In 1914, Dr. William J. Crawford, a lecturer in mechanical engineering at Queen's University of Belfast, Ireland, began investigating the mediumship of 16-year-old Kathleen Goligher. The phenomena surrounding the young girl included communicating raps, trance voice, and table levitations. Through much experimentation Crawford discovered that "psychic rods" emanating from Goligher and made up of ectoplasm were responsible for the levitations.

During December 1915, Crawford invited Sir William Barrett, professor of physics at Royal College in Dublin, to join him. At first, they heard knocks, and messages were spelled out as one of the sitters recited the alphabet. Barrett then reported observing a floating trumpet, which he tried unsuccessfully to catch. "Then the table began to rise from the floor some 18 inches and remained suspended and quite level," Barrett wrote. "I was allowed to go up to the table and saw clearly no one was touching it, a clear space separating the sitters from the table."
Barrett put pressure on the table to try to force it back to the floor. He exerted all his strength but was unable to budge it. "Then I climbed on the table and sat on it, my feet off the floor, when I was swayed to and fro and finally tipped off," Barrett continued the story. "The table of its own accord now turned upside down, no one touching it, and I tried to lift it off the ground, but it could not be stirred; it appeared screwed down to the floor."

When Barrett stopped trying to right the table, it righted itself on its own accord. Apparently, the spirits were having a bit of fun with Barrett as he then heard "numerous sounds displaying an amused intelligence."

During his experiments with Goligher, Crawford began communicating with spirit entities, one of whom said he was a medical man when on earth and that his primary function was to look after the health of the young medium. This spirit explained to Crawford that two types of substances were used in the production of the phenomena. One was taken in large quantities from both the medium and the sitters, then returned to them at the close of the séance. The other substance, apparently the ectoplasm, called "psychic force" by Crawford, was taken exclusively from the medium in minute quantities and could not be returned to her as its structure was broken up. It was pointed out that it came from the interior of the medium's nerve cells and if too much were taken she could suffer serious injury.

Some of the communication took place through Goligher's voice mechanism while she was in trance while much of it came through raps and table tilting. Crawford came to see the experimentation as a joint venture with the spirit "operators." He soon realized that these "operators" didn't understand much about the scientific aspects of the phenomena. "I am convinced that the operators know next to nothing of force magnitudes and reactions," Crawford wrote in his 1918 book, The Reality of Psychic Phenomena. "Their idea as to the prime cause of the phenomena is 'power.'"

On one occasion, a clairvoyant joined in the circle and told Crawford that she could see "a whitish vapour like substance, somewhat like smoke," forming under the surface of the table and increasing in density as it was levitated. She could see it flowing from the medium in sort of a rotary motion. From other sitters, she could see thin bands joining into the much larger amount coming from the medium. She also saw various spirit forms and spirit hands manipulating the "psychic stuff."

Crawford brought in a scale large enough to hold the medium while she was sitting in her chair. He discovered that when a table was being levitated, the weight of the table, usually around 16 pounds, was transferred to the medium through the "psychic rods." Most of the time, the transfer of weight would be a few ounces short of the weight of the table. Further experimentation revealed that the extra weight was being transferred to the sitters in the room, who might have had furnished small amounts of the "psychic force."

Crawford pointed out that he continually worked under the levitated table and between the levitated table and the medium and conducted many of his experiments in adequate light, although it became obvious to him that light affected the rigidity of
the rapping rods, i.e., the rods could not be made stiff if strong light was playing upon them.

During his 87 sittings with the Goligher circle, Crawford made a number of other observations, including that the psychic rods could extend only about five feet from the medium's body and that it often took a half hour for the psychic energy to build up. He further observed that the psychic energy often caused the medium to make slight involuntary motions with her feet - motions which might suggest fraud to a careless observer.

"I have come to the general conclusion from the results of my experimental work, and from observations of the circle extending over two and a half years, that all the phenomena produced are caused by flexible rod-like projections from the body of the medium; that these rods are the prime cause of the phenomena, whether they consist of levitations, movements of the table about the floor, rappings, touchings, or other variations," Crawford wrote.

On July 30, 1920, Crawford committed suicide. Skeptics immediately concluded that Crawford must have realized he had been duped. However, Crawford's suicide note stated it had nothing to do with his work and that he was certain it would stand up.

When we look at the cumulative testimony, many concerns and questions seem to be answered. To begin with, the very strange and weird materializations are likely failed efforts on the part of the spirit entities. (See http://www.youtube.com/watch?v=kXXC2RTvF_4) If only a hand or an arm materializes, it may be because the medium has limited power or because harmony among the group is lacking. If only a face appears, it may be because the spirit entity is projecting an image of just his face rather than his whole body. Materializations that don't look like the person when alive may be a result of the spirit's inability to image his old self and project that image into the ectoplasm. The fact that some materialized spirits resemble the medium and speak with a voice similar to the medium's may be because the medium's vital fluids are contributing to the materialization. The fact that the vocabulary more closely resembles the medium's may be because the ideas must filter through the medium's mind before being expressed in words.

We might also conclude that mediums vary in their power, some requiring more darkness than others, some not requiring a cabinet, some able to produce full materializations, some not. Moreover, harmony is an essential element, and negativity, especially a researcher intent upon finding fraud, will prevent the production of phenomena.

Indications are that many physical mediums were written off as charlatans because the investigators simply didn't understand what was going on.

In effect, Professor Ducasse (See Part III) may have been correct in stating that "the prima facie most impressive evidence there could be of the survival of a deceased friend or relative would be to see and touch his materialized, recognizable bodily form, which then speaks in his or her characteristic manner,"
The sceptics ask how come we don't hear of such phenomena today. While seemingly much more rare than it was a century ago, there are occasionally report of mediums producing ectoplasm and materializations of one kind or another taking place in different parts of the world. Australian medium David Thompson reportedly has produced much in the way of materialization phenomena, according to retired lawyer and psychical researcher Victor Zammit, who states he and six others in a circle have witnessed ectoplasm coming from Thompson's mouth as Thompson was bound to a chair and gagged - test measures to rule out fraud - while unconscious. "After some 15 minutes and under red light, we all saw ectoplasm coming out of the medium's mouth moving very slowly outwardly towards the floor," Zammit related by e-mail, going on to explain that it extended at least five feet and looked like thick white smoke. And a number of spirits have communicated at the Thompson séances.

Stewart Alexander, a British medium, is also said to have produced the direct-voice and full materializations in recent séances. Zerdin Phenomenal, based in England, exists today to further explore physical mediumship.

At least a dozen theories have been advanced to explain the decline in materialization mediumship. The most popular one is that people of yesteryear, being without radio and television and living in smaller communities, were much more inclined to socialize and experiment with mediumship circles. Today's fast-paced lifestyle simply does not lend itself to such experimentation, especially the harmony and dedication required. Where such conditions exist, the mediums and circle members, having seen the scorn heaped upon earlier mediums and circles, are inclined to remain "underground."

On the other hand, it may be that, as Crookes was told, the spirits were experimenting on their side, just as Crookes was on his side. Perhaps they completed their experiments or may have, upon seeing several mediums severely injured when exposed to light, realized that the risks were too great. Maybe they felt that debunkers were damaging the reputations of too many good mediums by calling them cheaters. Maybe they concluded that they gave us enough in the way of evidence and nothing was to be gained by giving us more. Possibly the experimenters were lower-level spirits and the higher-level spirits issued a cease and desist order, or just to back off until science is more open-minded.

Indeed, the ectoplasm and materialization phenomenon gives meaning to the idiom coined by Thomas Paine that there is only one step from the sublime to the ridiculous.