

CHAPTER THREE

MATTER AND FORM

With the present chapter we enter into the critical analysis of the tenets of materialism. The order to be pursued here is as follows. First, we shall briefly restate the particular position to be disputed. We shall then present the opposing Aristotelian doctrine. And finally, in the light of this doctrine, we shall treat of the specific errors committed by the materialists.

The first principle of materialism is that the ultimate material constituents of natural things endure throughout all change as subsisting entities. This is perhaps the most suitable way of formulating the posited reduction of the natural thing to its matter. And it is this affirmation which leads to the denial of a substantial formal principle of things. For, as subsisting entities, the elements can be the subject only of forms which actualize them in a limited fashion.

Now, whatever the final grounds for these prior beliefs, they do possess an appearance of validity. That natural things are composed of material elements is not to be denied. And without further analysis, in view of this fact alone it would seem that such composite wholes are their elements. Joined to this existence of the elements in the whole are the equally undoubted truths that things come from and are corrupted into these same elements. Therefore, so it is reasoned, composite wholes are but the sum of their ultimate parts - which is simply the equivalent of their affirmed reduction to these parts.

In logical support of this reduction there is the apparent impossibility of attributing substantial becoming and existence to the composite wholes. Such an attribution clearly involves the negation of the elements' continued existence. For it is impossible that on the one hand a whole should exist substantially as such and that its elements should on the other continue to possess their own substantial being. Thus one must be reduced to the other, and thereby negated. But if the elements are negated, the result, it is held, would be universal nothingness. For if these, the very-building-blocks of all existence, are destroyed, all becoming and existence is contradictory. It would be as if one were to hold that the construction of a house, say, entailed, as a prior condition, the annihilation of the wood and stone with which it is built. Now, it is certain that both the construction and the annihilation are impossible. And yet, the house does come to be. Therefore, the wood and the stone must endure, and the house must, in substance, be these materials. How easy it is to extend this argument to natural things need not be stressed.

Of course, this argument depends upon the truth of the assertion that the matter, as so defined, is both the ultimate and sole principle of natural things. Assume this, and absolute becoming is indeed a logical impossibility. But this, precisely, is what we do not assume. The doctrine to be exposed in this chapter is the one according to which natural things are composed of two substantial principles, neither of them being a substance by itself. One of these

is called prime matter, and it is a reality which has no existence of its own, no actuality whatsoever, but is, rather, being only in potency. The other is the principle of actuality, from which is derived the absolute existence of the material whole. These principles correspond in the order of substantial existence to, say, the metal, and the shape or form of the artificial thing. Matter and form are thus the material and formal causes of natural substances, as the bronze and the figure are the material and formal causes of the statue. The composition in substances is termed "hylomorphic", which is a composite word signifying this union of an amorphous matter with a form which actualizes it in the absolute sense. Unlike the ancients, we do distinguish it from the composition in artificial things, or, more generally, in any accidental whole. For in the accidental whole (the bronze as the subject of a determinate shape is again an apt example), the material cause is itself an actually existing whole, and in this order the formal principle gives being only in a relative sense. This distinction and its foundation will be established and developed in what follows.

Our knowledge of the constitutive principles of natural things is first derived from an analysis of coming-to-be. In this connection we distinguish three principles, two of which, the matter and the form, are causes, the other, privation, being only a principle, not a cause. As St. Thomas writes:

In order that there be generation, three things are required; namely, being in potency, or matter; simple non-existence, or privation; and that through which the thing becomes actual, which is form. For example, when a statue comes to be from copper, the copper which is in potency to the form of statue, is matter. This matter's lack of figure or determination is privation. And the figure in accordance with which it is called a statue, is form. (1)

The first principle noted by St. Thomas is the matter, or the material cause. In order to simplify our approach, to it, we shall for the present ignore its status of potentiality, and simply return to the definition of it given in the first chapter.

The material cause is defined as "that from which something comes when it is in that thing". The first part of this definition refers to the matter as somehow preceding the existence of that which becomes. Under this consideration, the matter is not seen as a cause, but only as a principle, since it is simply stated to be that with which the becoming begins. However, joined to this is that which distinguishes the matter from what is only a principle and not a cause; namely, its existence "in" the thing that comes to be. For the matter is that in which the becoming is subjected, and thus that which remains throughout the change involved in the becoming. But since such persistence was the principal point of discussion in our treatment of the materialists' contention, we may consider this aspect of the material cause to be sufficiently determined.

Becoming also involves two principles other than the matter.

We call them form and privation. The form is, with the matter, the co-principle of that which comes to be. It is, for example, the form of the statue which, in giving shape to the bronze or copper, causes the statue to exist. The way in which it is a cause may be seen from this, that it is the form which determines the bronze or copper to the mode of existence of a statue. Thus the form is the principle of actuality, or that "by which" the thing exists as a particular kind of thing.

The third principle, privation, is the simple non-being from which all coming-to-be must begin. In the case of the statue, it is the negation in the copper of that form which it (the copper) is apt to receive. This negation clearly cannot endure throughout the coming-to-be of the statue from the copper, for, by definition, the form and the negation of the form are mutually exclusive. It is therefore a principle alone, since it does not enter into the existence of that which becomes.

Our task is now to relate these principles to natural things. Before doing this, however, we must first take note of an essential and all-important characteristic of the material cause. This is its status of "being in potency."

The matter is, as we have seen, that which is presupposed throughout the process of becoming. It is, first of all, that from

which the becoming begins. In this original state, it is the subject of the privation and of what is called the contrary form. The copper, for example, before it becomes a statue, is deprived of the form of statue; it has some other shape. And, precisely, inasmuch as it can acquire a shape other than the one it now has, the copper is relatively formless. While always having some particular shape, it can really have other shapes as well. But, in being in potency to them only, this means that at present these other shapes are negations in the copper. They are not, it is to be noted, just any kind of negation, but negations in a subject really capable of receiving them. For the copper, considered solely as the material cause of the statue, is entirely passive and receptive. It submits indifferently to any form that the artist may seek to impose upon it; it is receptive of all possible forms. And so in itself, the matter is the subject of no particular form. The copper, as to what it is, is neither the subject of this particular shape nor of that, but is indifferent to either. The only inevitable thing is that it must always have either one or the other. And whatever it may have at this moment, it is shapeless with respect to one that it might have.

Now, it is because there is not a necessary connection between the copper and the shape it now has, or between the copper and any other shape it may have, that the copper is indifferent to any particular shape. It is simply that which "can" receive the

form of a statue, and which "can" receive any of a number of forms. The corollary of this potency with respect to any given form is that, secundum se, the matter is without the being that comes to it upon reception of form. If this were not the case, and if the copper, say, possessed, by virtue of its own nature, the existence of a statue, the established indifference and potency would be negated. Thus the conclusion we must draw is that, as to its own nature, the matter is only being in potency. Of course, in the example given the artifact always retains its own determinate nature. But, as we shall see, in the order of substance the material cause is also potency - and potency simply, rather than in the limited manner found in such things as we have thus far discussed.

In analysing directly the material and formal principles of natural things, we must first distinguish between accidental and substantial existence. This distinction is found in St. Thomas' introduction to his opusculum De Principiis Naturae:

Existence is twofold: namely, essential, i.e., the substantial existence of a thing, as when a man exists; and this is existence in the absolute sense. There is, in addition, accidental existence, as when a man exists 'as' a white thing; and this is existence in a relative sense. (2)

This difference between substantial or absolute and accidental or relative existence is manifested in the way in which we speak of the two modes. For example, we say that man exists, without qualifying the

statement. On the other hand, we signify accidental existence by speaking of a substance as being this or that; for example, we speak of a man as being white or tall or agile. Consistent with this, we predicate substance of nothing, while predicating accidents of substance. Thereby do we express our recognition of that fact that, while the substance exists in itself, an accident exists in substance as an added mode of being of that in which it is subjected.

In attributing absolute existence to a composite whole such as a man, we are faced with the crux of the question under discussion. Such existence the materialist must deny on principle, or else accept the paradoxical consequences which derive from the assertion that the matter is the sole principle of things. But whatever doubts the advocate of this reductionism must entertain, we must acknowledge the validity of the affirmation that man exists in the absolute sense. For the being we know best as a substantial one and with great certitude is our own. The human person is conscious of the fact that his existence is both his own and one, and not simply a modification of the being of another or of others. Awareness of this is immediately followed by the certitude that other men possess the mode of being possessed by himself. And, indeed, it would seem to be as necessary to attribute such existence to all living things. Concerning inanimate things, there could always be room for doubt if one desired this, and so we will let that question pass.

Thus we will assume that nature provides instances of

existence in the absolute sense, above and beyond that of the elements. The evidence to this effect is entirely coercive.

And that such things come to be is one other assumption we will make; for, here too, experience directly testifies to this fact.

And so we are left with that other question: do such things come to be from something? That this is indeed the case is pointed out by Aristotle in Book I of the Physics:

But that substances too, and anything else that can be said 'to be' without qualification, come to be from some substratum will appear on examination. For we find in every case something that underlies from which proceeds that which comes to be; for instance, animals and plants from seeds.(3)

We see, then, that what comes to be in the absolute sense comes to be from something. But, clearly, when Aristotle states that the animal comes to be from seed, he does not mean that the seed is the material cause of the animal. This is impossible because the seed does not enter into the animal as a part of it, while existence "in" the thing is essential to the material cause. Thus, if the animal comes from the seed, it is in the manner in which the statue, say, comes from a cube of copper. As is apparent in this case, the cube of copper (which is itself an accidental whole composed of subject and shape) does not, as such, survive the becoming of the statue. Rather, it is the matter of this non-permanent subject of becoming which thus endures. It is what is common to both composite wholes (the one corrupted and the one generated) that is the permanent subject of the becoming, and, by that

fact, the material cause of that which becomes. In the case of the statue, the permanent subject is the copper; and therefore the copper the copper is the material cause of the statue. In view of this, it is evident that we must posit a matter or subject common to both the seed and the animal. It is this that allows us to affirm that the animal comes from the seed, for what we mean is that the matter in the seed becomes the matter in the animal. Like the cube of copper, the seed, as such, is really the non-permanent subject of becoming; it provides the substratum, the matter, of that which becomes, but is itself not this substratum.

Thus do we arrive at the knowledge of the truly ultimate material principle of natural things. And, as we shall see, the nature of this common matter makes possible the coming-to-be of substances without the resultant paradoxes that plagued the materialists. However, determination of the precise nature of this substantial material principle must await consideration of the substantial formal principle.

Now, since, beyond all doubt, natural substances "are" something, it is equally certain that they "become" something. And, as in the case of accidental wholes, that "by which" they have come to be something is called the form, which is the term of generation. There is, however, a radical difference between the term of accidental becoming and that of absolute becoming, according as they relate to the different modes of existence found in each instance. This difference is established as follows:

As everything that exists in potency can be called matter, so everything by which it has some being, whatever that being might be, whether substantial or accidental, can be called form...And because form brings existence to act, it is therefore said that form is act. That which makes substantial being actual is called substantial form, and that which makes accidental being actual is called accidental form. And because generation is a movement toward form, a twofold generation corresponds to substantial form, and relative generation to accidental form. For when substantial form is introduced, it is not said that something becomes absolutely, but relatively. For example, when a man becomes white, it is not said that man becomes or is generated simply, but that he becomes or is made to be white(4).

^ - c.f. p. viii
(4)

The term of the generation of substance is that which renders substantial being actual. And since substances "are" in the absolute sense, this formal principle brings absolute being to act. Thus it is opposed to accidental form as absolute being is opposed to relative being. For accidental form causes a thing to exist only in a certain respect, and is but an added determination of that which possesses substantial being. Substantial form, on the other hand, causes the thing to be simply and without qualification. It is not something supervening upon a prior actuality; it is, as St. Thomas implies, the very act of that which is the subject of both absolute and relative existence.

We are now in a position to determine the nature of the ultimate material cause of natural things. As will be recalled, it was previously established that the matter of accidental composites is, in effect, a potency correlative to the actuality of the accidental

form. The matter is merely that which can receive the actuality; of itself, it is only in privation and in potency to such actuality. Now, in view of the necessary correspondence between accidental and substantial form, we may say that the matter of substance is a potency correlative to the actuality of substantial form. We are thus led to assert that, in itself, the subject of substantial form is without the existence that accrues to it upon possession of this form. And since substantial form, unlike accidental form, actualizes simply, the matter of substantial wholes must be, *secundum se*, devoid of such actuality. As the subject of accidental form is being in potency in a relative sense, the subject of substantial form is being in potency in the absolute sense. Thus, as to its very nature, it is simply being in potency. It is the subject of substantial form and, in virtue of that fact, it has no existence of its own considered in abstraction from form. And as the subject of substantial form, it is what is called "prime matter". On this point, St. Thomas writes:

It should be noted that certain matter has the composition of form - bronze, for example, when it is the matter of a statue, for the bronze itself is composed of matter and form. And therefore it is not called prime matter, because it has form. That matter, however, understood without any form and privation at all, is called prime matter, for the reason that before it there is no other matter; and it is called 'hyle' in the Greek, i.e., chaos or confusion. (5)

There are three means of establishing the principle that

prime matter is simply being in potency. The first is the one we have developed above: it concerns the matter as the subject of that which actualizes in the absolute sense. The second is: prime matter is that which is common to different substantial forms and thus to different substances. One example of this, previously cited, is that of the matter which is common to both the seed and the animal. The third, and in the present context the most important, proof is that prime matter enters into the very substance of the natural things. (This was also suggested in our treatment of the permanent and non-permanent subjects of becoming.) For, if the acknowledged unity and absolute being of the natural thing is to be rationally justified, its material principle cannot be a subsisting entity. Only if it is being in potency can it be that from which something comes to be per se. And under such a condition, there is no necessity of accepting the dilemma proposed by the materialists, which rested on the assumption that the subject of becoming must be either non-being in act or being in act. We know that their view of the "prime matter" of things forced the materialists to view these alternatives as exhaustive, and, as a consequence, to deny the reality of absolute becoming and to hold that the thing which comes to be is, in substance, the material principles that compose it. However, when the matter is a potential principle alone, rather than something which exists in itself, these difficulties are surmounted. Thanks to its union with substantial form (which is then the sole

subject of absolute existence. And since this - the absolute being of the composite whole - is the established fact, the nature of the material principle must be what we have said it is. (6)

In establishing the doctrine of hylomorphism, our final conclusion was that the absolute being and substantial unity of the composite natural whole meant that its material cause could be a potential principle only. And prior to this, it was shown that the mode of existence possessed by natural things demanded recognition of a substantial formal principle. In proving the necessity of these two principles - prime matter and substantial form - we effectively refuted the materialistic position. We should now like to point out that the substantial unity of the natural whole offers an immediate refutation of this position. For, as we have previously noted, the first principle of materialism is that the material principles of things endure as such throughout all change, including that whose term is a new natural substance. But if we acknowledge - as we must - the unity of the new substance, the impossibility of such a persistence on the part of the elements is manifest. For, if this new substance is one, it cannot be many; if it possesses a substantial unity, it cannot be an aggregate - as would be the case were its elements to endure in substance. Accordingly, contrary to the thesis of materialism, we must hold that the elements are, in some way, reduced to the being of the new substance.

It is true that the reduction of the elements to the substance which they compose must be altogether irrational from the point of view of the materialists. This, for the simple reason that the elements are believed to be to the very source, the very "stuff", of all existence. And so, whatever absurdities may arise from the consistent application of the principle that the elements persist while composing other things, this principle is never relinquished. The most striking of such absurdities is, of course, the negation of the absolute being of the composite natural whole. Yet, that the materialist is not entirely insensitive to this particular absurdity may be seen from R.W. Sellers' article "Reformed Materialism".

In this article, Sellers puts the initial assertion of the materialist philosophy very aptly. He writes: "As I see it, generation applies to the composite and the integrated and presupposes the endurance of the stuff which is integrated." (7) Now, this statement means that Sellers must deny the true unity and being of the "composite" and "integrated" whole. For, most certainly, such unity is incompatible with the posited endurance of the matter. However, when directly confronted with the task, he is apparently loath to affirm the implied reduction in a manner free from ambiguity. For, first of all, he has set it as his particular task to "reforma" the old-fashioned materialism, in which the organization which leads to the composite wholes was "pictorialized in billiard-ball terms." And in opposition to the cruder approach of his predecessors, Sellers presents an interpretation

of such wholes which is more in keeping with simple and evident experience. Thus: "Recognition is given to internal relations, to immanent causality, to emergence and local wholeness." (8)

But this last affirmation leads to serious difficulties. If he acknowledges such things as "internal relations" and "local wholeness", does this not mean that it is the new being which properly exists, rather than the "stuff which is integrated"? Further, if there be relations which so modify the elements (these relations are, after all, "internal") that a "local wholeness" emerges, have not the elements, as it were, "given themselves" to the new whole? How, then, is it possible that the "stuff" of things should endure?

Needless to say, Sellars could not hold to such an interpretation of his words. Indeed, we may credit him with a nearly-explicit rejection of the above view. For he writes:

The wise handling of relational and functional togetherness which avoids the atomism of completely external relations, on the one hand, and the mystical rendition of the phrase that the whole is more than the sum of its parts, on the other, is the desideratum. (9)

We will not dispute Sellars' statement that the above represents the "desideratum" from the perspective of materialism. That it does precisely that, is not to be doubted. But the question

must arise whether such a position - one which would permit the persistence of the matter and yet not entail the complete negation of the composite whole - is possible. We would hold that it is a fact, and any "local wholeness" of that which they compose is illusory. But this Sellars denies. On the other hand, if the wholeness or unity of the new being is the fact, two things follow. First, the whole is more than the sum of its parts; secondly, the endurance of the material elements is clearly impossible. But these consequences, too, are denied by Sellars. Actually, then, his efforts constitute a tacit admission that a true materialism - reformed or otherwise - is wholly inadequate to account for the nature of things. And the qualification "reformed" which he attaches to his version of this philosophy would seem to indicate his initial awareness of that truth.

In contrast to Sellars' account of the relation between the material elements and the whole which they compose is that which is rendered possible by the doctrine of matter and form. We have noted throughout that the unity of the whole entailed the reduction of the elements to the being of the whole. Now, by this is meant that the elements are corrupted and their substratum - their matter - brought into the substance of the new being. That is to say, the matter in the elements is converted into the matter of the substance which comes to be. Or again: the material element is stripped of its proper substantial form and receives the substantial form of the new substance.

Such an explanation is, of course, simply an application of hylomorphism to this particular case. But it is equally true that in no other way can the fact of the reduction of the elements to the whole be rationalized. For if the elements did not receive the substantial form of the whole, a plurality of beings would be the result. And if they were not first corrupted, such a reception of form would be impossible. But, needless to say, it is not the elements as such which receive the new form; rather, it is their matter - or that into which they are corrupted. Finally, only if this matter were being in potency simply could it be the subject of the new substantial form; otherwise it could not receive that which actualizes in the absolute sense. (10)

There is a sense, however, in which the elements do remain in the whole which they compose. They remain "virtually" rather than actually - that is to say, their qualities are retained in the new composite whole. In explaining the precise mode of their persistence, St. Thomas relates this persistence to the disposition in the matter which is required for the reception of a new form:

...the elements remain in the mixed body, not actually but virtually. For the proper qualities of the elements remain, though modified; and in them is the power of the elemental forms. This quality of the mixture is the proper disposition for the substantial form of the mixed body; for example, the form of a stone, or any sort of soul. (11)

The "virtual" endurance of the material principles of things will be of importance in the second part of this work. There we will learn that certain of the elemental qualities lead to characteristics of the whole which are either beyond or contrary to the intention of nature. It is characteristics such as these which we attribute to a "necessity from the matter".

One last consideration of the materialist position in relation to the doctrine of hylomorphism is called for. It concerns their rejection of substantial form. As we previously noted, the negation of a substantial formal principle derived from the belief that the matter was the sole cause of natural things. Thus Empedocles stated:

Nothing is that has a nature,
But only mixing and parting of the mixed,
And nature is but a name given them by man.

This view was presented by Aristotle in the *Metaphysics*. As he pointed out, since the ancients believed that matter was the substance of things, all change was held to consist in purely accidental modifications of matter. But, true as this may be, it is also the case that materialism may be viewed as deriving from a prior negation of substantial form. This is brought out by St. Thomas in Quaestiones Disputatae De Potentia. His thesis is that the nature of human knowledge led the ancients to deny the reality of all but accidental forms and, as a consequence, to hold that the matter of things was

their one substantial principle. He writes:

In their consideration of things, the ancient philosophers proceeded according to the order of human knowledge. Whence, since human knowledge begins with the senses and then arrives at the intelligible, the ancients were occupied with sensible things, and scarcely touched upon the intelligible. And because accidental forms are in themselves sensible, not, however, substantial forms, therefore the first philosophers held that all forms were accidental, and that only matter was substance. (12)

An identical interpretation of the origin of the ancients' conception of reality is presented by Aristotle in De Anima. Concerning Democritus' opinion of the nature of the human intellect, he writes:

Democritus roundly identifies soul and mind, for he identifies what appears with what is true - that is why he commends Homer for the phrase 'Hector lay with thought distraught'... (13)

Now, one might hold to such an interpretation of the ancients' position without accepting it as applicable to the moderns. For instance, it is by no means certain that Marxism can thus be accounted for. We shall not, therefore, insist that sensism alone leads to materialism. However, it is the view of one competent writer that at least some of the moderns are inclined to deny the reality of the formal principle of things because of their radical empiricism. In an article entitled "Mechanistic Replacement of Purpose in Biology", C.G. Bell writes:

Since essence examined from one point of view can always be dissolved into relationship, and the act of this dissolution - which is the general analyzing act of science -

seems at first to explain the essence of transcending cause (for as we move toward it the newly envisaged relationship may appear to replace and to render unnecessary the metaphysical whole), therefore in every science and with each new discovery of material determining agents, there will be a period of enthusiasm when real explanation and cause seem to be revealed. (14)

Thus, exclusive reliance upon the senses as the touchstone of reality may quite easily lead one to espouse the materialistic reductionism. Since the formal principle of things is not open to "scientific" investigation, its existence is denied. And since the analytical approach employed yields only the material parts of the substantial whole, these parts are thought to exhaust the reality of the whole. Such is the "catch" one must draw when the "net of the empiricist" is alone used.

CHAPTER FOUR

THE EFFICIENT CAUSE

Our task in this chapter is to subject to critical analysis the materialistic conception of the active causes in the generation of natural things. As will be recalled, both the ancient and modern proponents of materialism view composite wholes as being solely the product of the inter-action of the elemental physical agents. The ancients' formulation of the coming-to-be of natural things was illustrated in a text previously cited. Their position on the development of animals was described as follows: "They say, for example, that the water contained in the body causes by its currents the formation of the stomach and the other receptacles of food or of excretion, and that the breath by its passage breaks open the outlets of the nostrils." (1)

The particular aspect under which we are going to study the materialistic notion of the efficient cause is found in two passages from R.W. Sillers' article "Reformed Materialism". He writes there; "Matter I take to be active, dynamic, relational and self-organizing". He then develops the implications of this assertion: "The hylomorphism of materialism, as we have noted, makes the united and organized wholeness of an existent (a composite whole) the expression of an integrative causality, so that the higher rises from the lower." (2)

It is precisely the thesis that the higher is brought into being by the agency of the lower forms of existence, which we here propose to dispute. However, we must acknowledge that it is susceptible of two radically different interpretations. One would be based on the materialistic conception of the terms "higher" and "lower" as applied to natural things. In the light of the preceding chapters, it is necessary that, when the materialist asserts that the higher arises from the lower, he can only mean that the elements unite in an extrinsic manner to form a whole or wholes of greater material complexity. A confirmation of this view is found in Saller's denial that the whole is greater than the sum of its material parts. In this interpretation, the import of the materialist's position is, of course, greatly weakened; for no truly higher being is actually held to be brought into existence.

The other possible view of the assertion is that which would be based on the recognition of essential differences among natural things. Within this context, the statement that "the higher rises from the lower" would mean that a being of greater actuality had as its productive cause a lower form of existence. This is the only truly significant meaning that the position under study could have. However - and it is our purpose to show this - such a generation of the higher from the lower implies a contradiction. The principles of causality which would be violated by such an occurrence is that

every effect must be proportionate to its cause. But before presenting and justifying this principle, let us first consider the reasons for positing the efficient cause in the coming-to-be of natural things.

The reasons for the necessity of this cause are presented in De Principiis Naturae. Having considered the intrinsic principles of things, St. Thomas writes:

From what has been said, it is apparent that the principles of nature are three: namely, matter, form and privation. But these do not suffice for generation. For what is in potency cannot reduce itself to act; for example, copper, which is in potency to being a statue, but needs an agent in order that the form of statue come forth from potency to act. Nor can the form draw itself from potency to act. And the form of the thing generated is here meant, which we say is the term of generation, because the form exists only in that which has been made to be. However, what is made is in the state of becoming as long as the thing is coming to be. Therefore, it is necessary that besides the matter and the form there be some principle which acts. This is called the efficient, moving or agent cause, or that by which there is a principle of motion. (3)

Because there is in nature a coming-to-be of things - or a reduction of the potential principle, i.e., prime matter, to actuality - it is apparent that there must also be an efficient cause in this realm. An instance of this is man generating man. And as we see from this example and from the text of De Principiis Naturae, the agent cause is such inasmuch as it gives, by means of its action, existence or actuality to another. This we find in the definition of action itself:

To act, indeed, is nothing other than to communicate that through which the agent is in act...(4)

We also find implied in this definition of action the principle of causality referred to above. For, since the agent communicates that by reason of which it itself is in act, it is evident that it cannot communicate an actuality not possessed by itself. Therefore, the actuality of the effect cannot exceed that of its cause. And thus there must always be a proportion between the cause and its effect. In this connection, St. Thomas writes:

Everything acts according as it is in act. Action, therefore, follows the mode of actuality of the agent. It is thus impossible that the effect, which is educed through the action of the agent, possess a more perfect being than that of the agent.(5)

This truth is also implied in the dictum "causa agens agit sibi simile", which may be roughly translated as "like produces like". An example of this is again found in man generating man. The similarity between the cause and its effect follows from the fact that the form of the agent is the principle of its actuality. Thus the form is that by which the agent acts, and that which it communicates in acting.

The similitude of the effect to the cause is derived according to the form of the effect which pre-exists in the agent; for every agent produces its like with respect to the form according to which it acts. (6)

It is, of course, the necessity of a proportion between the cause and its effect that invalidates the position of the materialists in this regard. For it is impossible that the elemental forms of being should, by means of their action or inter-action, transmit a mode of being - of actuality - that they themselves do not possess in at least the same degree. And that they are not the efficient causes of natural things is proved by the fact that nature provides instances of modes of existence higher than those of the elements. Therefore, whatever the interpretation placed upon the assertion of the materialists concerning the active causes in natural generation, this assertion is proved to be false. For if the interpretation is based on their denial of the formal principle of natural things, the assertion is immediately invalidated by this denial. And if the interpretation is related to the truth that natural things differ in essence, the assertion is seen to be false because of the principle that the effect cannot exceed its cause.

We thus find that the posited dominance of the material principles as productive causes of natural things is inadmissible. However, it must not be thought that the assertion presently under discussion is one made in principle alone. There are, indeed, many natural phenomena which apparently justify this reductionism. In support of his contention, the materialist might cite various physiological processes as clearly involving factors which, although

not wholly elemental, can be termed material - and which at the very least are lower in the scale of being than their effects. For example, the vital processes of digestion and assimilation (ageneration) would be held to illustrate the causality of the chemical and physical as such. A more striking example with respect to the point being made is that found in the generation of living beings. In the first place, it is certain that the semen of the male is a causal factor in generation. Secondly, that it is a lower form of being than the animal that is generated, is beyond dispute. Therefore, so the materialist's argument would run, in view of obvious facts such as these, how is one to justify the posited necessity of a proportion between the agent cause and its effect? And he might call attention to the fact that, given but one exception to the principle of a necessary proportion between cause and effect, the principle is invalidated. Once the exception is granted, the way is open to a reinstatement of the entire materialistic position. It would follow that, by a process of evolution, the material elements could unite and by their own agency generate various higher forms of existence.

The logical force of this argument is not to be denied. However, the supposed facts upon which it initially rests have been subjected to gross misinterpretation. For, the various chemical and physical agents of nutrition, and the semen in reproduction,

are actually but the instruments of the living beings concerned. (7) And as instruments, they act through the power of the forms of these principal agents, to which, therefore, the effects must be properly attributed. Indeed, the very notion of the instrumental cause demands that it produce an effect more perfect than itself - but precisely in its role as the instrument of a superior cause. As St. Thomas writes in De Potentia:

The order of effects is according to the order of causes, which is necessary because of the similitude between cause and effect. Nor is the second (the instrumental) cause able to bring forth the effect through its own power, although it is the instrument of the first cause with respect to this effect. For the instrument is a cause of the effect, not through its own form or power, but inasmuch as it participates some of the power of the principal cause in being moved by it. For example, the axe is not the cause of the artifact through its own power, but through the power of the artisan, by whom it is moved and in whom it participates in some manner. (8)

We may, therefore, consider the supposed refutation presented by the materialist to be successfully countered. And how thoroughly inadequate is the general materialistic position as regards the nature of the efficient, may be seen from another consideration. Thus far in this chapter we have spoken only of univocal agents, which produce or generate things similar in species to themselves, as when a man generates man. However, thus stated, the assertion that it is man that generates man, is incomplete. While it is true that this individual man is a principal cause of the other, a second and universal cause is also

necessarily involved in such a generation. By a universal cause we mean one whose causality extends to more than one effect. The action of such a cause was expressed in the dictum that "man and the sun generate man". The particular instance of the "sun" is not the really important factor; whether this function is actually performed by the sun, or by another natural agent, some universal agent is necessary, as we shall see.

The reason for positing such a cause is found in the two-fold aspect of any particular generation. The first thing to be considered is that an individual of a given species is generated. But on the other hand - and this is apt to be over-looked - we must also account for the production of that by reason of which this individual is, say, a man. In other words, the generation of the individual is, indeed, a man, just as his generator is a man. Now, if this particular man were the cause of that by reason of which a man is a man, he would, in fact, be the cause of himself. That is to say, some individual man would have to be the cause of the very species of which he himself is only a member. This is brought out by St. Thomas in the Contra Gentiles:

No particular univocal agent can, absolutely speaking, be the cause of the species. For example, this man cannot be the cause of the human species, nor he would then be the cause of all men, and, in consequence, the cause of himself, which is impossible. (9)

Formulated somewhat differently, we find the identical

thesis presented in the Summa Theologiae:

Now it is clear that of two things in the same species, one cannot directly cause the other's form as such, since it would then be the cause of its own form, which is essentially the same as the form of the other. (10)

In the chapter of the Contra Gentiles already referred to, St. Thomas develops the precise extent and limitations of the causality of the univocal agent.

However, this particular man is, absolutely speaking, the cause of that man. For this man is that because of which that other particular human nature is in matter, which is the principle of individuation. Thus this man is not the cause of a man except insofar as that human form comes to be in that matter. It follows, therefore, that neither this man, nor any other agent of a nature univocally the same, is the cause except of the generation of this or that thing. (11)

Yet there must be a per se cause of the species as such:

It is necessary, however, that there be some per se agent cause of the human species, as this composition shows, and as well, the order of parts, which is the same in all, unless it is impeded accidentally...And this cause is God, either mediately or immediately. (12)

In the light of the above, we can see that the universal agent is itself at once a principle cause and an instrumental cause. It is a principle cause insofar as it is the cause of a particular form being in a particular matter, and an instrumental cause insofar

as it cooperates in the production of the species as such. It must not be thought, however, that any of these affirmations run counter to the principle "*omne agens agit sibi simile*", for it extends even to universal agents. As St. Thomas says: "In the univocal cause there is a similitude of the same form as its effect; but, in an equivocal (universal) cause, this similitude is found more perfectly, as heat in the sun possesses a form higher and more perfect than in fire." (13) And, as regards the univocal agent as such, the principle applies inasmuch as this agent is the cause of the "becoming" of the effect to which it is similar in species. Thus St. Thomas writes concerning the univocal agent, who is the cause of this form being in this matter: "And this is to be the cause of 'becoming', as when man begets man, and fire causes fire. Thus whenever a natural effect is such that it has an aptitude to receive from its active cause an impression specifically the same as in that active cause, then the 'becoming' of the effect, but not its 'being', depends on the agent." (14)

The effect of the above doctrine upon the materialistic position is quite apparent, and need not be developed extensively. Far from it being possible that a lower form of existence be the efficient cause of a higher form, in the final analysis no agent similar in form to its effect can be the proper cause of the form of this effect. However, we would like to close this chapter with the following observation. There are those, who, while holding to a

necessary proportion between the univocal cause and its effect, might ignore, dispute or reject the necessity of a universal cause, and believe themselves free from the reductionism of materialism. This, however, cannot be the case. For, as we have seen, if any true species is to come into being, the universal cause is altogether necessary. Accordingly, if one denies such a cause, one must, to be consistent, deny the reality of any given species; for, such a position renders its coming-to-be impossible. Having once denied the reality of the species, one is also forced to accept the principal tenet of materialism. This tenet is that the only reality is nature is the one possessed by the material elements. Now, while this reduction of things may be affirmed a priori by the materialists, it is also a simple consequence of the negation of the formal principle of the natural thing. And this, as we have pointed out, is, in turn, a simple consequence of the negation of the universal cause.