Fig. 1. Reliquary containing the blood of S. Gennaro, which is shown to the faithfuls during the ceremony of blood liquefaction.

phenomena is very skeptical and we try to explain any miracle with science, but in the particular case of san Gennaro's miracle, there isn't any scientific evidence that refutes the miracle. In fact, the ampoule is moved very slowly, and sometimes the phenomenon does not happen even with shaking, and, instead, sometimes the phenomenon happens so fast that is impossible to show it to the faithfuls.

There are several examples of thixotropic materials, including; clays and soil suspensions, creams, drilling muds, flour dough's, flour suspensions, fiber greases, jellies, paints, starch pastes, etc. All these examples are composed of mixtures containing two or more components, in which one has the duty of breaking the network of the second component. This property can be associated with seemingly compact materials such as certain colloids, which form gels when left to stand, but become sols when stirred or shaken. This effect appears in weakly crosslinked or physical gels. The bonds are weak enough to be broken by the mechanical stresses that occur during flow. The result is that during flow, the network breaks down into separate flocs, which can decrease further in size when the strain rate is increased. Reducing the shear rate causes a growth of the flocs, as arresting the flow will allow the particulate network to rebuild. In short, all liquids with microstructure can show thixotropy, because thixotropy only reflects the finite time taken to move from any one state of microstructure to another and back again, whether from different states of flow or to or from rest. A competition between breakdown due to flow stresses and build-up due to in-flow collisions and Brownian motion occurs (Mewis and Wagner 2009).

During the mechanical stress we can observe:

- Alignment of particles in the flow direction
- Loss of junctions in polymers
- Rearrangement of microstructure
- Breakdown of flocs.

On a microscale, we can imagine the picture presented in Fig. 2, where the effect of the mechanical stress on a typical thixotropic material is presented. We start from a