The Impact Of The Development Of Knowledge On Questions Of Morality

by Jerzy A. Wojciechowski

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We are living in the age of science, in an age of breathtaking developments in knowledge. To give you some idea of the speed of these developments, it has been calculated that in the twentieth century which has just ended, scientific knowledge doubled every ten years. What does this mean? This means that, if in 1900 total scientific knowledge was equal to 1, in 1910 it was 1 x 2, in other words 2. In 1920: 1 x 2 x 2 - or 4. In the year 2000, 2 to the power of 10 – more than a thousand times! So during the 20th century scientific knowledge grew by more that a thousand times.

Knowledge Unbalanced

How far will it go? This is not a question I am able to answer and I don't think there is anyone in the world that can. But, and here is the problem, this development is in a certain way, unbalanced: because the knowledge that we are developing is above all scientific knowledge, which is to say quantitative knowledge. We have developed extremely effective methods to measure everything in the world, to measure ourselves and everything around us. This knowledge is extremely powerful; it allows us to do things. It gives us power over the world - and the most striking examples of that are perhaps the atomic bomb and the deciphering of the genetic code, which has just been done now. But this knowledge is ineffective when it comes to values. And this causes a very, very serious problem.

I want to focus my intervention this evening precisely on the problems caused by an unbalanced development of knowledge, which is to say of quantitative knowledge. If it is developing at a breathtaking pace, the knowledge of values - and this is a moral question - is not developing in such a rapid way. One can wonder if it is developing at all, but maybe it would be too negative to say that. There is, in any case, a lack of balance between the knowledge that gives us the power to do things and the knowledge that should tell us what to do, how to act and how to behave in life. Quantitative knowledge does not give us qualitative understanding.

Why is this important? It is because, thanks to the size of the human brain, the reasoning animal (rational being) is capable of distinguishing between good and evil, between what one should do and not do. We are able to make these distinctions. We are not able to NOT make these distinctions. That is to say, with a brain of a certain size, of a certain volume, - those who possess such a brain must always judge and make distinctions, and make choices. But in order to make the choice, it is (of course) necessary to distinguish between good and evil, between what one should or should not do. But on what basis? On the basis of knowledge, obviously! And on the basis of certain guidelines which are present in the culture.

The Problem of Morals . . .

For a very long time, in our western culture, as we all know, the moral problem (or the problem of morals) has been settled, already for thirty centuries, by the Ten Commandments. The question is: are the Ten Commandments still as valid today as they were thirty centuries ago in the time of Moses? Are these Ten Commandments enough to guide us in our everyday life? Well, how do we answer this question? It is obviously a very delicate question with very far reaching consequences. Often we would rather not tackle this question. This is obvious. Ah well! Let's look at the Ten Commandments: The Ten Commandments tell us what kind of problems they are trying to answer. Essentially, the Ten Commandments refer to relations between human beings and the creator, God, and the rest are commandments that order relations among humans. Principally, primarily and most fundamentally, they order relations within the basic social unit - the family.

As far as these problems are concerned, the Ten Commandments are as valid today as they were thirty- two centuries ago when Moses climbed Mount Sinai. But

the question is, are the Ten Commandments still as sufficient as they were in the time of Moses? And the answer is, unfortunately these Ten Commandments are not as sufficient today as they were. Why? Because since the time of Moses, human life has become incredibly complex.

This is the result of the development of knowledge. Because there is a direct relationship between the standard of living, the complexity of life and the level (amount) of knowledge, the more knowledge there is, the more it complicates life. Perhaps this is not immediately evident, but it is the case! It seems to be non-intuitively evident. Normally we think that knowledge is there to explain things to us, to make life easier. Yes, knowledge does explain, but knowledge also complicates life. In the time of Moses [il y avait fort peu de différentes?]. In the time of Moses, people were either farmers or merchants or fishermen - not much variety.

. . .And Then The Rules

In the United States there is a dictionary, which was published a few years ago; a dictionary of professions. This dictionary already contains more than 200,000 entries - 200,000 professions. Why? Because life has developed so much and knowledge has developed so much that we have specialised more and more. So instead of having, let's say, ten different professions, which were (once) enough for society, there are now more than 200,000 and the number is increasing all the time. So, knowledge complicates; It makes life (more) complex. And in all these new domains (fields), which did not exist in the time of Moses, there is a need for guidelines (rules): we have to know what to do and what not to do. But if we look at the Ten Commandments, we do not find any guide (lines). We do not find any indications what to do.

This means that today we have the Ten Commandments and in addition we have a large number of rules, regulations and laws, which are there to govern our behaviour. Take for example traffic laws: Stop! Red light! In the time of Moses nobody stopped at a red light. There were no cars; there were no roads. A camel went where it would. You didn't stop your camel at the light. But why didn't Moses foresee all that? I will answer - for a very simple reason. If Moses had foreseen how complex life would become and had created laws in view of that and if he had come down from the mountain with all these laws, the Jews who met him at the foot of the mountain would have said to him, 'what have you done? What's all this?' Nobody would have understood. So he could not (do that). Even if he had foreseen, he could not give these laws because such regulations would have been perfectly incomprehensible.

How would you explain to a fellow who goes about on a camel that he must stop at a red light or that he should keep to the right hand side of the road? That would be nonsense wouldn't it? But today all these laws are absolutely necessary. What does this mean? This means that the moral question is largely an open question and that it is a question that is becoming more and more complex. People who wish to think about this and who want to arrange human life in a more or less acceptable way, have a duty to reflect on these problems. They are moral problems, or in any event problems of choice, which did not exist in the time of Moses. They did not even exist a hundred years ago. A hundred years ago there were no such questions ... a hundred and fifty years ago ... no atoms. Nobody had divided the atom; there was no atomic energy. So, in the middle of the 19th Century to have spoken of atomic energy or the problems of atomic energy, would have had no meaning; it would not have been understood. It means that those who have morality at heart, those who are convinced that the choice between good and evil is an essential and necessary choice for us, are obliged to reflect all the time on this problem, on this question.

Environmental Reality

Among the problems that the Ten Commandments have not dealt with are several very important issues. One is the relationship between humans and the environment. Today the problematic of the environment seems to be obvious to us, at least to those who really try to think about it. But again, in the time of Moses, what was the environmental problematique? People were few. In the time of Christ, historians have calculated that there were about a hundred million people in the world. And Moses was 12 centuries before Christ! So the population was still smaller. There was no question of over population! There was no question of the destruction of the environment! When you had an axe or a knife, you were not so very destructive towards the environment. So there is no problem of overpopulation and no problem of the destruction of the environment. But today we have the problem of overpopulation and the problem of the environment,

which is absolutely central to our existence.

Knowledge is Power

Now, there is another problem, which is, so to say, outside the Ten Commandments. It is a terrible problem and with which I had to deal with in my theory of the Ecology of Knowledge. It is a frightfully dangerous problem, namely the problem of policing the development of knowledge. I grew up under nazi, and very shortly afterwards, communist regimes. Any idea of policing human thinking rubs me the wrong way. And yet this problem is before us. It is an extremely important problem. It is very painful.

Knowledge is power. It is not a new discovery. It was Francis Bacon who lived in the 16th century who first said this and today we see the truth of this saying: knowledge is power. Power in itself is neutral. But the way we use power is not neutral. And there is the rub.

Albert Einstein was the most abstract scientist you could imagine. He was never interested in material things. When he was at Princeton Institute for Advanced Studies, the Institute would issue monthly cheques for him. He would put a cheque in the pocket and then turn it over and write equations on the other side and his wife was never getting any money. So the Institute stopped issuing cheques to Einstein and made the cheques to Mrs. Einstein. This way, both could eat. But Einstein wrote a very short equation: E = MC2. Energy equals mass times the square of the speed of light. And this very innocuous small equation produced the atomic bomb and the atomic age! And as you all realise this is not an innocent consequence of this very innocent conception that Einstein had for purely theoretical reasons.

Theoretical vs. Practical

I will give you another example how theoretical and practical knowledge is inextricably combined today. In the 30s the Dupont de Nimbourg Company in the States was searching for a new yarn. And after many efforts they discovered nylon. Nylon was a practical invention which ladies very much like because it makes good stockings. But the invention of nylon produced a new branch of theoretical science: the chemistry of polymers. Purely practical considerations produced very big, very significant theoretical results. And such is the story of knowledge today.

We cannot dissociate knowledge from power; we cannot dissociate theoretical knowledge from practical applications. Any advancement in theoretical knowledge produces practical results whether we like it or not. I will give you one more example. In mathematics there is the problem of prime numbers. These are numbers that are divisible only by 1 or by themselves. If it is a relatively small number you can easily figure out whether it is a prime number or not. But with big numbers it is very difficult. Upon this conviction that it is not practically possible to discover whether a big number is a prime number or not, were based all codes of intelligence agencies and codes used to access big accounts in banks. A few years ago an American mathematician discovered a way which simplified the calculation of whether a number is prime or not. By this discovery, which was a purely mathematical enterprise he could thereby break all secret codes in the world and get access to all accounts in Swiss banks and elsewhere. So this shows you the relationship between theoretical knowledge and practical knowledge.

Humanity needs more and more knowledge, in order to exist, because it gets bigger and bigger; there are more mouths to feed, you have to build more houses, more roads, and so on and so on... And so we continue to need more and more knowledge. But this knowledge is more and more destructive towards the environment. How can we master this knowledge, and how can we see in this mass of knowledge the types of knowledge that are really good for us, which won't destroy us? This is a tremendous problem. We do not have a ready-made formula for answering this question. So, what can we do? The only way out of this dilemma is the return to the moral fiber of the humans.

Good vs. Evil

I began my talk by saying that because of the size of our brain, we can make the distinction between good and evil. And we have to make the distinction. So, faced with this growing knowledge, with the growing power of humans, our only defense against this power of destructiveness, which we have developed, which we possess, is the return to moral considerations. This is a very strange story because the modern epoch beginning with Michael Patriot Copernicus, Galileo and Newton, was developed on the ideal of objectivity. Objectivity really meant exclusion of subjectivity, which meant the exclusion of values. But science has brought us to the predicament we are in at this present

moment.

So after all the fantastic development of objective knowledge, of objective science, of valueless, value-free knowledge, (or so at least it was believed) if we want to save ourselves, if we want humanity to have a future, we have to return to the old problematique of values. We must return to the question of good and evil, of right and wrong. It was these very ideas, that modern science tried to eliminate from its purview. This is the field in which movements like the Moral Re-Armament have their justification and their value. And I would say that the value and the justification of such movements by a sort of opposite reaction are becoming more and more important.

Question Period

Questioner: I was just wondering if Dr. Wojciechowski has faith in the future!

Dr. Wojciechowski: Yes! It is a very fundamental question. Thank you for your question! Yes, I have faith in the future, because I believe that God has not created Humans for nothing. And he has given them intelligence to develop. But the difference between now and the past is that the future of humanity will have to be shaped more and more by humans themselves. And the future will depend more and more on what we do and what we intend for the future generations. How do we foresee the future? It is not by accident that futurology became a new field: we needed it. And we responded to this. I do not believe that humans are candidates for suicide. I have sort of a basic faith in humanity, perhaps because I was in very, very dire straits. I am one of few survivals of my unit from WWII. Having lived through this, I acquired a robust belief in our ability to pull through.

Questioner: I am from Alberta, and we've been battling oil company pollution (Dr. W. – 'God bless you!) – and it is the great power of money, really, that is over knowledge, in a way. And yet, we've been able to battle because we have been able to find knowledge and present it (Dr. W. – 'Wonderful!'). I wonder if you get a chance to meet with the politicians who should be policing these companies, ...

Dr. Wojciechowski: Madam, I am a simple person and a professor, a retired professor. I am not a politician. The problem is very simple. Let's put it in a very crude way. If humanity won't take its eye off the buck, it will perish with the buck. It is as simple as that. Now we are really being destroyed by our greed! Why are we so interested in making money? Well, it is greed! So, it is us who endanger ourselves. It is not something else. It is us. And we have to find in ourselves the solution, the answer to the problem. And this is of course a moral problem.

Questioner: There are enormous problems that persist. Do those problems persist principally because of lack of morality or a lack of the application of the knowledge?

Dr Wojciechowski: It is a very complex problem because we have a tremendous knowledge, but we have also too little knowledge. Let's look at the question of Alberta, of pollution. We know that pollution is bad for us, but we still do not realise how bad it is. There is still very much to be done in explaining the consequences of pollution. But the knowledge of the consequences of pollution is something that is not financed, because it goes against desires of companies that pollute! (Aha, you're right!) What really is the problem is to understand that the instant gratification of our desires is bad for us. This is counterintuitive. Everybody wants to be happy; What's wrong with that?

Question: Professor, how do we get this knowledge out to the people? People need to hear that.

Dr. Wojciechowski: That's the 64-dollar question, Madam!

Questioner: But you have the answers; I know you do.

Dr. Wojciechowski: Madam I am not a communicator! It is a question of the mass media! The mass media have a crucial role to play in this. So, we have to educate the mass media so they can educate people.

Questioner: But they are on the banks, again!

Dr. Wojciechowski: Yeah well, that is it.

Questioner: I question whether we have a growth of knowledge at all other than the growth of information. If we do not have the ability to process the information to create knowledge, in subsequent event, does that knowledge itself provide wisdom?

Dr. Wojciechowski: You see, that is the problem. The knowledge that we have developed in the modern era since Copernicus is non-wisdom knowledge, let's put it this way. It is knowledge but it is not wisdom. We need more wisdom of course. It is easy to say, but who will develop wisdom? It is not an obvious task, so to say.

Questioner: History tells you how we develop wisdom

from the pain of change.

Dr. Wojciechowsk:i But wisdom is not something that can be taught in the same way as science can. You can teach two plus two or two by two, you can not teach wisdom the same way.

Intervention (a lady): Professor Wojciechowski, I feel that your last few sentences are so important - and there are some people who weren't able to understand them. Would you be kind enough to make a short résuméé in French of this question of wisdom, information and knowledge, please!

Dr. Wojciechowski: Well! The thing is that there is a difference; there are different kinds of knowledge: there is information, knowledge, and there is wisdom. It is easy to produce information (and) it is easy to teach information. It is harder to teach knowledge, but it is almost impossible to teach wisdom. I do not know how one can teach wisdom. The Greeks had a saying that, 'fear is the mother of wisdom'. And they were right. If man is afraid, he searches his mind for a wise response. But can we teach (someone) to look for the wise response? I don't know. But it is a fact that when we are afraid we become wiser, that is certain.

Questioner: Professor, I don't know if you know about our MRA principles. There are four and I will repeat them: honesty, unselfishness, purity and love. I don't know how much you know about these principles. However, I would simply like to have your idea, from your experience, how these principles will help the world to have wisdom.

Dr. Wojciechowski: I think that Moral Re-Armament is a very effective movement, because it is placed half way between theoretical and practical knowledge. And this is what the world badly needs now. How to teach it? Once again – I'm not sure about that. But I think the idea that you have is right.

Questioner: I am left wondering. You say wisdom comes from experience and so much of what is happening in the world today is the first time we are experiencing it, whether it's environmental or whatever. We have not had the years behind us to know whether we are going in the right direction. We suspect we are not, in many cases. And there is already damage in the environment that a lot of these chemicals are causing. There are serious problems but we don't have a hundred or a thousand years of experience to be able to say we are now wise and we know that this is backwards …

Dr Wojciechowski: Madam you hit the nail on the head! I was giving always to my students the comparison between Neil Armstrong and Columbus and his crew arriving on this island and meeting the Indians. There was immediately a misunderstanding! The Spaniards waved their hands to show their good intentions and the Indians took it for a war dance, and reacted accordingly. But the Spaniards getting of the ship onto the island, well it was on an unknown island, but it was the same earth they were used to walking on; it was still familiar. The people looked different, you know, but they were still human beings: two hands, two legs, one head … But when Neil Armstrong set his foot on the moon, he was in a situation of absolute novelty! He had nothing to look back at which would tell him what to expect, how to behave and so on… and this is one of the consequences of the development of knowledge.

There is another consequence: the development of knowledge is the development of ignorance, because there is more and more knowledge, but our brains are not increased. What does that mean? It means that we know a lesser and lesser percentage of the existing knowledge. So, the ignorance of knowledge develops because of the development of knowledge. And these two things combined produce exactly the problem that you are referring to.

MC: Professor, I think that you have helped us make a quantum step. Does everyone know what is a quantum step? It is the minimum energy that an electron needs to go from one level of energy to a higher level of energy. So, it is a quantum step in knowledge for us. So, thank you very much for this quantum step.