature. When the senses interact with nature in the book, Comenius hopes that this is a magic combination that will activate natural learning. The following pages show how he develops this relationship.

First, the alphabet at the beginning of the book equates each letter of the alphabet to the sound that an animal makes, not the name of the animal. This suggests the vocal enrichment of the text, that it should not only be read, but read aloud. The more the

reader reads the text, the more the reader realizes that, for instance, the sound that a lamb makes is not far from the sound that the reader makes when he/she says the letter “B,” or that the sound of human breath is extremely similar to the sound of the letter “H.” Then, the ears become more attuned to the sounds of letters, which then lead them to form words and then full sentences. This draws an explicit link between the sounds of the letters and the natural world.

This approach to education draws upon what Foucault described as the seventeenth century view of nature as a language. He writes that some believed that “nature itself is a vast space requiring interpretation...there are signs to be discovered and then, little by little, made to speak” (Foucault 33). Just as Foucault tries to understand the seventeenth century through nature, so too does the reader of Orbis Pictus. The “vast spaces” of the book also demand interpretation and an intense deciphering in order for learning to occur on the part of the young student. When a child begins to relate each letter to a sound from nature, he/she is putting sound to “signs” as Foucault calls it. The letters are given an auditory quality and they speak just like the animals to which they are compared. The life that Comenius breathes into each letter appeals to the senses and then leads to learning.

Alongside the letters is the pivotal part of the book and what has made it a revolutionary book for children: illustrations. The illustrations function on a more fundamental level; they appeal to the sense of sight especially for younger children who have yet to learn how to read. In his prologue, Comenius explains why he includes pictures: “It is apparent, that children (even from their infancy almost) are delighted with Pictures, and willingly please their eyes with these lights” (Comenius xv). Comenius’

choice to describe the illustrations as “lights” is extremely important to understanding a primary function of the illustrations. First, they are lights because they illuminate the page and decorate the page in a way that had never been done before. As stated in the introduction, there were only a few other books aside from Comenius’ that included illustrations, namely Aesop’s Fables and Acts and Monuments, but Comenius’ were designed to communicate the text to the reader visually. Illustrations in other books served a decorative purpose and often had little to do with the content. Second, and more importantly, they are lights because they bring a greater understanding of the text to light. They illuminate the text for the student so that they can learn to read more easily. The pictures correspond with the text and even have numbers beside each figure that match a number beside the word that describes the picture. The illustrations act as an aid to the student, giving him/her more help than if there was only text to decipher.

The illustrations also serve an integral part in the natural tapestry that Comenius creates in his book. He validates the illustrations by relating them to parable ancient history. He says in his Great Didactic that, “the walls of the temple of Aesculapius were covered with the precepts of the art of medicine, and that Hippocrates entered in secret and copied them down. This great theatre of the world, also, God has filled with pictures, statues, and living emblems of His wisdom, that He may instruct us by their means” (Comenius 83). Here, the illustrated walls of the temple are being compared to God’s creation of the world. Just as nature has painted the world with colors and images, Comenius’ illustrations in Orbis Pictus paint the world of his book with visual forms. Furthermore, just as Hippocrates copied down information from decorative walls, Comenius intends his young readers to do the same. The illustrations are a natural part of

nature and they usher students into a “climate of literacy” by enticing them through the sense of sight.

The third and final sense that Comenius targets in Orbis Pictus is the sense of touch. As opposed to auditory instruction, which was and is still extremely common in schools, instruction that involves the sense of touch expands the ways by which the child can learn. Seneca says in one of his letters on education: “The school which makes pleasure its ideal holds that the good resides in the senses” (256). I would argue that the “good” in schools that Seneca suggests is “good instruction”, which would then lead to “effective instruction.” Comenius’ book is a tangible instruction, one that every child can hold in his/her hand and read on their own. It is a way that children can hold and govern their own learning and choose to learn more by just simply turning the pages.

Comenius realizes the importance of the sense of touch and writes about it in his introduction. He says, “Let them be suffered also to imitate the Pictures by hand, if they will, nay rather, let them be encouraged” (Comenius xviii). Comenius designs his illustrations to be copied by the child’s hand. This can happen in several ways, but there are two in particular that are most clearly indicated by Comenius. First, Comenius includes a number system in which he numbers a vocabulary term with the picture representing the word. For instance, when he writes about the human anatomy in the section titled “The Channels and Bones” (see figure 1) the word *kidney* with the number 9 next to it (and written in Latin next to it as *renes*) corresponds with the illustration of a human bone structure with the number 9. Comenius intends for the child to find each number 9 and physically “connect the dots” with each number. This, he expects, would

(50)

the *Skin* which covereth
the *Skull*.

In the *Breast*, the *Heart*,
4. covered with a thin
Skin about it, and the *Lungs*,
5. breathing to and fro.

In the *Belly*,
the *Stomach*, 6.
and the *Guts*, 7.
covered with a *Caul*.

The *Liver*, 8.
and in the left side oppo-
site against it, the *Milt*, 9.
the two *Kidneys*, 10.
and the *Bladder*, 11.

The *Breast*
is divided from the *Belly*
by a thick *Membrane*,
which is called
the *Mid-riff*, 12.

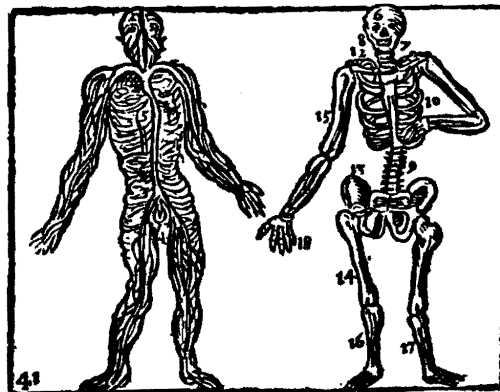
Pericranio.

In *Pectore*, *Cor*, 4.
obvolutum *Pericardio*,
& *Pulmo*, 5.
respirans.

In *Ventre*,
Ventriculus, 6.
& *Intestina*, 7.
obducta *Omento*.
Fecur, (*Hepar*) 8.
& à sinistro oppositus
ei *Lien*, 9.
duo *Renes*, 10.
cum *Vesica*, 11.

Pectus
dividitur à *Ventre*
crassâ *Membranâ*,
quæ vocatur
Diaphragma, 12.

The Channels and Bones. XLI. Canales & Ossa.



The Channels of the Body are Canales Corporis sunt

FIGURE 1

involve the use of the reader's fingers, thus engaging not only their eyes and ears (provided that they are reading aloud), but also their hands.

Second, Comenius intends for the reader to read both the English and Latin simultaneously in order to gain dual-language instruction. Comenius writes that the two languages do not just sit side by side, they actually speak to one another. He calls this book "a man clad in a double garment" (Comenius xvii). This would utilize the reader's hands because each specific vocabulary word (and there is at least one in each line of the text) is paired with a Latin vocabulary word that is notated by a number (see figure 1). In recognizing this structure, the reader can pinpoint each word with a finger from each hand.

In a more theoretical sense, the alphabet section of the book also appeals to the sense of touch. When Foucault writes about seventeenth century thought concerning language, he illustrates "generalized nomination." He says, "In 'generalized nomination', language is formed by naming things. But in doing so, the function of language is to name, that is, to raise up a representation or point it out, as though with a finger" (Foucault 104). When Comenius represents each letter by the sound that an animal makes, he is using generalized nomination. His book, and essentially Comenius himself, is naming each letter by pointing to nature. Therefore, it can be argued that with this seventeenth century theory, Comenius' book is physically pointing to nature and exercising the sense of touch. A child, when reading and learning from this book, consequently does the same. The reader learns to point to nature when deciphering each letter and word. Comenius writes that soon, "the *Abc* scholar will easily remember the force of every character by the very looking upon the creature" (xvi). The "force"

mentioned here is the physical force in “generalized nomination” that physically points each letter to nature.

William H. Burnham argues, in Great Teachers and Mental Health, that Comenius believed that “This fundamental principle is the old one, there is nothing in the understanding that was not previously in the senses” (169). Universalized education, in Comenius’ opinion, cannot be obtained without the natural use of the senses. Put simply, learning results when nature is used to target what is natural to a human being, the senses. Comenius’ focus upon the senses in Orbis Pictus is very clear, from the preface of the book. Comenius creates a world conducive to learning in which the senses have no choice but to be enriched. This is perhaps achieved most successfully through his use of the alphabet. As used by Comenius, the alphabet itself speaks, points to, and embodies nature. If the alphabet enriches the senses, reflects nature, and has intentions to teach the student, then it is a foundation of organic education, which in turn leads to *pansophy*.

The “Organic” Text

So far I have argued that Comenius’ basic ideas have reflected, or even influenced the fundamental ideas of language and education that were dominant in the seventeenth century. Foucault’s representation of this in The Order of Things demonstrates that language was seen as fundamentally linked to nature during this period. In relation to this, it seems as though the term “organic” best represents Comenius’ own interpretation of this seventeenth century thought. He felt that learning was enhanced when it was derived from nature, which is therefore why the term “organic education” is fitting for Comenius’ views on the educational process. Organic education is a process of learning that comes from nature. It says that learning in its very raw form is found in nature and is natural to a student. I have also emphasized that Comenius identified with the universal language movement and that he believed that language is a universal tool for communication and learning and is found in nature through sounds and patterns. He also finds activating a student’s senses are a pivotal aspect of leading a student to learn efficiently. The five senses are a natural part of a human, so inciting a natural entity would be a more pure and authentic way to entice a child to learn. For Comenius, nature is key to successful learning.

Comenius utilizes organic education in the very first pages of Orbis Pictus, in which he takes time to bring students back to the fundamentals of nature. His desire to do so is represented by the “magister” or teacher welcoming the reader to step into the world of pictures. Comenius eases the student into an environment of learning by welcoming them to take part in nature. Coincidentally, the title of the first page is *Invitation*, or Latin *Invitatio*. The force of the Latin word *invitatio* suggests that the

teacher is calling the student not to just read the text, but to actually step into the text.

This, I believe, is because Comenius firmly believes that nature has the power to affect the core of the student's learning process. If the student can put him/herself into the natural world represented by text, then the interaction between the student and nature can begin.

Comenius chooses to translate the Latin word *invitatio* as "invitation," but the word has other meanings. *Invitatio* can also mean "inducement." This meaning attaches a significantly different and more forceful meaning to this word. Although "inviting" and "inducing" hold extremely different connotations, I would like to argue here that Comenius is employing both meanings. In simply inviting a student to open the pages and learn from the book, Comenius is suggesting that the student can always choose to decline the invitation. On the other hand, the second definition of the word *invitatio*, "inducement," offers less of a choice. Rather than being merely invited, the student is being led by the text. This does not suggest that the student goes as an unwilling captive; rather, the student is stirred by the welcoming and nurturing nature of the first page and then feels comfortable to move forward and follow the instructions that the text gives.

This is further emphasized by the very first words of the text, particularly the Latin text. The teacher says, "Veni, Puer, disce" which translates into English as "come, boy, learn." "Veni" and "disce" are both imperative forms, which means that they carry significant force. They not only encourage the student, but they instruct the student what to do. These words expect no opposition from the reader. The fact that Comenius opens in such an imperative manner suggests to me that he is certain about his theory. He is

sure that what he has to offer in the following pages of his book will change how a child learns. He ushers them into the book with confidence and sincerity.

The reader that follows Comenius' beckoning call in the beginning of the book does not find himself in a traditional classroom. This is revealed by the illustrations that portray the world, and also by the title of *Magister*. While *Magister* can be translated, and is often translated as, "teacher", the word can also mean "guide" or "director." In fact, in the book, the word is translated as "Master." This suggests that Comenius wanted to reduce the immediate sense of being in a classroom by not calling the *magister* a teacher. This also reduces the sense that the reader is being educated, and emphasizes instead that he/she is being led, guided, and directed.

Comenius then itemizes what the child must learn. It says, "Before all things, thou oughtest to learn the plain *sounds*, of which man's *speech* consisteth; which *living creatures* know how to *make*, and thy *Tongue* knoweth how to *imitate*, and thy *hand* can *picture out*" (Comenius 2). This is the mission statement of the book, or, the proeum of the book. It forecasts what is to come. The most important part of the statement, however, is Comenius' justification for learning sounds. He writes that animals already know how to make speech. It exists in the animals before it exists in humans, which further emphasizes the earlier argument that language is natural. Going back to what Comenius says, he justifies learning language because animals already know it. Furthermore, humans merely *imitate* what nature originates. Thus, we need and must learn what nature already knows, and this learning must be exact to the point that there is a perfect imitation of nature.

The fact that nature already knows how to make speech/sounds relates to the directional aspect of *invitatio*. It suggests that the student is literally stepping into knowledge as a natural-made entity, rather than knowledge as a human invention. While the reader steps into nature, Comenius as the author is literally pointing to nature and showing the student where to go. Nature is clearly the operative place where learning begins in raw form. The student will not be subject to an introduction into human culture, but an introduction into universal experience through nature.

Following this sentence, Comenius writes, “Afterwards we will go into the *World*, and we will view all things” (2). He does not say that the students should go into a schoolroom or into a laboratory; he says that the student will then go into the world to look and ultimately learn all things. Comenius removes the standard classroom atmosphere and replaces it with nature. After the students have entered into the world, they will view all things—the Latin word used here is “omnia.” This is also important to understanding what “all things” really means. “Omnia” is a neuter noun, meaning that it has not feminine or masculine force. Since Latin assigns gender to every noun, this is very important to understanding “omnia.” A neuter noun is genderless and indicates that there is no restriction to what encompasses “all things.” It literally means anything and everything in the entire world. There is nothing restricted from the student. Therefore, we can be assured that the student honestly will learn about all aspects of the natural world by being submerged in the world.

In the final part of the “proeum,” Comenius writes, *Hic habes vivum et vocale Alphabetum*, which translates as, “Here thou hast a lively and Vocal Alphabet” (2). The Latin word used meaning “lively” is “vivum.” This is also extremely important to fully

understanding the true meaning of “lively.” In English, “lively” tends to mean “awake, aware, or alert,” however, the Latin word “vivum” has other implications. “Vivum” literally means “alive” or “living.” So, something that is lively is not only functioning, it is also living and breathing. What is living, here, is the alphabet. As indicated much earlier, Comenius uses animal sounds from nature to describe how each letter in the alphabet came into existence. This still holds true, but in examining the Latin word “vivum,” it can be implied that the alphabet itself is a natural, organic entity. Comenius calls it “living” because he discerns that the force of nature behind it, coupled with the breath of nature, breathes life into the alphabet. This then transforms a grouping of letters into a breath from nature. In fact, this reading is supported by Comenius’ rendering of the letter “h,” which he interprets as coming from the sound that a breath makes.

The act of entering into the world of nature is further emphasized by the first series of illustrations that follow the *invitatio* and the alphabet (see figure 2). The first topic that Comenius discusses is the divine creation of the earth by God. He illustrates the sun, moon, and earth surrounded by the creation of the animals. Comenius’ illustrations here are circular whereas the rest of the illustrations in Orbis Pictus are square. The circularity of the illustration is similar to what someone would see when looking through a telescope and viewing the stars and planets. So, the shape of the illustrations offers a different perspective of the world to the reader. The reader is gazing at the celestial structures, as a scientist would be if he were looking through a telescope.

This circular structure further exemplifies images of completeness, perfection, and natural order. The reader is looking at a circular illustration that mimics the circular

(7)

Thus the greatest <i>Bodies</i> of the World, the four <i>Ele-</i> <i>ments</i> , are full of their own Inhabitants.	Ita maxima <i>Corpora</i> Mundi, quatuor <i>Elementa</i> , sunt plena <i>Habitatoribus</i> suis.
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The Heaven.	IV.	Cœlum.
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<i>The Heaven, 1.</i> is wheeled about, and encompasseth the <i>Earth, 2.</i> standing in the middle. <i>The Sun, 3.</i> wheresoever it is, shineth perpetually, howsoever dark <i>Clouds, 4.</i> may take it from us; and causeth by his <i>Rays, 5.</i> <i>Light</i>, and the <i>Light, Day.</i> On the other side, over against it, is <i>Darkness, 6.</i> and thence <i>Night.</i>	<i>Cœlum, 1.</i> rotatur, & ambit <i>Terram, 2.</i> stantem in medio. <i>Sol, 3.</i> ubi ubi est, fulget perpetuo, ut ut <i>densa</i> <i>Nubila, 4.</i> eripiant eum a nobis; facitque suis <i>Radiis, 5.</i> <i>Lucem, Lux Diem.</i> Ex opposito, sunt <i>Tene-</i> <i>bræ, 6. inde Nox.</i>
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FIGURE 2

or spherical structures of the earth, sun, moon, and stars. The eighteenth century French philosopher Denis Diderot captured the completeness and perfection of our circular earth in conceiving of his encyclopedia. According to Diderot, the encyclopedia is more than a compilation of knowledge. He writes in his 1751 book, The Encyclopedia, that Encyclopedia means “*interrelation of all knowledge*” and is “made up of the Greek prefix *en*, in, and the nouns *kyklos*, circle, and *paideia*, instruction, science, knowledge” (92). This means that the world and its circular structure communicates a completeness in knowledge because the word “encyclopedia” literally says that knowledge is circular. We can see a clear connection between the circular structures of Diderot’s “encyclopedia” and Comenius’ circular illustrations of the world. According to both thinkers, the world is knowledge and knowledge is the world. “Nature” is the link between the two. Nature represents the perfection of the earth and the source of all knowledge. The linking of knowledge and the earth produces a natural order, an order that is perfect and complete.

Furthermore, the breaking down of the word “encyclopedia” sheds more light on Orbis Pictus. The word indicates a similar pattern of motion to the Latin word *invitatio* that Comedies uses on the very first page. Divert says that encyclopedia comes from the Greek *en*, in, *kyklos*, circle, and *paideia*, knowledge. These words pieced together would read: in the circle of knowledge. By engaging in the text and viewing the illustrations, Comedies’ readers are not just looking or reading information, but they are heeding the initial commands of the text (*veni*, come, and *disco*, learn) and coming “into the circle of knowledge.” Because of this, I would amend a claim that I made earlier about how *veni* and *disce* usher the reader to enter a learning atmosphere. By taking in consideration the

true meaning of and encyclopedic text, the student learns as he/she would normally, but in reading an encyclopedic text, the reader is being encircled and embraced by the knowledge that they read. It consumes the reader in a way that they must heed the *invitatio* at the beginning of the text. As the reader reads, he/she enters into nature (which I argued in the last paragraph is the combination of the circular structures of the world and of knowledge) in order to gain the most complete and full knowledge of the earth.

The remainder of Orbis Pictus is also encyclopedic in the sense that it is an account of nearly every type of knowledge available. Some of the sections include: “Crawling-Vermin,” “Metals,” “Shrubs,” “Labouring-Beasts,” “The Flesh and Bowels,” “Deformed and Monstrous People,” “Husbandry,” “The Making of Honey,” “Musical Instruments,” “The Aspects of the Planets,” (here, the book shows its age because it locates the earth in the center of the universe) “Diligence,” and “The Tormenting of Malefactors.” This list of section titles is similar to one that Foucault uses in his preface to The Order of Things. He references Borges’ own reference to a Chinese encyclopedia in which “‘animals are divided into: (a) belonging to the Emperor, (b) embalmed...(f) fabulous...(k) drawn with a very fine camelhair brush...(n) that from a long way off look like flies’” (Foucault xv). Both of these texts exemplify a good faith effort to encompass everything idiosyncratic in an encyclopedic text. It is clear that Comenius wanted to include everything in his book, even those things that are so tiny and insignificant that they resemble flies when examined from a distance. The knowledge in Orbis Pictus “covers” the earth. Diderot’s own definition of the encyclopedia is sufficient: “In truth, the aim of an *encyclopedia* is to collect all the knowledge scattered over the face of the

earth, to present its general outlines and structure to the men which whom we live, and to transmit this to those who will come after us” (92). Orbis Pictus anticipates Diderot’s encyclopedia and helps to innovate and popularize the idea of universal, all-encompassing knowledge.

We are still far from attaining Comenius' goals of creating a world of learning that offers excitement, inspiration, engagement, and a sense of organic process. So often, teachers practice teaching to the test and utilize programmed teaching methods such as flash cards and phonics. Schools are also inundated with standardized testing. It is interesting to see that some of the problems that Comenius' was diagnosing, such as a lack of instruction that excites a student to learn and remember what he/she has learned, are still in the twenty-first century school systems today. Comenius would have desired for a student to learn in a more exciting way, a way that sparks the senses. He writes, "Now there is nothing in the understanding, which was not before in the sense" so targeting the senses in learning would yield the greatest amount of true learning, learning that produces wisdom. A child staring at a piece of paper or flash cards would hardly be excited, much less interested; and if learning is boring at the formidable ages, then the student will not expect it to ever be enriching. The senses will be put to waste. So, Comenius' works are a healthy reminder of what we can strive for as a goal.

Comenius would also have argued against this type of instruction based on his belief in natural learning. With this, he would have emphasized that a student learn in a way that is natural to him/her. "But, you may ask, how is this to be done?" Comenius says in his book Pampaedia. He answers: "My answer is: by composing public books aimed at the reformation of the world, and embracing Pansophia, Pampaedia, Panglottia, and Panorthosia" (71). The titles that he lists here are Comenius' own works published before his famed Orbis Pictus. Nevertheless, the same can be said about all of his books. Orbis Pictus, as well as all of his books, is not a piece of paper, but a book—a public book. On that can be made available to everyone for the instruction of everyone. In

opening and reading a book that is applicable to all, both in availability and content, the student can learn as he/she sees fit. The natural process of natural learning, specifically learning about the natural world, can take shape.

In the above statement, Comenius strings four words together all having the prefix *pan*, which means *universal* in English. As seen in this paper, this pertains directly to Comenius' own views on Universal Language and his desire for universal education. But, universality in Orbis Pictus is achieved on multiple levels. On a foundational level, it is a book that is highly democratic. It can be approached by all, readers and non-readers, as opposed to the stark word list mentioned above. It is a "public book" like Comenius said. Because the book detaches itself from the traditional classroom, the book becomes less overtly instructional and more applicable to all types of people. By removing the classroom, the book becomes tangible to any age level; the age stigma attached to a classroom is alleviated. The democratic tendency of this text contributes to its ability to be universal.

The universality found in Orbis Pictus also grows out of its embrace of "natural" learning. This is achieved by the illustrations (the illustrations that were specifically designed to heighten the awareness and use of the senses). The illustrations show all of the things that are in the world, and exemplify the title of the book, Orbis Pictus. The title translates into English as "the visible world" which suggests that the world is a place that is composed of pictures. Comenius embodies and demonstrates this in his text and also writes that the illustrations are part of God's creation of "the representation of all visible things...of the whole world" (xiv). In Comenius' Pampaedia, he calls Orbis Pictus a *Panbiblia*, a universal book, that allows for nature to govern how education is

brought about. Thus, the pictures, because they represent the world, govern the text and also bring nature to the forefront.

The universality and nature that reverberates throughout the text are also arranged in a distinct structure and order to Orbis Pictus. This order is communicated in the alphabet when we see that the perfection of our English language did not come from intellect of any human, but instead the precision of sounds that come from nature. When Coemenius discusses Orbis Pictus, he even comments on this perfect—perhaps even divine—structure. He writes: it is “so perfect that everything else seems like chaos in comparison, and it alone resembles God’s complete system, the world-system” (Comenius 77). Little, if anything, can be more perfect than God’s creation—even the tenth century mathematician Fibonacci saw this when he discovered what is known as the Fibonacci sequence of nature. Nature provides for us a key into the perfected system that was divinely inspired and created. Everything else, as Comenius stated, just seems like chaos.

Reflecting back to the history of Comenius and his constant struggles with death and destruction, it would not be difficult to see the need for order in Comenius’ world. In a world of chaos prompted by the Thirty Years War, Orbis Pictus is a picture of structure to the unstructured and with it, peace to the utterly unpeaceful. As a result, Comenius leaves his reader with a strong closing thought. The ending of the book poses this need for peace and order very well. The teacher figure once again enters the book and urges the boy to *Perge nunc & lege diligenter alias bonos Libros, ut fias doctus, sapiens, & pius* which in English means “Go on now and read other good Books diligently, and thou shalt become learned, wise, and godly” (Comenius 194). Wisdom is then repeated in the

next line as *Spiritus Sapientiae*, “Spirit of Wisdom.” While wisdom is indeed important for maturity, and is also a key indicator in a human that maturity has been attained, Comenius stresses a particular kind of wisdom: the wisdom that comes from the interworkings of God’s creation of nature and the world.

The word *sapientia*, other than wisdom, can also mean good sense and discernment. I think that all three definitions of this word are being utilized here. These three definitions work in tandem to achieve a full sense of wisdom. In order for wisdom to be developed, a human must have, first, good sense. Comenius deliberately addresses this in his introduction and actively seeks to “stir up” the student’s senses to achieve optimal learning. This, he writes, “is commonly neglected in schools,” during the seventeenth century, and, I would argue, today as well (Comenius xiv). Actively engaging the senses eliminates mindless learning, if that is even learning at all. When a student is interacting with their own learning, he/she is more apt to remember what was taught rather than if the student was passively sitting and listening. Thus, the student gains a fuller, well-rounded education.

When a student has good sense, then the student can also discern right from wrong. This is because the full use of the five senses is actively working in tandem to completely discern a situation. I believe that Comenius desires discernment, particularly the type of discernment that evolves into wisdom, because the world requires discernment. When presenting the world to the reader in Orbis Pictus, Comenius subjects the reader to the natural world in a structured manner. In stepping away from the book then, the student can compare and contrast the world according to Orbis Pictus to the world that they experience daily. This prepares the student for important classroom

skills, which are also important world skills, such as critical thinking and proper judgment. This is extremely similar to present-day goals in the classroom. Critical thinking is essential for everyday life. This is where the student learns to discern right from wrong, good and bad, and peace and war. The book prepares its reader for this.

Finally, Comenius, in utilizing nature and exploring universality through nature, desires for the student to gain wisdom. The structural position of the word “wisdom” has no small part in its importance and prominence. *Sapientiae* or “wisdom” is the final word in the entire book, aside from the final farewell. In addition to this, the word *sapientiae* is coupled with the word *spiritum*, “spirit.” When reading this line out loud, the gentle “s” sounds sing a song to the reader, beckoning him/her to be inculcated with wisdom, perhaps without even knowing. These are the words that the reader is left with and will take with him/her into the world. This is the ultimate goal.

In Jean Piaget writes in the preface to his book John Amos Comenius on Education that “nothing is easier, or more dangerous, than to treat an author of three hundred years ago as modern and claim to find in him the origins of contemporary or recent trends of thought” (1). The aim of this paper has not been to analyze Comenius’ trends of thought and show his validity, rather, it has been to reveal his truths and capitalize on the fundamentals of his ideals: *pansophy* and the senses. Although his ideas cater to specific seventeenth century thought while also speaking to the twenty first century classroom, they do not seem to rival any prestablished strands of thought. Rather, Comenius’ ideals are flexible and are not restricted to the classroom setting, thus lending them to a universal-like structure. They promote universal education while exciting the senses for entrenched learning. Comenius goes to the very core of learning

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and makes his ideals approachable to all. Thus, the word “organic” seems to title his theories well.

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