

EXTRAITS DE L'ŒUVRE D'ARNE NÆSS

- Extrait principal : “The Shallow and the Deep, Long-Range Ecology Movement: A Summary”, *Inquiry: An Interdisciplinary Journal of Philosophy*, New York and London: Routledge, Taylor, & Francis Group, n° 16, 1973, p. 95–100.

2. The deep ecology movement accepts biospherical egalitarianism— in principle. The “in principle” clause is inserted because any realistic praxis necessitates some killing, exploitation, and suppression. **The ecological field-worker acquires a deep-seated respect, or even veneration, for ways and forms of life. He reaches an understanding from within**, a kind of understanding that others reserve for fellow human beings and for a narrow section of ways and forms of life. **To the ecological field-worker, the equal right to live and blossom is an intuitively clear and obvious value axiom.** Its restriction to human beings is an anthropocentrism with detrimental effects upon the life quality of men and women themselves. This quality depends in part upon the deep pleasure and satisfaction we receive from close partnership with other forms of life. The attempt to ignore our dependence and to establish a master-slave role has contributed to the alienation of man from himself.

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- Arne Næss, “Spinoza and the Deep Ecology Movement”, *Selected Works of Arne Næss*, vol. X, A. Drengson and H. Glasser (éd), Springer, Dordrecht, The Netherlands, 2005, p. 395-420.

Increasingly, academic philosophers are reflecting the ecological crisis in their writings. The sources of philosophic inspirations are many: the works of Aristotle, Spinoza, Bergson, Heidegger, Whitehead. . . . Since I was seventeen years old I have had a special relation to Spinoza’s *Ethics*, but that does not imply that I believe his work can be of help to all who wish to articulate their basic attitudes. I believe there is need for deeply different verbal articulations of a total view, including the poetic.

Several terms in the *Ethics* are to my mind extraordinarily helpful when we try to express **the fundamental views that have motivated the environmental activism of some of us**. I shall in the next sections focus mainly on one of those terms, namely *amor intellectualis Dei*, “the understanding love of God.” The verb *intelligere* I translate as “understand.” The adjective

intellectualis should not be translated as “intellectual”—a too intellectual term today.

The term *amor intellectualis Dei* and closely related terms had for centuries been theological terms within the rich tradition Spinoza modified in his own particular direction.

(...)

Love of God being the highest goal in the religious life of man, Spinoza— carefully following the old tradition—furnishes this love with an appropriate place in part V of his *Ethics*. We might ask, though, if the so-called rationalist system invented by Spinoza allow him to put so much “theology” into it? His supreme intention seems to have been to stick firmly to reason but nevertheless to furnish his religious contemporaries with a strong faith as satisfactory, or more satisfactory, than theirs. This was a project that was unlikely to succeed as far as I can see. The result: a use of the term *amor Dei* that certainly admits various interpretations (see Naess 1986d). I shall stick to my consistently immanent interpretation of *Deus* and hold that *amor intellectualis* is directed toward “God, *not* as infinite” (*Deus non quatenus infinitus*, as in *Ethics*, VP36.) It is directed toward individual finite beings. My minimum thesis here is that at least for one hermeneutically justifiable interpretation, the understanding of God, as part of the third and highest way of cognition, is directed toward individual finite beings. This position requires discussion of the term *Deus*. I shall need to discuss the thesis of immanence before returning to the *amor intellectualis*.

(...)

There is an expression that more than any other has supported the concept of the immanent God: “God or Nature” (*Deus sive Natura*).

(...)

The texts of the *Ethics* furnish no basis for assuming that God expresses a nature, essence, or power in any other way than through each existent being. From this, and what has already been said, I draw the following conclusion: *amor intellectualis Dei* is a kind of love of the existent particular beings, that is, parts of the total richness and diversity of life-forms on Earth, and in other regions of the universe.

In a sense, God as *natura naturans* is nothing else than a term expressing the unequally distributed, intimately interrelated creativity manifested by particular beings. The creativity of these beings, however modest, justifies calling them living beings. Spinoza’s so-called panpsychism does not say much more, as I see it.

Would not the above interpretation render God finite, and would it not go directly against a way Spinoza would accept? No, because of the infinite creative aspect of the whole, which embraces *natura naturans* and *natura naturata*. Most students of Spinoza would presumably answer in the affirmative, but then they overlook a number of statements in the text of the *Ethics*. In IIP9, Spinoza talks about God “not as infinite” (*non quatenus infinitus*). If finite, however, God will have an aspect of “modes”? Surely Spinoza talks of the modified God (*Deus modificatus*), of God being affected (cf. Naess 1981). (See especially IIP9 and IIP11Cor.) God as *natura naturans* does not exist as something separate from *natura naturata*.

In short, the term *Deus* in the *Ethics* has two functions. One is to point toward an infinite whole with infinite dimensions of creativity, not *in* time, but making time possible. The second function is to point to the manifold of finite creative beings manifesting and expressing

the parts of that whole. At least, this is one way to conceive and feel what the text of the *Ethics* suggests. The finite, temporal beings are creative, *causa adequatae*, insofar as they are in themselves, *in se*.

By definition—or better, almost by definition—those who support the deep ecology movement are, like Spinoza, in part motivated by basic premises of philosophical or religious kinds and feel that all living beings have intrinsic value. **It makes sense to care for these beings for their own sake, as creative beings.** Clearly, the supporters may appreciate something like the above verbal articulations of deep attitudes. Acting with part of the power of the immanent God, and knowing their own action, human beings know God adequately. “The human mind has an adequate knowledge (*cognitio*) of the eternal and infinite essence of God.” Interpreters have difficulty here. What is “adequacy”? If God is the creative power completely distributed among living beings, and human beings know, are conscious of, this creativity itself, one may say that their knowledge of God is adequate (cf. IP34). Since the only things to be known as actual existing beings are the finite particular things, “the more we understand (*intelligimus*) individual things, the more we understand God” (VP24).

From the point of view of immanence, human understanding of the highest “third, intuitive kind” not only has a cognitive aspect but is more specially a relation of love. It is a special kind of intuitive understanding of particular things that involves an internal love relation. The second kind, culminating in scientific knowledge, does not have that relation to love, at least not as an internal rather than an external relation.

In his eagerness to convince his contemporaries that his philosophy furnishes all the satisfaction of the Jewish and Christian faiths, Spinoza perhaps stretches too far. The reader easily gets the impression that a life centered around the love of God must be a life of unworldly contemplation, a life different from one centering around the loving understanding of particular things, as was, for example, the life of Rachel Carson. ***Amor intellectualis Dei implies active loving concern for all living beings.*** Spinoza was a socially and philosophically active person. One need not, of course, be interested, as Rachel Carson was, in every living being along the shoreline. One may concentrate on human beings, as Gandhi did. The essential point is that the third kind of knowledge concerns particular beings, and that every one of them in a basically egalitarian way is an expression of the immanent God, part of *natura naturans*, Nature with a capital N, as well as of *natura naturata*.

One may say that the understanding love of God, and the third (intuitive) way of cognition, concentrates on the content of reality, not its abstract structure. The abstract structure is investigated through the second *way of cognition*. *Einstein and others obviously delight in God’s thoughts* in the form of abstract, but beautiful, laws of nature. Mathematicians delight in still more abstract structures. Spinoza, presumably, was delighted to study Euclid. In all this, reason operates, but it is also a form of reason that leads us inevitably to the third kind of cognition (VP28): the third way is rational in the sense that reason and reason alone leads us to this third way.

A supremely important rule, which fits neatly with the deep ecology slogan “Rich life with simple means!” has to do with the function of reason as a servant of the third way: what is done that is not in harmony with ultimate goals of life cannot be reasonable. It is not enough to be reasonable and effective as means toward a subordinate goal. One must ask, Is this subordinate goal consistent

with, or better, conducive to, the realization of ultimate goals—situations with meaning in themselves?

Love of the immanent God is love of God's expressions, not of a separable God. A being expresses God's nature or essence; therefore, love of God cannot be different from love of such a being. What, though, is God's nature or essence? Proposition 34 in part I answers: "God's power is God's essence itself"—as already said. In the proof Spinoza says that through God's power God and every being exist and act more or less freely. Because God is not separate from God's expressions, causality from God to God's expressions is immanent, not the causality of our natural science. When a human being loves God "intellectually," it cannot but be a love of one expression directed toward another expression as an expression of God, and as such of intrinsic value.

There is a basis for assuming that the particular beings understood the third way are understood in the light of a great, infinite whole, the creative aspect of that whole. The general structure of the *Ethics* is such that what is said about human beings basically applies to what is said about beings in a fairly general sense. Note the use of "consequently" (*consequenter*) in the proof of IVP4: "The power through which particular beings, and consequently human beings, conserve their being, is God or Nature's power itself, not in so far [God or Nature] is infinite, but in so far [God or Nature] can be made explicit through human actual essence."

Supporters of the deep ecology movement like to say that they support ecocentrism, not anthropocentrism, and Spinoza certainly offers high-level premises for what has sometimes been labeled biocentric or ecocentric egalitarianism. I think these Latin and Greek terms are useless in serious discussions, but they may be helpful in offering some vague idea of a kind of basic attitude. Spinoza tried something immensely difficult, namely, to articulate with some preciseness certain basic attitudes.

Spinoza's holism, implied—vaguely implied?—all through the *Ethics*, is secured through his use of the term *God*, and by the generality of his theorems. There is a sentence in his work *On the Improvement of the Understanding* that many people try to use as a key to understanding Spinoza's system: he says explicitly that he strives to attain a stable mental state characterized by the knowledge of the union that the mind has with the whole of nature. This is together with others, not alone: "to strive that many acquire it with me." He envisages a society conducive "to the attainment of this character (state) by the greatest number with the least difficulty and danger." It necessitates a healing of the way we understand things. A way of caring understanding? In a sense, a movement toward "green communities"? His statements are not incompatible with such a movement. Of course, if supporters do find something inspiring here, it is not in the belief that Spinoza as a person would be supporting what they do, but rather that a kind of philosophy like his could support them.

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- Arne Næss, “An Example of a Place: Tvergastein”, *The Selected Works of Arne Næss*, vol. X, *op.cit.*, p. 339-360.

The Global Place-Corrosive Process

When the majority of people lived on the land, with little mobility, it was natural to feel at home at certain places. One stayed at home, left home, went home—but home was not a building. The advertising of “homes” for sale is not an offer of a home in the connotation relevant to our analysis. Home was where one belonged. It was “part of oneself,” that is, it delimited an ecological self, rich in *internal* relations to what is now called environment. Humanity today suffers from a place-corrosive process.

Urbanization, centralization, increased mobility (although nomads have proved that not all sorts of moving around destroy the relation of belonging somewhere), dependence on goods and technologies from where one does not belong, increase of structural complication of life—all these factors weaken or disrupt the steady belongingness to a place, or even hinder its formation. There seems no place for PLACE anymore.

Nevertheless, the loss of place is felt, the longing persists, and this emphasizes the need to articulate what it means to belong to a place. Doing so strengthens the movement toward the development of a sense of place to reinvigorate the internal relation of the self to the environment. This movement is of prime importance for the motivation to partake in the deep ecology movement. Most supporters of the movement are people who are intimately acquainted with urbanization; it actually facilitates their capacity to think globally. People who are completely absorbed in the land have no need for high levels of abstraction and articulation, nor do they have the training to make their *implicit* global attitudes a basis for action.

The *implicit* global attitude does, sometimes, show itself in action. In the 1950s, when people in Norway were asked to contribute money to help fisheries in the south of India, the nonurbanized, relatively poor people in extreme arctic Norway contributed the most. Of course, what is of *most* importance to these nonurban people is their homestead. It is clear that only the destruction of fisheries through overkill, and the destruction of local and provincial markets, would make them consider leaving their homestead, their *hjemsted* (home-place).

It is important for those who have experienced the place-corrosive process but somehow saved their belongingness to a place (at least in somewhat modified form) to tell others about how their sense of place survived. This may help others strengthen their motivations, and it may also strengthen and purify how those who still feel belongingness act out their chosen way of life and priorities.

This introduction may seem somewhat bombastic in relation to what I am going to say about the place Tvergastein. Not many people are in a position, or would have the inclination, to identify with a place like Tvergastein. However, the development of a place for a person to feel at home, and to belong, shows exceptionally clearly *some of the forces at work in the establishment of a place* (or perhaps I should say establishment of a place as a Place). Unfortunately, the reader will have to consider some autobiographical details. I have to say some words about how I came to look toward Tvergastein as my future place.

Geography

About 200 kilometers east of Bergen are two great landmarks, the Hardangerjøkul (a dome-shaped glacier of about 80 square kilometers, a remnant of the time when Norway, like Greenland, was covered with ice) and a 40-kilometer-long broad mountain called Hallingskarvet, running from east to west. This mountain is composed of hard eruptive rocks laid bare millions of years ago through the erosion of softer mountains. From its southeastern slopes, one may survey an enormous part of southern Norway (tens of thousands of square kilometers). On these slopes we find a place called Tvergastein, 1,500 meters above sea level, with a lake named Tvergasteintjernet. Softer rocks have been protected by the overlaying, hard, 200-meter near-vertical part of Hallingskarvet.

The stupendous, majestic Hallingskarvet captured my imagination from the time I was about five years old, staying during Easter and summers in a cottage at Ustaoset, a tiny village about 8 kilometers from the mythogenic mountain where I developed my place.

In *documents*, “Tvergastein” is the name of the cottage at Tvergastein, the place. In terms of *geography*, the “place” is the name of the cottage *and* its immediate surroundings, that is, about 40 meters in all directions from the walls of the cottage. A wider usage, referring to a greater gestalt, treats the place as comprising the lake, Tvergasteintjernet, and a whole shelf on the slopes of Hallingskarvet as seen from the cottage (which is situated directly under the precipices of Hallingskarvet). Geographically, this is an area of a couple of kilometers in length, and rich in contrasts. Compared to the region of *seter* (mountain pastures), it is a world apart, reflecting arctic conditions at 1,500 meters at 60°5' north latitude and very different from the 1,000-meter level (arctic yes, but influenced by the Gulf Stream from the west). From Tvergastein, the mountains and glaciers around the great Hardangerfjord are clearly seen—and appreciated.

Even from a distance Hallingskarvet looks greenish, but this is clearly not the result of grass. The Place asked to be studied and the greenish cliffs asked to be recognized as such. When looked at closely, it revealed innumerable patches of beautiful green lichen. The Tvergastein Naturalist Library indicated that a particular species, *Geographicus*, was responsible for the green color. There were lots of other lichens, but a study of them required the use of a microscope and was rather technical compared to the study of flowers. Anyhow, the most “barren” parts of the visible surface of Hallingskarvet were alive even in the narrow sense of consisting of organisms—myriads in every square foot. The lichens are strangely connected beings: algae intimately interrelated with fungi. A still stranger connection: algae, fungi, human beings.

In the early summer mornings (at 3 or 4 a.m.) the huge shadow of Hallingskarvet keeps the landscape toward the south and west sleeping in semidarkness, but by 5 a.m. the sunshine brightens hundreds of small lakes and tiny patches of water on the plateau below Tvergastein, and at about 7 a.m. the sun appears over the mountain and penetrates the east window of the library, hitting a wooden plate painted stark black, thus contributing to the heating up of the small room.

The early morning sun also illuminates a faraway, 30-mile-long string of metallic electric masts and thick wires—hydroelectric power destined for Oslo, 200 miles away. Each mast is an elegant structure revealing much love and ingenuity on the part of the engineers, but such a string of masts transforms the landscape. If only a few mountainous landscapes were changed in this way, we probably should not complain and feel sorrow. However, the number of landscapes without these

strange beings diminishes rapidly. There are now more than two million gigantic masts around. The masts would have a less disturbing character if the power were used to increase the quality of life. As it is, the power is to a large extent wasted, which contributes to making people unaware of their fantastic material richness. What does a gallon of boiling water mean in the cities? Nothing. At Tvergastein it is a formidable luxury, enough to satisfy a host of essential services, a gift of nature of the most astonishing character.

Flowers

Arriving at Tvergastein from below, some people might call its flowers small, inconspicuous, unspectacular, even poor or insignificant. Let us say we point to green patches of *Salix herbacea* (mouse-ears). If we say “Look!” some people would answer “What? What do you see?” They see tiny unspectacular leaves like ears of mice (*musøre*). These plants (“huddling together”) rarely reach more than an inch from the rock—you see no soil. In front of the cottage, they reach half an inch. Of course, they are not “huddling” together; they are probably having a very good life together. Their flowers—hardly detectable until one is very near the plant—are well formed, their reddish seeds very conspicuous after a while.

These plants seem to delight in tiny cracks in the stony ground, sometimes much less than an inch wide. They join the lichen and “dominate” where no organic life is capable of having a good time. *Salix herbacea* seems to be “everywhere” at Tvergastein. We walk on them without the slightest regret. We make soup of them without thinking about extinction or interference with their habitat.

Whereas we human beings only gradually come to appreciate the mouse-ears, there are tiny creatures, a kind of wasp, that make red applelike houses on the mouse-ears. Opening the walls of the “house,” we see a tiny white worm, which will probably die from exposure, but, as they are so tiny, we don’t care very much. At least we must be allowed to inspect one of the million interesting red dots on the leaves? Note our ineradicable inconsistency! When interested, I would still (even after writing about this “cruelty”) disturb such worms.

There are fraction-of-an-inch flowering plants of unsurpassed beauty, the *Gentiana nivalis*—a typically ethnocentric Nordic name: “Jesus blueeyes.” In the most authoritative botanical reference work, that of Johannes Lid, the height of the flower is given as “7 cm,” nearly 3 inches! Most of the specimens in front of the cottage are less than 1 centimeter. The dark blue color is so intense, though, that on a windless sunny day in late July, **they look great and clamoring for attention.** Unfortunately, there are few such days, and on most days in the latter half of July, the flowers are closed. The plant is then difficult to find. The rest of the year—where is it? The plant lives only one year. In order not to become extinct at Tvergastein, *Gentiana nivalis* must somehow start a new generation in July next year (or the July after that, if next July is cold). Obviously, the existence of the plant at Tvergastein is precarious.

Other flowers are typical arctic plants, like *Dryas octopetala* (the “Reindeer rose”), which has big beautiful white flowers—often bigger than the rest of the plant. They have a good time where there is no soil to be seen, keeping together so that there may be several hundred within a single square meter. Still richer with white flowers: a square meter of well-shaped downy-haired *Cerastium alpinum*. There were more than 600 *Cerastiums* (3– 4 inches tall) within one square

meter at a spot near the famously windy northeast corner of the cottage—a sight of overwhelming richness!

Before I leave the “tiny” flowers, a particularly delicate, beautiful, modest one must be mentioned, the *Cassiope hypnoides*. Thousands of them create a carpet of green with white spots. The plant’s shape is misleading; it bends as if not being worthy of looking at us. It has fragility but no weakness, flowering even in dry summers in spite of its shallow roots, and growing where there is no soil to be seen. It does not creep but turns its stem straight out into the air—even as high as an inch.

After dwelling with some of the small flowers, when we first glance at a kind of dandelion (*Taraxacum alpinum* and similar arctic species) it looks not only crude, but downright indecent. It need not be higher than an inch, but it produces a flower 2 inches in circumference. To be just, the “flower” is really a basket of flowers, about a hundred of them. From its seeds each dangling from a parachute, we should all understand that the “flower” is a luxurious basket.

When one arrives at Tvergastein, more than a few easily changeable attitudes have to be more or less unconsciously modified. Everything is different from Ustaoset (8 kilometers away), and vastly different from the coast (50 kilometers to the west). Conversely, the adjustment again to the seacoast (not to mention the adjustment to the tropical rain forests of the south) is immense, if not terrifying. The differences scream at you. A rose is seen as a caricature of beauty. A tree is unnecessarily tall, grossly overdone, obstructing your alpine freedom of movement. While staying at Tvergastein, one’s attitudes change, and one’s personality changes, at least temporarily. After one week, there is a noticeable difference; three weeks—that is a very good stay. The last two weeks, the effects of mere contrast are largely gone. You are genuinely *there*. You are not seeing things through glasses from somewhere else. After a month, or two months, getting back down, and to town, is exciting but painful, harassing.

The distribution of snow is peculiar in windy arctic mountainous landscapes. If we are asked, “What is the snow depth at Tvergastein now?” there is no answer. There is no definite thickness, no small area with even distribution. The wind shapes the snow. After a strong west wind, there may be 2 meters of snow east of the east wall, but if “the same wind” reaches hurricane force, all the snow is carried away. There is no snow anywhere near the cottage. There is practically no snow *anywhere* at Tvergastein, even in January, but not far away there are usually 5–10 meters of snow in a windprotected valley or gully. This makes skiing in August possible!

A highly romantic consequence of the uneven distribution of snow is that certain protruding cliffs with tiny cracks are normally snowless, and a “tiny” flower, which tolerates freezing cold, uses the cracks and occasional twenty-hour sunshine to bloom in the middle of May. It is the famous *Saxifraga oppositifolia*, so well known and cherished in the Arctic. It is the very first flower in spring, and its red color stands out vividly in a world of snow and rock at Tvergastein. And so, you go skiing and, at the same time, enjoy the flowery season. *Farther down, at 1,200 meters or 1,000 meters, there are no flowers; they appear much later (one reason: the soil is deeper and frost keeps it rock-hard).*

In the precipices of Hallingskarvet, above Tvergastein, the *Saxifraga* also blooms in May because the sun’s rays heat up the rocks. When the sun stands at 20° above the horizon, the plants on 70° cliffs (with a minimum of soil) enjoy rays coming in at a 90° angle; again, this is a story of

the special quality of the arctic mountain climate. There are beautiful flowers combined with below-freezing temperatures, a hot sun warming cliffs, and deep crystalline new snow in protected areas. With this story about *Saxifraga oppositifolia*, a hero that may even have survived the Ice Age in Norway, we must close the chapter on flowering plants.

(...)

Tvergastein Amateur Research

It is difficult to separate unimportant biographical details from an adequate biographical description. The main thing is that a favored place relentlessly and remorselessly determines details of one's life. It may enrich life, but it may also lead to a manifold of habits and ways of thinking that are peculiar and a source of irritation to anybody not adapted to that special life. I find that attachment to places should not be uncritically praised.

In contrast to some of my ecosophically inclined friends, **I do not regard science, and above all, research, as incompatible with profound positive feelings toward nature. Tvergastein as “object” of botanical, zoological, mineralogical, meteorological, and other scientific research did not at all detract from the immediate experience of togetherness, of identification and appreciation. On the contrary.** In the great naturalist tradition, exemplified by systematics (taxonomy) of butterflies, the motivation is not mainly cognitive, but conative. Feelings, just as much as abstract thinking, direct the research.

In Einstein's scientific thinking, very different from that of a typical naturalist, the external world as a field of lifelong research was essentially nonpersonal. Its very impersonal character in part determined his strong motivation as a scientist:

“It is quite clear to me that the religious paradise of youth, which was thus lost, was a first attempt to free myself from the chains of the “merely-personal,” from an existence which is dominated by wishes, hopes and primitive feelings.

Out yonder there was this huge world, which exists independently of us human beings and which stands before us like a great, eternal riddle, at least partially accessible to our inspection and thinking. The contemplation of this world beckoned like a liberation, and I soon noticed that many a man whom I had learned to esteem and to admire had found inner freedom and security in devoted occupation with it.”

(Schilpp 1949: 5)

This way of liberation leads to abstract thinking and imagination of a special kind: “[A]ll our thinking is of this nature of a free play with concepts; the justification for this play lies in the measure of survey over the experience of the senses which we are able to achieve with its aid” (*ibid.*).

The way of liberation through “natural history” is different: very little abstract thinking, very much seeing, listening, hearing, touching. The secondary and especially the tertiary qualities are in focus, the world of concrete contents, not the primary as in physics. **There are worlds of minerals, rocks, rivers and tiny rivulets, plants, hardly visible or big (larger than 1 centimeter) animals, plant or animal societies, tiny or great ecosystems— all more or less easily available for enjoyment, study, and contemplation. The meaningfulness inherent in even the tiniest living**

beings makes the amateur naturalist quiver with emotion. There is communication: the “things” express, talk, proclaim—without words. Within a few meters of the gnarled wooden walls of Tvergastein cottage are rich and diverse changing worlds big enough to be entirely unsurveyable.

When I was only fifteen years old, I met among the highest mountains of Norway, Jotunheimen, the paleontologist Johan Kiær. He was eager to talk about his exciting search for fossils in Svalbard (Spitsbergen). Clearly, he was engaged emotionally, describing how groups of animals trapped in ash from volcanic eruptions sought to be together in death. He was *yearning* for closer understanding of evolution. Two years later, in Norway’s biggest library, I found thick volumes with beautiful drawings of one-celled organisms. **Evidently scientists were the only persons who really loved nature and life, with the smallest forms being taken care of with unbelievable accuracy!** Poets, in contrast, appreciated only a small fraction of living beings. It took decades to rid myself of this illusion about scientists, and to understand that what I had admired was found among **only a small minority of them.**

At Tvergastein I could wholeheartedly engage in amateurish research. Collections of stones could be seen at the Tvergastein petrographical institute; a few quartz crystals and other items formed its mineralogical institute. Thanks to low indoor temperatures and poor ventilation, the institute of fungiology (mycology) had several branches. Temperatures in the kitchen in winter were below freezing, which resulted in interesting glacial formations down the walls. Glaciological institute! Hundreds of questions were formed; few were answered. This intensified wonder. This state of mind plus appreciation of the richness and diversity of phenomena within reach seems to be an essential trait of free research—however amateurish.

To develop a taste and appreciation for what there is enough of—this has always been a pillar of ecosophical education. With growing insight into the “limits of growth,” that is, growth of material production and interference, this educational motto becomes ever more important. With this introductory note I shall describe more closely a new branch of amateur research— Tvergastein chemistry.

With the kerosene lamp on my work table it was practicable to heat chemical solutions above the lamp and in clear view. The smooth waves of colors in never-repeated variety cannot but make a profound impression on anyone willing to spend a little time in this occupation. In short, the most elementary chemical processes reveal a fascinating world. Tvergastein chemistry requires very few raw materials, very little heating. Boiling of more than a few seconds is prohibited because the room has little ventilation. Gases must be under strict control. So “the game” has rules that conform to strict ecosophical norms. There is one, and only one, *main* Tvergastein method of making exciting new chemical substances: mixing two substances that are soluble in water, with the more or less well founded hope that a certain new nonsoluble substance will appear. It is, however, somewhat difficult to obtain fairly pure substances straight from nature. The valuable self-reliance of the Tvergastein institute of chemistry was severely undercut after a talk with the president of Oslo University, who happens to be a chemist. Hearing my concern about self-made, very impure chemicals at Tvergastein, he naturally was delighted to help create the new branch of (amateur) chemistry by offering me free access to the resources of pure chemicals at his own institute. A helping hand from one institute to another!

Compromise and inconsistency! Consider, for example, the 25 grams of bismuth trichloride

I acquired—enough for twenty-five experiments at the level of Tvergastein ecological resource utilization, but presumably made by one of the worst gigantic chemical-factory polluters along the Rhine. I supported the poisoning of this magnificent river and added a little to the North Sea! Worse still, the stuff had from an amateur point of view a ridiculously high level of purity. The impurity from arsenic, for example, was *guaranteed* to be less than one in a million. This implies that a great deal of energy from coal or gas had been used in a series of wasteful operations aimed at cleaning the substance of any kind of impurities whatsoever. Anyhow, such chemicals are far removed from nature: from cliffs to stones, from stones to minerals, from minerals to abstracts some of which are not found in free nature at all. There is nothing “wrong” about such new substances, but we may note the distance of their study from that of a consistent naturalist.

Whatever the inconsistencies, the Tvergastein chemistry is an example of something of central importance in rich industrial societies: to assist youth in the warm *appreciation* and understanding of basic natural processes such as beautiful solutions, the miraculous transformation of one substance into others, the re-creation of thousands of beautiful colors and dyes. Those who are offered the opportunity for such experiences are changed, their life quality enhanced. They can live with less dependence on what there is *not* enough of for all.

Unfortunately, **the large-scale realization of ecoeducation requires a new politics**, a green politics, a politics that does not systematically favor people who concentrate mainly on getting more of what there is not enough of.

Taking naturalist science and research, professional or amateur, as the paradigm of science and research, ecosophies may without inconsistency hail these human undertakings. It is counterproductive, I think, to make *science* and *research* into negative terms, dyslogisms. There are from the amateur naturalist-researcher’s point of view immense opportunities at Tvergastein, as at other places. Research fits in with the conception of a Personal Place.

What can we learn from each other? Can tragic developments be avoided? The classic case of belonging to a place is that of being born and raised somewhere—somewhere just in the geographical sense—and then the place develops into the Place. When the place is physically destroyed or unfit for living because of other factors, can a different place develop into the Place? Certainly it can, and that is what happened for me with the Tvergastein area. The same will happen to many people in the future— they experience a longing and a satisfaction that elicits such utterances as “Here I belong!” It may even happen that there are two places to which we are drawn, and a conscious choice is possible. In such cases, certainly one thing can be inferred on the basis of my experience at Tvergastein: choose what has a reasonable chance of also being satisfactory to a life companion and to close friends. Don’t choose the place that is so particular that that chance is small. Furthermore, don’t choose the place where there is little chance that you yourself will be capable of mastering it when you reach an advanced age. Then it is not a place where you can live and die. Tvergastein is extreme in many ways and unfit for many purposes. The development of a hut and life there could only be more or less tragic, but even so it is difficult for those of us who have a place where we feel we belong not to be glad and grateful to have one. Why so? That is difficult to say.