

THE EXPANDING
MENTAL
UNIVERSE
by Bertrand Russell

First published July 18, 1959
in The Saturday Evening Post
Volume 322 Number 3
No. 31 'Adventures of the Mind'

*To People & the Planet,
may they eternally be of benefit
and in service to each other.*

The effects of modern knowledge upon our mental life have been many and various, and seem likely, in future, to become even greater than they have been hitherto. The life of the mind is traditionally divided into three aspects: thinking, willing, and feeling. There is no great scientific validity in this division, but it is convenient for purposes of discussion, and I shall, therefore, follow it.

It is obvious that the primary effect of modern knowledge is on our thinking, but it has already had important effects in the sphere of will, and should have equally important effects in the sphere of feeling, though as yet these are very imperfectly developed. I will begin with the purely intellectual effects.

The physical universe, according to a theory widely held by astronomers, is continually expanding. Everything not quite near to us is moving away from us, and the more remote it is, the faster it is receding. Those who hold this theory think that very distant parts of the universe are perpetually slipping into invisibility because they are moving away from us with a velocity greater than that of light. I do not know whether this theory of the expanding physical universe will continue to hold the field or not, but there can be no doubt about the expanding mental universe. Those who are aware of the cosmos as science has shown it to be have to stretch their imaginations both in space and in time to an extent which was

The Expanding Mental Universe

unknown in former ages, and which to many in our time is bewilderingly painful.

The expansion of the world in space was begun by the Greek astronomers. Anaxagoras, whom Pericles imported into Athens to teach the Athenians philosophy, maintained that the sun is as large as the Peloponnesus, but his contemporaries thought that this must be a wild exaggeration. Before long, however, the astronomers discovered ways of calculating the distance of the sun and moon from the earth, and, although their calculations were not correct, they sufficed to show that the sun must be many times larger than the earth. Poseidonius, who was Cicero's tutor, made the best estimate of the sun's distance that was made in antiquity. His estimate was about half of the right value. Ancient astronomers after his time were farther from the mark than he was, but all of them remained aware that, in comparison with the solar system, the size of the earth is insignificant.

In the Middle Ages there was an intellectual recession, and much knowledge that had been possessed by the Greeks was forgotten. The best imaginative picture of the universe, as conceived in the Middle Ages, is in Dante's *Paradiso*. In this picture there are a number of concentric spheres containing the moon, the sun, the various planets, the fixed stars, and the Empyrean. Dante, guided by Beatrice, traverses all of them in twenty-four hours. His cosmos, to a modern mind, is unbelievably small and tidy. Its relation to the universe with which we have to live is like that of a painted Dutch interior to a raging ocean in storm. His physical world contains no mysteries, no abysses, no unimaginable accumulation of uncatalogued worlds. It is comfortable and cosy and human and warm; but, to those who have lived with modern astronomy, it seems claustrophobic and with an orderliness which is more like that of a prison than that of the free air of heaven.

Ever since the early seventeenth century our conception of the universe has grown in space and time, and, until quite recent years, there has not seemed to be any limit to this growth. The distance of the sun was found to be much greater than any Greek had supposed and some of the planets were found to be very much more distant than the sun. The fixed stars, even the nearest, turned out to be vastly farther off than the sun. The light of the sun takes about eight minutes to reach us, but the light of the nearest fixed star takes about four years. The stars that we can see separately with the naked eye are our immediate neighbours in a vast assemblage called 'The Galaxy', or, in more popular parlance, 'The Milky Way'. This is one assemblage of stars which contains almost all that we can see with the naked eye, but it is only one of many millions of such assemblages. We do not know how many there may be.

A few figures may help the imagination. The distance of the nearest fixed star is about twenty-five million million miles. The Milky Way, which is, so to speak, our parish, contains about three hundred thousand million stars. There are many million assemblages similar to The Milky Way, and the distance from one such assemblage to the next takes about two million years for light to traverse. There is a considerable amount of matter in the universe. The sun weighs about two billion billion billion tons. The Milky Way weighs about a hundred and sixty thousand million times as much as the sun, and there are many million assemblages comparable to The Milky Way. But, although there is so much matter, the immensely large part of the universe is empty, or very nearly empty.

In regard to time, a similar stretching of our thoughts is necessary. This necessity was first shown by geology and paleontology. Fossils, sedimentary rocks and igneous rocks gave a backward history of the earth which was, of necessity, very long. Then came theories of the origin of the solar system and of the nebulae. Now, with the most powerful existing telescopes, we can see objects so distant that the light from them has taken about five hundred

The Expanding Mental Universe

million years to reach us, so that what we see is not what is happening now, but what was happening in that immensely distant past.

What I have been saying concerns the expansion of our mental universe in the sphere of thought. I come now to the effects this expansion has, and should have, in the realms of will and feeling.

To those who have lived entirely amid terrestrial events and who have given little thought to what is distant in space and time, there is at first something bewildering and oppressive, and perhaps even paralysing, in the realization of the minuteness of man and all his concerns in comparison with astronomical abysses. But this effect is not rational and should not be lasting. There is no reason to worship mere size. We do not necessarily respect a fat man more than a thin man. Sir Isaac Newton was very much smaller than a hippopotamus, but we do not on that account value him less than the larger beast. The size of a man's mind—if such a phrase is permissible—is not to be measured by the size of a man's body. It is to be measured, in so far as it can be measured, by the size and complexity of the universe that he grasps in thought and imagination. The mind of the astronomer can grow, and should grow, step by step with the universe of which he is aware. And when I say that his mind should grow, I mean his total mind, not only its intellectual aspect. Will and feeling should keep pace with thought if man is to grow as his knowledge grows. If this cannot be achieved—if, while knowledge becomes cosmic, will and feeling remain parochial—there will be a lack of harmony producing a kind of madness of which the effects must be disastrous.

We have considered knowledge, but I wish now to consider wisdom, which is a harmony of knowledge, will and feeling, and by no means necessarily grows with the growth of knowledge.

Let us begin with will. There are things that a man can achieve and other things that he cannot achieve. The story of Canute's forbidding the tide to rise was intended to show the absurdity of willing something that is beyond human power. In the past, the things that men could do were very limited. Bad men, even with the worst intentions, could do only a very finite amount of harm. Good men, with the best intentions, could do only a very limited amount of good. But with every increase in knowledge, there has been an increase in what men could achieve. In our scientific world, and presumably still more in the more scientific world of the not distant future, bad men can do more harm, and good men can do more good, than had seemed possible to our ancestors even in their wildest dreams.

Until the end of the Middle Ages, it was thought that there were only four kinds of matter, the so-called elements of earth, water, air and fire. As the inadequacy of this theory became increasingly evident the number of elements admitted by men of science increased until it was estimated at ninety-two. The modern study of the atom has made it possible to manufacture new elements which do not occur in nature. It is a regrettable fact that all these new elements are deleterious and that quite moderate quantities of them can kill large numbers of people. In this respect recent science has not been beneficent. Per contra, science has achieved what might almost seem like miracles in the way of combating diseases and prolonging human life.

These increases of human power remain terrestrial: we have become able, as never before, to mould life on earth, or to put an end to it if the whim should seize us. But, unless by some such whim we put an end to man, we are on the threshold of a vast extension of human power. We could now, if the expenditure were thought worth while, send a projectile to the moon, and there are those who hold that we could in time make the moon capable of supporting human life. There is no reason to suppose that Mars and Venus will long remain

unconquered. Meanwhile, as Senator Johnson told the Senate, scientific power could have astonishing effects upon our own planet. It could, to quote his own words, 'have the power to control the earth's weather, to cause drought and flood, to change the tides and raise the levels of the sea, to divert the Gulf Stream and change temperate climates to frigid'.

When we have acquired these immense powers, to what end shall we use them? Man has survived, hitherto, by virtue of ignorance and inefficiency. He is a ferocious animal, and there have always been powerful men who did all the harm they could. But their activities were limited by the limitations of their technique. Now, these limitations are fading away. If, with our increased cleverness, we continue to pursue aims no more lofty than those pursued by tyrants in the past, we shall doom ourselves to destruction and shall vanish as the dinosaurs vanished. They, too, were once the lords of creation. They developed innumerable horns to give them victory in the contests of their day. But, though no other dinosaur could conquer them, they became extinct and left the world to smaller creatures such as rats and mice.

We shall court a similar fate if we develop cleverness without wisdom. I foresee rival projectiles landing simultaneously on the moon, each equipped with H-bombs and each successfully engaged in exterminating the other. But until we have set our own house in order, I think that we had better leave the moon in peace. As yet, our follies have been only terrestrial; it would seem a doubtful victory to make them cosmic.

If the increased power which science has conferred upon human volitions is to be a boon and not a curse, the ends to which those volitions are directed must grow commensurately with the growth of power to carry them out. Hitherto, although we have been told on Sundays to love our neighbour, we have been told on weekdays to hate him, and there are six times as many weekdays as Sundays.

Hitherto, the harm that we could do to our neighbour by hating him was limited by our incompetence, but in the new world upon which we are entering there will be no such limit, and the indulgence of hatred can lead only to disaster.

These considerations bring us to the sphere of feeling. It is feeling that determines the ends we shall pursue. It is feeling that decides what use we shall make of the enormous increases in human power. Feeling, like the rest of our mental capacities, has been gradually developed in the struggle for existence. From a very early time, human beings have been divided into groups which have gradually grown larger, passing, in the course of ages, from families to tribes, from tribes to nations, and from nations to federations. Throughout this process, biological needs have generated two opposite systems of morality: one for dealings with our own social group; the other for dealings with outsiders. The Decalogue tells us not to murder or steal, but outside our own group this prohibition is subject to many limitations. Many of the men who are most famous in history derive their fame from skill in helping their own group to kill people of other groups and steal from them. To this day, aristocratic families in England are proud if they can prove that their ancestors were Norman and were cleverer at killing Saxons than Saxons were at killing them.

Our emotional life is conditioned to a degree which has now become biologically disadvantageous by this opposition between one's own tribe and the alien tribes against which it collectively competes. In the new world created by modern technique, economic prosperity is to be secured by means quite different from those that were formerly advocated. A savage tribe, if it can exterminate a rival tribe, not only eats its enemies but appropriates their lands and lives more comfortably than it did before. To a continually diminishing degree these advantages of conquest survived until recent times.

But now the opposite is the case. Two nations which co-operate are more likely to achieve economic prosperity than either can achieve if they compete. Competition continues because our feelings are not yet adapted to our technique. It continues because we cannot make our emotions grow at the same rate as our skills.

Increase of skill without a corresponding enlargement in feeling produces a technical integration which fails of success for lack of an integration of purpose. In a technically developed world, what is done in one region may have enormous effects in a quite different region. So long as, in our feeling, we take account only of our own region, the machine as a whole fails to work smoothly. The process is one which, in varying forms, has persisted throughout evolution. A sponge, while it is living in the sea, is like a block of flats, a common abode of a number of separate little animals each almost entirely independent of the others and in no way obliged to concern itself with their interests. In the body of a more developed animal, each cell remains in some degree a separate creature, but it cannot prosper except through the prosperity of the whole. In cancer, a group of cells engages in a career of imperialism, but, in bringing the rest of the body to death, it decrees also its own extinction. A human body is a unit from the point of view of self-interest. One cannot set the interest of the great toe in opposition to that of the little finger. If any part of the body is to prosper, there must be co-operation to the common ends of the body as a whole.

The same sort of unification is taking place, though as yet very imperfectly, in human society, which is gradually approximating to the kind of unity that belongs to a single human body. When you eat, if you are in health, the nourishment profits every part of your body, but you do not think how kind and unselfish your mouth is to take all this trouble for something else. It is this kind of unification and expansion of self-interest that will have to take place if a scientific society is to prove capable of survival. This enlargement

in the sphere of feeling is being rendered necessary by the new interdependence of different parts of the world.

Let us take an illustration from a quite probable future. Suppose some country in the southern hemisphere sets to work to make the Antarctic continent habitable. The first step will be to melt the ice—a feat which future science is likely to find possible. The melting of the ice will raise the level of the sea everywhere and will submerge most of Holland and Louisiana as well as many other low-lying lands. Clearly the inhabitants of such countries will object to projects that would drown them. I have chosen a somewhat fantastic illustration as I am anxious to avoid those that might excite existing political passions. The point is that close interdependence necessitates common purposes if disaster is to be avoided, and that common purposes will not prevail unless there is some community of feeling. The proverbial Kilkenny cats fought each other until nothing was left but the tips of their tails: if they had felt kindly toward each other, both might have lived happily.

Religion has long taught that it is our duty to love our neighbour and to desire the happiness of others rather than their misery. Unfortunately, active men have paid little attention to this teaching. But in the new world, the kindly feeling towards others which religion has advocated will be not only a moral duty but an indispensable condition of survival. A human body could not long continue to live if the hands were in conflict with the feet, and the stomach were at war with the liver. Human society as a whole is becoming, in this respect, more and more like a single human body; and if we are to continue to exist, we shall have to acquire feelings directed toward the welfare of the whole in the same sort of way in which our feelings of individual welfare concern the whole body and not only this or that portion of it. At any time such a way of feeling would have been admirable, but now, for the first time in human history, it is becoming necessary if any human being is to be able to achieve anything of what he would wish to enjoy.

Seers and poets have long had visions of the kind of expansion of the ego which I am trying to adumbrate. They have taught that men are capable of something which is called wisdom, something which does not consist of knowledge alone, or of will alone, or of feeling alone, but is a synthesis and intimate union of all three.

Some of the Greeks, and notably Socrates, thought that knowledge alone would suffice to produce the perfect man. According to Socrates, no one sins willingly, and, if we all had enough knowledge, we should all behave perfectly. I do not think that this is true. One could imagine a satanic being with immense knowledge and equally immense malevolence—and, alas, approximations to such a being have actually occurred in human history. It is not enough to seek knowledge rather than error. It is necessary, also, to feel benevolence rather than its opposite. But, although knowledge alone is not enough, it is a very essential ingredient of wisdom.

The world of a newborn infant is confined to his immediate environment. It is a tiny world bounded by what is immediately apparent to the senses. It is shut up within the walls of the here-and-now. Gradually, as knowledge grows, these walls recede. Memory and experience make what is past and what is distant gradually more vivid in the life of the growing child. If a child develops into a man of science, his world comes to embrace those very distant portions of space and time of which I spoke earlier. If he is to achieve wisdom, his feelings must grow as his knowledge grows. Theologians tell us that God views the universe as one vast whole, without any here-and-now, without that partiality of sense and feeling to which we are, in a greater or less degree, inevitably condemned. We cannot achieve this complete impartiality, and we could not survive if we did, but we can, and should, move as far toward it as our human limitations permit.

We are beset in our daily lives by fret and worry and frustrations. We find ourselves too readily pinned down to thoughts of what

seems obstructive in our immediate environment. But it is possible, and authentic wise men have proved that it is possible, to live in so large a world that the vexations of daily life come to feel trivial and that the purposes which stir our deeper emotions take on something of the immensity of our cosmic contemplations. Some can achieve this in a greater degree, some only in a lesser, but all who care to do so can achieve this in some degree and, in so far as they succeed in this, they will win a kind of peace which will leave activity unimpeded but not turbulent.

The state of mind which I have been trying to describe is what I mean by wisdom, and it is undoubtedly more precious than rubies. The world needs this kind of wisdom as it has never needed it before. If mankind can acquire it, our new powers over nature offer a prospect of happiness and well-being such as men have never experienced and could scarcely even imagine. If mankind cannot, every increase in cleverness will bring us only nearer to irretrievable disaster. Men have done many good things and many bad ones. Some of the good things have been very good. All those who care for these good things must hope, with what confidence they can command, that in this moment of decision the wise choice will be made.