

Water and H₂O

'Elements of Labo(u)r'

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The contemporary water crisis is dehydrating, disturbing and undermining the foundation of the existence of all living beings. The most significant aspect of this crisis is the efforts to make manufactured water (H₂O) available for human beings, leaving behind contaminated poisonous water for all non-human living beings. To tide over this crisis, it will be necessary to recognise that only the hydration of non-human living beings will ensure water availability for human beings. The primordiality of water in landscapes (and not H₂O) will have to be given a foundational position in the modern world view, as the reflexive labor it metabolises can restrain the instrumental labour metabolised by H₂O.

There is a fundamental difference between manufactured water, represented minimally as a compound H₂O and primordial landscape water that pours from the sky, flows in the rivers, and merges with the ocean. The former is machine produced and the latter we know has been there since the very beginning of creation. This common sense draws attention to a deeper truth that human beings have to conduct themselves with reference to the frames of time and space given in the natural world and, that the teleology of labour to conquer the "state of nature" is without any ground.

However, when people who have learned the alphabets of positivist modernity are told that "H₂O is different from water," this common sense is rendered dysfunctional and they go by what they learn in school science that "water is H₂O."

Why this happens is the subject of a different discussion. Important here is to grasp that this dysfunctional common sense leaves the ground open for constructing palliatives (technologies, policies, and legislations) that focus exclusively on water for human needs, for instance, drinking, irrigation, and generation of hydroelectric power; and neglect the water requirements of all other living beings such as animals, birds, and the forest.

In the absence of this common sense, these palliatives reinforce the societal labour-metabolism nexus¹ created with manufactured water—the cause of dehydration of all living beings. This nexus is the complex of chemical processes regulated by labour. It includes the processes of drawing raw materials from the natural landscapes for the production, reproduction, and consumption of goods and services; and the digestion of nutrients taken in with food and the making of waste and excrement by human and non-human living beings.

Fundamental to the making of this nexus is the chemistry of H₂O that metabolises instrumental labour to distance, separate and free humans from the natural environment. This distancing, Lukacs (1978: 25–28) argues, is the model of all social practices.

With this mode, human beings fabricate possibilities of uncompromising economic development. What they do is to sustain their uniqueness through this separation, with an essentialist scientific method and theory. A basic tenet of this method is to pull human beings out of the state of nature. This privileges "a posteriori identity," and with it makes homogenisation a measure for determining standards. On the ground of everyday life, this method alienates human beings from themselves, from society, and most importantly, from other non-human living beings.

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It is worth giving thought to the proposition that so long as this common sense is not restored, dehydration of living systems (on account of excessive evaporation, disproportionate use by industries and pollution) will continue escalating; wilting and extinguishing larger population of human beings and of biodiversity.

The restoration of this common sense will be possible once the subtle fundamental difference between H₂O and primordiality of landscape water, is rendered intelligible. Which, in turn, will show how fulfilling the human need for water rests on adequately hydrating every non-human living beings.

Both water and H₂O look alike. Their similar appearance draws attention to the fact that both are necessary and essential for the making of societal labour–metabolism nexus. The subtle difference is intelligible from the way these metabolise labo(u)r differently. The different spellings: labour and labor, refer to instrumental and reflexive aspects of it, respectively. A careful look will show that water in landscapes has many more aspects than hydrogen, oxygen and other similar substances. For this reason, they build different societal metabolism nexus.

The primordiality of landscape water metabolises reflexive labor that orients human beings to discover their potentiality from what they do, and can do to maintain the coeval-ness and the seamless continuum with their natural environment; and not be distanced and separate from it. Thus, they see their reflection in the enrichment of diversity of all living beings. The reflexivity of this labor is grounded in a wholistic science which considers non-human living beings as well as natural phenomenon as equal contributors in the making of life, society and culture, and not as antagonistic.

When the primordial water directs and metabolises labor, its *physis*, that is, its self-active reflexivity—an inner necessity, holds it together and with this, it hydrates and holds together all living beings. It has an inclusive orientation. The concept of *physis* comes to us from ancient early Greek culture. Knowlton (1920: 224–25) says it arose long before its actual personification in literature or theological deifications under the specific name. It was gradually defined by pre-Socratic philosophers.

However, a new orientation occasioned a shift to *physis* of labor for the “adequate hydration” of all living beings from the chemistry of instrumental labour.

H₂O and Instrumental Labour

David Barnett (2000: 101) points out that Saul Kripke (1980) has argued:

Proper names rigidly designate their referents, that empirical investigation is sometimes needed to establish coreference, and therefore ... there are certain identities which are necessarily *a posteriori*.

Kripke formulates the “*a posteriori* identity” for H₂O as follows:

If “H₂O” and “water” do in fact rigidly designate the same stuff, then, necessarily, water is identical to H₂O. (Barnett 2000: 101)

This has a history. Miller (2004: 1) points out that Joseph Priestley and Henry Cavendish, scientists of the 18th century discovered that water, a compound H₂O, is made of smaller elements (oxygen and hydrogen) and that this was a refutation of the Greek view that water was a primordial element. This

refutation made it “*a posteriori* identity” and rendered the common sense respected by ancient people and discussed by early Greek philosophers, dysfunctional.

According to Chang (2012: 14) when Priestley and Cavendish maintained that water was a compound of elements, they “clearly meant element to be a substance that could be modified, by the addition or subtraction of phlogiston.” He discusses,

What was phlogiston? In short, it was the principle of inflammability; “principle” here did not mean a fundamental rule, but rather a fundamental substance that combined with other substances and gave them its characteristic properties. Phlogiston was the principle that imparted combustibility to combustibles. A combustible substance was rich in phlogiston, and when it burned it released its phlogiston, which then manifested itself in the flame that came out. (Chang 2012: 3)

Further, he points out,

No one knew better than Priestley how to make oxygen (dephlogisticated air), and hydrogen (called inflammable air) that had been discovered and studied in 1766 by his compatriot and fellow phlogistonist Henry Cavendish.

The ... Cavendish–Priestley view was that inflammable air was “phlogisticated water,” that is, water containing an excess of phlogiston. As for oxygen, or dephlogisticated air, that was “dephlogisticated water.” When phlogisticated water and dephlogisticated water combined with each other, the excess and deficit of phlogiston cancelled out and plain water was produced. (Chang 2012: 6)

This *a posteriori* property of H₂O to impart “combustibility to combustibles” is a fundamental of metabolic exchange between humans and nature initiated by labour. The time and energy expended to make H₂O is the phlogiston of labour. That is to say, labour is the capacity for combustion, to impart combustibility to combustibles. As a rule, this separates and combines natural substances. From the very beginning, this has shaped the character of industrial labour system.

For this reason, it will be appropriate to conceptualise H₂O as a part of the stuff of industrial labour, a means to convert use value of this discovery into commodities with exchange value. This is the metabolism of homogenisation. It produces what Sartre describes as inert totalities. One such product is homogenised “*a posteriori* identity” of H₂O. The notion of “inert totality” given by Sartre (Ree 2004: 45) has four attributes:

- (i) A totality is defined as a being which, while radically distinct from the sum of its parts, is present in its entirety, in one form or another, in each of these parts, and which relates to itself either through its relation to one or more of its parts or through its relation to the relations between all or some of them.
- (ii) If this reality is created (a painting or a symphony are examples, if one takes integration to an extreme), it can exist only in the imaginary (*l’imaginaire*), that is to say, as the correlative of an act of imagination.
- (iii) The ontological status to which it lays claim by its very definition is that of the in-itself, the inert. The synthetic unity produced its appearance of not an activity, but only the vestige of a past action.
- (iv) Through its being-in-exteriority, the inert in-itself gnaws away at this appearance of unity; the passive totality is, in fact, eroded infinite divisibility.

Each of these four attributes is discernible in H_2O . As a totality, H_2O is “radically distinct from the sum of its parts” (hydrogen and oxygen) and “it is present in its entirety, in one form or another, in each of these parts, and which relates to itself either through its relation to one or more of its parts or through its relation to the relations between all or some of them” (Sartre in Ree 2004: 45).

That is to say, it is related to nothing outside of itself. This makes “a posteriori identity” H_2O exist as an imaginary (*l'imaginaire*), as the correlative of an act of imagination. Nowhere outside this imagination can H_2O be found to exist. As a homogeneous abstraction it is “in-itself” inert. This is because synthetic unity of hydrogen and oxygen molecules produced its appearance (water) as “vestige of past actions” of substance modification by separation and combination, and not as an activity.

The appearance of abstract H_2O exists as “being-in-exteriority.” Its passive totality is eroded by its infinite divisibility (to become a substance that could be modified, by the addition or subtraction). The notion of infinite divisibility represents a scientific consciousness in all sciences. Its watchword is “empirical facts” which is opposed to speculative and empty concepts. This, Luce Irigaray says, is

To designate one part of matter—as theme, motif, referent, method—while neglecting the whole of its domain. (1999: 11–12)

Here Luce Irigaray argues, the logic of the matter of physis² is not known to *logos* (1999: 11). The most damaging consequence of infinitely divisible is the disturbance of the wholesomeness of longer inclusive water cycles, the dehydration of riverbeds, dehydrating groundwater, and depleting freshwater reserves.

Towards a New Orientation

Questioning “a posteriori identity” of H_2O Barnett (2000: 107) asks,

Is the possibility of there being a sample of H_2O that is not a sample of water merely one of epistemic nature? The answer is no.

This intuition is driven not by the empirical fact that water is composed of H_2O , but rather by an a priori fact about water.

What could this a priori fact be other than its primordality as the root of all things! Russell points out that Empedocles (450 BC) attempted to prove that air was a separate substance. Prior to him, Heraclitus argued for fire, Thales for water and Anaximenes for air as the primordial elements. Crowley points out that

The view that fire, air, water, and earth are the constituents of things appears to be something of a commonplace by Plato's time ... It seems these four “Empedoclean” elements were commonly or popularly called *archai* and *stoicheia* of everything by Plato's contemporaries ... The meaning of *archai* is “the original sources or principles of things”; and of *stoicheia*, “the ultimate constituents of things.” (2005: 380)

Three usages of *stoicheion* ... Aristotle explicitly identifies are ... the first of these the “alphabetic” sense, the second the “elemental” sense, and the third, referring as it does to the principles, axioms, and postulates of geometry, the “geometric” sense. (2005: 374)

It is important to emphasise that these three senses of the term *stoicheion* are independent of each other, and hence that each can be understood without reference to the other. (2005: 375)

Crowley further points out that Plato, through his spokesperson Timaeus says:

There is an allusion to the alphabetic sense of *stoicheion*. Perhaps it should be noted that the reference to syllable is not necessarily a reference to alphabetic syllables: just as *stoicheion* has a core meaning of “primary constituent,” so it is sometimes suggested that syllable has a basic or primitive sense of “that which is held together”—that is, of several things held together; hence a composite or complex, as opposed to a simple, object. (Crowley 2005: 382; emphasis by the author)

Water is one such element. Its primordality is a complex phenomenon: it is a syllable and, its physis is understood as that which is held together—that is, several things held together. This fact makes it the root of all things. To grasp this, we will follow a fundament of Goethe's method to observe common phenomenon outside the laboratory.

Entelechy and Water

In landscapes, water occurs in heterogeneous terrains and its movement metabolises the planet earth. In this all pervasiveness, its primordial a priori-ness is discernible. With entelechy, can we see that H_2O is mere matter and water is a living body? Entelechy is that which makes the difference between mere matter and a living body.³

The syllable water is a living body as it hydrates, holds together the sensible form of a living body and brings colour for all living beings. Each of these aspects of life is elaborated here. This sensible form Goethe discovered in his study of plants. Uberoi (1984: 26) points out it is the *urphaenomen* or the archetype:

Archetypes or *urphaenomen*, is defined by Goethe as the entelechy of a series of sensible structural forms. It is self-existent or self-sustaining and self-explanatory unity of the real and the ideal, the precept and the concept.

The primordial identity of water is the *urphaenomen* as it is self-existent or self-sustaining and self-explanatory. This hydrates and holds together.

It is “the element” which is present above, on and below the surface of the earth to hold together all living beings in these three realms. Its fluidity is a series of sensible forms (liquid, vapour and solid) which holds together other sensible forms in the sky, on the earth and underground. There is a “self-explanatory unity of the real and the ideal, the precept and the concept,” in its fluidity and transparency (Uberoi 1984: 26).

Goethe describes this physis⁴ of the *urphaenomen* in the discussion on metamorphosis. In Goethe's words,

(a) It is like centrifugal force and would lose itself in the infinite if a counter-weight were not provided. I am referring to (b) the specific force, that tenacious capacity for persistence inherent in whatever has attained existence, a centripetal force that cannot be disturbed in its deepest nature by anything external. (Uberoi 1984: 30)

This counterweight is discernible.

True observers of nature ... will agree that all which presents itself in appearance, all that we meet with as phenomena, must either indicate its original division which is capable of union, or an original unity which admits of division and, that the phenomenon will present itself accordingly. To divide the united, to unite the divided, is the life of nature; this is the eternal systole and diastole, the eternal collapse and expansion, the inspiration and expiration of the world in which we live and move. (Uberoi 1984: 31)

The “centrifugal force that would lose itself in the infinite if a counter-weight were not provided” described by Goethe (cited in Uberoi 1984: 30) is discernible as water changes, and as it transforms from solid to liquid to vapour.

Here we meet with water as a primordial phenomenon, which indicates its original division which is capable of the union, and an original unity which admits of division. The sensible form of water functions to “divide the united, to unite the divided, is the life of nature; this is its eternal systole and diastole, the eternal collapse and expansion, the inspiration and expiration of the world in which we live and move” (Uberoi 1984: 31).

As regards bringing colour to living beings, its colourlessness that makes the holding together, and all inclusive. Does not colourless water bring colour to this biodiversity? Are not the colours of the rainbow in the sky taken by colourless water to the biodiversity of plants, birds and animals on earth? What “is” in water that does this? This is not known to the logos of the “empirical fact H₂O.”

Small quantities of freshwater appear colorless. However, in open spaces, fresh water has a slight blue color, which becomes deeper as the thickness of the observed sample increases. This blue hue shows an intrinsic property of water, namely scattering and selective absorption (polarisation and progression)⁵ of white light. However, when we observe a rainbow we notice water reflects, scatters and absorbs all colors of white light. These absorbed colors are carried to all sensible forms of the lifeworld.

For instance, only leaves hydrate and enable the selective absorption of colour that occur in white sunlight that falls on these. Would Goethe have considered this as another reason why a plant is all leaf? With regard to plants Bortoft (1996: 80) wrote: “Hypothesis: All is leaf. This simplicity makes possible all diversity.”

The leaf he refers to here is to be understood in the universal sense as an omnipotent form and not as a particular leaf. The different organs of the plant are then perceived as the metamorphic variation of this form, each of which could be derived from any of the others. This is continuity of form and not of substance. The differentiation of plants into diversity by this entelechy is the metamorphosis.

No hydrated plant in full blossom looks like any other, and yet all of them appear as one unified whole. It is because of the presence of water that the unity of different sensible forms of all other plants are discernible in their self-activity. Each plant and all the plants are self-existent or self-sustaining and self-explanatory. The entelechy that is discernible in the self-activity shows that each unique plant has a resemblance with all other equally unique plants.

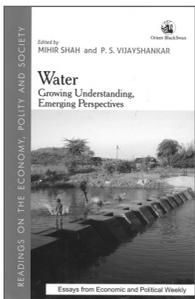
Labor Reflexivity and Conservation

The prominence of landscape water is discernible from the blue coloured image of the earth when seen from the outer space. This distinguishes it from other planets in the cosmos. This prominence is described as: 75% of landscape is water and from 60% to 100% of the body of living beings is water.

Water: Growing Understanding, Emerging Perspectives

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For decades after independence, Indian planning ignored the need for sustainability and equity in water resource development and management. There was just one way forward, that of harnessing the bounty in our rivers and below the ground. It was only in the 1990s that serious questions began to be raised on our understanding and approach to rivers.

This collection of essays, all previously published in the *Economic and Political Weekly* between 1990 and 2014, reflects the multi-dimensional, multi-disciplinary character of water and spans hydrogeology, sociology, economics, political science, geography, history, meteorology, statistics, public policy, energy and ecology.

The essays are arranged thematically and chronologically: Water Resource Development and Management, Historical Perspectives, Social and Political Dimensions, Economic Concerns, and Water Policy.

With detailing of the huge diversity of concerns and points of departure, *Water: Growing Understanding, Emerging Perspectives* will be invaluable to students and scholars of sociology, economics, political science, geography, ecology and public policy.

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This image does not show that most of the 75% distributed in landscape is poisoned, it is not colourless, not odourless and not sweet to taste. It is black in colour, it stinks and it will be of nasty taste if at all someone were to try and taste it. This difference draws attention to the “want” for freshwater in diverse sources—groundwater, freshwater lakes, and springs—for hydrating living beings.

For it is fresh landscape water “that which is held together” (Crowley 2005: 382). It is fluid, transparent, and colourless, which makes it odourless or gives it a pleasant smell, makes it tasteless as well as sweet to taste, depending on time and place. Its transparent “self-activity” makes it “self-existent or self-sustaining.” It is each of these attributes that hold together the series of sensible forms that make up a landscape.

The “rights” regimes for conservation have moved on from animal rights⁶ to rights to mother earth⁷ and now to rights to habitat.⁸ However, these are not on firm ground so long as the necessity for fresh landscape water is not included as foundation of conservation.

These rights regimes of conservation are post-destruction dispensations that perpetuate the orientation of instrumental labour, to not give adequate and appropriate recognition to the fact that landscape water, and not H₂O, is primordial for the metabolism of everything on planet earth. This is demonstrated

from the fact that conservation of water and conservation of biodiversity happen on two different registers.

These regimes are helpless when floodwaters destroy human habitations. Further, they are powerless to ensure that rivers continue to flow seamlessly so that all living beings can get water. Furthermore, these regimes cannot protect “conservation sites” from the excess carbon released by modern economies that are in the neighbourhood. There is a limit to absorption of carbon, and if this limit is transgressed then the metabolism of these habitat changes.

These regimes are oriented to protect human beings and natural biodiversity habitats from each other. With a shift to reflexive labor it will be possible to firmly ground conservation with the primordality of water. This would bring conservation of water and conservation of biodiversity on one register; make one habitat for human beings alongside natural biodiversity and restrain the production of carbon.

Most significantly, with this shift from a posteriori identity of H₂O to water, understood as the unchanging material principle of life, it will be possible to see conservation become a habit in everyday life. This will begin to hydrate, hold together and bring colour to all living beings. Of special significance is colour, because it is an expression of the light that illuminates life.

NOTES

- 1 It captures the complex biochemical process of metabolic exchange, through which an organism (or a given cell) draws upon materials and energy from its environment and converts these by way of various metabolic reactions into the building blocks of growth. In addition, the concept of metabolism is used to refer to the specific regulatory processes that govern this complex interchange between organisms and their environment. Eugene Odum and other leading system ecologists employ the concept of “metabolism” to refer to all biological levels, starting with the single cell and ending with the ecosystem. Also see Foster (2000: 160).
- 2 In Pre-Socratic Greek culture there were four divisions of cosmology. According to Knowlton (1920: 226): “To each of these four divisions—primal matter, form, the efficient causal agent, and God, the final cause, the one-word—physis, may be applied. If we take a pantheistic view, and regard the four divisions as limitations in the way of regarding the pantheos, we may call the whole.”
- 3 See, <https://www.newworldencyclopedia.org/entry/Entelechy>. Entelechy is a philosophical concept stemming from Aristotle's metaphysics, and generally used to identify whatever it is that makes the difference between mere matter and a living body. Originally a notion merely concerning the actualisation of some substances' potential (and so a notion that easily fits into a naturalistic description of the world), in Leibniz's hands it came to denote a non-material, unextended, mind-like entity that underlies the entire physical world. In each case, the driving thought is that something metaphysically distinctive must be present in living bodies.
- 4 “Physis is nearest to natural science which deals with problems that at the present day concern physics, chemistry, and biology, and which has the attitude of studying cause and

effect, as distinguished from purpose,” according to Knowlton (1920:241).

- 5 See, Uberoi (1984: 65). From his study of Goethe, he derives “the comprehensive formula that, in the study of man and nature, polarity + progression = dialectics, always remembering of course that there will be also the inverse shadow dialectics of separation and regression.”
- 6 For instance, it is illegal to give injurious substance to animals, to transport animals that will cause them harm or suffering (The Prevention of Cruelty to Animals Act, 1960, Section 11); to maim or cause injury for monetary value (Indian Penal Code, Sections 428 and 429).
- 7 The Universal Declaration of the Rights of Mother Earth, 22 April 2010.
- 8 Baigas have been given habitat rights. See, Narayanan (2015) and Chakravarty (2016).

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