

A SOLUTION APPROACH TO THE PROBLEMATIC OF THE „MANY-WORLDS INTERPRETATION“ OF QUANTUM MECHANICS.

- ((1)) One consequence of the „Copenhagen-Interpretation“ is the impossibility of exact predictions about the future. For understanding of the Double-Slit-Experiment the Many-Worlds Interpretation of Quantum Mechanics from Hugh Everett shows useful. One blemish of this theory may be, that it assumes an inflation of worlds existing beside the one respective experienced by us. That is, John Gribbin*) states, the reason why this theory didn't „take the Physicists by storm“.
- ((2)) Schrödinger`s Wave Function describes the probability of finding a particle, e.g. an electron, in a certain time in a certain place. But it is senseless to ask, on which way from the last known place it reached the place where in fact it was observed after that. Gribbin draws a comparison with the move of a knight on a chessboard. The player decides to choose as the destination of the move one of maximally eight possible squares. It is obviously senseless to ask „on which way“ the knight reached it's destination. In the same way it is senseless to ask on which way an electron reached it's destination. It is senseless to speak about the way of an electron. Schrödinger talked about a „Damned Quantum-Jumping“.
- ((3)) Let us stick to the example of the „Knight-Jumping“. Let's assume there is a chess-computer, able to calculate all possible moves of a game of chess up to 200 double-moves in advance. From the computer's point of view all these calculated games are „possible“. Real moves are only allowed to be executed by a „player“, controlling the computer. It shouldn't disturb us that a computer of such a capacity could never be built. This is a result of the too big number of each different possible single-moves. After the nth move all past moves are „reality“, the future moves, if there was no end of the game by checkmate or stalemate, „possibilities“. Analogous to that for the observer of an electron it's former place is reality, a future place possibility. Instead of chess one can choose of course another game whose „moves“ corresponds to the possible destinations of a Quantum Jump. As long as such a jump is not yet reality but only possibility a certain probability should be assigned to it which is described by Schrödinger's Wave Function.
- ((4)) Back to the Many-Worlds-Theory. Let's try to find a new consideration out of the previous analogy. The observing physicist corresponds to the computer. For him there is in every time a known real past and a future described by possibilities. Every action, every observation, every experiment are moves in a game. But, if the analogy should be correct, there must exist a „player“, independent from the physicist, choosing out of the respective possibilities. The physicist experiments as the computer calculates the possible moves. The results of his experiments will correspond to the wave function. But the player, independent of the physicist, will decide which of the possibilities finally in fact will be reality. And if this player really „decides the whole game“, decides the whole course of events in the world, well, than he is the arbiter mundi par excellence

*) John Gribbin: „In Search of Schrödinger's cat“, Wildwood House, London 1984.

- ((5)) It seems this model doesn't contribute much to our understanding. Already the Many-Worlds-theory puts our ability of concept to a severe test. But a player-theory appropriate to ((4)) brings in an almost esoteric moment in the considerations. Is this actually admissible in the sector of science? Here we should return to some considerations by C. G. Jung. C. G. Jung introduced the concept of the „collective unconsciousness“. In his speech „On the archetypes of the collective unconsciousness“ from July 1st 1955 on the occasion of his appointment as doctor honoris causa of the ETH Zürich this „collective“ can absolutely be recognised as something „common to a collective of men“. It is something beyond the single individual, something common to many individuals. And this collective apparently is able to influence the life of a single individual, to control it without being realised as controlling by the controlled individual. Here we easily can see an analogy to the controlling of the computer, of the observing physicist, by the player appropriate ((4)).
- ((6)) The collective unconsciousness by C. G. Jung shows as a kind of collective memory of mankind. But maybe it would be thought too short looking on this unconsciousness only as a sort of filing, a simple registry of impressions from the conscious sphere. Let's suppose there are processes in the collective unconsciousness analogous to those in the conscious sphere. Those processes would then influence the whole collective of men who have this unconsciousness in common.
- ((7)) There are no differences in the predictions between the Copenhagen-Interpretation and the Many-Worlds-theory. But in the same way there are no differences between those predictions and those of a player-theory appropriate ((4)). The decision on the one or on the other view depends among other things also on the connotation which one gives to the term „reality“. The existence of 10^X more or less similar individuals with continuous increasing X seems to the author in any case more difficult to imagine as the existence of a collective unconsciousness influencing a collective of men.
- ((8)) Those reflections are of course still very rudimentary. It is a cold comfort that they can hardly be disproved experimentally. But there are observable phenomena impressive in harmony with that interpretation. Changes in fashion and taste appear often in different places apparent independent in the same time. The same holds true for political trends and finally time and again for scientific discoveries. One easily observable phenomenon is the evolution of speech. The transitions from Old High German to Middle High German or from Middle High German to High German respectively seems to have also appeared in different places more or less independent. Today we also observe changes in speech which are difficult to understand in view of strong standardised learning of speech and pronunciation and nationwide mass mediums. With some attention one easily can find examples. To them belongs a change of emphasis as well as the pronunciation of a voiced S instead of the more and more disappearing unvoiced S. In this connection the remark: „speech lives“ can thoroughly be interpreted as an indication of collective life independent from the single individual.

Those not conscious caused changes in speech should obviously appear just when speech has its own life controlled by a collective unconsciousness.

- ((9)) For the time being in our player-theory we spoke only about a single player. But this arbiter mundi would have an extremely extensive job. Among other things he should control every single quantum jump in the universe. It is obvious to divide his scope of duties. Let's speak on trial about a „collective speech-control“. Such collective controls are not at all limited to men. Here another example: Certain schools of small fishes meet frequently in a form similar to a big predatory fish. They protect each other successfully against assaults of real predatory fishes. For the author the concept is a problem that e.g. a single small fish on the flipper-end of the apparent predatory fish took up his place somehow „conscious“. The assumption of a collective unconsciousness of the fish-school seems to him a more satisfactory one. Such considerations don't change for the author if an instinctive behaviour takes the place of a conscious behaviour and one speaks about a collective instinct.
- ((10)) As rational beings men use to declare rational reasons for their meanings and actions. They can justify their sympathies and their antipathies as well as their doing and they often take the view, those meanings and doings are shaped autonomously in their consciousness. Anyway they would repudiate the assertion of a restriction in their free will and free action felt as autonomous. If however one says yes to the existence of such a collective unconsciousness in the sense of C. G. Jung which can take concrete influence on the consciousness then the changes in fashion, taste, politics and speech as well as the forming of a fish-school similar to a big predatory fish finds a far-reaching economical satisfying and consistent explanation.
- ((11)) Men have tendency to ascribe reasons of occurrences, seeming transcendent to them, to more or less numerous inhabitants of a pantheon. But they combine the idea of these inhabitants always with something imaginable. Even expressly prohibition like: „You shouldn't form an image of me“ could hardly change something. Such images are therefore based on space and one-way moving time. But even the description of simple (!) elementary particles is not possible in an imaginable way. All the more this must hold true for the field of a collective unconsciousness.
- ((12)) As psychoanalysis has shown the intrusion into the unconscious sphere of our own self, the meeting with our „shadow“, is frequently connected with fear. The inhabitants of the pantheons come from those sections. An approach to them can involve fright. Let's think on reports of god-experiences. Especially in the „devil“ frighten elements are concentrated. Quite possible this could be connected with the fact that the unknown, strange in principle frightens and the transcendental sphere seems to be the unknown, strange cat exochen. It should be assumed that men time and again got and get transcendental experience in dreams, in trance. To ban those demons they first of all must be brought to consciousness. But therefore they have to take an imaginable form. It could be that men as they have developed different speeches they also have formed different shapes in

fairytale, legends, myths and religions based on similar unconscious, transcendental realities. But one has to proceed on the assumption that those more or less imaginable forms can describe a basic reality hardly approximately adequate. Apparently every imaginable form can only describe a partial aspect of the transcendental reality as well as a wave resp. a particle can always describe only a partial aspect of the electron. Therefore one can at best allow imaginable forms as a metaphoric analogy to a transcendental reality withdrawing an imaginable concept. Probably therefore one shouldn't form an image of it.

- ((13)) Back to physics: We shouldn't form an image of elementary particles generally and of electrons particularly. Whatever this image looks like, wave or particle, it is wrong, it doesn't correspond to the reality, it can only describe a partial aspect of this reality. The assumption of an arbiter mundi divided to meet countless single jobs, of a divided collective unconsciousness, would introduce into physics only something which is in principle long time known in psychoanalysis no matter whether one sees it as a single player or as a player-collective. (That those considerations are strongly inconsistent to physical thinking the author takes out of the conscious part of his inner life).
- ((14)) The wave function describes the probability of the different future moves while the past moves already are reality. But what's the matter with Einstein's statement: „God doesn't play dice“? Well, the wave function describes predictions of the computer, in our model of the physicist. But the choice of a „real“ move out of the „possible“ moves is done by the player (the pantheon, the collective unconsciousness, etc.). The physicist and not the player „play dice“. To the physicist inhibited in his view restricted in space and time the continuous choice of new realities out of many possible looks like an act of creation continuous progressing in time. Einstein's dices belongs to the imaginable sphere and this is in the same way as the category of the „experienced time“ irrelevant to the player, the pantheon, the collective unconsciousness etc.. Or if one likes „Man ~~thinks~~ *means* ~~and~~ *but* God guides“.