Principles of Nature and Grace Based on Reason

G. W. Leibniz

[Brackets] enclose editorial explanations. Small ·dots· enclose material that has been added, but can be read as though it were part of the original text. Occasional •bullets, and also indenting of passages that are not quotations, are meant as aids to grasping the structure of a sentence or a thought.

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1. A substance is a being that is capable of action. It is either •simple, meaning that it has no parts, or •composite, meaning that it is a collection of simple substances or monads. (*Monas* is a Greek word meaning 'unity' or 'oneness'.) Any composite thing—any body—is a multiplicity, ·a *many*, but simple substances are unities, ·or *ones*·. There must be simple substances everywhere, because without simples there would be no composites—·without *ones* there could not be *manies*·. And simple substances are lives, souls, minds—·where there is a simple substance there is *life*·—and the world's being full of such substances means that the whole of nature is full of life.

2. Because monads have no parts they could never be either •made or •unmade, ·because that would involve their being •assembled or •dismantled, which would require them to have parts·. They cannot naturally either begin or end, and therefore they last ·for ever, that is· as long as the universe (which will alter but will never go out of existence). They can't have shapes ·or sizes·, because for that they would need to have parts. So two monads at a given moment ·can't be distinguished from one another by shape or size, and· must be distinguished by their internal •qualities and •actions. The •qualities of a monad must be its *perceptions*; a perception is a representation in something simple of something else that is composite. And a monad's •actions must be its *appetitions*, which are •its tendencies ·to go from being in one state to being in another, i.e.· to move from one perception to another; these tendencies are the sources of

·all· the changes it undergoes. A substance's being *simple* ·means that it can't have •many parts, but it· doesn't rule out its being in •many states all at once; and those many different states must consist in the many different relations it has to things outside it. [Regarding that sentence: the only translation for Leibniz's *consister dans* is 'consist in'; but he can't mean this in the way we understand it. For us now. a statement of the form 'The Fs consist in Gs' implies that Gs are more basic than Fs, i.e. that the way to understand what Fs are goes *through* an understanding of •what Gs are and of •how they compose or make up Fs. Leibniz didn't think that the way to understand what monadic perceptions are is *through* understanding how monads relate to things outside them (whether other monads or physical objects); indeed, he said loudly and often, through most of his career, that there are no basic relational properties, and that any contingent truth of the form 'x has relation R to y' owes its truth entirely to non-relational (monadic) truths of the form 'x is F and y is G'. Leibniz was more at home in Latin than in French; perhaps his use of *consister* was unconsciously coloured by his knowledge of the Latin *consistere*, which has a wider ranger of senses, and could convey the idea that the Fs *match up against* the Gs, with no sense of a flow of explanation in either direction.] Similarly, a ·geometrical· point is completely simple; yet infinitely many angles are formed by the lines that meet at it, ·and each of those corresponds to a relation that the point has to something other than itself·.

3. [In this section, Leibniz writes of 'final causes' and 'efficient causes'. The final cause of an event is its purpose, what it happened *for*; an efficient cause is just what we today would call 'a cause' with no adjective. The distinction becomes relevant again in section 11.] In nature everything is full. There are simple substances everywhere, genuinely separated from one another by their own actions which continually change their relations to one another. Every simple substance (or individual monad) is the •centre and •source of unity of a composite substance such as an animal; the central monad is surrounded by a mass made up of an infinity of other monads which constitute its *body*. The ·states of· the central monad correspond to the states of its body, and in this way it *represents* things outside it—as though it were a kind of nerve-centre ·receiving information from all around it·. This body is organic when it constitutes a kind of *natural* automaton or machine—that is, a machine made up of machines which in their turn are made up of machines, down to the smallest noticeable parts. Because the world is full, everything in it is linked ·to everything else·, and each body acts to a greater or lesser extent on each other body in proportion to the distance ·between them·, and is affected by it in return. This has the result that every monad is a living mirror which represents the universe in accordance with its own point of view, and is as orderly as the universe itself. (·By 'a *living* mirror' I mean one that is· endowed with its own internal ·source of· activity.) A monad's perceptions arise out of its other perceptions by the

> •laws of appetites—the laws of •the final causes of good and evil (these appetites are just conspicuous perceptions, whether orderly or disorderly),

just as changes in bodies or in external phenomena arise one from another by the

> •laws of efficient causes—the •laws governing the movements ·of bodies·.

So there is perfect harmony between •the perceptions of the monad and •the movements of bodies, a harmony that was pre-established from the outset between •the system of final causes and that of •efficient causes. This harmony is what constitutes the *real union* of the soul with the body—enabling them to be united without either of them being able to change the laws of the other.

4. Each monad, together with its own body, constitutes a living substance. ·So every living substance is made up of smaller living substances which in their turn are made up of

still smaller ones, and so on down to infinity·. Thus, not only is there life everywhere—·the life of organisms· equipped with limbs or organs·—but there are infinite levels of life among monads, some of which are more or less dominant over others. A monad's organs—·that is, the organs of its body·—may be set up in such a way as to make the ·material· impressions they receive sharp and definite. (An example of this is the way the ·lens-like· shape of the fluids of the eye focuses the rays of light, so that they operate with more force.) When this is so, the ·monadic· perceptions that represent the ·material· impressions are also sharp and definite. Such a perception amounts to a *feeling* [French *sentiment*, which can also mean 'sensation' or 'belief']—that is, *a perception that is stored in memory*, a perception of which a certain echo remains for a long time so as to be heard in appropriate circumstances. A living thing of this kind is called an *animal*, and correspondingly its monad is called a *soul*. When such a soul is at the level of •reason, it is something more sublime, and we count it as a •mind, as I shall explain shortly. But sometimes animals are at the ·sub-animal· level of bare living things, and their souls at the level of mere ·unelevated· monads. This is when their perceptions are not distinct enough to be remembered, as happens during a deep dreamless sleep or during a fainting spell. (But perceptions that have become entirely confused in an animal are bound to recover, for reasons that I shall give in section 12.) So there is a good distinction between

- •perception = the internal state of a monad that represents external things, and
- •awareness = consciousness, or the reflective knowledge of that internal state.

Awareness is not given to all souls, and no soul has it all the time. It was for the lack of this distinction that the Cartesians went wrong, by regarding perceptions of which we are not aware as nothing—·a naively unscientific view· like the view of folk who regard imperceptible bodies as nothing! This ·same underlying mistake· led those same Cartesians to think that the only monads are *minds*; they denied that non-human animals have souls, and were even further from allowing any ·mind-like· sources of life at sub-animal levels. Along with offending too much *against* people's ordinary beliefs by refusing all feeling to non-human animals, they went too far *with* popular prejudices by confusing a long •stupor arising from a great confusion of perceptions with •death strictly so-called. (If death occurred, it would involve the stopping of all perception, ·not mere confusion of perceptions·.) This confirmed people in their ill-founded belief that some souls go out of existence, and also confirmed the so-called 'free-thinkers' in their miserable opinion that our own souls are not immortal.

5. The perceptions of ·non-human· animals are interconnected in a way that has some resemblance to *reason*. But ·it differs from reason because· it is grounded only in the memory of facts or *effects*, and not at all in the knowledge of *causes*. That is what happens when a dog shrinks from the stick with which it has been beaten because memory represents to it the pain the stick has caused. In fact human beings, to the extent that they are empirics—which is to say in three quarters of what they do—act just like non-human animals. [An 'empiric' is someone who goes by obvious superficial regularities and similarities without asking 'Why?' about any of them.] For example, we expect there to be daylight tomorrow because we have always experienced it that way; only an astronomer foresees it in a reasoned way (and even *his* prediction will prove wrong some day, when the cause of daylight goes out of existence). But genuine *reasoning* depends on necessary or eternal truths like those of logic, arithmetic and geometry, which make indubitable connections between ideas and

reach conclusions that can't fail to be true. Animals that never think of such propositions are called 'brutes'; but ones that recognise such necessary truths are rightly called *rational animals*, and their souls are called *minds*. These souls are capable of reflective acts—·acts of attention to their own inner states·—so that they can think about what we call 'myself', substance, soul, or mind: in a word, things and truths that are immaterial. This is what renders us capable of science, or of demonstrable knowledge.

6. The ancients believed that living things come from putrefaction, that is, from •·formless· chaos; but recent researches have shown—and reason confirms—that this is wrong, and that plants and animals (the only living things whose anatomy we know) come from pre-•formed seeds, and therefore from the trans•formation of pre-existing living beings. The seeds of big animals contain little animals; through the process of conception these take on new clothing (·so to speak·) which they make their own, and which gives them the means to feed and to grow, so as to pass onto a larger stage and propagate [= 'be hatched or born as'] the larger animal. Human sperm are animals that are not rational and don't become so until conception settles a human nature on them. And just as no animals *completely come into existence* when they are conceived or generated, so none *go completely out of existence* in what we call their death; for it is only reasonable that what doesn't •begin naturally should not •end naturally either. ·What happens at death is that· the animal throws off its mask or its tattered costume and returns to a smaller stage, where it can still be just as *sensible* [French, meaning 'capable of *sensing*' or 'capable of *being sensed*'] and as orderly as it was on the larger one. And what I have just said about large animals applies also to the generation and death of those spermatic animals themselves; that is to say, they have grown up out of other still smaller spermatic animals, in relation to which they would count as *large*! For everything in nature goes on to infinity, ·including the nested series of ever smaller animals·. So it is not only souls that can't be brought into existence or driven out of it. The same applies to animals: ·in their birth and death· they are only ·*transformed*—unfolded and refolded, stripped bare, re-covered. A soul never leaves behind its whole body, passing to an entirely new one. So there is no metempsychosis [= 'a mind's switching from one body to another'], but there is metamorphosis [= 'a body's changing its form']. Animals do change, but only by gaining and losing parts. In the process of nutrition this happens continually—little by little, by tiny, imperceptible steps. It happens all at once and very perceptibly in conception or in death, which makes the animal gain or lose a great deal all at once.

7. So far I have spoken only of *what goes on in the natural world*; now I must move up to the *metaphysical* level, by making use of a great though not very widely used principle, which says that *nothing comes about without a sufficient reason*; i.e. that

> for any true proposition P, it is possible for someone who understands things well enough to give a sufficient reason why it the case that P rather than not-P.

Given that principle, the first question we can fairly ask is: Why is there something rather than nothing? After all, *nothing* is simpler and easier than *something.* Also, given that things have to exist, we must be able to give a reason why they have to exist as they are and not otherwise.

8. Now, this sufficient reason for the existence of the universe can't be found in the series of contingent things—that is, in bodies and the representations of them in souls. ·I shall explain why it can't lie in the facts about •bodies; that it can't lie in the facts about •mental representations of bodies

follows from that·. The reason is that there is nothing in matter, considered in itself, that points to its moving or not moving, or to its moving in some particular way rather than some other. So we could never find in matter a reason for motion, let alone for any particular motion. Any matter that is moving now does so because of a previous motion, and that in turn from a still earlier one; and we can take this back as far as we like—it won't get us anywhere, because the same question—·the question Why?·—will still remain. ·For the question to be properly, fully answered, we need· *a sufficient reason that has no need of any further reason*—·a 'Because' that doesn't throw up a further 'Why?'—and this· must lie outside the series of contingent things, and must be found in a substance which is the cause of the ·entire· series. It must be something that exists necessarily, carrying the reason for its existence within itself; only *that* can give us a sufficient reason at which we can stop, ·having no further Why?-question taking us from this being to something else·. And that ultimate reason for things is what we call 'God'.

9. This simple, primal substance must have, eminently, the perfections possessed by the derivative substances that are its effects. [The technical term 'eminent' means 'in a higher form'. To grasp this, take the example of *will*. You are able to *decide how to act and then act on your decision*; that's what it is for you to have *will*, which Leibniz calls a perfection. This comes from God, he says, but will in you is coloured and constrained by many features that aren't present in God: the limits on your knowledge and on your physical powers, the potential influence of emotions, and so on. So *will* in God is tremendously unlike *will* in you; it is will in some higher form; which Leibniz and his contemporaries expressed by saying that God *eminently* has will.] Thus, the primal substance will have perfect power, knowledge, and will; which is to say that it will be omnipotent, omniscient, and supremely good. And God must also be supremely just, for justice in the broadest sense is nothing other than *goodness in conformity with wisdom*. God (the primal Reason) who made things •come to exist through himself also makes them depend on him for their •staying in existence and for their •operations. Whatever perfections they possess they continually receive from him; but whatever imperfections they retain come from the essential and inherent limitation of a created thing.

10. God is supremely perfect, from which it follows that in producing the universe he chose the best possible design—a design in which there was

- •the greatest variety along with the greatest order,
- •the best arranged time and place,
- •the maximum effect produced by the simplest means,
- •in created things the highest levels of power, knowledge, happiness and goodness that the universe could allow.

For in God's understanding all possible things lay claim to existence, ·with their claims being strong· in proportion to their perfections; so the outcome of all those claims must be the most perfect possible actual world—·the one with the strongest claim·. Otherwise it wouldn't be possible to give any reason why things have gone as they have rather than otherwise. [The second of the four bulleted items evidently misses part of Leibniz's meaning. What he says are *les mieux menagés*—the best arranged or ordered or managed—are three things: *le terrain*, the time and the place. The French word *terrain* means pretty exactly what 'terrain' means in English. Glenn Hartz, when consulted about this, suggests the following. Wanting things to make things easy for the common reader, Leibniz here (as elsewhere) throws off the constraints of his own metaphysical views, and depicts planning the universe as though it were something like planning a vegetable garden: start it in the spring (time); situate it near the south shore (place); and put it on that splendid piece of flat fertile ground *there* (terrain).]

11. God's supreme wisdom made him choose, above all, *the laws of motion* that hang together the best, and that have the best fit with abstract or metaphysical reasoning. They conserve the same quantity of

•total or absolute force, i.e. of action, of
•relative force, i.e. of reaction, and of
•directional force.

Furthermore, ·adding to the wonderful simplicity of the basic laws of physics·, action is always equal to reaction, and the complete effect is always equivalent to the total cause. These laws of motion have been discovered in our own time, some of them by me. If we want to explain *why* they are laws, it turns out, surprisingly, that we can't do this purely in terms of efficient causes, that is, in terms of matter. I have found that •·to explain why the basic laws of physics *are* laws· we have to bring in final causes, and that •these laws don't depend on •the principle of necessity, as do the truths of logic, arithmetic and geometry, but on •the principle of fitness, meaning that they depend on what ·God in his· wisdom has chosen. For anyone who can look deeply into things, this is one of the most convincing and most evident proofs of the existence of God.

12. From the supreme Author's perfection it follows not only •that the order of the entire universe is the most perfect that could be, but also •that

every living mirror that represents the universe according to its own point of view,

that is to say

every monad, or every substantial centre,

must have its perceptions and its appetites ordered in the best way that is compatible with ·the perceptions and appetites of· all the rest. And from that it follows also that souls—that is to say, the most dominant monads—cannot fail to wake up from the state of stupor into which death or some other accident may put them. (I said this about 'souls', but really it applies to the *animals* of which they are the souls.)

13. For everything in things is ordered once and for all with as much •regularity and as much •correspondence as possible. (·The correspondence in question is that between the states of each monad and the states of each other monad; it constitutes a sort of 'harmony'·.) This is because supreme wisdom and goodness can only work in perfect harmony. So the present is big with the future, the future could have been read in the past, and distant things are expressed in what is nearby. What is folded into any individual soul will become perceptible only through time, as the soul develops; but if we could unfold it ·all at once right now·, we could see the beauty of the universe in the individual soul—*any* individual soul. But as each of the soul's distinct perceptions involves an infinity of confused perceptions that take in the entire universe, the soul itself doesn't know the things of which it has a perception except insofar the perception is distinct and conspicuous; and the extent to which a soul has distinct perceptions is the extent to which it is perfect. Every soul knows infinity—knows *everything*—but knows it in a confused way. It is like what happens when I walk along the seashore: in hearing the roar of the sea, I hear—though without distinguishing them—the individual ·little· noises of the waves out of which that total noise is made up. Similarly, our ·big· confused perceptions are the outcome of the ·infinity of tiny· impressions that the whole universe makes on us. It is the same for each monad. Only God has distinct knowledge of everything, as he is the source of everything. It has been well said that it's as though God were like *a centre that is everywhere, with a circumference nowhere*, because to him everything is immediately present, at no distance from that Centre.

14. As far as the rational soul—the *mind*—is concerned, there is something more to it than to monads generally, or even to mere souls ·that are not rational·. A rational soul is not only •a mirror of the universe of created things, but also a •likeness of the creator. A mind not only •has a perception of God's works, but can also •produce something that resembles them, though on a smaller scale. For our soul is systematic in its voluntary actions, and in discovering the sciences that God has followed in his ordering of things (by weight, measure, number, etc.). The soul imitates in its own sphere, and in the little world in which it is permitted to operate, what God does in the world at large. (I spoke of the soul's 'voluntary' actions so as to set aside the wonders of dreams, in which we easily invent things that we couldn't come up with while awake unless we worked at them for a long time, these dream achievements of ours being involuntary.)

15. That is why all minds, entering (by virtue of reason and of eternal truths) into a kind of community with God, are members of the *City of God*—that is, of the most perfect state, formed and governed by the greatest and best of monarchs. This applies to the minds of men and also those of ·higher-than-human· spirits. In this perfect state there is

no crime without punishment,
no good act without its appropriate reward, and
as much virtue and goodness as is possible.

God doesn't achieve all this by •disturbing ·the course of· nature, as though he had ordained that souls did things that •interfered with the laws of bodies. Rather, he achieves it •through the natural order of things, by means of the •harmony that he has pre-established from all time between

the kingdom of nature and the kingdom of grace,

between

God as architect and God as monarch.

·This harmony works· in such a way that nature itself leads on to grace, and grace perfects nature—·completes it, rounds it off·—while at the same time making use of it.

16. Only •revelation can tell us in detail about the great future that awaits us ·in the next life·; •reason can't do that. But reason *can* assure us that things have been done in a way that is better than we could wish. God is the most perfect and the happiest of substances, and therefore the most worthy of love; and true pure love is the state that enables one to take pleasure in the perfections and the happiness of the person one loves; therefore, love for God must give us the greatest pleasure of which we are capable.

17. And it is easy to love God as we should, if we know him to be as I have just described him. We can't perceive God through our external senses, but he is nevertheless very lovable and a source of very great pleasure. ·There is nothing puzzling or mysterious about getting *pleasure* from something that isn't *perceivable* through the senses. Here are three reasons for taking that idea in our stride·. **(1)** We know what pleasure people get from *honours*, though they don't consist in qualities detectable by our external senses. **(2)** Martyrs ·who go happily to their deaths· show what the pleasures of the mind can do. (The same is true of fanatics, though in their case the emotion is out of control.) **(3)** The pleasures of the *senses* themselves come down in the end to *intellectual* pleasures—·they strike us as sensory rather than intellectual only because· they are known in a confused way. Music ·that we •hear· can charm us, even though its beauty consists only in relations among numbers, and in the way the beats or vibrations of the sounding body return to the same frequency at certain intervals. (We are not *aware* of the numbers of these beats, but the soul counts them all the same!) Our pleasure in the proportions of things we

•see are of the same kind; and those that •the other senses produce will come down to something similar, even though we couldn't explain them so straightforwardly.

18. One can even say that our present love for God lets us enjoy a foretaste of our future happiness. That love of ours provides in itself our greatest good and our greatest benefit. And yet it is disinterested: ·we don't set about loving God so as to get something out of it·. We aren't looking for consequent goods and benefits, and are attending only to the pleasure we get *in* loving God. This love gives us perfect confidence in the goodness of our creator and lord, and that gives us real peace of mind, a steady *patience* that comes from our present contentment, which itself assures us of a happy future. It is not like the 'patience' the Stoics recommend, in which you put up with what comes to you because you *have to*. And quite apart from the •present pleasure it brings us, our love for God is supremely useful to us for the •future. This love of ours satisfies all our hopes and leads us along the path of supreme happiness. That is because the perfect order established in the universe brings it about that everything is the best possible—both for the general good and for the particular good of those who believe in this order and are content with the government of God. Actually, supreme happiness, even when accompanied by some beatific vision or acquaintance with God, can never be complete, because God is infinite and so can never be known entirely. Thus our happiness won't and shouldn't ever consist in •a mind-numbing complete enjoyment with nothing left to desire, but rather in •a perpetual progression towards new pleasures and new perfections.