

ALBA EMOTING: A Psychophysiological Technique to Help Actors Create and Control Real Emotions

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Introduction

In one of his letters to Madame Raffalovich, the nineteenth century French physiologist Claude Bernard writes about a great actress who had just finished playing a role in which she had vividly expressed her passion with running tears. When asked whether she actually felt the emotion she had represented as Andromaque, her answer was: "*By no means. I was moved, as was my audience, by listening to myself. But I had no other sensation*" (Bernard 64; my translation and emphasis). This example of an actress monitoring and adjusting the emotional value of her performance to optimize communication illustrates the actor's paradox described by Denis Diderot in 1757: "all [the actor's] talent consists not in feeling, as you suppose, but in rendering the external signs of the emotion so rigorously that you are taken in" (132; my translation). Diderot asserts that it is unnecessary, counterproductive even, for actors to worry about *feeling* emotions. Instead, he says, the entire effort of acting should be toward the dual projects of managing and monitoring the performing body to optimize the creation of emotion *in the audience*. This is in direct contradiction of the American "method" school of acting which asserts that the main project of acting is the creation of emotion *in the actor*. Diderot insists that only the objective appearance of emotion is important; Lee Strasberg asserts the preeminence of the subjective sensation of emotion.

The research presented in this article proposes a performance technique which may unite both points of view, thus helping to solve the longstanding paradox. The technique helps an actor summon and control an emotion at will and is based on psychophysiological data obtained in laboratory conditions. The findings, showing that, the precise, *objective* management and monitoring of the respiratory and expressive components of emotion contribute to an actor's *subjective* experience of emotion, have been published elsewhere (Bloch and Santibañez; Bloch, Orthous, and Santibañez; Bloch, Lemeignan, and Aguilera) and will only briefly be summed up here as needed. The technique itself will be presented and discussed in its general principles and use for actor training and eventual theatre performance.¹ But first, in order to understand how the work presented in this article is related to the actor's paradox, it is necessary to delve into the nature of emotions.

In everyday life the individual is continuously in one emotional state or another, but what is it that triggers or modifies such emotional states? Certain emotions are provoked by intense stimuli, but often a trifle – a falling leaf, a face in a magazine, a glance from a stranger – is sufficient to provoke an emotion or to evoke a memory associated with an emotional state. The

emotion experienced will depend on the individual's unique history (what better example than that of Marcel Proust's famous "madeleine" dipped in the tea which re-actualized in him a sense of well-being from the past). In such cases the stimulation initially comes from the external world. But it is also possible – as we know from our own experience – that without any particular conscious reason, merely thinking of something may suddenly make us sad. In such cases the emotional arousal is produced by an internal stimulation, i.e., by a "spontaneous" intracerebral activation. Whether the triggering stimulus is external or internal, the feeling evoked is accompanied, however slightly, by modifications in facial expression, direction of gaze, body posture (expressive components of the emotion) as well as by certain changes in visceral functions (increased heart rate, stomach contractions, "redness" or pallor in the skin, acceleration of breathing, etc.). The theories which try to explain how emotional states are triggered range from those which postulate that emotions are determined by a cognitive appraisal of the situation to those that favor the notion forwarded by William James that emotions are the direct consequence of perceived bodily changes (see "*What Is an Emotion* ").

How to Produce an Emotion at Will

Now the question is: how can one produce at will a certain emotion, controlling its beginning and ending and at the same time transmitting it vividly to an audience? This problem arises when studying an emotion in a scientific context or during the re-creation of an emotion by an actor.

In the theatre re-creating emotions is one of the basic challenges of the actor's work. During improvisations or rehearsal situations the actor can use his/ her own emotions, which have their own natural time course. At certain points in rehearsal, however, and/or during an actual performance, he/she needs to move at will from one emotion to another according to a predetermined evolution of the dramatic situation. In such cases the duration and change of emotional nuance need to be perfectly timed and cannot follow a natural flow. Therefore, just as Antonin Artaud has pointed out, the actor needs to be a real "emotional athlete."

When one wants to study an emotion in an experimental laboratory situation, one is also faced with the difficult problem of how to provoke the emotion. This is especially true when ethical issues of triggering emotional states such as sadness or fear arise. But spontaneous emotions which occur in real life situations do not allow a psychophysiological analysis, as they can rarely be predicted and recorded in time. Therefore, in order to analyze the ongoing physiological activation in the laboratory, it is also necessary, as in the case of the actor, to produce or re-create an emotional state at will with perfect control of its beginning and ending. So the general question is *how* to produce a particular emotion at will, be it for the laboratory or for the stage.

The procedure that is most commonly employed in both settings is to try to activate a mental state. For example, a subject is asked to revive or imagine an emotional situation. This corresponds to an intracerebral stimulation, as mentioned above, but this time provoked voluntarily. For an actor of the European tradition this common procedure constitutes the basis of the method created by Constantin Stanislavski in the 1920s and adapted and developed by Lee Strasberg and others during the 1930s in the Group Theatre, and later at the Actor's Studio in New York.

It is also possible to trigger an emotion by an external stimulation (visual, auditory, tactile); for example, presenting an emotionally charged film and waiting until the desired emotion arises in the subject. In either situation it is difficult to predict specific emotional reactions: the same "emotogenic" material does not necessarily evoke the same emotion in different people or in the same person at different moments. Furthermore, with both procedure – imaged or reacted to – it is very difficult to determine with the needed precision the beginning and the ending of the emotional arousal.

A longstanding interest in trying to find links between experimental research on emotions in the field of neurosciences and the work of the actor on the stage has led my collaborators and me to develop a different procedure for emotional induction based on the reproduction of "emotional effector patterns."

Emotional Effector Patterns

Definition of Emotion

The study of emotions has been approached from different directions. For many researchers the definition only treats the externalized and acute manifestations of emotional reactions or the internal physiological symptoms, ignoring the subjective, intimate experience we call "feeling."² In opposition to such dualistic, non-integrative positions, we propose a more holistic approach and define emotions as *distinct and dynamic functional states of the entire organism, comprising particular groups of effector systems (visceral, endocrine, muscular) and particular corresponding subjective states (feelings)*.

The different components of an emotion are intimately related. Normally, in everyday life situations, the three levels – physiological, expressive, and subjective – are in harmony, but it often happens that the expressive components are unintentionally dissociated from the subjective level. This can occur in different degrees, from the simple situation of being unaware of one's own facial expression to the maximal contradiction between expression and subjective experience one can observe in certain psychopathological states (for example, the classic psychiatric syndrome denoted as "ideo-affective dissociation").

A separation between expression and feeling can also be produced intentionally, as in the case of an actor. Voluntary dissociation is a very interesting issue, not only to understand what happens in the actor's brain while he "plays" an emotion on the stage, but also to analyze the totality of an emotion and the relations that exist among the different components.

Experiments

In Santiago de Chile in 1970, I started an interdisciplinary research project on the topic of emotions with Guy Santibañez (neurophysiologist) and Pedro Orthous (theatre director). The aim of the study was to relate some of the physiological and expressive activations present during an emotion with the corresponding subjective experience. The study was not concerned either with the causes which may produce an emotional state, nor with cultural implications or social consequences, but with the emotional state *per se*.

What we did was to record in our laboratory at the Medical School physiological and expressive parameters in normal or neurotic subjects who were reliving strong emotional

experiences related to basic emotions such as joy, anger, sadness, fear, eroticism and tenderness. The recordings were done either in a clinical context or under deep hypnosis (Bloch and Santibañez; Santibañez and Bloch).³ We observed in this first study that the emotional arousal was accompanied by an ensemble of specific respiratory, postural and facial modifications that were characteristic for each emotion. In other words, we found that *specific emotional feelings were linked to specific patterns of breathing, facial expression, degree of muscular tension, and postural attitudes*. The respiratory component appeared to be the most vital element. If a subject was asked to do two things, maintain a slow and regular breathing rhythm while at the same time reliving a situation of anger, he could not "enter" into the suggested mood as long as he maintained the imposed regular breathing pattern. By comparison, if the breathing pattern typical of anger was requested, the subjective state (feeling) of the individual would evolve towards that particular emotional state-the subject would become angry. These observations are in agreement with those obtained during the fifties by Nina Bull and her collaborators (Guido-Frank and Bull; Pasquarelli and Bull). They suggested to their hypnotized subjects to try to feel sad while keeping a posture of "exultation" (arms open, head thrown back). The subjects reported, post hypnosis, to have been unable to *feel* sad while maintaining such a postural attitude.

All these observations clearly suggest that during an emotional state there is a *unique interdependence between a specific breathing rhythm, a particular expressive attitude* (both facial and postural) *and a given subjective experience*. We have called this ensemble "emotional effector pattern." It represents only a part of the complex neuromuscular, visceral, and neuroendocrine reactions which are activated during a natural spontaneous emotion, but it contains those somatic elements which can be voluntarily controlled and therefore reproduced at will, namely breathing, postural attitudes, and facial expressions.

Basic Emotions

We identified and analyzed experimentally these somatic elements for six basic emotions: joy, anger, sadness, fear, eroticism, and tenderness.⁴ Basic emotions are "phasic" reactions, that is to say, transitory responses directly related to a particular "emotogenic" situation. Such responses will in most cases be transduced into an action-to laugh, to cry, to attack, to escape, to caress, to flirt, to make love, etc. Basic emotions can also be "tonic," i.e., become chronic states maintained in time, corresponding to what we generally call "moods." In these cases emotions are not necessarily linked to a specific stimulation and may easily turn into neurotic or unadaptive behavior. With this postulate in mind, *anxiety*, for example, may be taken as a chronic state of *fear* and *depression* as a chronic state of *sadness* since most elements of the corresponding effector patterns are present.

Characterization of the Emotional Effector Patterns

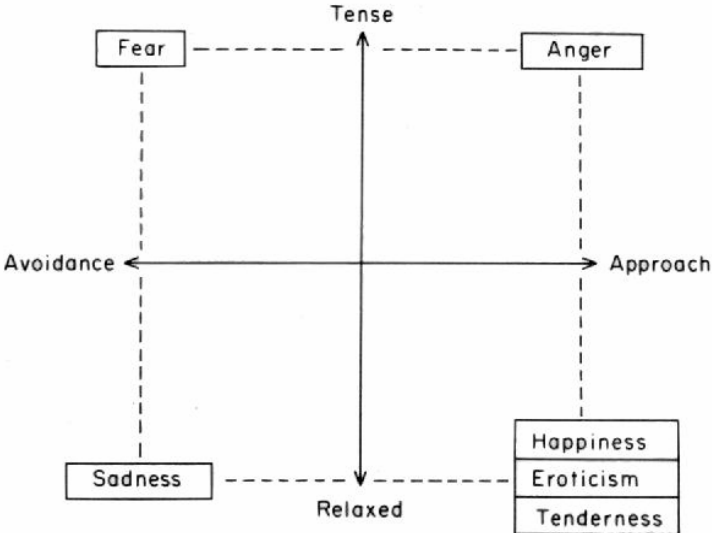
Facial Expression

Facial expressions have been extensively analyzed by Paul Ekman and his collaborators in relation to the emotions of anger, fear, happiness, sadness, disgust, and curiosity (Ekman and Oster), so I will not deal with them here. Essentially, what these authors found is that if actors are instructed to produce just the facial prototypes (contraction of specific facial muscles) related to each of the mentioned emotions, physiological changes occur which are different according to the facial prototype (Levenson et al.).⁵ Pure facial mimicry obtained with these prototypical muscular actions undoubtedly produces universal emotion signals. However, the resulting expressions may

appear to the observer as artificial masks rather than as re-created emotions (personal observation). If more elements of the emotional system are activated, as we shall see below, the emotional output is more vivid and closer to a natural emotion.

Posture

Fewer experiments have analyzed postural attitude. The six basic emotions we are studying can be situated within two axes: tension/relaxation, i.e. degree of muscular tonicity involved, and approach/withdrawal, i.e the tendency to go forwards or to retreat as a basic attitude (see Figure 1). Anger and fear are both located on the extreme tension pole but involve opposite muscle groups which determine opposite directional attitudes: approach in the case of anger (the person is ready to attack); or, in the case of fear, withdrawal (the person prepares to flee) or "freezing" (the person stays as if paralyzed), depending on whether it concerns "active" or "passive" fear. "Stage fright" is a typical example of the latter. On the pole of relaxation, with slight differences in degree of muscular tonus, we have sadness-crying, tenderness (parental love, friendship), eroticism (the initial phase of sexual arousal), and joy-laughter. These four emotions, however, are expressed in different directional attitudes: a slight recoil (usually downwards) in the case of sadness-crying (the person withdraws within him or herself); a rather vertical position (open and slightly back) for joy-laughter; an attitude of approach in the case of eroticism-more or less accentuated according to whether it concerns the more receptive or more active sexual response-and an attitude of full approach in the case of tenderness (the person is prepared to touch, caress, protect).⁶



Representation of the six basic emotions in terms of degree of muscular tonus (vertical tension/ relaxation axis) and of approach/ withdrawal (horizontal axis) (adapted from Bloch, Orthous, and Santib6fiez).

Breathing

Though the relationship between breathing and emotion is a common clinical observation and constitutes the basis of relaxation techniques and yoga exercises, specific respiratory patterns connected to particular emotional states have not been reported in the scientific literature. So we concentrated on the characteristic breathing movements directly recorded during each of the six basic emotions. We found that the most distinctive elements of differentiation between the studied emotions were given by the patterns of the respiratory movements and by their degree of complexity.⁷

Inducing Emotions by Reproducing Corresponding Effector Patterns

Since the particular breathing patterns, the prototypical postural attitudes, and the specific facial actions can all be under voluntary control, it occurred to us to instruct subjects to reproduce these "emotional effector patterns." What we did was to ask naive subjects to breathe in a certain way, to tense or relax certain groups of muscles, to open or close their eyelids more fully, and so on, guiding their performance very technically and as precisely as possible, without naming the emotion. When we asked the subjects at the end of each exercise what had happened, most of them reported having felt the emotion linked to the reproduced patterns, or having had related images or memories. The longer the exercise, the more intense was the reported emotional feeling and/or evoked imagery. Inversely, it was possible to reestablish a "non-emotional" neutral state by a special change of breathing and posture.⁸

These observations obtained with a great number of subjects of different origins and nationalities clearly showed that if *instructions for reproducing an emotional effector pattern are correctly followed, the appropriate actions will trigger the corresponding subjective experience in the performer* (Santibañez and Bloch; Bloch 1986, 1992). This means that the complete (and precise) reproduction of the effector pattern may activate the ensemble of the specific emotional net work. The property of driving other elements of an emotional system by reproducing well defined prototypical somatic actions suggested the use of these emotional effector patterns as an experimental model for generating emotions in a controlled way (Bloch 1989; Bloch and Lemeignan).⁹ The actual technique derived from our research can be used not only for the experimental study of emotions in a scientific setting but implies powerful applications for the work of actors as well (see below).

Finally, the possibility of summoning and controlling emotional states by specific voluntary actions is an experimental proof that complex central states can be altered by a selective modification of the periphery, thus supporting, in a certain sense, the controversial James-Lange theory (James and Lange). In modern terms, the proposed method of emotional activation would correspond to a "bottom-up model" of induction.

"Step-out" Procedure

We had observed right from the beginning of our research that people who reproduced the emotional patterns had a tendency to "stay," so to speak, within the induced emotion. For instance, when our first experimental subjects returned to the laboratory, they often reported having had dreams or moods which were connected to the exercises performed in the previous session. In order to avoid what I call "emotional hangovers," we developed a "Step-out" technique which consists essentially in ending each emotional reproduction by at least three slow,

regular, and deep, full breathing cycles followed by a total relaxation of the facial muscles and a change in posture. Such a procedure brings the person back to a "neutral" state. This sort of "reset" of the emotional arousal will take more or less time, depending on the degree of activation attained by the emotional control system. In fact, if a critical level of emotional arousal has been attained, the full course of the emotion will take place, therefore the need to learn to control and practice this powerful tool.

Teaching the Use of Emotional Effector Patterns to Actors

The proposed technique has a wide spectrum of applications. I will present here only my experience with its use in actor training¹⁰(for more detailed descriptions, see Bloch, Orthous, and Santibañez).

Basic Training

A typical training session proceeds as follows: after a physical warming-up and some general breathing exercises, actors-individually or in small groups-are invited to breathe with a slow and calm rhythm, relaxing the body and trying to adopt the most neutral facial expression possible. Once this neutral state is attained, a breathing pattern is instructed, followed by indications of the corresponding postural attitude and facial expression. The trainer guides and corrects as needed the actions without naming the emotion. During the first attempts, the actor concentrates completely on correctly following the instructions, so that he/she is not always aware of what happens subjectively. At this initial stage of learning, however, it is important to let the exercise develop until the feeling appears. In this way, the entire emotion will flow through, providing the performer with an insight into what is occurring. From then on, trial runs become shorter, always finishing with the strict "step-out" procedure. Patterns are then repeated and practiced with different intensities and durations-never for periods longer than 2-3 minutes-and alternating them with other theatrical work. This is very important, as the breathing changes are demanding for the organism and must be pursued with care.¹¹

Once the reproduction of the basic effector patterns is well mastered, actors may use them at will or under instruction, with different durations and controlled intensities. Actors may also 'switch from one pattern to another and do different stage actions with different patterns: for instance, taking a cup with a tense hand and then just relaxing the hand without modifying the breathing; or singing a song with the facial expression of joy and then changing the breathing into the crying pattern ' (Bloch, Orthous, and Santibañez 14). Such very technical and rapid changes of effector patterns produce changes in the emotional output which are immediately apparent and unequivocal to the observer.

The emotional reproduction in a trained actor shows a dynamic evolution: when he/she is asked to reproduce a respiratory – facial - postural prototype in its most intense form, there is an initial phase in which the patterns are reproduced as learned in a very technical "robot-like" fashion. As the exercise goes along-with practice this occurs after only one or two patterned breathing cycles-the respiratory movements become less stereotyped without losing either their basic learned structure or their intensity. At this point, it appears as if the intentional breathing pattern enters in resonance with the organic flow of the corresponding emotion's natural breathing. At the same time, the expressive features become clearer and better defined, and spontaneous vocalizations occur. If at this moment the actor utters some words or speaks the lines of a text, the voice naturally takes the right emotional tonality.¹²

The mastering of the technique, together with the strict "step-out" procedure, allows the actor not only to start and end an emotional state at will but to monitor the degree of subjective involvement as well. This strengthens the usefulness of the proposed technique for the work of actors, who often have difficulties in "leaving" their roles, especially the emotional states implicated in them, being subjected to what I call "emotional hangovers." Moreover, it mediates the famous actor's paradox by providing actors with precise technical control of the expressive components of emotion while, at the same time, allowing them to experience as much of the feeling component as they desire. We have confirmed by experimental recognition tests that naive observers clearly receive the impact of the intended emotional message: not only do they correctly identify the accurately reproduced patterns but they may empathically "feel" the transmitted emotion (Lemeignan et al.).

Working with Mixed Emotions

Adult emotions are rarely "pure," and they seem to mix even more in memory. Once actors achieve mastery in reproducing the six basic emotional effector patterns, they are able to work with "mixed" emotions. The idea behind this practice is to think in terms of pure colors and mixed color pigments-mix yellow with blue and get green, mix sadness with tenderness and get melancholy, etc. The range is infinite, as it is with colors. Once the technique is mastered, actors can adjust the blend to find just the right mix of the "primary colors."¹³

Emotion-based Text Analysis

The analysis of the dramatic text as a series of pure and mixed emotions of varying intensities comprises what I call the "emotional melody" of the play, of a scene, of the character. The analysis is done by dissecting the text into its emotional components. Trained actors are then invited to perform a chain of emotional patterns without the text, trying out different sequences. For this purpose, it is important to develop a form of notation comparable to the Laban system of movement notation. Such a system of semantic reference is of enormous help in the communication between director and actors and among stage partners, as it clarifies the emotional terminology used, which is often very imprecise.¹⁴

Some Advantages of Alba Emoting¹⁵

1. We know from our experimental studies that specific body actions may trigger the corresponding emotional network. The actor trained with this technique has the option to activate the emotion totally and let it follow its natural course. Alternately, he/she may choose to regulate the flow of an emotion, stopping it at will or cutting it across with another emotion and, if needed, switching emotions in quick successions. An entire role can be built up with such choices. Put differently, the technique allows actors to control at will the expression and communication of their emotions in an objective and unambiguous way. The fluidity of the emotional output is obtained by the precise control of respiratory and muscular patterns which are specific and different for each basic emotion.

2. Since each basic emotion corresponds to a different functional state of the organism, ALBA implies somatic actions (respiratory, postural, facial) which are clearly different for each

basic emotion. Therefore, it refers to a system which is more specific than general body training, relaxation techniques, or respiratory exercises, which are all, by the way, valuable as a general background. ALBA is to emotions what physical training is to body control or vocal exercises to the mastering of voice and speech. It is similar to the arpeggios and note scales practiced by the pianist, which then enable the artist freely to create without worrying about technique. Whatever is the actor's choice, it cannot but help to know a "trick," even more so if this "trick" corresponds organically to what occurs when the emotion is naturally present; in this sense, the technique may approach, from another angle, the "truth" actors always pursue.

3. Once the patterns are learned in their most intense and exaggerated form, the actor practices with different intensities. Exaggerated changes in emotional intensity can be obtained by graduating as needed the somatic actions (respiratory, postural, and facial) in a controlled way. This helps actors respond to the demands of the director who wants from the actor more or less anger, more sadness, more eroticism or more subtlety in a particular scene.

4. The technique allows actors to identify specific emotions more clearly and to enter into them in a quick and efficient way. In everyday life people may ignore, confuse, or fail to recognize their own emotional states and those of others, which may make a person more or less inhibited, uncommunicative, and/or neurotic. However, in the case of the actor, an "athlete of emotions," such ignorance, inhibition, or lack of consciousness may become a serious professional handicap, since he/she must be able to reproduce on the stage any emotional state in a clear, convincing, and unambiguous way.¹⁶

5. The use of the technique reduces the need to utilize personal emotional experiences, which often may be contaminated, deteriorated, faded out in the memory, mixed with other emotions or, in the extreme case, non-existent. The trained actor has the choice to use ALBA as a technical support in case of need: if, for example a memory doesn't appear, no images are forthcoming, there is an emotional blockage, there is distraction, etc. Once this "technicality" is achieved during the actor's individual and/or group work, the creative current needed in the performance can flow freely.

6. ALBA counteracts stage fright, as it provides actors with a technical and controlled security system for emotional expression. It also gives psychological protection, as it helps the actor to avoid undesired personal identifications or too deep an entry into characterization that might pose difficulties of "getting out." A typical example is the actor who remains depressed when interpreting sad characters.¹⁷

Experience accumulated over many years of direct practice with actors of different countries has shown that with the use of ALBA a good actor gets better, and those who haven't many personal resources improve and gain in mastery. One mustn't forget that here I am talking of a *technical support for the actor that in no way affects his/her creativity or imagination*. Quite the contrary, the technique acts as a trigger by activating an emotional network that elicits corresponding images and subjective feelings, sustaining them in a controlled way for longer periods of time than can be achieved by other means. Whatever the actor's choice, it cannot but be of help to know that a slight change in the aperture of the eyes, for instance, will modify his/her facial expression; or that in a state of anger the body is in preparation for attack, therefore he/she needs to get the antigravitational muscles tense and ready for action; or that it is impossible to feel or express joy or tenderness without being very relaxed.

One must understand that being precise about emotional states and understanding their expression and development has nothing to do with being "emotional" or "hysterical." I think this confusion and the practical consequences of emoting without control have created fear and avoidance in actors which prevent them from treating the subject overtly and objectively.

The use of the proposed technique opens an enormous ethical responsibility for the teacher as well as for the learner, as it gives a person the possibility to hold, as it were, the reins of emotions. It must therefore be used with great care, respect, and sensibility. Expert guidance when working with these patterns is strongly recommended, as well as the use of the "step-out" procedure right from the beginning, especially because of the risk implied in unsupervised manipulation of breathing rhythms. Moreover, reproducing the emotional patterns mechanically may turn the user into a sort of "robot"; therefore, a degree of maturity and inner wisdom are requisites to work harmoniously with ALBA.¹⁸

Conclusions

The emotional effector patterns here presented are part of the human psychophysiological endowment. What we essentially did was to extract the basic prototypical somatic "triad" (breathing, posture, face) whose *voluntary* reproduction is sufficient to activate, partially or totally, the corresponding emotional network. Once the prototypical patterns were well identified, it was possible to teach actors to "play them back," as it were, by learning to reproduce them. The possibility of inducing emotional states through controlled physical actions can assist people-and particularly actors-to better recognize, express, and control their emotions.

In his *Le Theatre et son Double*, Antonin Artaud wrote: "Breath accompanies the feeling, and one can penetrate into the feeling by the breath, provided one has been able to discriminate within the breaths *which one corresponds to what feeling*"(205; *my translation and emphasis*). This insightful statement made more than fifty years ago provides a conceptual background to our experimental demonstrations. I believe this work provides an answer to Artaud's quest as to which breathing corresponds to which emotion. Moreover, it contributes a further step in confronting the longstanding argument between "outside in" and "inside out" techniques for creating emotions in actors. The work of Diderot, Stanislavski, Strasberg and others are, to a certain degree, clarified and their apparent contradictions attenuated.

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Notes

1. I gratefully acknowledge Robert Barton, Richard Geer, and Pedro S ndor for many insightful discussions around the work here presented.
2. For instance, experimental psychologists are concerned with the more measurable behavioral characteristics of emotions, while physiologists try to find out the electrophysiological, chemical, or neurohumoral process involved mostly in the animal model, thus eliminating the possibility of looking at the subjective process occurring. In fact, the analysis of subjective states has been left to philosophers or psychotherapists, safely out of scientific hands. As a consequence of these different approaches, a fragmentation of the emotional event has resulted and a dualistic body-mind view about emotions keeps

emerging. Such dualism is even present in the terminology which differentiates feelings from emotions, as if they were separate" processes. Direct practitioners, on the other hand, when working with the body (Alexander, Feldenkrais, Rolfing, etc.) or the voice or the breathing, tend to be more integrated in their empirical approach to the emotions.

3. The subject was placed on a couch in a soundproof isolated chamber. External electrodes for recording heart rate and muscular tension and a strain gauge for recording respiratory movements were attached. Once recording conditions became stable, subjects were asked to remember as vividly as possible strong emotionally charged life experiences. When the evocation ended, subjects reported what they had felt.

4. These emotions were considered as basic because they correspond to universal invariants of behavior-in a Darwinian sense-and are present in the animal and in the human infant either as innate behavior or apparent at very early stages of post-natal development. The set of bodily responses of such basic emotions is biologically suited for adaptive and survival functions, such as facing danger (fear), chasing a territorial invader (anger), protecting an infant (tenderness), mating (erotic love), etc.

5. With respect to erotic love and tenderness, which were not studied by Paul Ekman, distinct facial expressions and breathing characteristics differentiating between these emotions were also found by us (Bloch, Lemeignan, and Aguilera; Bloch and Lemeignan; Lemeignan et al.).

6. The universality of these prototypical postural features is also implied in Michael Chekhov's concept of "psychological gestures." This author distinguishes them from the natural gestures of everyday life in the sense that they are archetypal, serving "*as an original model for all possible gestures of the same kind*" (77; my emphasis). For instance, the brooding quality of an introspective character is depicted by Chekhov as a person in a crouched position with folded arms and bent head (67 drawing 3). This is close to the postural effector pattern of sadness (Bloch, Orthous, and Santib6fiez; Bloch and Lemeignan).

7. In a study done in my laboratory in Paris, in collaboration with Madeleine Lemeignan (neurophysiologist) and Nancy Aguilera (psychologist), we did a more quantitative study with thirty-six subjects. Recordings of respiratory movements during emotional states allowed us to quantify a variety of respiratory parameters such as amplitudes and frequencies of the fundamental cycles, relation between the duration of inspiration and that of expiration, and duration of the intercycle "pause." We found that the respiratory movements are differentiated among the six emotions by their frequency (cycles per minute), by the amplitudes of the fundamental cycles, by the duration of the intercycle "pause," and/or by the superimposition of small saccadic (staccato) movements into the fundamental cycles (Bloch, Lemeignan, and Aguilera).

8. A typical example of emotional induction by reproducing corresponding effector patterns was obtained with an actor from Spain who knew nothing about our work and who willingly agreed to participate in the experiment. The entire session was filmed, and what follows is an approximate transcription of what happened (the video document is in my possession). After some small talk to make the actor feel at ease and to adjust the filming conditions, I gave the following instructions: "Please begin to breathe in and out through your nose with rapid and regular deep breaths; keep your mouth closed and tense your lips and lower jaw ... Continue with this breathing and begin to contract your arms, shoulders, and legs, bringing your body slightly forwards ... Focus your eyes on a point in space, tensing the lids." After a couple of minutes of following these very technical instructions, the subject showed an unequivocal expression of anger, and the instruction to end the exercise was given. It took him about 20 seconds to recover a neutral expression. I then asked what had happened to him. "I felt something close to anger," he said. I asked whether he had an image, to which he immediately answered: "Oh yes, I had a very concrete image of anger from a scene I played a long time ago." A few minutes after this dialogue, I gave the following instructions: "Now please breathe through your nose in short 'staccato' in-breaths and breathe out through your open mouth as in a sigh ... Relax your body and try to have a sensation of weight pulling you downwards ... Keep your eyes semi-closed, without a fixation point, and bend your head slightly downwards ... Let the

breathing rhythm guide you." An expression of sadness slowly developed as the actor followed the instructions up to a point where he seemed to be on the verge of crying. The exercise was then stopped by instructing him to return to normal, regular breathing and to change his posture. This time it took him almost a minute to recover. To my questioning, he said that he had felt a deep sadness and had vividly evoked a very precise sad situation from his life, which he did not want to report. As we exchanged ideas later, he said that if I hadn't stopped the exercise, he would have cried "all the tears in this world!"

9. We think that this model, which results from the joint activation of different somatic systems, has the advantage of using precise, objective, and reproducible actions. Such a "bottom-up" procedure to induce emotional states is essentially different from the most commonly employed scientific techniques such as, for example, presenting visual material containing strong emotional valence (e.g. Wagner, Mac Donald, and Manstead) or instructing subjects to recall or imagine particular emotional events (e.g. Schwartz, Weinberger, and Singer). With these more classical procedures it is often difficult to determine what emotion is being evoked, whether it is pure or blended, and, if present, when it begins and ends.

10. The application of our findings is what I call "ALBA EMOTING" This name appeared in discussions with Pedro Sándor while we were together in Andalucía, Spain, making a film he directed about the research on emotional effector patterns. Shortly before, we had been using the technique in a production of Garcia Lorca's *The House of Bernarda Alba* with the Teater Klanen, a Danish theatre group led by Horacio Muñoz Orellana, with whom I had been working for many years. It occurred to us to link the name ALBA (which in Spanish has at least two meanings: "dawn" and "white") to the old English word "emoting" for the title of the film. (Bloch and Sándor). The technique was originally called the BOS method, the letters corresponding to the first letter of the co-authors' surnames: Bloch, Orthous, and Santibáñez. After my own work applying our findings, I renamed this casual denomination, which I found particularly unattractive.

11. I strongly recommend at this stage to do these exercises always in the presence of an expert teacher.

12. The dynamic evolution of the emotional reproduction was assessed in a separate study done in our laboratory. The test consisted in presenting ten-second mute video sequences of emotional patterns reproduced by trained actors. Observers unfamiliar with the ALBA process had to identify which of the six basic emotions was portrayed in the clip and to note from one to five the degree of certitude of their judgement. Results showed that recognition scores and degree of certainty were significantly better with clips corresponding to the more developed phase of pattern reproduction (Lemeignan et al.).

13. "If an actor wants to show, for example, despair or impotence, which area mixture of sadness, anger and fear, he/she can combine the breathing of sadness, the body tension of anger and part of the facial mimicry of fear. The training of such patterns leads directly to the work of character building and theatre performance. An entire construction of the troll's scene in Ibsen's *Peer Gynt* (act II, scene 6), a production directed by Horacio Muñoz in Denmark, was done with grotesque mixtures of this kind" (Bloch, Orthous and Santibáñez 16).

14. This kind of 'emotional partitura' is open to further experimentation. Its use, however, seems to be promising, as seen in workshops and in individual work with professional actors (e.g. the analysis of Frederik Schiller's *Mary Stuart* and Mario Vargas Llosa's *La Chunga*, with the Danish actress Anne Lise Gabold).

15. For over twenty years I have been experimentally applying the work with the emotional effector patterns to actors-both professionals and students-of many countries (Chile, Brazil, Denmark, Germany, Sweden, Spain, Switzerland, France, and the United States). The ALBAEmoting technique is now refined and ready for a wider diffusion as an alternative technique for the work of actors. Its advantages began to appear in the course of workshops, coaching during theatrical productions, individual work with professional actors preparing roles, discussions with theatre directors, etc. I will give a few examples.

Pedro Orthous, the deceased Chilean regisseur, used the emotional effector patterns in preparing and enacting Sophocles' *Antigone* in Santiago in 1972 (Bloch, Orthous, and Santibáñez 17). As already mentioned, Horacio Muñoz Orellana has applied the technique in several productions of the Danish Teater Klanen: "To put it simply, I have been working with professional actors and theatre students for over 12 years using the Bloch et al. system of the expression of emotions with great success" (Muñoz-Orellana 210). Etefvino Vásquez, director of the Teatro del Norte in Asturias, Spain, reports: "ALBA allows a much more rapid and secure access to the emotional world, without the need to be constantly subjected to the emotional memory. ... It is urgent to train people with the technique and to incorporate it to Theatre Schools so that in a few years it may become a daily instrument for actors" (Vásquez; my translation). Since 1988, Felix Rellstab, creator and Director of the Schauspiel Akademie Zurich in Switzerland has invited me to train both his students and professional actors; he has written in German about his experience with the technique (Rellstab).

16. I have often experienced-and this is documented in many video recordings-that actors, even professional ones, often think they are expressing a given emotion when in fact the output to the spectator is a different one. "When an actress puts herself in a sad situation, she gets the feeling and maybe has tears in her eyes. But her body, her face, her eyes, her voice do not transmit sadness but rather the tense effort to try to feel the emotion. She intends to show grief, but for the spectator it is not convincing" (Rellstab 116; my translation).

17. A young Danish actress once told me she had been giving a very successful performance in a play, portraying a depressive character. In order to get into the right mood for her evening performance, she started early in the morning to evoke sad situations from her personal experience. As the day went along, she got sadder and sadder, so that on stage she was in the right mood for her character and her performance was a success. As this went on for a fortnight, it started to get into her nerves. When she learned to use the ALBA technique, she could reproduce the pattern of sadness shortly before entering on stage. Her performance became more detached though equally convincing. I entirely subscribe to Sonia Moore's contention that "Emotional memory is a vital part of an actor's art. Stanislavski's early experiments in emotional memory, however, actually brought actors to the point of hysteria and affected their nervous systems. This stage of Stanislavski's work has been recognized in Russia as one of the most dangerous periods in the history of the Moscow Art Theatre" (Moore 4).

18. "The actor who is trained in this technique develops a strong individuality: there are not two people who express emotions in the same way because that would require two identical bodies. Nevertheless, the basic structure is objective and universal" (Muñoz-Orellana 211). Muñoz-Orellana lists eleven advantages of ALBA that he has observed, including "It protects the actor from using his own emotions and experiences on the stage ... thus protecting the mental balance of the "actor" and that "It gives the actor freedom to use any method or style"(211).

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