actualises one of these possibilities, ionising a particular atom and giving rise to a mark at a particular point. As a result, its potentiality changes abruptly. In particular, it will in general no longer be possible for it to interact at all other points of the surface; in actualising one possibility, it excludes the others. This abrupt change in the range of potential interactions open to the photon due to its actualisation of one of them is what is referred to as the collapse, or reduction, of the state vector.

Why do reductions of state vectors only occur during observation interactions and not during all physical interactions generally? According to the preceding explanations, a state vector represents the potentiality of a physical system for interacting with observing apparatus to produce particular results and the reduction of a state vector represents the actual occurrence of one of these potential interactions. Given this interpretation of the terms, the question becomes, Why do physical systems only actualise their potential interactions with observing apparatus when they interact with observing apparatus? Now the answer is obvious, for it is only when interacting with observing apparatus that a physical system *can* actualise one of its potential interactions with apparatus. Understood in this way, the reductions of state vectors seem obvious and logical and not "wholly mysterious or occult".

It must be emphasised that the above considerations are not intended as a physical explanation of state vector collapse, but merely as an intuitive explanation which, hopefully, indicates why the present author at least does not find these events, interpreted objectively, to be "wholly mysterious" or "crying out for explanation". Though no physical explanation of how state vector collapse occurs can be given, these events do not seem mysterious if we take into account what state vectors, and their reductions, represent.

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Joan of Arc's prophecies

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Joan of Arc is not a myth. Her feats of arms are well attested by the Chronicles on both sides, and also by the instruments of the Inquisition trial led by Cauchon and Bedford. The Proceedings of the "Rehabilitation Trial" initiated by Charles VII, in order to prove that her victories were not those of a witch, brings fourth men, women, priests, warriors, bearing impressive testimony. Thus it is very interesting to follow our heroine, not only in her childhood, but also in her warrior life.

As a parapsychologist, I am particularly interested by the strength of her moral nature, her cleverness, her military talent, and, last but not least, her gifts of premonition and clearsightedness. I intended to write a book on Joan and parapsychology, helped by a friend of mine in respect of the historical part.

Here, I give a short glimpse on the subject:

Joan's clear-sightedness is connected both with near future and with furtherest future. Cases of the first type are certain, testified by history. Cases of the second are arguable, often being transmitted by family tradition.

Let us mention first some of the first category:

In Vaucouleurs, talking with Robert de Baudricourt, Commander of the place, she foretells the French defeat at Rouvray, (later on named the "Daytime of herrings") just before the battle was lost, at some 400 kilometres from there.

Going to Chinon, she foretells the place where Charles Martel's sword was found, very rusted, in the ground, behind the Sainte Marie de Fierbois altartable.

Fifteen days before her attack on the fort of the "Tourelles" and a second time the day before, she foretold she would be wounded. She said: "Tomorrow blood will be drawn from my body, above my breast". An arrow pierced, through her armour, the lower part of her neck.

From the high wall of the fortress, the Commander, Sir Glasdale, insulted her, calling her "milkmaid, harlot". She answered him: "You insult me, but you are not far from your death". Not long after he fell down from the burning drawbridge, all armoured, into the Loire, and was drowned.

Many other cases are worth telling, all of them historically true. A few more have not been written in history and are transmitted by family tradition.

Believe them or not, you shall not be damned for that. They are long range prophecies.

One of them concerns Etienne de Vignolle, nicknamed "La Hire" by the Burgundians. This terrible "cadet of Gascony" was a great captain. For those who don't know of him, he is still the Knave of Hearts of our playing-cards. As a pillager himself, he said: "If God was a soldier, he would be a pillager". An incendiary of course, he struck his enemies like pigs. This terrific man had the gift of friendship. As soon as he saw Joan of Arc he said: "I believe in her, I shall follow here everywhere".

Such was Joan's ascendency, that he ceased to swear like a trooper, stopped his plunders, went to church, and confessed his sins. Joan had predicted to him that if he fell back into temptation of sacking a town, then the last of the La Hires would die ruined and miserable. After Joan's death, he again became a pillager.

A woman of my acquaintance, Mrs Michelle Nahon, told me that her grand-father, Jean de La Hire, who asserted he was the last descendant[1] of Etienne de Vignolle, died in that way, some fifty years ago, as an impecunious science fiction writer.

Still more striking is an old tradition in the La Tremoille family. Georges de La Tremoille, the traitor counsellor of Charles VII, who became jealous of Joan's glory, had already laid an ambush for her and her seven companions, on their way from Vaucouleurs to Chinon. Later on, he made it impossible for Joan and the Duke of Alençon to take Paris, by withdrawing Gillese Ray's and Richemont's troops.

This was more than five hundred years ago.

In 1933, the old Duchess of La Tremoille called for her family physician, the late Dr Datin (as I was told by his daughter, Dr Grassin's wife, a surgeon in Rennes). "I am tired and sad", said the Duchess. "My son, the young Duke, died yesterday morning, burnt alive in the hunting-box of a Scotch Castle. As you can see, Joan of Arc's prediction, as it was known in our family, came true."

And there is a striking confirmation. The young Duke, of course, knew the prediction, but did not quite believe in it. This was told me by a friend of mine, the physicist, Olivier Costa de Beauregard; his wife's mother was a friend of the late Duke. One day, some time before his death, showing the Countess his Castle of Serrant, in Anjou, he stopped before his family-tree, on which he stood alone at the end, and said half sweet half sour: "Look, I am the last, and, according to an old family tradition, Joan of Arc said, while she was

imprisoned in Rouen, that the last of the La Tremoille's would die burned alive."

These testimonies are true. What is their explanation? Coincidence? Joan's soul crying for vengeance through time and space? Of course not. What they show is, once more, Joan's extraordinary gift for clearsightedness and pre-cognition. What is very striking in these two cases, is their consonance with the Biblical statement "The grandfathers have eaten sour grapes, so the grandsons have aching teeth".

A friend of mine, Mr. P. Giry, M.D., has prepared a detailed documenta-tion concerning the very numerous psychic feats that have been recorded of Joan of Arc.

The most well-known of La Hire's descendants is the XVIIth century mathematician, Philippe de La Hire (1640-1718).