

Co-evolutionary Lighting

by Roberto Gill Camargo

Theater may be seen as a conjunct of co-evolutionary systems, such as scenery, objects, costumes, sound, lighting and the quantity of sub-systems related to the actor: speaking, intonation, facial expressions, gestures and all sorts of movements.

In this approach we'll consider the lighting as an organized system that evolves during the scene at the same time of those mentioned systems. It is an investigation of stage lighting from the viewpoint of the aesthetic creation and of its relations with the other systems. Considering the visual signs as physical elements that affect the eyes of the audience - and are affected by them, at all -, the lighting has an important function in this process.

The movements of the actor and the appearance of the surfaces, volumes, textures and tonal contrasts of objects, clothes, stairs, walls and everything else on stage are directly influenced by the flow of lighting. When the actor walks from the left to the right, a great number of visual changes take place: what is dark in his clothes may become clear and what is clear may produce shadow. The configuration of the visual elements and the conditions of perception may change in accordance with the configuration of lighting.

The relation between lighting and body is based in two main physical principles: reflection and absorption. Clear surfaces reflect the light while dark surfaces absorb it. The white dress and the face of an actress produce a diffused reflection while the jewels and very bright surfaces of metals result in a specular kind of reflection.

Another aspect to be considered is the means of the propagation of light: the scene with fog diffuses the radiation through the air and the use of water produces refraction of light. These effects may occur occasionally but they affect considerably the response.

The bodies have a proper and natural light. They are all provided with electromagnetic energy and they change energy with the electromagnetism of the light. So, it is important to consider the relation between light and body as a co-dependent process: the own energy that exists in bodies and the energy that comes from artificial light. They are two physical and material realities that work together and at the same time.

These considerations are important to comprehend the study of stage lighting while an integrated process with the scene (not a separated one).

The publications of stage lighting generally give importance to the properties and functions of lighting. Intensity, color, form, movement, direction, diffusion, frequency and luminousness are some properties considered in lighting designs. On the other side, the authors discuss the main functions of lighting: visibility, dimension, selection, atmosphere, and so on.

In fact, the study of these properties and functions is relevant, but the most important aspect of stage lighting is often neglected: the connexion between the system of lighting and the other systems of theatre.

A system is a conjunct of elements related one another. In lighting, many aspects may be considered as parts of an organized and complex system: since the combinations of front, back, cross and side light, the chooses of equipments, the kind of lamps, lenses and filters, the rhythm of connections (slow or fast), until the possibilities to operate these specific resources as a whole. These parts work in an integrated way but they are all conditioned to the instability and changeableness of the living scene. They form a complex organization that dialogues with other complex systems of scene.

The comprehension of lighting as a complex and an organized system related to others complex and organized systems of theatre asks for another approach, different of those usually adopted in



the studies of lighting.

The systems of visual signs in theatre belong to a complex net that varies constantly. A simple movement of an actor may change considerably the appearance of the visual conjunct as a whole. Dark points get clear and bright surfaces lose importance. The actor is the living being that evolves the scene in space and time. The evolution depends on his presence and on his movements and changes in space and time.

This inherent characteristic of theater as a living process of communication makes us to think the stage lighting while a living process as well. Lighting should be a co-dependent of scene and never a separated resource that comes after, such as effects interested in reinforce, in to add atmosphere or in to emphasize and to give plasticity to the scene.

Lighting is neither an instrument of painting and nor a tool of cutting that selects what is necessary and what is not to be shown. It is a part of a complex process, without autonomy and without right of choosing. The process of creation in theater is understood as a complexity one that includes many instances in a strict co-dependence.

In theatre, everything flows simultaneously. The actor, the scenery, the sound, the customs and the lighting evolves at the same time, one connected to the other. The lighting is not a simple resource with the function of emphasizing, painting, selecting or giving plastic dimension and beauty to the scene.

The tendency to selectivity, through the controls of the size and shape of the light beam, with the soft-edge and hard-edge spotlights, became one of the most important characteristics of stage lighting, in dance and drama. To avoid the flatness, the exploit of the three-dimensions of space – width, height and depth – became another tendency through the variety of angles, especially from the sides and from the back.

The problem of these resources of composition (a strong influence of the expressionism) is the danger of transforming the stage in a picture, with forms, lines and geometric figures painted with light. We know very well that lighting is not like a painting. On the contrary, it is a dynamic process that follows the flow of the living scene.

Space and time are not fixed circumstances that can be represented by a design, previously determined through graphics and storyboards. The lighting is a physical phenomenon that evolves incessantly, changing information, matter and energy with the physical evolution of the scene.

When the script says that the action occurs in the evening it is not enough. In lighting, we have to describe the evolution of light in that evening. This description is only possible if we consider the evolution of the scene and its physical changes through the space and time.

Stage lighting should not be seen as a simple resource of visibility, but as a co-evolutionary element of scene. We don't refer to the fictional dimension, but to the physical one. The scene evolves through the space and time; and so does the lighting.

A resource of lighting that allows to follow the flow of the scene is the intensity. The variations of brightness, clearness and darkness, controlled through the dimmers, allow us to describe the richness of spatialities and the evolution of time. Each movement, each detail of physical action may be described through the gradience of light.

If the lighting is necessary for the process of creation and evolution of the scene, we have no doubt about the need of its presence since the beginning of the process of creation of the scene. When the actor goes to the stage for the first time, the lighting has to follow him. This is not a common procedure. The lighting usually enters at the final moment, when the scene is just created.

The need of comprehending the theatre as a process of co-evolutionary creation asks for another viewpoint of lighting, different from the common use. Lighting has to be seen as a living process, in accordance to the living process of the scene, evolving with the other living systems that change incessantly.

We have been experimenting the co-evolutionary scene-lighting process with the Katharsis University Theatre, in Sorocaba-SP-Brazil and the results have been satisfactory. Since the first day of rehearsal the actors have contact with the lighting. The idea of design brings up simultaneously with the creation of characters, gestures, movements, customs and sounds.

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