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## A New System

By G. W. Leibniz

[The full title is: **A new system of the nature and communication of substances, and also of the union that exists between the soul and the body**]

1. I thought up this system several years ago and communicated some of it to some learned men, and in particular to ·Arnauld·, one of the greatest theologians and philosophers of our time. He had heard at second hand about some of my opinions and had found them quite paradoxical. But after I clarified things for him he withdrew what he had said, in the most generous way possible (what an example he set!). He accepted some of my theses; there were others that he still didn't agree with, but he no longer *condemned* them. Since then I have gone on thinking about these matters whenever I had the opportunity, so as to give the public only well-considered opinions; and I have also tried to answer objections raised against my essays on dynamics, which have some connection with this. And now, because some notable people wanted to see my views clarified, I venture to offer these meditations, although they are far from popular in style and can't be appreciated by all types of mind. I decided to do this - ·publishing my thoughts in a learned journal· - mainly so as to benefit from the judgments of people who are enlightened in these matters, for it would be far too much trouble to find and consult individually all those who might be willing to give me advice. I shall always be glad to get advice, as long as it shows a love of the truth rather than a passion for preconceived opinions.

2. Although I have worked a lot on mathematics, ever since my youth I have gone on thinking about philosophy, for it has always seemed to me that there is a way of getting solid results in philosophy through clear demonstrations. I had gone a long way into the territory of the scholastics [= teachers in mediaeval, Aristotle-influenced, philosophy departments often referred to as 'the schools'], when mathematics and modern authors drew me out again while I was still quite young. Their lovely ways of explaining nature mechanically charmed me, and I rightly despised the method of those who make use only of 'forms' and 'faculties', from which we learn nothing. But since then ·things have changed for me·. I tried to dig down into the principles of mechanics themselves: we know what the laws of nature are through experience, but I wanted to *explain* them. Through this I became aware that physics needs more than the concept of mere •extended mass, and that we must use also of the notion of •force - a notion from the domain of metaphysics, but a perfectly intelligible one. I realized also that the opinion of those - ·such as Descartes· - who transform or degrade animals into mere machines, although it seems possible, is implausible and indeed contrary to the order of things.

3. At first, when I had freed myself from the yoke of the schools, and thus of Aristotle, I was in favour of an approach to physics based on *atoms* and *empty space*, because this approach best satisfies the imagination - i.e. it gives us a physics that we can always *picture* in our mind's eye. But in pulling myself out of this, which took much thought, I became aware that it is impossible to find *the sources of real unity* in matter alone, or in what is purely passive, since this is nothing but a collection or lumping together of parts and parts of parts . . . *ad infinitum*. Now a real collection or multiplicity must involve *true unities* - things each of which is *one thing* in a more basic way than a collection is one thing - and these true unities must come from elsewhere, i.e. cannot themselves be members of the collection. •They can't be material things, because what is *material* can't at the same time be *perfectly indivisible*, which is what is needed for true unity. •And they can't be mathematical *points* either: something continuous can't be made up of points, because points are not *things*; rather, facts about them are just facts about extended things, e.g. facts about where they end, where their limits are. (Thus, to say that two lines intersect *at a certain point* is not to say that there is a point at which the lines intersect; rather, it is to say *where* they intersect; in a fundamental account of this statement, the noun 'point' doesn't have to occur at all.) So in order to get a real unity - a thing that is deep-down just *one thing* - I had to bring in what might be called a *real and living point*, an atom of substance that is a complete being only because it contains some kind of form or activity. So I had to bring back and (as it were) rehabilitate *substantial forms*, which are in such disrepute these days - but in a way that would •make them intelligible and would •distinguish the proper use of them from their previous misuse. I found then that the nature of substantial forms consists in *force*, and that out of this comes something analogous to *sentiment* and appetite; and that these substantial forms must therefore be understood along the lines of our notion of souls. [The French word *sentiment* can mean 'belief' or 'feeling'. 'Appetite' for Leibniz is similar to 'desire', but covers some kinds of being-drawn-to-x that are too low-grade to count as *desire-for-x*.] But just as it is wrong to

bring in the soul in explaining in detail the workings of an animal's body,

I judged that it would similarly be wrong to

bring in substantial forms to solve •particular problems in natural science, although they *do* have to come into the establishing of true •general principles. Aristotle calls them 'first entelechies'. I give them the perhaps more intelligible label 'basic forces'. They are *forces* because they involve not only *actuality* (as opposed to mere possibility) but also a basic *activeness*.

4. I saw that these forms and souls had to be indivisible, like our minds, and indeed I remembered that this was what Aquinas thought concerning the souls of the lower animals. But this truth revived the big difficulties about the origin and duration of souls and forms. A substance that has a true unity and therefore has no parts can't be •made by being assembled or •destroyed by being dismantled, and so it can begin or end only by a miracle. It follows from this that such simple substances can come into being only by creation and end only by annihilation. So I had to recognize that the forms that constitute substances must (except for ones that God still intends to create specially) have been created with the world and must always continue to exist. . . . This idea shouldn't seem extraordinary, for I am attributing to forms only the duration that Gassendi's followers grant to their atoms!

5. I judged, though, that we mustn't jumble all the simple substances together, not distinguishing •*minds* or *rational souls* from •other forms or souls. The •former are of a superior order, and have incomparably more perfection than •forms that are sunk in matter, which in my view are to

be found everywhere. Compared with the latter, minds or rational souls are like little gods, made in the image of God and having within them a glimmer of the divine light. That is why God governs minds as a prince governs his subjects, or as a father cares for his children. He has imposed an order on the world of matter, which operates accordingly; but minds have special laws that raise them above all that, and we might say that everything else is made only *for* them, because even those mechanical operations work for the happiness of the good and the punishment of the wicked.

6. Returning now to ordinary forms - that is, to souls that don't rise to the level of minds - an intellectual danger must be avoided. Now that we are saying that *they* rather than *atoms* are everlasting, someone might think that these souls pass from body to body, needing to do this in order to last for ever. If they did, this would be . . . a little like what some philosophers have thought happens in causal transactions, namely that individual bits of motion or individual instances of properties pass from body to body. But this fancy is very far from how things are: there is no such passing-across. On this point I have been helped by the *transformations* observed through microscopes by Swammerdam, Malpighi, and Leeuwenhoek, who are among the best observers of our day. They have made it easier for me to accept that no animal or other organized substance *begins*, though we think they do, and that when it seems that an animal starts to exist there is really only a development, or a kind of augmentation. And I have noticed that Malebranche and . . . other able men have had views not far from this.

7. So much for the *beginnings* of animals, but what about their *ends*? There remained for me the even bigger question:

What becomes of such a soul or form when the animal dies, i.e. when the individual organized substance is destroyed?

What makes this especially baffling is that it seems hardly reasonable that souls should pointlessly linger on in a chaos of confused matter. I eventually came to the conclusion that there is only one reasonable view to take, namely that what is conserved is not only the soul but also the animal itself and its organic mechanism, though the destruction of its larger parts makes it so small that we can't detect it through our senses, any more than we could before its birth. So no-one can accurately tell the true time of death, which for a long time may be taken for a mere suspension of observable actions; and in the case of simple animals a suspension of observable actions is all that death *is*! Witness the resuscitation of drowned flies buried under powdered chalk, and various similar examples which show clearly that there would be many more resuscitations, even in more extreme cases, if men had the means and knowledge to repair the mechanism. . . . As some people of great insight are beginning to recognize, an animal has *always been* alive and organized; it's only natural that it should *always remain* so. And so, since there is no first birth or entirely new generation of an animal, it follows that it will have no final extinction, no complete 'death' in the strict metaphysical sense; and that consequently, instead of the *transporting* of souls from body to body there is merely a *transforming* of one and the same animal, according as its organs are differently folded into one another and more or less developed.

8. Rational souls follow much higher laws, though, and are exempt from everything that could make them lose their status as citizens of the society of minds; God has provided for them so well that no changes in matter can ever make them lose the moral qualities of their personhood. It can be said that everything tends to the perfection not only of the universe in general but also of these creatures in particular, creatures who are destined to reach - through God's goodness, which acts

upon each one as far as the sovereign wisdom can allow - *such* a high degree of happiness that this affects the welfare of the universe as a whole.

9. As for the ordinary run of animals and other bodily substances, whose changes *do* depend on mechanical rules rather than moral laws, and which until now have been thought to suffer total extinction, I was pleased to see that the ancient author of the book *Diet* (which is attributed to Hippocrates) had glimpsed something of the truth, when he said explicitly that animals aren't born and don't die, and that the things we suppose to come into being and to perish merely appear and disappear. This was also the view of Parmenides and of Melissus according to Aristotle. These ancients, you see, were sounder than they are thought to be!

10. I am as ready as anyone to do justice to the moderns, but I think they have carried 'reform' too far, among other things confusing natural things with artificial ones, through not having grand enough ideas of nature's majesty. They take the difference between nature's machines and ours to be only that between large and small. This recently led a very able man to say that on close inspection nature appears less wonderful than we had thought, it being only something like a craftsman's window display. This gives an inappropriate and unworthy idea of nature, I think. Only my system brings out the true distance - the *immense* distance - between •the least productions and mechanisms of divine wisdom and •the greatest masterpieces produced by the skill of a limited mind. These differ not merely in *degree* but in *kind*. What we need to recognize are these three truths: •Nature's machines are so well equipped and defended against accidents that they can't be destroyed. •They have a truly infinite number of organic parts; the parts of a natural machine, however small they may be, are also machines. •A natural machine always remains *the same* machine that it was; when we think it is destroyed it is merely transformed by being folded together differently, sometimes extended, sometimes contracted and as it were concentrated.

11. Furthermore, by means of the soul or form there is a true unity - an absolutely *single thing* - which corresponds to what is called 'I' in us. This can't occur in artificial machines or in a simple mass of matter, however organized it may be. Such masses can only be thought of as like an army, a flock, a pond full of fish, or like a watch composed of springs and wheels. There wouldn't be anything substantial or real in such a collection if there were no true substantial unities. It was the search for true unities that forced Cordemoy to abandon Descartes - who held that every portion of matter is divisible into smaller portions - and to adopt Democritus's doctrine of *atoms*. But •*atoms of matter* are contrary to reason; and anyway an atom, if there were such a thing, would still be composed of parts and so wouldn't be a true unity after all. One part's being attached to another so strongly that they couldn't be pulled apart (supposing we could make sense of this) wouldn't alter the fact that these were *two* parts, one different from the other. It is only •*atoms of substance*, that is to say real unities absolutely devoid of parts, that can be

- the sources of activity,

- the absolutely basic reasons for the composition of things (explaining why composite things have such togetherness, such non-basic unity, as they *do* have),

and, as it were,

- the ultimate elements in the analysis of substantial things.

Going through those again in the reverse order: atoms of substance are •what a substantial thing is made of (and without which it wouldn't be substantial), are •what pull it together so that it is (though in a non-basic way) one *thing*, and are •what makes it active, what has it *doing* things:

They might be called *metaphysical points*: they are related to *mathematical points*, which are their points of view for expressing the universe, but they are not themselves mathematical points because they have *something alive* about them, and a kind of *perception*. When a bodily substance is contracted far enough, all its organs together make what to us is only a *physical point*. So physical points only *seem* to be indivisible. Mathematical points really are indivisible, but they are not things. It is only metaphysical or substantial points (constituted by forms or souls) that are both exact and real, and without them there wouldn't be any things at all, because without true unities there would be no multiplicity - without true *ones* there would be no *manies*. [Regarding 'exact and real': The context requires 'exact' (French: *exact*) to mean 'indivisible', but dictionaries don't support that. 'Real' comes from the Latin *res* = 'thing'.]

**12.** Having established these things, I thought I was entering port; but when I got to thinking about the soul's union with the body I was blown back into the open sea, so to speak. For I couldn't explain how the body can make something pass over into the soul or vice versa, or how one created substance can affect another. As far as we can see from his writings, Descartes threw in his hand at this point, but his disciples, seeing that the usual view about this makes no sense, said that bodies don't act on our minds, but rather

- we sense the properties of bodies because God produces thoughts in the soul *on the occasion of* the motions of matter;

and that our minds don't act on our bodies, but rather

- when our soul wishes to move the body, it is God who moves the body for it, *on the occasion of* the soul's having this wish.

And it also made no sense to them that one body should pass motion along to another, so they held that

- God gives motion to one body *on the occasion of* the motion of another.

This is what they call the system of occasional causes, which has been made very fashionable by Malebranche's elegant reflections in *The Search for Truth*.

**13.** I must admit that the occasionalists saw a good distance into this problem with their view about what *can't* happen (namely their view that motions and other property-instances can't be literally passed from one thing to another); but they didn't solve the problem with their theory about what actually *does* happen. It is quite true that in the strict metaphysical sense one created substance has no real influence on another - doesn't send across anything thing-like to the other - and that all things, with all their reality, are continually produced by the power of God. But you don't solve problems by making use of the general all-purpose cause, introducing what is called a *deus ex machina* [meaning, roughly, 'a God who conveniently does what we want him to do']. For to do this - explaining things purely in terms of the primary cause, God - without giving any other explanation in terms of the system of secondary causes, is to fall back on *miracles*. In philosophy we must try to show *in what way* God in his wisdom makes things happen, not arbitrarily but in accordance with the notion of the subject we are dealing with.

**14.** Having to admit that no soul or other true substance could possibly let anything in from outside it except through divine omnipotence, I was led gradually to a surprising opinion. (It crept up on me without my realizing it.) Though surprising, there seems to be no way out of it, and in fact it has very great advantages and notable charms. It is the opinion that we have to say this:

God first created each soul and other real unity in such a way that everything in it arises from its own depths, with a perfect *spontaneity* as regards itself - i.e. with no causal input from anything else - and yet with a perfect *conformity* to things outside it.

On this account, our sensations are only a sequence of 'mental' phenomena that track external things; they are *true appearances*, something like orderly dreams. (I am saying this only about or *inner* sensations, i.e. ones that are in the soul itself and not in the brain or in the body's subtle parts.) So these internal perceptions in the soul must arise from its own basic constitution, which it has had since its creation and which makes it the individual that it is. This constitution gives the substance a *representative* nature, enabling it to express external things according to how they relate to its organs. And this means that since •each of these substances accurately represents the whole universe in its own way and according to a particular point of view, and since •its perceptions or expressions of external things occur in the soul at a given moment in virtue of its own laws (as in a world apart, as if there existed nothing but God and that soul) . . . •there will be a perfect agreement amongst all these substances, producing the same effect that we would see if they interacted with one another by passing across 'species' or qualities in the way that most ordinary philosophers suppose. What we call the 'interaction' [the French word is *communication*] of soul with body, and the sole basis for their *union*, arises as follows.

•The organized mass in which the point of view of the soul lies is more closely expressed by it. •And it in turn is ready, just when the soul desires it, to act *of itself* according to the laws of the bodily mechanism, the animal spirits and the blood having at exactly the right moment the motions that correspond to the passions and perceptions of the soul.

All this happens without either body or soul disturbing the laws of the other; it is a mutual relationship, arranged *in advance* in each substance in the universe. And this enables us to understand *how* it is that the soul has its seat in the body: it is by an immediate presence, which is as close as it could be, since the soul is *in* the body in the same way that unity is *in* a multitude, which is a resultant of unities.

**15.** This hypothesis is perfectly possible. For why couldn't God give to a substance right from the start a nature - an internal *force* - that could produce in it, in an orderly way and without the help of any 'other' created thing, everything that is going to happen to it? . . . (It would be like a spiritual or formal automaton; but a free one, in the case of a substance which has a share of reason.) This is the more so since the nature of a substance necessarily requires and essentially involves some progress or change, without which it would have no force to act. And since it is in the nature - *this* nature - of the soul to represent the universe in a very exact way (though with differing degrees of clarity), •the series of representations that a soul produces for itself will naturally correspond to the series of changes in the universe itself; just as, conversely, •the body has also been adapted to the soul for the occasions that we think of as the soul acting on something outside itself (e.g. when we think 'His decision to raise his hand *made* it go up'). This is all the more reasonable in that bodies are made only for minds that are capable of entering into social relations with God and of celebrating his glory. Thus as soon as we see that this theory of agreements 'or correspondences between the states of different substances' is •possible, we see also that it is the •most reasonable, and that it gives a wonderful idea of the harmony of the universe and the perfection of God's works.

**16.** It also has the great advantage that instead of saying that

we are only *seem* to be free, our appearance of freedom being sufficient for practical purposes,

as some clever people have held, we must rather say that

we only *seem* to be pushed along by external causes, and speaking in metaphysical strictness we are perfectly independent of the influence of all other created things.

This again throws a marvellous light on the immortality of our soul and the completely unbroken conservation of each of us as an individual - an individual that is perfectly well-regulated by its own nature and sheltered from all external accidents, however it may seem not to be so. No previous system has made our elevated position more clear. Every mind is like a world apart,

self-sufficient,  
independent of every other created thing,  
involving the infinite, and  
expressing the universe;

so it is as lasting, as continuous in its existence, and as free of conditions as the universe of created things itself. . . . There is also here a new and surprisingly clear proof of the existence of God. For when so many substances that don't interact with one another are nevertheless in perfect agreement, that can only come from their having a cause in common.

**17.** Besides all these advantages that this theory has in its favour, we may say that it is something more than a mere *theory*, since it hardly seems possible to explain things in any other intelligible way, and because when we fully understand it various serious difficulties that have perplexed men's minds up till now seem to vanish. [The next two sentences expand what Leibniz wrote, in ways that can't easily be indicated by 'dots'.] We can easily go on speaking in our accustomed ways about things 'acting on' other things, giving this a sense that makes it consistent with my theory. Specifically, we can say

'Substance *x* acted on substances *y* and *z*'

as a way of saying that

A change occurred in *x* which intelligibly *explains* changes in *y* and *z*, in such a way that we can conclude that when God was decreeing what substances were to exist he chose *y* and *z* so as to fit with the already chosen *x*.

So when one substance 'acts on' another, no entity is emitted or passed across as is commonly thought, and 'acting on' can't reasonably be understood in any way but the one I have just described. We have no difficulty conceiving, where matter is concerned, of *parts* of material things being emitted by one body and taken in by another; this indeed is the reasonable basis for our mechanical explanations of all the phenomena of physics. But a material mass is not a substance, so it is clear that 'acting on' as regards an actual substance can only be as I have described.

**18.** These lines of thought, however metaphysical they may seem, are nevertheless marvelously useful in physics for grounding the laws of motion, as my dynamics will be able to show. For we can say that when bodies collide, each one is affected only by its own elasticity, caused not by the other body in the collision, but by the motion that is already in it. As for absolute motion, nothing can determine it mathematically, since everything comes down to relations. The result of that is that there is always a perfect equivalence of seemingly different accounts of what is moving and what is at rest, as in astronomy; so that, whatever number of bodies we take, we may arbitrarily assign either rest or some speed to whichever we like, without its being possible for us to be refuted by the phenomena of motion, whether in a straight line, a circle, or a mixture. It is still reasonable, though, to attribute genuine motions to bodies on the basis of what explains the phenomena in the most intelligible way - this being in line with the account of 'acting on' that I have laid down.