DECIPHERING HUMANITY: WHAT POLANYI AND THE ROSETTA STONE CAN TEACH US ABOUT BEING HUMAN

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ABSTRACT

Polanyi is widely known for his development of personal knowledge, but he was also keenly interested in what can be called, personal existence. The historical backdrop of reviving, the once dead language of, Egyptian Hieroglyphics provides valuable insights into Polanyi's critique of objectivism and deciphering a human ontology. From applying physiognostic to telegnostic information to understanding static and dynamic meaning, Polanyi's philosophy of language and machines provides a wealth of vantage points from which to study who and what we are.

In 1799, a black stone inscribed with a message in three different languages—Egyptian hieroglyphics, Demotic, and Ancient Greek—was discovered in Rosetta, Egypt. The unassuming Rosetta Stone would prove to be one of the greatest archeological finds of all time as it contained the key to resuscitate the dead language of Egyptian hieroglyphics. By the eighteenth century, Egyptian hieroglyphics had been a dead language for well over a millennium. What revived it, and made this archeological find so significant, is instructive to understanding Polanyi's critique of objectivism and its implications for a human ontology.

How do you resuscitate a dead language? Archeologists knew that Egyptian hieroglyphics was a language containing a treasure of ancient information. The challenge was how to access it. Similarly, Polanyi's critique of objectivism insightfully illustrates how information is accessed and the connection between epistemology and ontology. Polanyi understood ontology to be built on what he called *dual control* that differentiates between two kinds of information: "*physiognostic*" and "*telegnostic*" (Polanyi 1969a, 128-29). Within dual control, Polanyi indicates that particulars contain physical-chemical knowledge that point *to* the laws they follow, whereas composites contain design or engineered knowledge that point *at* its meaning or purpose. For Polanyi a composite can fundamentally be any structure from a language to a machine that is composed of particulars, from ink to gears, to achieve a desired purpose. The symbols that make up Egyptian hieroglyphics are telegnostic in that they point at a meaning that can reveal the mysteries of ancient Egypt.

Polanyi relentlessly critiqued objectivism, which attempted to reduce telegnostic composites to their physiognostic particulars. He contended that meaningful structures such as language or machines cannot

be understood through this bottom-up reductionism. Bottom-up reductionism is the objectivist's attempt to account for telegnostic composites by appealing to only physiognostic information. Simply put, telegnostic information, such as Egyptian hieroglyphics, is inaccessible from a purely bottom-up analysis. For example, reducing Egyptian hieroglyphics to its physical-chemical parts found in the ink or papyrus paper will not reveal its meaning. More than that, such reduction cannot even tell us if it is a word or a picture. In the drama that unfolded with the Rosetta Stone, one of the greatest setbacks to deciphering Egyptian hieroglyphics was the mistaken belief that it was pictographic. What this indicates is that a composite has a distinct ontology that requires a top-down telegnostic approach.

Polanyi broadly illustrates this point with the simple example of an artist carving a stone. (Polanyi 1969b, 226, 233) The sculpted stone illustrates top-down control in that its structure or shape is not innate to its particulars or to the physical-chemical laws of its material (physiognostic) but instead reside outside the sculpture within a higher level of control—the artist (telegnostic) (Polanyi 1966, 40). Similarly, an archeologist or scientist examining the Rosetta Stone cannot decipher the stela by reducing it to the granodiorite that the Egyptian hieroglyphics were etched into. This is because languages and machines follow laws imposed on the particulars from the top down.

Thus, particulars and composites, Polanyi concluded, are ontologically connected but distinct. For example, a composite is made up of particulars, but those particulars and the physical laws they follow are extraneous to the artificial shaping applied to a structure to achieve a desired purpose. The limits of bottom-up reductionism can be lost on people when discussing a language or machine that they are familiar with, because its purpose is known from the start. This is a form of top-down reductionism. Polanyi seeks to avoid this error in reasoning by illustrating his argument with an example of an unknown composite such as the machine he acquired on a trip, writing,

> Some months ago I brought home from America to Oxford a gadget which I had picked up without knowing what it was for. All the analytical laboratories of England could not tell my wife and me that it was an instrument for making simultaneously two holes in a can of beer; this was its purpose and this its meaning. (Polanyi 1965, 15)[1]

Notice that Polanyi had acquired what could be called a dead machine. He knew it was a device that had a purpose, but he had never witnessed it in operation. Given that all he could do was appeal to its parts (bottom-up reductionism), he was unable to decipher the machine's purpose. Of course, Polanyi could have guessed at its purpose. This, however, would still only be an attempt to escape the limits of bottom-up reductionism, which ultimately fails because the guess would need to be confirmed top-down that the intended meaning was correct. Language helpfully illustrates this point. It is immediately obvious that guessing at the meaning of Egyptian hieroglyphics is foolish, being that it cannot be confirmed. Language highlights that the intended meaning is necessary in order to read and thus access correct information about ancient Egypt. Polanyi refers to this interconnection between ontology and epistemology as *sense-giving* and *sense-reading* (Polanyi 1969c, 181, 187, 193). By this he means that people can ontologically sense-give a language, or a machine, both meaning and purpose.

Similarly, Polanyi contends that people can epistemologically *sense-read* a language or machine's meaning and purpose. However, sense-reading can only be accomplished in one of two top-down modes: explicitly or tacitly. For example, students can learn a foreign language explicitly from a textbook or tacitly by immersing themselves within the culture where the language is spoken. Notice that a machine's ontology can be

similarly acquired. Polanyi could have been explicitly told that his mystery machine was a beer can opener, or he could have returned to America and witnessed it in use.

This again highlights the challenge presented by Egyptian hieroglyphics and why it had remained a dead language. Its meaning could not be acquired top-down through either explicit or tacit means. It was not until 1822 that the treasure of information buried in the languages of the Rosetta Stone were slowly excavated top-down via their operational principles. Operational principles demarcate the boundary conditions of a composite's structure so as to achieve a specific purpose. Access to the operational principles, or what Polanyi also calls "rules of rightness," of Egyptian hieroglyphics was provided by the other languages on the stone, beginning with Ancient Greek, which could be read. Towards the end of the message, the Ancient Greek revealed that the stone contained the same message in three languages. By using Ancient Greek and Coptic, a top-down mix of explicit and tacit access was identified by which to decipher the operational principles of Egyptian Demotic. Then, by using both Ancient Greek and Demotic, again a top-down mix of explicit and tacit approaches provided top-down access to decipher the operational principles of Egyptian Hieroglyphics, and a dead language once more became living.

Now consider the difference between a secret code and a dead language. Why can a secret code, such as those used by Nazi Germany during WWII, be deciphered but a dead language once used by ancient societies remain unsolved? The difference is found in the distinction between static meaning versus dynamic meaning. A language dies when it becomes static, in that it can neither be accessed explicitly or tacitly; its operational principles remain but they are indecipherable. A foreign language or secret code, however, is dynamic, being that it is operational. Thus, even though a secret code has operational principles that are not explicitly available, they are tacitly available by observing it in action.

Similarly, a machine can be understood according to these same principles. People come to know machines explicitly and tacitly, but the same challenges exist with a machine that is static versus dynamic. Archeologists find not only dead languages but also dead machines and games that remain unsolved because they are static—not in operation. However, if a dynamic machine or game is observed, its operational principles can be decoded. This has led to creative attempts in archeology to decipher games by attempting to make them dynamic.[2] This is done by trying to play the games and even running AI simulations to see what works best. However, these simulations are not truly dynamic because their rules of rightness are not known. Thus, a number of guesses must be made. For example, it is assumed that the object is a game and that all the game pieces were found with it. Lastly, of all the possible ways to play the game, it can never be known with certainty that it is being played correctly. Consider that people and programs could come up with many possible purposes for Polanyi's beer can opener, but again they would need to confirm that they had arrived at its intended purpose. At best, AI simulations have discovered possible ways to play what is possibly a game.

Now what does the Rosetta Stone have to do with being human? Following Polanyi's logic of sense-giving and sense-reading, we can ask what happens when his model is applied to biological machines. A living biological machine is not static but dynamic, so it follows that its operational principles can be witnessed and thus tacitly deduced. Polanyi seeks to decipher biological machines, such as functioning organs, according to the same principles (Polanyi 1959, 52-54). When the principles are applied to dynamic organs, such as the heart, it is simple enough to understand its purpose within the body—to pump blood—but it does raise the question of a human as a composite whole. What is humanity's operational principle or purpose? According to Polanyi, a human is a dynamic machine that, although under the control of an

unknown operational principle, can be observed in operation (Polanyi 1969b, 227). Accordingly, if you want to know the ontology of humans, it must be acquired either explicitly, through revelation, or tacitly, by observing humans in operation. Within the theistic context of revelation, the purpose of humanity could be explicitly communicated theologically, but Polanyi does not make that argument. Instead, he approaches anthropology through observing humans as dynamic machines. This leads him to identify what he believes to be a human ontology within a moral, or what could be called a deontic, operational principle.

Within his historical context, Polanyi was influenced by his experience of WWI and WWII. These experiences led him to identify a moral purpose for humanity by observing how people fail and succeed, about which he writes,

> [M]oral judgments cut much deeper than intellectual valuations. A man may be consumed by an intellectual passion; he may be a man of genius, yet be also sycophantic, vain, envious and spiteful. Though a prince of letters, he would be a despicable person. For men are valued as men according to their moral force; and the outcome of our moral striving is assessed, not as the success or failure of any external performance of ours, but by its effect on our whole person. Accordingly, moral rules control our whole selves rather than the exercise of our faculties, and to comply with a code of morality, custom and law, is to live by it in a far more comprehensive sense than is involved in observing certain scientific and artistic standards. (Polanyi 1962, 214-15)

Here Polanyi indicates that one's humanity is defined, at its highest level, by moral character. By observing people fail and succeed (sense-reading), Polanyi identifies morality as the highest human purpose, which overshadows all other characteristics, such as intelligence. The second clue is history. Polanyi observes in "the study of man…making responsible decisions" is that "recorded by history" (Polanyi 1959, 71). Here again, Polanyi concludes that historically humanity is studied and judged as an "agent of responsible choices" (97). As with a machine, Polanyi is indicating that the dynamic nature of a living human person interacting in society provides personal and historical clues to the proper function of a human, which cannot be accounted for through a reduction to their parts. This again leads Polanyi to attribute a moral purpose to humanity within his structured ontology, concluding,

> These levels form a hierarchy of comprehensive entities. Inanimate nature is comprehended by physical laws; the mechanism of physiology is built on the physical laws and enlists them in its service; next, the intelligent behaviour of a person relies on the healthy functions of his body controlled by him and, finally, moral responsibility relies on the faculties of intelligence which it directs… each higher level of integration represents, in this sense, a higher level of existence, not accountable by the levels below it. (Polanyi 1964, 70)

It is this last and highest step into morality in which Polanyi differentiates between machines, animals, and humans, explaining, "only human actions are subject to moral judgment." (Polanyi 1959, 79). Again, Polanyi identifies the highest purpose of humanity with a moral operational principle, stating clearly, "I have said that at the highest level of personhood we meet man's moral sense, guided by the firmament of his standards" (Polanyi 1966, 51). In Polanyi's thinking, these standards are not subjective. He firmly establishes humanity's deontic operational principles outside of one's control functioning top-down, "the living above

the inanimate, man above the animal, and man's duties above man" (Polanyi 1997, 265). Further, Polanyi explains that this binding moral value and duty is encountered by persons within I-Thou relationships that "demand our respect" (Polanyi 1966, 51). Of course, this does leave unanswered the genesis of humanity's deontic operational principle and the wealth of knowledge it could contain, which is a lively discussion in science, philosophy, and theology.

ENDNOTES

[1]Polanyi expands on this illustration in Michael Polanyi, "Science and Man," 5 February 1970, box 41, folder 4, Michael Polanyi Papers, Special Collections Research Center, University of Chicago Library, 18.

[2]The Knossos game exemplifies this attempt to revive dead games. See Robert S. Brumbaugh, "The Knossos Game Board," *American Journal of Archaeology* 79, no. 2 (1975): 4. More recently the Digital Ludeme Project (http://ludeme.eu) undertook a five-year ERC-funded research project hosted by Maastricht University to complete a computational study of the world's traditional strategy games throughout recorded human history. They used modern AI techniques to chart the games' historical development and explore their role in the development of human culture and the spread of mathematical ideas. Also see Samantha Huioi Yow, "This AI Resurrects Ancient Board Games—and Lets You Play Them," *Wired*, 16 October 2021, https://www.wired.com/story/this-ai-resurrects-ancient-board-games-lets-you-play-them.

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