On Realism in Science and Faith*

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Translated from the Danish

1884

The word *realism* is nowadays most frequently used to designate a tendency in poetic literature. It is sometimes employed in a reproachful sense, sometimes in a laudatory one, but rarely with a clear awareness of what it actually expresses, or of the limits of the validity of the concept it names. A clear account of this may perhaps only emerge once the modern aesthetic movement has more fully and distinctly unfolded its character and its consequences. It is not aesthetic realism that I intend to discuss here. Rather, I shall attempt to bring out what is distinctive about the realist tendency that, in our time, manifests itself no less clearly in the domains of science and of general outlook on life. It follows of itself that there must be an inner connection among the tendencies at work in these different domains, for just as little in the spiritual world as in the physical is there anything accidental or isolated. The human mind cannot be partitioned in such a way that, in its imagination, it follows paths that have absolutely nothing analogous or parallel to those it takes in its thinking and in its faith. Only the most doctrinaire and rigid among the opponents of modern aesthetic realism assign art and poetry such a sharply segregated place in the life of the mind that currents from other domains cannot—or ought not—reach them. By examining the nature and justification of realism in one domain, we indirectly contribute to the understanding of its appearance in others.

I.

In the most comprehensive sense, we may define realism as the principle of natural causes. If realism has opponents, and if it has only slowly worked its way forward to

*Essentially a lecture delivered at the "Studentersamfund" on 2 September 1882.

clear self-consciousness, this must be because the explanation of phenomena and events has been sought—and is still being sought—by routes other than those of natural causes.

The human drive to find the causes of things has expressed itself long before the founding of a realistic science. No period can be pointed to in the developmental history of the human mind in which it stood entirely passive before sense-impressions, without the slightest attempt to explain them in some way or other. The most primitive savages have their explanation of nature, which, seen from their standpoint, may have a perfectly rational character. And if we could sufficiently enter into the consciousness of an animal, we should surely find that it too interprets the impressions it receives according to certain points of view. This already follows from the fact that the laws governing the association of representations prove to apply equally to animal and to human consciousness. The history of cognition does not, therefore, begin with a period in which single impressions are merely accumulated, to be combined and worked over in a subsequent period. At every stage of the development of cognition, a more or less pronounced striving manifests itself to unite what is manifold and to fuse what is kindred.

The contrast between different periods in the history of cognition is instead characterized by the different explanatory or interpretive principles applied to experience. And here, above all, two great principles stand in sharp opposition to one another. The one interprets natural phenomena according to rules drawn from outside nature; the other interprets nature through nature itself.

Under the first kind of natural explanation belongs all mythology. The mythological conception of nature explains phenomena as expressions of the will of personal beings. For it, nature is populated by more or less human-like spirits, whose intervention is traced above all in remarkable and significant events. From the land of fantasy and dreams, the real world is peopled. At the primitive stage of mind, where the inhabitants of dreamland are every bit as real as the phenomena of the actual world, it is in itself entirely consistent and justified to lay them at the foundation of natural explanation. In the theology of the higher folk religions, the ultimate explanatory principle for everything is the will of a supernatural being—likewise entirely consistent, once one has established the reality of such a supernatural being. But the natural explanation thereby attained does not regard nature in its own light. Just as Archimedes wished for a point outside the earth in order to move it, theology has sought a point outside nature in order to explain it.

Something similar holds as well of many forms of philosophical idealism. If one finds the true explanation of a natural phenomenon in the purpose it is assumed to serve, or in the idea it is supposed to express, one is not explaining nature through nature itself. For

whence do we know the purpose or the idea? Experience itself does not teach us these; knowledge of them must therefore be drawn from a source other than that through which natural phenomena become accessible to us. We must thus possess a special faculty for cognizing "the Ideas," and our cognitive faculty splits into two branches whose connection cannot be demonstrated. We then have on the one side a faculty for apprehending what is given in experience, and on the other a faculty for entering into relation with a higher world and drawing from it the principles for understanding the world of experience. Insofar as the principle of natural causes is acknowledged at all, it is regarded as belonging only to the lower cognition. True cognition comes only when we recognize the Ideas in the world of experience. This conception, founded by Plato, the progenitor of speculative idealism, recurs in various forms right down to the most recent times.

Realism, with the principle of natural causes, always derives natural phenomena from other natural phenomena, the more complex phenomena from the simpler. When it is said that nature must be explained through itself, it must be remembered that nature is an immeasurable world of phenomena unfolding for us in time and in space. Every point within this world we determine by its relation to other points. We do not go outside nature, since we have more than enough to do in connecting the infinite number of elements within it. Or more precisely: the expressions "within" and "without" now lose their meaning. However far we advance from cause to effect, or however far we go back from effect to cause—no limit comes into view. Our inquiry may come to a standstill because it lacks the means to proceed further, as for instance the hypothesis of Kant and Laplace takes us no further back than the rotating primordial nebula. But wherever we begin or end, a new question always stands before us. The principle that nature is to be explained through itself therefore sets an infinite task. Nature as a whole, as the totality encompassing all natural phenomena in their mutual connection, is an ideal for our cognition, which it approaches step by step but will never be able to realize completely.

II.

When we think through the concept of realism in this way, the absolutely hostile opposition to idealism falls away. It is one of idealism's fundamental thoughts that we cannot rest at the level of individual, isolated facts, but must seek a bond that can bring coherence and unity to bear. Idealism went wrong in assuming that we could reach this unity and coherence by any route other than the continued working-through of the facts

of experience. In its impatience it anticipated an ideal that can only be reached slowly and approximately; and since it did not find this ideal fully grounded in experience, it derived it from a higher sphere.

Realism and idealism become complete opposites only when realism entirely abandons the maxim that genuine cognition does not consist in accumulated experiences, but is insight into the inner connection among experiences. But this maxim realism cannot abandon, since it is the first and most important principle of all science. When realism turns polemically and skeptically against idealist speculation, it can only be because it holds that idealism has misunderstood and misused its own maxim. Its doubt is the expression of a deeper faith: *alte dubitat qui altius credit!* Doubt and negation are not science's last word.

There are of course many popular prejudices that dissolve into nothing under scientific criticism, many problems and questions that on closer examination prove to owe their origin to illusory presuppositions. The human mind is originally sanguine. It does not wait patiently for experience's instruction, but hastens ahead with its dogmas and hypotheses. With advancing experience there therefore also follows advancing criticism. The development of empirical science brings with it a damming up of those chains of representation that hitherto spread freely in all directions like a river that has overflowed its banks. But this negative, inhibiting activity is only one side of the matter.

The conflict between the different conceptions of nature is decided in the same way as the conflict between dream and waking life. I attribute reality to waking life and its contents because it is more comprehensive and more coherent than the dream, which is always more or less fragmentary. The greater and firmer coherence makes the lesser and looser coherence intelligible, not the reverse. Only by giving us a more coherent worldview than speculative idealism and theology were able to provide will realism be able to prevail in the conflict. About particulars there will always be room for dispute. Because a series of experiences must be explained in accordance with realism's principle, it does not follow that other experiences could not in themselves equally well be explained idealistically or theologically.

Realism therefore becomes a distinctive worldview only when it ventures beyond what is merely given, or given hitherto, and opens the prospect of a total and thoroughgoing application of the principle of natural causes. This is what has occurred in the great scientific hypotheses, whose series is opened by the theory of Kant and Laplace and closes with those of Darwin and Spencer. These hypotheses have grown naturally as consequences of the course of development of science. In them, realism

comes forward clearly as a universal scientific principle. It is not always the case that researchers in particular fields become conscious of this principle. The division of labour in science has meant that the individual researcher can with ease, and apparently also with good conscience, dig down into a single point without troubling himself over the extent to which the principles and methods he follows have a more general significance and contain consequences of far-reaching importance for the overall worldview. Many natural scientists' attitude toward Darwinism finds its explanation here. But one who fixes his gaze on the general course of development of the sciences and sees how every advance in understanding has been won by applying the principle of natural causes, regards this principle as the one called to govern our entire conception of nature. It must unfold all its consequences; we must appropriate it; there is no way around it.

Is realism, then, proven? Not at all. And it can be proven in the strict sense just as little as any principle can be. We arrive at a principle when, by following a developmental course, we discover a dominant rule or tendency that becomes more clearly visible the further the development proceeds. Every principle is, to that extent, a hypothesis that we try to apply to reality. We try one principle after another, until we find the one best able to render the given intelligible. The gods of mythology and the Ideas of Platonism would still reign in the sciences, if the advancing experience were explained just as well by them as by the natural causes accessible to experience itself. The validity and justification of scientific realism will depend on whether it truly indicates the only principle capable of bringing unity and harmony to our thinking, and on whether it continues to receive confirmation as science advances. Provisionally it indicates the only way in which our general worldview can come into harmony with the spirit in which particular investigations are conducted—which follows from the fact that it is itself nothing other than the modern spirit of science itself.

III.

The expression "natural causes" requires closer explanation. If by the natural we understand that which can become an object of secure human experience, then spiritual phenomena belong to nature just as much as material ones. When a vivid emotion sets the imagination in motion, or when by an exertion of will we recall something in our memory, we have here a natural causal relation just as much as when bodies expand upon the supply of heat or are compressed under strong pressure. Nature accordingly encompasses two groups or series of phenomena, which we can bring into relation

with one another only by way of hypothesis or speculation: the material phenomena unfolding in space, and the phenomena of conscious life, which become immediately accessible to us only through self-observation, and which can only be represented in spatial form in a symbolic way. For both groups the principle of natural causes holds. Scientific psychology seeks the inner connection among mental phenomena, just as physics and chemistry seek the inner connection among material phenomena. In both cases we explain nature through nature itself.

The difficulty lies, as already noted, in finding the connection between the two domains of experience. Materialism cuts through the knot by overlooking their difference and simply making the spiritual a form or product of the material. But it must firmly be maintained that the question of the relation between the spiritual and the material is an open question within realism.

Realism can very well acknowledge that there is such a difference between the two groups of experience that the one cannot be reduced to the other, even though they prove to stand in intimate connection with one another. We know of no spiritual phenomena that are not bound up with material phenomena, but we have no common measure that could make clear to us how a material motion can produce a thought, or conversely.

In earlier times this difficulty did not always appear so clearly. One let the brain produce thoughts and feelings, and conversely the will set the limbs in motion, without concern, so long as one had neither a clear conception of the laws of material causation nor of the fundamental distinctive character of mental phenomena. But just as the principle of natural causes has made its way through science as a whole, so in natural science in particular the principle has been increasingly applied that for every material phenomenon a material cause must also be demonstrated, and that a material cause can only have a material effect. Physiology too—the science of organic life—works according to this principle and advances the demand that all organic phenomena—including, therefore, everything that takes place in our brain when we think, feel, and will—be explained in accordance with the principle of material causes. Physiology concedes that there is still a very long way to go before this demand can be met, but it rejects any explanation that does not rest on this principle. Physiology properly concerns itself with mental phenomena only insofar as they are bound up with certain material functions. It is these material functions that physiology is to explain; that they are accompanied by thoughts and feelings is, strictly speaking, a matter of indifference to it.

But if we can no longer allow thoughts and feelings to intervene in the series of material causes, what place and significance are we to assign to them? Their reality no

one can deny; it is immediately certain to us, more certain than anything else, for it is through thinking that we attain all well-grounded certainty. We might rather be driven to the assumption that the world of thought and feeling is the only real one, and that what we call the material world is merely a product of thought that forms itself for us unbeknownst and by virtue of an unavoidable illusion. But even then the question would recur: how should we conceive the relation between our consciousness-phenomena and the material phenomena we nonetheless think of as intimately bound up with them?

There is probably no other way out than to conceive of consciousness-phenomena as inner, psychical expressions of the same thing that, for the outer senses, appears as a material phenomenon. The real existence is thus only one, but we apprehend it (at certain points at least) in a double form. Which of these forms is the original, the constitutive one—and whether there might perhaps be deeper-lying principles from which both are derived—these are questions we shall not enter into here. Only this much should be emphasized: that realism does not here foreclose more far-reaching speculations, provided they have firm starting-points and supports in real experiences.

Realism therefore need not contest what is the genuine motive and deepest interest of the idealistic worldview. It is quite compatible with an effort to uphold the value and significance of spiritual life in existence. It cannot, to be sure, accept that the spiritual is something that descends from a world of Ideas into the material world as into a prison; but it does not deny or diminish its reality when it conceives of it as the inner and, for us, most significant manifestation of the same power that is at work in outer nature. It cannot—but neither has idealism hitherto been able to—teach us why and how mental states and activities are bound up with material ones; it restricts itself to the modest assumption that, since causal connection and lawfulness appear to prevail in the world, it is presumably no accident that consciousness and brain activity are bound up with one another, as experience shows us.

It does not know whether there is a goal toward which all existence steers, but it finds no impossibility in itself in the assumption that this whole great natural interconnection, with its unbreakable laws and its firmly linked chain of causes and effects, is like a great household, a world order in which development and dissolution alternate, but through all the surging there nonetheless occurs an increase of what is valuable through the arising of higher forms of life.

IV.

Already in the last reflections we have been led from the domain of science over into that of faith. For the most common distinguishing mark between science and faith is that the former investigates the laws and inner coherence of existence, while the latter asks about the ethical significance and value of existence.

When we define the concept of faith in this way, no necessary conflict exists between science and faith. Science grounds and explains; faith evaluates. The common foundation of both is the reality accessible to our experience. Its laws are sought by science, supported by the principle of natural causes, and faith expresses the value that this law-governed reality must have for us in virtue of our ideals. Explanation and evaluation need not exclude one another. What stands before us as high and glorious, as beautiful and good, may nonetheless have had its natural developmental history. Only false values disappear when the explanation is won. When we believe that world-development is more than a play of atoms, that—even if it occurs through much struggle—something good and valuable works its way forward through it, this faith does not exclude an equally firm conviction that this result is attained only through a firmly coherent causal sequence.

The reason we nonetheless distinguish between faith and knowledge is partly that ideal evaluation in and of itself says nothing about the real conditions for the arising and subsistence of what is valuable, and partly that the conviction of the subsistence and validity of what is valuable has its root more in feeling and will than in cognition. Only when I feel ideal tasks and ends as the true centre of gravity of my own conduct of life do I have occasion to conceive of natural development as progressive realization of an ideal content. The ethical ideal I acknowledge casts its light out over nature. As I am—thinking, feeling, and willing, with my ideals and my capacities—I have emerged from the great natural development. What stands fixed for me as the unconditionally true and good is certainly conditioned by my finite nature and my vanishing position in the great whole; but thereby it is not rendered meaningless and accidental. It is by its fruits that one shall know the tree, and from the fruits that nature has allowed to ripen in and for us, we can learn that forces are at work within it that not only operate in the same direction as our highest strivings, but have themselves from the outset led us into these strivings.

On such a foundation, however, no theoretical system of doctrine can be built, as speculative philosophy assumed. In its further elaboration, poetic symbols would soon take the place of scientific concepts.

By realism in faith I mean a view of life that holds fast to the belief in the ideal value

of world-development, while at the same time being equally deeply convinced that this ideal value is realized through the operation of natural causes. Once this faith has been won, it is independent of theoretical vicissitudes, for it is from the outset in harmony with the spirit of science itself.

The customary meaning of the word faith, by contrast, excludes such a harmony. It demands a more or less supernatural apparatus for the realization of its ends, and sets up fixed forms and inviolable symbols. On this rests the difference between humane or philosophical faith and theological faith. Theological faith must, in accordance with its principle, put forward theoretical doctrines that come into conflict with science. It has as its object something that is supposed to be elevated above theoretical explanation and to defy the principle of natural causes.

Under these conditions, the conflict between faith and knowledge can never come to an end. So long as these presuppositions are maintained, we shall not escape repetitions of the disturbing spectacle that the history of science shows us of faith's anxiety and flight before science. Each time that science, in experiment, proof, or hypothesis, advances to a new domain, an outcry is raised on the part of theological faith. Copernicus, Galileo, and Darwin, Giordano Bruno, Spinoza, and J. G. Fichte are examples of how unprejudiced observation and logical consistency lead into conflict with a faith that has not yet learned that evaluation and explanation do not cancel each other out. Only a faith that can show the resignation to bow before the principle of natural causes leads beyond this conflict. Here too it holds: *alte dubitat qui altius credit.* For it is surely the deepest faith that does not require supernatural interventions and revelations in order to maintain the conviction of the significance and validity of the ideal in the world.

In an entirely different sense of the word, one might also speak of a realist tendency within theological faith in our day. Realism is everywhere characterized by mistrust of speculation; it seeks to have firm ground underfoot and therefore holds to what is positively given, to the factual—or to what each variety of idealism regards as factually given. Now when theological faith is in its own way gripped by the spirit of realism and looks about for its facts to hold fast to, it encounters above all its inherited formulas and confessional writings, in which it has given to it the content sanctioned by absolute authority. It will therefore be clear that when a realist tendency dominates an age, it will within the domain of theological faith naturally tend to appear as intensified faith in authority. The same tendency that produces materialism outside the domain of theological faith produces literalism within it. Theology has therefore also in our day abandoned every speculative grounding and retreated to the ecclesiastically sanctioned

dogmas.

This creates a great distance between a theological thinker like Bishop Martensen and the younger theological generation. At the end of his book on Jakob Böhme one can read his warning words to "the young theological realists." He is surely right, for this narrow-minded clinging to inherited dogmas is not sustainable in the long run. Nothing stands still in the world. Even where on the surface there seems to be rest and unchangeability, the most significant processes may be taking place in the depths, and layers being deposited that will in time come to light. The universally human experiences exert their quiet influence. Through the theological-religious development since the days of the Middle Ages there can be traced a constant tendency to reach the goal by as short and direct a path and with as simple means as possible—the same tendency that on scientific ground expresses itself in the rule that we must not multiply our principles and hypotheses without compelling necessity. According to theological faith, there are a very great many large things one must know about in order to live as a human being and not as one who eats and drinks because he knows he will die tomorrow. The advancing development leads here slowly but steadily toward greater economy and modesty. Protestantism already marks a certain reduction relative to Catholicism, and relative to old Lutheran orthodoxy, Pietism, Rationalism, and Grundtvigianism are all definite advances in concentration and simplification. In this respect there is a parallel between theology and medicine. The older medicine distinguished itself by an enormous number of medications and a large number of heroic cures. But one gradually manages both with fewer medications for one's bodily health and with fewer dogmas for one's spiritual health. Where the simplification will end is difficult to say. It will surely not end at the same point for all individuals. But in principle the goal will surely be reached as soon as the harmony between evaluation and explanation has properly dawned on the general consciousness. Then the significant kernel in the higher forms of theological faith will also be preserved, while the husks crumble away.

For what animates the higher folk religions and has given them their mighty power over thousands of generations is ultimately the ideal impulse that wants to see existence as something other and more than a sum of facts, and this impulse is far nobler and more important than any of the forms and symbols in which it has expressed itself. Humane faith can and will preserve this impulse; indeed, its very striving is directed toward purifying it and freeing it from all inhibiting constraints.

Only *blasertude* throws away the kernel along with the husks. Such blasertude is surely the most dangerous enemy of spiritual development in our age, more dangerous

than all intolerance and fanaticism, for in the latter there is at least life, while blasertude is itself petrified and petrifies everything around it. But blasertude, for which everything is equally good so long as it is factual, naturally ends by no longer troubling itself very much to distinguish between real and illusory facts; it thus finally stifles the very sense for reality from which it derives its own origin—petrifies its own source. It arises easily in times of strong upheaval; but since it rests on a confusion of the accidental with the essential, it will disappear, like the foam that a strong breaking of waves produces.