

CAUSALITY AND DETERMINATION IN THE WORLD OF QUANTUM MECHANICS AND CRIME

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Preface

It might seem surprising for a criminologist to elaborate his thoughts on the regularity of crime under such a heading and in such a context. This unusual phenomenon roots in the fact that my favourite secondary school subject was physics, and that my goal as youth was to become an electrical engineer. After passing my final examinations, I applied for admission to the Technical University. However, as a result of Hungary's strict implementation of its planned economic policy, I was redirected to the Faculty of Law at Eötvös Loránd University in 1950, since there had been an overapplication to the Technical University, and only 42 applications had been received for 250 spots at the Faculty of Law.

As a student of law interested in the world of physics, I found the most intriguing first-year subjects to be statistics and criminal statistics. The late Dr. Ede Theiss also played a significant role in awakening this interest. He was the head of the Department of Statistics at the time. I became a student assistant of the Department of Statistics during my second year as a student. Professor Theiss obtained his scientific degree as an electrical engineer and economist in the USA. Thus, understanding my problems in connection with modifying my career, he asked me to work as a teaching assistant of the Statistical Department. This way I could participate in various research projects, including research aimed at determining the causes of juvenile delinquency.

These years determined the direction of my interest. My dissertation for candidacy bears the title „Juvenile Delinquency and Society”, which I defended at the end of my aspirantura in 1962, in Moscow. My doctoral dissertation is entitled „Causality, Determination and Prognosis in Criminology”, and I defended it at the Hungarian Academy of Sciences in 1975.

Taking into consideration my interest in physics, even today I still pay attention – if only superficially – to developments in this area of science, its extraordinary discoveries and the way its new realisations are put into practice. In recent

decades you can often hear about Ede Teller in Hungary as well, about the excellent physicist, who proved to be an outstanding scientist not only in the field of physics, but also in the fields of biology and chemistry.

In 2003, Attila Vincze published a biography about Ede Teller, about the life of one of the polyhistorians of our era under the title „Ede Teller – The scientist and his world”¹. Reading this book I realised that my ideas about causality, determination were not quite the same as those of Ede Teller, which could – of course – be the result of inadequancies in composition or in translation. After some months of reflection, I decided to elaborate my views on the different evaluations concerning the determinist relations prevailing in the world of quantum mechanics and crime. I feel that I have to rephrase the place of causality, of determination, their role in human behaviour, but especially in criminal human behaviour. Once again I have to direct attention to the role of *determination, causality, regularity and chance* in crime.

This paper seeks to convince the reader that the above-mentioned concepts reflect the existing reality, they are indispensable creative elements of human behaviour, even if the relations have different characters in the world of atoms, since the parts of the universe do not necessarily operate according to uniform regularities.

1. The interpretation of determination

The concept of determination is often substituted in the Hungarian language as well by the expression of determinate or determined, which unquestionably refers only to the past and it is not valid for the future. Expanding the concept of determined to the future means predetermination, determination in advance in reality, as if even now in the present the events of the future would also be determined. It is, of course, true that determinism, determination will also have effects in the future, when with the passing of time the future events yet imagined today stepping over the moment of the present become the past, since *all phenomena that have already happened, that already belong to the sphere of the past are already determined, becoming definite but the expected and nonexpected events of the future have not been determined yet, they are only in the process of becoming determined, and we cannot foresee precisely how they will be determined, we can only predict the realisation of the events of the future in accordance with the regularities of causality, our knowledge, and relations.*

¹ Vincze Attila Tamás: Teller Ede – A tudós és világa. Pallas, Gyöngyös, 2003.

Consequently, the knowledge of the past is very significant, especially that of the recent past, because it is mainly in this sphere that we can find those regularities, those cause-causality relations that enter the future and render the events of the future likely. The new discoveries, new information and the growth of knowledge provide a better understanding of the past, they predict the limitations of the future and its likely events in a wider aspect.

I have found it necessary to present my point of view about determination to understand Ede Teller's way of thinking better. He is considered to be an excellent expert, scientist of quantum mechanics, the father of the hydrogen bomb. In his book entitled „Twentieth century journey in science and politics”² Ede Teller wrote that: „the theory that quantum jumps have only statistical probability but are unpredictable, is an absolute contradiction to the deterministic, clockwork precision view of the reality. One of the consequences of quantum mechanics is that the future becomes really uncertain. Determinism is a myth. A much more unusual theory takes the place of causality. A solitary atomic event cannot be predicted, because in the dual world of waves and atoms an event cannot be totally described in a deterministic way. „The central theory is that the past is a different reality from the future. The events of the past are always compatible with causality. However, the present cannot be known well enough to give a clear prediction with regard to the future”³.

The book referred to, as well as the quoted sentences, give an indication of Ede Teller's point of view concerning determinism. My detailed point of view can be found in my dissertation⁴: „Causality, Determinism and Prognosis in Criminology”, and in the textbook: „Fundamentals of Criminology”⁵. Thus, I argue only briefly in defence of my point of view with regards to determinism, and I seek only to clearly outline the most important arguments.

Above all, I would like to prove that *determinism is not a myth*, in opposition to Ede Teller's point of view. (The following words about the *concept of myth* can be found in the dictionary of foreign words: „comprehension, tale, legend that enlarges the actions of an individual or a society into supernatural”)⁶. In my opinion, *determination, determinism is a real process, during which the phenomena are formed: the realised phenomena belonging to the sphere of the past are already determined, those of the future will become determined, when*

² Teller Ede: Huszadik századi utazás tudományban és politikában. Huszadik Századi Intézet, Kairosz Kiadó. Akadémiai Nyomda, 2002.

³ See foot-note: n. 2., pp. 66-67.

⁴ József Vigh: Causality, Determinism and Prognosis in Criminology. Akadémiai Kiadó, Budapest, 1986.

⁵ Vigh József: Kriminológiai alapismeretek. Nemzeti Tankönyvkiadó, Budapest, 1998.

⁶ Idegen szavak kézikönyvtára, 1960. (Dictionary of Foreign Words)

with the passing of time they reach the moment of the present. I fully understand Ede Teller, who lived in the world of quantum mechanics, who strived for the recognition, knowledge of the quantummechanical relations, regularities and put them into the following words: „One of the consequences of the quantum mechanics is that the future really becomes uncertain and in the dual world of the waves and atoms a happening cannot be described in a totally deterministic way”⁷. I agree with the part of the quoted sentence that relates to the uncertainty of the future events. This uncertainty, however, stems from the lack of our knowledge and information, and not from the lack of determination. There are quite a few such phenomena, which we can predict in advance, that can be realised with 100% certainty. The future is the territory of probabilities and possibilities. Even the nearest future cannot be made probable with precision. For instance, a man with a heart problem can die at any moment in the future, when his heart stops beating. It seems for me that the lack of our knowledge is characteristic not only for the future, but also for the past. In other words, even *the society based on knowledge means only that we can draw up the past precisely with greater knowledge, and we can predict the formation and the development of the future with greater probability.* The outline, the likeability of the future, the increase of the probability rate depend, of course, also on which phenomenon is in question. The already well known phenomena can be predicted with greater probability, than those of the newly recognised relations and their results. *One of the basic tasks of science is to predict the future determination of the phenomena with as great a probability as possible.* Predicting the future depends greatly and primarily on our knowledge of the regularities of the already determined phenomena of the past.

I would also like to reiterate the thoughts of Ede Teller in the following sentence, where he states that: „One of the consequences of quantum mechanics is that the future becomes really uncertain”⁸. Since I am a layman in the field of quantum mechanics, I can only interpret the above-mentioned sentence with great difficulty. If this sentence means that the recognisable regularities in the circle of atomic parts can create uncertainty with regard to knowledge of the future, the whole world and even the whole universe then it should be deemed as a sad predictive statement, but there is also the possibility that the sentence is either inaccurately worded or translated. I trust science, I warmly welcome the pursuit for the creation of a knowledge-based society. It is true, however, that the results of scientific research can be abused, they can be used for harming humanity. One should recall, for instance, the devastation caused by the nuclear bombing of Hiroshima and Nagasaki. Or let us consider the hydrogen bomb, the active force of which is a thousand times more effective than that of

⁷ See foot-note: n. 2., p. 67.

⁸ See foot-note: n. 2., p. 66.

the nuclear bombs that were dropped on Japan. By witnessing the horrific devastation caused by the nuclear bomb, human wisdom has only placed them on the alert to avoid outside attacks from taking place.

To make the Teller type of worldview more comprehensible, it is advisable to quote his following statement: „Relativity seems incomprehensible as it questions our concept of time, it points to the fact that we cannot talk about time independent of space. This concept surpasses our direct sensing ability. The other new development is that quantum mechanics denies the mechanical, predictable structure of our universe that we had considered true until that time, and advances the conclusion that we can only state probabilities as regards the future.

The theory of relativity and quantum mechanics made it necessary to reevaluate human thinking. Significant time and effort are needed until the world of physics changes in the human mind. If we recognised the relativity of time and the uncertainty of the future in a wide circle, we might be able to acquire an unusual, but more precise picture of the world. For most people, however, and even for numerous white collar workers, these new types of concepts are hard to come to terms with and generate uncertainty”⁹.

The quoted thoughts so far outline well, and hopefully at least indicate, Ede Teller’s view of the world and his philosophical attitude. Ede Teller was also aware of the fact that the theory of relativity and the new recognitions of quantum mechanics are difficult to comprehend for humankind. I share the view that these concepts can significantly alter our picture of the world and they prove that we can only value the future as probability. In the field of social sciences the concept according to which the future can only be viewed as probability has been in existence for more than a century and it has been quite widespread. However, in most people’s minds in everyday life, the old concepts classified by science as out-of-date and unreal still powerfully live on. For instance, today the heliocentric view of the world recognised by Copernicus is already natural, it is not the Sun that revolves around the Earth, but the Earth that revolves round the Sun. Nevertheless, even everyday language maintains the expressions of the geocentric view of the world. For instance, the sun rises, the sun sets. The struggle of the deterministic worldview with the various religious concepts, with the different principles worded in them is also significant.

⁹ See foot-note: n. 2., p. 561.

2. The interpretation of past, present and future

The real interpretation of determination is closely connected to the proper definition of the process of time. You can but absolutely agree with Ede Teller's references and indications concerning the past and the future. What is not clearcut in his ideas is the concept of „the present” that plays part in the passing of time, in the line of time. The following can be read in his already quoted book: ”However, the present cannot be known well enough to give an unambiguous prediction about the future”¹⁰. It seems from the text as if the present had an expansion just like the past and the future. In the everyday valuation it is truly a general concept that the present has an expansion just like the past or the future, that it contains a period, a time span. In fact, this concept covers the events and period of time of the near past and near future, when considering the expansion of the present, although nobody has been able to mark the starting and finishing point of the present so far. Moreover, in reality, when something has happened even if only yesterday, even a minute or a second ago, already belongs to the sphere of the past. In the same way, the phenomena that have not happened yet, no matter how near they are to the present, belong to the sphere of the future. *It can be deducted from all these that the present has no extension, it is a moving borderline or point between the past and the future, that changes its place on the axis of time with the passing of time, between the „increasing” past and the „decreasing” future.* In the case of phenomena with contents defined in time – e. g. human life – the passing of time increases the time content of the started existence and decreases the time of the expected existence. According to our present knowledge, the starting of the past originates from the infinite and the future leads there as well.

There is no real causality relationship between the phenomena of the past and the future, since probable phenomena of the future do not have any causes yet, they will only have causes with the passing of time, when the future becomes past. Causality relationship exists only between cause and effect, effect is a realised consequence, thus it supposes a past time. *The past is the area of the causes-effects already realised in the past, as the future is the sphere of the possibilities, the probabilities.* The future, especially the near future, however, is composed of such real possibilities that in most parts are rooted in the past. In the possible events of the future usually the regularities of the causalities, the relations of the causality of the past are forecast and depending on the formation of the conditions, when the actual future becomes the past, these effects become causality factors themselves. This is how a lot of multilateral relations independent of time become a lot of unilateral determinations and definitions in reality, in the causality relation. The future phenomena of the present will be determined as they enter the sphere of the past.

¹⁰ See foot-note: n. 2., p. 561.

The textbook on criminology teaches university students that: „There is no real causality relation between the phenomena of the past and the future, since the probable phenomena of the future do not have any causes yet, they will only have causes with the passing of time, when the present future becomes the past. The causal relation exists only between causes and effects, therefore causality is a realised consequence, thus it supposes a past time. The past is the area of causes and effects, as the future is the area of possibilities and of probabilities. *The future, however, consists of such real possibilities that are rooted in the past.* In the possible events of the future the causality relations of the past are forecast, depending on the formation of the conditions, when the current future becomes the past, these effects become causal factors”¹¹.

3. The interpretation of the concepts of necessity, regularity and chance in the formation of phenomena

Every phenomenon that has already been formed or will be formed in the future, – when on the line of time the present future has already become the past – is formed or has been formed by necessity. The concept of determination obtains its form: that is *the phenomena of the past have already been determined by necessity and those of the future will be determined by necessity.*

The analysis of the regularity relationship asks for the examination of the question, whether in the case of repetition of the same causes and conditions the same causalities are created or not. According to the formal logic, the answer to this question can only be yes. If the totality and structure of the causes and conditions are repeated in exactly the same way, the causalities should also be the same¹². In reality, however, due to the constant movement and change, the constellation of the causes and conditions rarely repeat themselves in an absolutely equal form in the process of the passing of time. This means that the constellation of newer causes and conditions is only partly identical and thus causality is also necessarily different.

Besides the imperative character of causality relations we have to differentiate between *regular* and *accidental* relations¹³. In case of repetition, a great number of phenomena among the necessary causality relations are such that they are often repeated, while others are rarely or are not repeated at all. The causality relations, which are essential, lasting and general, and which regularly occur from time to time in the case of repetition of phenomena are called *regular relations*. *Accidental relations*, on the other hand, are extreme causality rela-

¹¹ See foot-note: n. 5., p. 151.

¹² See foot-note: n. 5.

¹³ Földesi Tamás: Az akaratszabadság problémája. Gondolat Kiadó, Budapest, 1965.

tions that occur only exceptionally. Consequently, the law of causality contains the essentiality, permanence and generality of the connection among the phenomena¹⁴. Contrary to this, *chances* comprise such phenomena, which are not present in our knowledge, or ideas related to events of the future, as well as phenomena whose realisation can only be expected by slight probability. The notion of accidents or chances can be explained by the following words: an unforeseeable, unexpected event, a phenomenon without intention or will, an incalculable formation of events. In other words, accidents are phenomena, to which neither our attention nor our knowledge extend, we do not usually think about them, they are outside our conscience, or the possibility of their appearance seems to be insignificant. All these, however, do not mean that chances fall outside the concepts of necessity and regularity. In certain cases, chances can be present as significant causality factors, but this causality relation is usually a part, a forming element of another necessary relation. Ede Teller put this into the following words: „Chance is also regular”. In his book entitled „Physics is splendid because it is simple”, he devotes an entire subchapter to this topic under the heading „Statistical mechanics”¹⁵.

I think it is worthwhile to quote from the above-mentioned book Ede Teller’s few lines from the poem called „Poem without a title” from the point of view of valuing chances.

„To know: the mind is short, the will is weak,
That I depend on blind chance.
And with an obstinate hope still, still believe,
That what I do cannot be nothing.”

I have reflected extensively and profoundly a lot about these four lines, but it is especially the thought „I depend on blind chance” that is still on my mind, and to this very day, I remain unable to fully agree with this sentence. In my opinion, the natural and social relations surrounding us have all their own regularities, and every person acts in accordance with their given situation, genetical faculties, environment and knowledge, as well as personality. According to social development our acts are guided by the known environmental effects, the recognised regularity, knowledge to a greater and greater extent. The effects making us act and carry out deeds often go hand-in-hand with the effects of chances, and in such cases our ideas do not materialise, or at least not in the way we had previously planned. However, our ideas, our planned aims based on knowledge, usually materialise in a greater percentage. And if this reasoning is true, we are not totally dependent on blind chance. Even more so, since, as I have already mentioned, Teller shares the view that „chance is regular”¹⁶, and it is only the causality of the unknown, the unexpected chain of causality.

¹⁴ Szabó András György: A törvény és az ember. Kossuth Könyvkiadó, Budapest, 1964.

¹⁵ Teller Ede: A fizika nagyszerű, mert egyszerű. Akadémiai Kiadó. Budapest, 1993.

¹⁶ See foot-note: n. 15., p. 89.

I have, of course, taken into consideration the fact that there are different expectations with regards to the wording of a scientific concept, where logic has to fully prevail, and writing a poem, a line of poetry expresses maybe a feeling of the moment, a temporary state. And here we have to bear in mind that Ede Teller, the great scientist, who further developed quantum mechanics, discovered new relations, felt that he was surrounded by new regularities and recognising, discovering these was to a significant degree due to chances. Undoubtedly, knowledge and belief, certainty and uncertainty, thoughts and feelings mingle here, and they can differ from the scientific, rational formulations.

Examining the relation of regularities and chance, I would like to refer to the fact that there exists a differing view of everyday life between the people who employ the already recognised and accepted knowledge, regularities in their work, and those who work on the recognition of regularities. In the world of new recognitions, the role of chances is always greater than in that of the already often used knowledge. The battle between the deterministic conception and the ideology of free will is a good example for this. At the beginning of the 19th century, the dominance of free will still existed even in the world of criminal justice. However, from the second third of the 1800s, when criminal statistical data proved that there are regularities in criminal human behavior just like in the field of natural phenomena, the deterministic concept, the prevalence of regularities gained more and more ground in the field of science. From this point on, it is a constant subject of debate in the theory of criminal law, what kind of jurisdiction is just and what kind of measures, punishments can withhold people from committing crimes. *In my opinion, the further humanity moves into the sphere of knowledge of the surrounding universe, the more the knowledge of regularities motivates human activity.*

I write these words only to provide self-encouragement in our everyday activities, in setting our aims and in striving to achieve them, to „believe”, to trust in the fact that in our indicated activity knowledge and information can play a greater role than chances. I am convinced that it is derived from this line of thinking, from its background that the praisable and approvable initiation stems to establish a knowledge-based society.

Ede Teller's following thoughts underline all these. He put it into words in his book entitled „Twentieth century travelling into science and politics”. „Human spirit can only flourish if we accept our imperfections. It is easy to see the imperfections of others, but it is often a misconception, an unjust conclusion. Obviously it is difficult to notice our own imperfection, but this ability is an important part of personal excellence. We can struggle to have fewer and fewer faults, but we have to accept the fact of how imperfect we are”¹⁷.

¹⁷ See foot-note: n. 2., pp. 567-568.

4. The prevalence of causality and determination in the field of crime and human behaviour in general

Beyond the general, on the level of the universal interpretation of causality and determination – for a better understanding – it is also necessary to evaluate the indispensable regular and accidental phenomena that come into effect in the society, in the sphere of the instinctive and conscious activities that appear in a person's life.

In this study we narrow down the evaluation of social phenomena – from the expert point of view – to the evaluation of crime and criminal human behaviour. I believe that the social image is formed through the evaluation of crime and by outlining the rules to guide general human behaviour. In fact, crime is such a part of social activity that acts by men are required to declare the illegality of this activity.

Until the second half of the 19th century, the dominant view in the field of crime and criminal justice was that people act on the basis of their own free will and that as a result, committing a crime is also the consequence of exercising one's free will. It was in accordance with this conception that the so-called classical criminal justice system was formed and became dominant at the turn of the 19th century, the theoretical basis was dominated by the concept of free will, the objective of criminal punishment and justice was seen in revenge and as its means proportional punishment was considered to be just.

It was Adolphe Quetelet, the Belgian moralstatist, mathematician, astronomer and playwright, a true polyhistorian, who first expressed his disaccord with these views, and introduced his own theory on determination also present in human, criminal behaviour, based on criminal statistical data acquired from Western Europe in the 1820s. Criminal statistical data was introduced in France in 1826. From this time on data concerning the operation of the bodies of justice, crime and criminals have been published annually. Quetelet studied the French criminal statistical data relating to the period from 1826-1831 in great detail.¹⁸ Quetelet determined that *regularities rule in crime just like they do in other phenomena of society or in the world of natural forces*. Consequently, his followers considered him to be the father of criminology, the first person who recognised the regularities of crime – and we also regard him as the father of criminology.

¹⁸ A. Quetelet: *Sur l'homme et le developpement de ses facultes on essai de physique sociale*. 1935.

According to Quetelet the causes of crime can be divided into two significant groups: one group is that of the *natural forces* that come into effect in the world of the animals and plants while the other group is that of the *social forces* – or using his words – of the perturbational forces, or the *disturbing forces* that stem from the moral and intelligent nature of man, and thus from the relations of social life. These two forces determine the commitment of criminal acts. The realised criminal human behaviour was thus determined, is determined, and that of the future will be determined, when from the sphere of the future with the passing of time it moves into the sphere of the past. According to Quetelet: „A man as a member of the social entity complies with necessity at every given moment and regularly pays his tax, but as a man, who makes use of all the forces of his intellectual abilities and so to say: ‘rules’ over these forces, changes their consequences and can strive towards a better future”¹⁹.

It is clear from the above quotation that Quetelet is not the advocate of mechanical determination, since he accepts the mutual effect between man, nature and society surrounding him. According to Quetelet crime is not only a necessary factor of society, but it can also be stated that people commit crime in similar numbers and proportion year after year. Quetelet evaluated this factual situation as follows: „The fate of the human race is sad, because it is possible to calculate in advance how many people will cover their hands with the blood of their fellow men”²⁰. In fact, it is possible today to estimate and predict with great accuracy how many murders will be committed in a defined area. In my opinion, however, the recognition of this regularity should not provide a reason for sadness. On the contrary, if we are able to more or less exactly pinpoint the number of the crimes to be committed or other criminal acts, and indicate their causes, and if we can eliminate a significant part of these causes, then it can be expected that in proportion to the elimination of causes the number of crimes will decrease as well. However, a similar method can be used in the interest of decreasing the other non-desirable phenomena. It is evident from these thoughts that the exploration of the causes of the phenomena holds a significant social interest, because on the basis of the disclosure of these causes the formation of the phenomena in the future can be made probable. If we can increase the probable causes of the favourable phenomena and decrease those which are unfavourable, such as those of the criminal acts, then social development ensures an increase in the number of individuals that operate within the framework of legality (prosecution of the right).

¹⁹ A. Quetelet: *Physique sociale ou essai sur le développement des facultés de l’homme*. 1869.

²⁰ See foot-note: n. 19.

It can be stated from the preceding ideas that Quetelet's research proved that in the area of crime, regularities rule the seemingly accidental phenomena of social life just like in the field of natural phenomena. This recognition gradually spreads into the world of scientific knowledge. The trends of criminal anthropology and criminal sociology formed in the last third of the 19th century rejected the ideology of jurisdiction known as „classical” based on free will together with the aim of reprisal and punishment in proportion to the deeds. As theoretical basis of the new trend the determinist view, as the aim of justice, the prevention, and as its means individual punishment instead of the punishment proportional to the deed was formulated.

These so-called positivist, deterministic theses appeared mainly in developed European countries at the turn of the 19th and 20th centuries. Before the Second World War the significant representatives of national criminology and criminal justice, such as: Jenő Balogh, Albert Irk, Ervin Hacker, Rusztem Vámbéry, and many others, placed great emphasis on the causality factors that prevail in criminal human behaviour: personality, genetical skill, social conditions as basic determining factors. In the first two decades following the Second World War criminology as a science objectively evaluating crime and criminal human behaviour was not a compulsory subject at the faculties of law of national universities. Most of the knowledge in this respect was to be found in the subject of Statistics, because it dealt in a relatively great depth with the problems of criminal statistics.²¹ Professor Ede Theiss, head of the Department of Statistics at the Faculty of Law of ELTE University personally examined in great depth the nature of crime, especially the problems of causality.²²

One of the characteristics of the „present era”, that is of the near past and near future (2-3 decades) is that crime has significantly increased and further increase or stagnation is expected. This serious criminal state and tendency is above all the consequence of those significant social changes that have come into effect in various countries and continents in recent decades. These harmful, undesirable criminal phenomena in most cases are not the forms of chances, but they are a series of conscious activities. For instance, the proportion of the known and intentional crimes has represented 98,6 – 98,9 per cent of all crime in our country in the last five years. Consequently, the proportion of negligent crimes has only been 1,4% – 1,1%.²³

²¹ Dr. Theiss Ede: Igazságügyi statisztika. In: Horváth Róbert, Kovacsics József, Theiss Ede: Statisztika. Felsőoktatási Jegyzetellátó Vállalat. Budapest, 1959.

²² Theiss Ede: A bűnözés okainak statisztikai vizsgálata. Jogtudományi Közlöny. 1958. november-december.

²³ Tájékoztató a bűnözésről. 2003. év. Belügyminisztérium Informatikai Hivatala és a Legfőbb Ügyészség Számítástechnika-alkalmazási és Információs Főosztálya. p. 33.

These data underline that regularities play a greater role in criminal human behaviour than chances. That is, crime as social mass phenomena is also the result of definite causes, basically it is the manifestation of conscious human behaviour. In the case of accidental effects, it happens that a strange or an unexpected accidental chain of causality enters our chain of causality of conscious intentional activities, in other words the formation of causality. Thus, to borrow Ede Teller's words „even chance has regularities”, only it is a causality factor, or causality chain that falls outside the borders of our knowledge, of our information, as it is not expected and considered improbable.

5. Is the structure of causality and determination the same in physics and criminology?

When we investigate this topic, first of all it is necessary to establish a difference between the causality that prevails in the circle of inanimate objects and human beings. In the field of inanimate objects, natural phenomena rule the mechanical regularities, when the different objects influence one another. Contrastingly, or different from this, is the system of human relations, but especially in the field of criminology we examine the regularities of causality considering what kind of relations there are between the criminal human behaviour and personality, biological factors and social effects.

The working of the mind, the type of personality, the specifics of social existence play a decisive role in the individual activities of man and in the behaviours performed by human communities, the members of society. When criminology looks for the causes and conditions of criminal acts and crime, it examines the state of the personality as a first step, since the effects of the somatic and outside factors appear in it, and it is there that wishes, demands and activity goals and the means necessary to reach them are formed. It is clear that the human mind and the nervous system, the information accumulated in the brain and knowledge have a unique and decisive role in the causes of human activities. The more a man knows about phenomena surrounding him, about their correlation, the more he can make decisions that partly or totally satisfy his needs, wishes and demands. The aims to be achieved, to be carried out in the future – be it criminal or not – are based on the knowledge of the past, acquired knowledge, the biological, genetical faculty and the influence and inspiration of the social environment. Consequently, it is the personality as a direct factor in producing the willful decision that plays a decisive role in the formation of a criminal act (or any other activity).

After stating, knowing the state of personality, the psychology of the perpetrator and the relation of the realised criminal act connected with the personality, criminology usually examines the causality relations of the perpetrator's genetic, somatic factors as factors taking part in the formation of personality, in the determination of causality. Criminology also finds it necessary to examine the determining effect of the social and natural factors beside the genetic ones. If we consider the personality's state directly prior to the committing of crime as a causality of the somatic and social, and the environmental factors prior to that, we can see that the crime as causality is determined through the so-called causality and cause-effect chains. And – if needed, we must familiarize ourselves with the evolution of these cause-effect chains in reverse to their genesis, probably to their conception, so that the causality scheme of the crime examined can be clear and easy to understand.

The examination of the cause-effect chains should include both criminal and non-criminal human behaviour. Society usually gives ground to several kinds of behaviour and activities. Thus, the norm offending and norm following behaviour arise as an alternative possibility for the individual. Every society has its own historically formed structure, and it operates relatively harmoniously if its substitute system, and within it also the responsibility system, follow the regularities operating in the society.

It seems to me that the set of questions, with regard to determination and free will, cannot be avoided from the view of responsibility either, since we arrive at a completely different conclusion, if we accept the determinist conception, as if we take the view of free will independent of the objective relations.

Among the circle of criminal experts many worry about the holding responsible system, the criminal justice realising the concept of determinism, because they are either the followers of indeterminism or they misinterpret determination and identify it with mechanical determination. Thus, I would like to emphasise that the mechanical determinism prevailing in the field of natural phenomena is not identical with the determination forming people's activities in society. The Quetelet type of recognition in this respect, namely that regularities rule in criminal human activities just like in the circle of natural phenomena, does not mean that these include identical determinational processes, since in the sphere of society and human behaviour personality and the conscious activity of the human being enter the objective effects. Nowadays it seems natural for a lot of people that crime is above all determined by social relations, and the personality determined this way validates the acquired information in carrying out his aims. According to the modern determinist conception, or more precisely the modern, sophisticated form of the determinist conception, which can also be applied in the circle of human activities, a person's environment offers various

possibilities for human activity, for the human choice, but at the same time it limits the frames of choice, and the person – so to say – can only choose from the possibilities. What a person chooses, however, that is the choice itself, which is determined just as any other phenomena. The choice is the originator of the effect of two groups of factors, namely the quality of the personality and the effect of the current, existing objective relation, which is the effect of the situation. The question, however, what kind of personality, knowledge, goals, or task solving skills a person has, and what kind of situation surrounds the person at a given time, it is the function, the causality of the objective relations of the past that have been determined through causality chains and mutual effects.

The autonomy or relative autonomy, or as it is called most often but inaccurately, the „relative free will” of the human activity is a basic question of the determinist conception. In our view and use of terminology the personality has a relative individuality as regards the current objective relations and the effects of the situation. We must not forget, however, that the way the personality reacts to external effects depends on the state and quality of the personality, on how the individual reacts to external effects. People with different personalities react in different ways to the same external effects, while those with similar ones react in a similar way. The way of reaction then is the function of the difference in personality beside external effects. A highly socialised personality even in case of favourable conditions will not commit a crime, since in this case the duty-like causes easily win the motivation battle – if present at all – prior to the decision of the will. At the same time, the personality with an anti-social conscious attitude can form them itself with the lack of crime committing conditions depending on the objective possibilities. Thus, the personality has no autonomy as regards the objective effects of the past, it has a relative autonomy in connection with the effect of the imagined situations of the future depending exactly on the effects of the past.

These statements necessarily raise the question as to what extent is the personality of our age autonomous. Taking into consideration the phylogenetical development of people, we can state that in the process of accumulating information and knowledge the autonomy expands and becomes more powerful. *As we get to know the regularities of nature, society and human thinking the autonomy of our personality increases.*

The acceptance, approval of what I have said so far currently means that crime just as all other forms of human behaviour, must be regarded as the causality resulted from the effects of the psychological, somatic and social factors, through the chain of causality. In other words, criminal deeds just as all other human behaviour that have already been formed and determined through the

chain of causality, and human future behaviour, will be determined when they cross the borderline moving between the past and the future. Thus, determination is not a myth, but a real process, even in human society that must be better recognized in conjunction with the use of science so that the future can be outlined with more precision and probability, and put to use for the benefit of humanity.

I believe that based on what has been mentioned so far, it is clear that determination prevails in quantum mechanics *exactly* as in the field of social activity and within this in the field of criminal acts. It is necessary, however, to emphasize that the determination mechanism of prevelance is not the same. *The determination prevailing in the world of inanimate physics is realised mechanically according to the laws of nature. In the world of people and of society, the determination goes through a complicated mechanism and prevails with the help of the human mind, the human conscience. The quality of the psyche in causality depends on the one hand on the inherited and gained somatic (genetic) faculties and on the other hand on the effect of the social and natural environment surrounding the individual.* It is this transmissional mechanism that also grants the possibility to the subject to comprehend the difference between determination in mechanics and in human behaviour.

It is the capability of a person to recognise reality, to apply regularities and to render the future probable that makes him suitable to change the environment and certain conditions of existence to an ever-increasing extent, and this way it is the peaceful creative work that becomes the focal point of human activity and not the fight with one another.

6. Causal regularities and the significance of determination in criminology, in the fight against crime

Taking into consideration that causal regularities and determination are both among the basic theoretical concepts of science, in the present case, the solution of the theoretical and practical problems of the fight against crime has to be connected and adjusted to these concepts.

The first question that necessarily arises here is to what extent are these basic principles accepted by the cultivators, representatives of criminal sciences, legislators and the employers of legal acts. I have no knowledge of anyone having performed any scientific research on this topic. Thus, it is on the basis of my own impression that a 40 – 60% ratio can be considered real. The advocacy, declaration of the already quoted Quetelet-type of causal regularity helped, by the end of the 19th century and the beginning of the 20th century, to establish the fact that the determinist view was evident in the criminal laws in

opposition to the classical view built on free will. This view changed at the end of the century as a result of the increase in crime, and the demand for the classical criminal justice system reappeared once again under the title of „neoclassical”. During this period, a substantial number of experts looked for new ways and seemed to find the effective and fair means of crime prevention in the new forms of criminal justice. This new, modern form of criminal justice placed the victims of crime and the treatment of the victims’ injuries at the heart of criminal justice under the expression known as „restorative criminal justice”. In other words, this signifies among other things that criminal justice is only considered just if it serves justice to the victim, provides for reparation of the damage caused to the victim and treats the inflicted injuries. Thus, the measure taken against the perpetrator becomes function of the method and degree of the damage repairing.

The hereby introduced form of criminal justice can only prevail, if it is built on the causal regularity and the acceptance of the theory of determinism, even if this fact does not gain enough ground in everyday activity.

In the present era (near past and near future), a significant proportion of people do not yet possess the level of knowledge that could assist them in getting their bearing in the regularities of social phenomena. I would like to come up with another typical example of the question of knowledge and non-knowledge, which arises in relation to the interpretation of the „presumption of innocence”. At present, the presumption of innocence is one of the basic principles of criminal justice and the product of civil revolution. The first formulation can be read in the „Declaration of Human and Civil Rights” published in 1789: „Every man is to be considered innocent until proven guilty”. Despite some small modern-day modifications to the language of this sentence, this draft remains one of today’s most used expressions.

According to expert literature, if we presume something, it means that the presumed phenomenon must be looked at as it exists, regardless of whether it is so in reality or not. *The presumption of innocence can only be ended by the validity of judgment*, in other words, the person suspected of a criminal act must be presumed innocent until the valid sentence. In practice – if one considers it logically – it means that the police handcuff, arrest innocent people and keep them in custody often for many months and sometimes for years. The prosecution continuously accuses innocent people and asks for the gravest sentences for innocent people. Connecting the release of the presumption of innocence with the valid sentence is an illogical, a useless basic principle in reality. It is only good for boasting about the presumed humanism of criminal justice, about the respect of basic human rights. The real, truly humanist criminal justice must be based on the prohibition of *the presumption of guilt* instead of that of inno-

cence. This principle can be worded logically as follows: *nobody can be seen as guilty until the guilt is not stated by the valid sentence*. This principle contains the fact that the suspect can be guilty, but innocent as well. The task of the sentence is to make a decision in this question.

In recent years we can bear more and more about the reference to the presumption of innocence, especially in connection with politicians who are suspected, become „involved” in some unlawful, illegal matters. It is worthwhile to quote here one sentence from Tibor Király’s study called „What is the value of the presumption of innocence?”: „Attention turns to the presumption of innocence mainly, when it turns out that there is something wrong in criminal justice, when mistakes and misunderstandings are out of the ordinary²⁴. This statement was true at the time of the publication of the study, but it is especially true nowadays when the out-of-date, unfair side of the criminal justice has become obvious and easy to prove.

The concept of criminal justice is strongly connected to the practice of holding responsible in the public and within this to the judging activity of the court. Many feel that criminal justice is the monopoly of the court. Thus, in the case of holding someone responsible for breaking the law and other negative human behaviour, it is not „justice” that is done, but there is some kind of reaction to the behaviour that is legally prohibited, but cannot be considered as criminal acts performed by people.

In reality, in the great variety of human behaviour, the norm offending, irresponsible, criminal forms of behaviour represent a significant percent. Every crime preventing activity, general and special prevention is aimed at decreasing this number. In recent decades the demand for crime prevention and the expansion of the use of various means needed for achieving this is being realised in an increased measure. It seems that the expansion of criminological knowledge reaches more and more its goals. The evaluation of the norm offending behaviours, the holding responsible and the use of sanctions are gradually built on the principles of causality and determination. In contrast to this as regards norm obiding and responsible behaviour one can say that the view-point still prevails, according to which this kind of behaviour is natural, it originates from the self of man, it is the inborn character of man.

Although one of the great minds of criminal sociology, Gabriel Tarde, in the second half of the 19th century, had already drawn up the viewpoint accepted by a lot of people of that time, saying that *at the time of birth, a child has neither virtues nor criminal characteristics*. It depends on the environment what

²⁴ Király Tibor: *Mit ér az áltatlanság véelme?* Budapest, 1987.

kind of a person a child becomes, virtuous or criminal.²⁵ In other words, human behaviour is determined by personality, genetic, social and natural causes. By now the scientific judgment has been formed in the way that we must react to crime, the perpetrator must be held responsible, and he or she must be punished with the aim of reprisal or prevention.

But how does society react to „norm abiding” behaviour that forms the majority of human behaviour, to the people’s activities, who are inspired by the conditions, causality factors, everyday living conditions to follow norms? It is a fact that individuals, who stand out from the circle of norm abiding people are honoured by society and awarded by it. Most people, however, receive remuneration for the job done and perhaps get premiums or payrises for good performances. The average performance, the daily carrying out of norms remain without reaction from most people. The society reacts even to the smallest irresponsibility, but the average responsible activity remains without any reaction. They hardly ever say *thank you for your work performed with responsibility*.

The society not only has to invest energy into decreasing norm offences, into resulting decreasing tendencies of them, but also into increasing, stimulating norm abiding behaviour. I am convinced that if society devoted only half the amount of energy and money allocated to crime prevention to stimulate the people to obide norms, criminality would also show significant decreasing tendency within a few years.

The stimulation of responsible, norm abiding behaviour should be started consciously and decisively in childhood. Children should be made aware of the fact that regularities rule in society as well, and we cannot form a society of our own liking, but one that originates from our past. On the other hand, the system of responsibility must also be formed in such a way (in both the positive and negative field of responsibility) that it follows the basic changes of society and it directs the individual activities in the direction of regularities and favourable social changes.

By establishing this direction we have to take into consideration that at present society does not have a reaction to several norm offences. It is even more so in the cases of norm abiding behaviour. Society usually takes it for granted, when responsibilities are fulfilled on an average level and only significant performances are honoured and awarded. This is a common view, which we can say constitutes an ideology in our society. Cesare Beccaria in his book „Crime and Punishment” wisely said the following: „The award of the virtue is the means of crime prevention as well. In this respect a general silence can be observed in the statute of all nations.”²⁶

²⁵ Responsibility and Society, Responsibility for Crimes and Infractions. International Conference. 19-24. Sept. 1988. Siófok, Hungary.

²⁶ Cesare Beccaria: Bűntett és büntetés. Akadémiai Kiadó. Budapest, 1967.

The individual and social conscience in connection with responsibility significantly depends on the following:

- a) on what theoretical basis is the system of holding responsible placed,
- b) what norms are expected to be fulfilled by the society from the individual and vice versa, and what norms are expected to be fulfilled by the community and their representatives from the individual
- c) how the norm fulfillings are recognised and awarded,
- d) how the norm offenders are judged.

On the basis of the knowledge of regularities prevailing in the field of criminal human behaviour we necessarily come to the conclusion with the help of formal logic that the favourable directional change of the volume, the dynamics of crime, can only be reached if the causes of crime change, if we change the causality factors of crime in the favourable direction.

7. The creation of a knowledge-based society

The thought articulated in the title was introduced years ago and gained powerful support especially from the Hungarian Academy of Sciences. In my opinion, if we continue to place this thought in the foreground and try to create its conditions, we will increasingly understand the causality regularities of the social and natural phenomena surrounding us, and thus will be more successful at avoiding the effects of chances and increasing the possibility of realising our creations planned for the future. Undoubtedly, we are „entrusted to the hands of blind chance” to certain degree, but there is a connection between the effect of chance and the degree of our knowledge or more precisely our lack of knowledge. The less knowledge we have as regards our aims, the greater role chance will play, and the more we know about causality regularities needed to achieve our aims, the more precision we can outline the events of the future with. These thoughts do not refer so much to the concrete realisation of individual cases, but rather to future possibilities built on the causality of mass phenomena.

The mechanical determination and regularity prevailing in the natural phenomena differs from regularities prevailing in connection with human activity, since human conscience and human knowledge is capable of modifying natural and social regularities to a certain degree. The quality and quantity of modification depend on the recognition and the knowledge of social and natural regularities, as well as human knowledge that is capable of changing these.

I must point out over and over again that the most important task of mankind in the decades, centuries ahead of us is the creation of the knowledge-based society. Nowadays, it has become quite evident that human life and activity on our

planet plays a role with regard to the regularities of the Universe, of the changes that arise therein. Consequently, it is very important to be able to outline the future on the basis of the acquired knowledge with as much precision as possible in the field of social life, but in the Universe as well. In my opinion, in the 21st century science will produce significant results relating to newer and newer regularities of nature and society and within it of regularities of human nature.

SUMMARY

Causality and Determination in the World of Quantum Mechanics and Crime

JÓZSEF VIGH

The Hungarian-born eminent American physicist Edward Teller, the „inventor of the hydrogen bomb,” wrote critically in several essays about the impact of determinism on future. He regarded determinism a myth. The events of the past, he wrote, are compatible with causality, yet the future is not entirely predictable. I agree with Teller on that point. In this essay I offer an interpretation of causality, determination, past, present and future, inevitability, necessity and chance. My discussion of those notions is on a general level with a focus on crime and criminology.

The contrasting of the above-mentioned notions and crime can shed light on facts and interrelations that cause tremendous damage and suffering for individuals and society alike. The essay devotes special attention to the views of Adolphe Quetelet, who is justly seen as the father of criminology. Working in the middle of the 18th century, he was the first to discover that there are regularities in human criminal behaviour, just like in other social and natural phenomena. Hence, it follows that crime does not depend on free will, it is controlled by causality. Causality and determinism work in quantum mechanics just like in crime, although not in the same manner, because in human activities, including crime, genetic and psychological traits also play a role.

Consequently, said causality factors determine the criminal human conduct. Accomplished criminal deeds are and will in the future be the results of causality, and they will have become the results of determination in the future, when future shifts into past.

The essay also discusses in detail the present and potential future role human knowledge and knowledge-based society may play in improving the quality of the lives of individuals and society.

RESÜMEE

Kausalität und Determination in der Welt der Quantummechanik und der Kriminalität

JÓZSEF VIGH

Edward Teller, der berühmte Physiker ungarischer Abstammung, der geistige Vater der Wasserstoffbombe, kritisierte in mehreren Studien die Ansicht, gemäß der die Determiniertheit auch für die Zukunft gilt. Er ist der Auffassung, dass der Determinismus ein Mythos sei, die Ereignisse der Vergangenheit mit der Kausalität zu erklären seien, aber für die Zukunft keine eindeutigen Voraussagen gemacht werden können. Mein Gesichtspunkt und meine Weltanschauung stimmen mit den Feststellungen Tellers überein, deshalb werden in der vorliegenden Studie Kausalität, Determination, Vergangenheit, Gegenwart und Zukunft, Zwangsläufigkeit, Gesetzmäßigkeit und Zufälligkeit im Allgemeinen, aber insbesondere im Bereich der Kriminalität und der Kriminologie untersucht und definiert.

Die Herstellung einer Verbindung zwischen den genannten Begriffen und der Kriminalität kann die Fakten und Zusammenhänge aufdecken, welche den Einzelnen und der Gesellschaft so viel Schaden und Leid zufügen. Die Studie befasst sich besonders eingehend mit den Ansichten von Adolphe Quetelet, der mit Recht als Vater der Kriminologie betrachtet wird, denn er erkannte als Erster gegen Mitte des 18. Jahrhunderts, dass im Bereich der kriminellen menschlichen Verhaltensweisen eben so Gesetzmäßigkeiten herrschen, wie im Allgemeinen in der Welt der gesellschaftlichen und der Naturerscheinungen. Das heißt: Straftaten und Kriminalität hängen nicht vom freien Willen der Menschen ab, sondern sie sind Ergebnisse von kausal zusammenhängenden Faktoren. In der Quantummechanik gelten also Determination und Kausalität genau so, wie in der Welt der Kriminalität, obwohl nicht ganz auf die gleiche Art und Weise. Im menschlichen Handeln, demzufolge auch in der Kriminalität, spielen nämlich auch die genetischen Gegebenheiten und die Persönlichkeitsmerkmale der Menschen eine wichtige Rolle, und sie wirken als determinierende Faktoren.

Daraus folgt, dass auch die kriminellen menschlichen Verhaltensweisen durch die genannten Kausalitätsfaktoren determiniert sind. Die kriminellen menschlichen Handlungen waren, sind und werden auch in der Zukunft determiniert, und sie werden mit der Zeit, wenn sie aus der Sphäre der Zukunft in die Vergangenheit geraten, zu determinierten Handlungen.

Die Studie befasst sich verhältnismäßig umfassend auch mit dem Thema, welche Rolle das menschliche Wissen und die Schaffung einer Gesellschaft auf der Basis des Wissens in der Gestaltung und Aufrechterhaltung eines besseren menschlichen Schicksals und gesellschaftlichen Daseins spielen und spielen können.

