APPENDIX M: The study of a Design Process: Refinement of Perceived Form and Space

[Schlueb, Matthew Thomas. Independent Study: Thesis Research. p.2-34]

In the fall semester of 1993, an independent study (thesis research) was undertaken within the Industrial Design Department, School of Art and Design, Pratt Institute; under the direction of Martin Skalski, Deborah Gans, and William Fogler. The results of the study are recorded in the following document; expanding on the design process used to create the unified forms that were introduced into a site on the Pratt campus. This document consists of three sections: the original statement of proposed study, a description of the design process studied, and three examples of the 'form-space' studies.

SECTION I: STATEMENT OF PROPOSED STUDY: (original submission date: 93.7.1)

The perception of form is the creation of space; manipulated and adjusted by one's individual senses and memory.

In pursuing an independent study in the Industrial Design Department, I am interested in the physical and perceptual qualities of form and space in relation to the human senses and memory. During the study I will use the methodology and approach to teaching employed within this department. I feel the understanding of visual perception from an abstract and experiential viewpoint will strengthen my design abilities when brought back to an architectural perspective.

The goal of this study is to develop a design process; through study of the characteristics and operating devices that are intrinsic to any form, by isolating and adjusting three-dimensional qualities of form and space. The use of interactive criticism with my advisor on analysis models and sketches, will lead to the finalized production of a Model demonstrating the design process of formal and spatial relationships and their levels of responsibility each characteristic acquires and operates within.

SECTION II: THE DESIGN PROCESS:

The influences of activated space on the occupant, can be studied by the controlled continual refining sedimentation ('fine tuning') of relational forms perceived by its occupant.

In the study of architecture and the creation of space, there must be an understanding of the occupant and an assumption made of the function of space. The occupant's responses depend on the physical and psychological realms of its environment. The psychological necessities are subtle in character, requiring sensitive attention. The architectural function of space, is simply the adjustment of perceived form and space, in order to stimulate the relational and proxemic behaviors of the human body and mind. The structures of the relationship between the occupant and the architectural space are rooted in the characteristics and operating devices of the human condition. Human proxemic behavior is more than a conscious intellect, rather a combination of reason and reflex. A study of proxemic reflexes aside from

conceptualized reasoning will conclude in an understanding of the human condition, the architectural spatial condition, and the relational dialogue between the two. To become more sensitive to that dialogue, a bridging of the human condition and architectural condition is unavoidable. Space that has been designed with sensitivity to proxemic behavior (i.e., space reacting to human occupation and occupants reacting to the spatial form), will result in a space that accentuates the dialogue between the occupant and the occupied, creating a more sensitized and enveloping context.

In the early phases of the creation of form and space, the subconscious mind is used predominately, with judgment and adjustment sensitivity based on an internalized focus of intuition. Multiple 'influences' (design characteristics within a form) found within the modeled space are weighed and processed while relating all 'influences' simultaneously. Once these 'influences' fuse together into a relational understanding of the character and intensity of each 'influence', the context as a whole begins to solidify in the foreconscious mind. The later phase of the creation process, taking
place with a foreconscious awareness, is limited to adjusting one or two 'influences' at a time, in relation to the human figure within the modeled space. Foreconscious awareness of the direct and literal relationship under study, with the added subconscious intuition, enables the process of refinement of each 'influence' to the most effective position. This dialectic condition of the subconscious and foreconscious minds is exploited to benefit the creation process, through a method of each mind addressing its own strengths and relying on the other mind to handle any weakness.

The 'fine tuning' (adjustment and refinement) of an original form and group of forms in three-dimensional space, was accomplished with attention to surface and proximity, density and gravitation, scale and relationship, character and articulation. The earliest part of the study involved the analysis of a series of two-dimensional and three-dimensional spaces, with respect to their juxtaposition and enveloping (an 'activated' space enclosing its occupant) qualities. Next, was the selection of several typical spatial conditions on the Pratt campus to be studied with the introduction of articulated forms sensitized to soften and humanize the existing rigid and sterile threshold surfaces. Finally, the spatial conditions were narrowed to one, a transitional space: an entry hall, selected to focus the study at a deeper level of human circulation and proxemic behavioral patterns in context with the articulated forms.

The process began by identifying the primary 'gesture' (a form's 'influence' on a space) within the space,

which is then studied through a refinement of the space's form and threshold relationships. Once the primary 'gesture' is improved upon and unified (most effective refined adjustment), it is broken down into two or three secondary 'gestures' which when considered together make up the primary 'gesture' of the space. These secondary 'gestures' are refined in the same manner as the first and then placed back within the larger context, to study their new 'influences' and effects on the primary 'gesture' of the space. This process of breaking down 'gestures' into secondary 'gestures' to be studied at a reduced scale, then to be re-introduced within the larger context and studied at an additive scale, can be repeated indefinitely to a desired level of refinement in 'gesture'.

The study of each 'gesture' is accomplished through a 'comparative modeling' technique that focuses on one adjustment at a time, without changing the character of the larger context. The success of this 'comparative modeling' is dependent on an ability to recognize and qualify the implications of the single adjustment. In order to accomplish this, two identical models of the spatial context are used, placing the attention of study on the subtle difference between the two resulting from the adjustment. Once the two are compared with each other, one can be determined to be more effective at defining the desired character of the space, thereby creating an 'improved' condition. The development of an 'improved' condition aids in understanding the 'influences' and intensities resulting from each adjustment. An adjustment begins with a movement of a single form to the extreme thresholds within the character of the space and then focused to the most distinct and effective location, defining and punctuating the desired 'gesture'. After the 'gestures' are improved upon to their most effective spatial arrangement, the introduction of a human scale figure is used to locate and identify envelopment thresholds. This human figure is moved from place to place in small and subtle increments to measure the changes in the activated space (a defined envelope of space, implied by 'gestured' forms) and proxemic sensitivities; resulting in further adjustments and refinement of the 'gestures' in reaction to the human scale figure intervention. Through the use of the human figure, the perception of the thresholds and densities of the activated space can be sharpened, to complete the refinement process.

Professor Martin Skalski, from the Industrial Design Department, guided the design process used in the derivation and adjustment of the form and spatial intervention into the campus site. Professor Deborah Gans, from the Undergraduate Architecture Department, acted as a critic and intervened on behalf of the School of Architecture in this study. Professor William Fogler, from the School of Art and Design, was

consulted at several points during the design process for perceptual and critical insights.

SECTION III: 'FORM-SPACE' STUDIES:

Documented in this section are three examples of the form-space studies undertaken during the Independent Study. However, before they are outlined, there is a need to define some of the terminology used by the Industrial Design Department, for discussion and criticism of these studies.

FORM: A three-dimensional solid; with scale, surface, and identity. While most 'forms' in these studies are a single, physically-independent object, there are a few cases where multiple 'forms' are combined to produce a single object.

GESTURE: An accenting characteristic or focal point found within a 'form'; suggesting a movement, direction, or unique quality within that 'form'. The 'gesture' of a 'form' defines the influence a 'form' has on the related space. A 'gesture' does not refer to the traditional sense of the word: an anatomical movement; except in a metaphoric sense, as extended to an inanimate 'form': a projection of a 'form' onto a related space.

ACTIVATED SPACE: A type of space; with a threshold defined by one or more 'gestured forms'. Space becomes 'activated' when its thresholds are perceivable, due to the implications of the related 'gestured forms'. The perception of 'gestured forms' generally attracts or repels the occupant, however once perceived, the space has become 'activated'.

INACTIVE SPACE: A type of space; with no defining characteristics or related 'gestured forms' (the antithesis of 'activated space'). Space becomes 'inactive' when it doesn't have any self-defined thresholds and is only defined by the thresholds of other spaces.

ENVELOP: A characteristic of space; defining threshold, engagement, and enclosure. When a 'gestured form' defines an 'activated space' related to that 'form', the 'gestured form' will engage, enclose, and 'envelop' any object or human body found within that 'activated space'. 'Envelopment' establishes a proxemic relationship between the 'enveloping' form and space, to the 'enveloped' body or object within that space.

DETACH: A characteristic of space; defining isolation, exclusion, and independence (the antithesis of 'envelop'). A body or object becomes 'detached' when it is found outside all defined 'activated spaces' of 'gestured forms'. 'Detachment' results when there are no proxemic relationships existing between the 'detached' body or object and any 'enveloping' forms and spaces. A 'detached' body or object can only exist within 'inactive space'.

ORIGINAL CONDITION: A subconscious prototype; the first of a series. An initial physical condition, in 'gestured form(s)' and 'activated space(s)', responding to a set of initial impressions based on relational qualities.

IMPROVED CONDITION: A foreconscious derivation of an 'original condition'; arrived at through refining adjustments of the related characteristics between the 'gestured forms' and 'activated spaces'. The condition becomes an 'improvement' over the 'original condition' when it is more effective at defining a desired direction of development.

UNIFIED CONDITION: A finalized derivation of an 'improved condition'; arrived at through a sedimentation in refining adjustments of the related characteristics between the 'gestured forms' and 'activated spaces'. The condition becomes 'unified' when it has reached its most effective definition of a desired direction of development.

EXAMPLE I: ONE FORM ADJUSTMENT WITH TWO SPACES:

This form-space study was one of the introductory studies in the Independent Study, dealing with two gestured forms, adjustment of one of the two gestured forms, and two activated spaces. The primary gestured form, the larger curved vertical surface in the upper right corner of the contextual plane, defines the larger activated space. The secondary gestured form, the smaller curved vertical surface in the center of the contextual plane, defines the smaller activated space. (Fig. 5) The two activated spaces were

composed in relation to each other; the primary activated space is to be 'passive' in relation to the secondary activated space which is to be 'active'. Since both spaces are by definition 'activated spaces', the differentiation between the two is in their relative quantity and quality of 'activation' to each other. Because there is an overlap of spaces in the lower center of the contextual plane, the secondary activated space is perceived to be more 'activated' then the primary activated space, by relation more 'passive.' (Fig. 5)

The original condition, as described in the previous paragraph, establishes two well defined spaces both in front and behind the secondary gestured form. However, with closer study, it is realized that the two spaces are very closely balanced in their levels of 'activation' of space, once they are compared to the human scale figure placed within their respective spaces. (Fig. 1 and 2) The degree in envelopment of the human figures when placed within the spaces is very similar, resulting in a perception of two balanced 'activated' spaces. This condition needs adjustment, since the desired result as stated in the previous paragraph, was to offset the balance of these two spaces, making one more 'active' then the other. To accomplish this, the movement of the secondary gestured form from its original condition, backward and to the left on the contextual plane, enlarges the overlapping space in the lower center of the contextual plane. (Fig. 3 and 4) This movement of the secondary gestured form in the improved condition, transforms the perception of the secondary activated space by using the primary gestured form to aid in defining the perimeter dimension at the right of the contextual plane. (Fig. 6) Since the positioning of the secondary gestured form in the original condition did not allow as much influence of the primary gestured form in the perception of the secondary activated space (Fig. 5), the perceivable overlap between the two spaces was not as effective as in the improved condition. Once the adjustment was made to the secondary gestured form, the improved condition was studied to check the relative envelopment of the human scale figures in the two new spaces. (Fig. 7 and 8) The secondary activated space clearly dominates the improved condition, almost to the point of eliminating any sense of space in the primary activated space. This condition pushes the primary activated
space beyond 'passive' and into tight or claustrophobic. A tight or claustrophobic spatial context would suggest an entirely different proxemic vocabulary in relation to an 'active' and 'passive' vocabulary found in a more open and breathable spatial context. Because of this reason, this particular study was kept relatively simple by steering away from tight or claustrophobic spaces, and keeping the two spaces both in a open and breathable spatial context, to ease the comparison process.

As a result, there was a need to adjust the improved condition, to eliminate the tight or claustrophobic sense in the primary activated space. The movement of the secondary gestured form from the improved condition, forward and slightly to the right, to the refined unified condition resolved this problem. (Fig. 9 and 10) By opening up the primary activated space in the unified condition, it is transformed from a tight or claustrophobic space to a 'passive' space, in relation to the more 'active' space in the original condition. (Fig. 11 and 12) The adjustment of the secondary gestured form has reached a refinement point of sedimentation, a unified condition, bridging a relationship between the two activated spaces, with one becoming more 'active' and the other more 'passive'. The secondary gestured form in the unified condition, establishes a direct proxemic relationship with the lower right edge of the primary gestured form (Fig. 14); a relationship that does not exist in the original condition (Fig. 13) but exists with a much larger portion of the primary gestured form in the improved condition. (Fig. 6) By reducing the proxemic relationship down from the lower half of the primary gestured form in the improved condition (Fig. 6) to the edge of the primary gestured form in the unified condition (Fig. 14), the entire surface of the primary gestured form could now be dedicated solely to the primary activated space. (Fig. 9 and 10) In the unified condition, the primary gestured form's surface defines a 'passive' space, while the primary gestured form's edge, with the secondary gestured form, define an 'active' space. (Fig. 13 and 14)

The series of conditions: original, improved, and unified, were the result of many adjustments and subtle refinements between these three conditions. The study is clarified by presenting only the three most explicit examples of the primary intermediate points. It is important to point out that the three conditions found here, in relation to each other, are not a true reflection of the many and subtle adjustments studied, but were selected for documentation to facilitate the illustration of the design process under study.

EXAMPLE II: TWO FORM VARIATIONS WITH TWO LINE SEGMENTS:

This form-space study was one of the intermediate studies in the Independent Study, dealing with two gestured forms, adjustment of both of the gestured forms, and a three-dimensional activated space. The primary gestured form, the darker line segment in the front right of the contextual plane, defines the primary gesture of the activated space. The secondary gestured form, the lighter line segment in the top left of the contextual plane, defines the secondary gesture of the activated space. (Fig. 15) The two gestured forms (the two line segments), when combined create an activated space; to be enhanced by the composed relationship between the two gestures. The enhancement of the activated space, documented here, is a process of many variations and adjustments defining the desired character. The presentation of several of these variations and adjustments in the refinement of the activated space, provides an example of how the process evolved. It is important to point out that the conditions found here, are only a few intermediate steps in the refinement process, not the entire evolution or the resulting unified condition.

The original condition establishes a defined space between and around the two gestured line segments; the primary line segment horizontal and parallel to the contextual plane (wooden base), and the secondary

line segment at a diagonal (approximately thirty degrees off the contextual plane) and a skewed angle to the other line segment. (Fig. 15) The activated space is divided into two halves by the lower end of the secondary line segment, while the desired effect is for a single enhanced activated space. The first two variations to the original condition, take the character of the activated space in opposite directions, for comparison. The first variation involves the movement of the primary line segment in a small clockwise revolution. (Fig. 15
and 16) The second variation is a movement of the secondary line segment in a slight clockwise revolution. (Fig. 17 and 18) The first variation makes the division of the activated space much more defined and severe, with the focus of attention on the narrow gap between the end of the secondary line segment and the middle of the primary line segment. The second variation, in contrast to the first, opens that narrow gap to create a single activated space; with a subtle focus of attention on the twist in the space as it moves over the rear of the primary line segment, implied by the raised end of the secondary line segment as it cantilevers over the other line segment. After comparison of these two variations, the first variation is found to be an improvement off of the original condition, if the desired effect is to be the definition of the two divided spaces. However, the second variation is the preferred improvement, since the definition of a single activated space is desired for this study. Even though the character of the original condition is lost in the secondary variation, it is a necessity in order to accomplish the refinement of a single activated space. Therefore, the second variation is taken as the refinement of the original condition in the pursuit of the desired effect; and is now considered the improved condition (Fig. 18, 19, and 21), from which further adjustments are made.

The first two variations to the improved condition, take the character of the activated space in similar directions, for comparison. The first variation off of the improved condition, involves the slight rotation of the secondary line segment in a clockwise movement. (Fig. 19 and 20) By doing this, the space that twists over the rear of the primary line segment is enhanced, through the increased relationship between the rear primary line segment and the cantilevered end of the secondary line segment. In contrast to that variation, the second variation off of the improved condition involves the lowering of the secondary line segment closer to the contextual plane without any change in rotation or angle. (Fig. 21 and 22) This movement narrows the space between the two line segments, making a clearer relationship and enhancing the activated space. In the case of these two variations from the improved condition, both adjustments improve the activated space toward the desired effect, since they both maintain the initial character of the

improved condition. These variations are both useful, unlike the two variations from the original condition, in which only one was useful and the other had to be dropped. Therefore, since both of these new variations are useful, there is a desire to combine the improvement qualities from both into one single improvement.

The first variation from the improved condition, enhances the activated space through the additional twisting of the space between the two line segments. The second variation from the improved condition, enhances the activated space through the tightening of the space between the two line segments. The combination of the enhancements from both
variations into a 'new combined' improved condition will enable further refinements and adjustments from a single comparative condition. The combination of the first variation from the improved condition into the 'new combined' improved condition, is visible in the cantilevered twist of the secondary line segment. (Fig. 23 and 24) The combination of the second variation from the improved condition into the 'new combined' improved condition, is visible in the tighten distance between the two line segments. (Fig. 25 and 26) Therefore, both variations are taken as the refinements of the improved condition in the pursuit of the desired effect; and is now considered the 'new combined' improved condition (Fig. 24 and 26), from which further adjustments are made.

The series of conditions: original, improved, and 'new combined' improved, in addition to the variations of adjustments and refinements involved in the improvement process; were the result of many smaller and more subtle movements that were not documented here. The removal of these smaller and more subtle movements in the documentation process, was done to simplify and clarify the study, presenting just a sample of two different results (two variations in opposite directions of an original condition and two variations in similar directions of an improved condition) at an intermediate point within this particular study. Therefore, it is important to point out that the three conditions found here, in relation to each other, are not a true reflection of the subtlety in the adjustments studied, but were selected for documentation to facilitate the illustration of the design process under study.

EXAMPLE III: THREE FORM ADJUSTMENTS WITH THREE SPACES:

This form-space study was one of the advanced studies in the Independent Study, dealing with three gestured forms, adjustment of all three gestured forms, and three activated spaces. The primary gestured form, the longer, low curved rectangular surface in the upper right corner of the contextual plane, defines the primary activated space. The secondary gestured form, the taller, narrow curved rectangular surface in the upper left corner of the contextual plane, defines the secondary activated space. The dependent gestured form, the curved rectangular surface with one corner angled off in the lower right corner of the contextual plane, defines the dependent activated space. (Fig. 29) The three activated spaces were composed in relation to each other, to be enhanced by the adjustment and refinement in the proxemic

nature of the three gestured forms. The desired effect in this study is to maintain activated space in all three spaces, while attempting to balance the character and relationship among the spaces and gestured forms.

To begin this study, three independent original conditions were created to compare and select the best condition. The first original condition turned the dependent activated space inward to combine with the primary activated space, leaving a compression of space near the primary gestured form and an open expanse projected out from the secondary gestured form. (Fig. 27) The second original condition divided the three activated spaces equally in relation to the backdrop established by the primary gestured form, in the upper right corner of the contextual plane. (Fig. 28) The third original condition creates a serpentine spatial arrangement, where the three gestured forms organize themselves in a descending hierarchy of influence on their related activated spaces, while maintaining a balance of activated spaces. (Fig. 29) After examination of the three original conditions, a visual assessment was made on their spatial character and effectiveness to activate space. The first original condition was determined to be the least effective in character and activation. The second original condition was determined to be the most effective upon initial examination, however after further study and time-lapse sedimentation, it was found to have a larger temporary impact which fades over extended exposure and familiarity. The third original condition was determined to be the most effective after a study of extended duration, giving way to long term perceptual senses and memory. Therefore, for this study the third original condition was selected to continue a study of adjustment and refinement of the activated spaces; beginning with three variations of this original condition for improvement comparison.

The first variation from the original condition, was the shift of a balanced condition of the three spaces to a centralized dominance of the primary activated space defined by all three gestured forms, around the primary activated space's perimeter. (Fig. 29 and 30) To accomplish this shift, all three gestured forms were moved from the original condition; beginning with the primary gestured form, and a reactionary adjustment of the secondary and dependent gestured forms resulting from the primary gestured form's movement. The second variation from the original condition, kept the primary gestured form in the same location as the first variation; but moved the secondary form outward, opening up the dominate activated space. (Fig. 31 and 32) This resulted in a reactionary adjustment of the dependent gestured form, shifting the pointed end upward and reducing the dominate activated space. The third variation from the

original condition, rotated the primary and secondary gestured forms slightly to the right of the second variation, resulting in a centering of the dominate activated space. (Fig. 33 and 34) In reaction to this, the dependent gestured form shifted upward into the dominate activated space, creating more attention to the activated space in the lower left corner of the contextual plane. The three variations to the original condition developed as a series, each variation growing out of the previous variation. Because of this, each variation can be viewed as improvements of the earlier condition; while still maintaining the initial character of the original condition, for relational identity and comparative ability of the two conditions. Through this process, there is a noticeable transformation in the variations; the first variation as a large departure from the original condition (Fig. 29 and 30); the second variation (Fig. 32) transforming from the first variation (Fig. 30), while regressing back toward the original condition (Fig. 29); and the third variation (Fig. 34) transforming from the second variation (Fig. 32), while still approaching even closer to the original condition (Fig. 29). By the time the variation process is complete, the third variation nears so closely to the original condition, that the original condition can be viewed as a developed transformation of the third variation. (Fig. 33 and 34) The advantage to a series of variations such as this (in which an original condition is retained in the memory, as variations of a series are developed as extensions to each other), is to arrive at an improved condition (the third variation) of the original condition without directly comparing each adjustment and refinement to the foundational framework (the original condition). Therefore, indirectly, the third variation (Fig. 34) is found to be an improved condition of the original condition (Fig. 29), to be used for further adjustments and refinements.

From the improved condition (the third variation of the original condition), an improvement is made with the slight movement of the secondary and dependent gestured forms in a counter clockwise rotation; making the definition of the three activated spaces clearer and more dynamic. (Fig. 35 and 36) This adjustment is viewed as another

improved condition, establishing a new condition from which further adjustments and refinements can be made. The series of three variations can be seen as a transformation of character from an asymmetrically dominate activated space (in the center of the contextual plane) with an implied directionality of a left-sided density to a right-sided tapering (Fig. 30); to a symmetrically compressed centralized balance of two smaller activated spaces (Fig. 34), nearing the original condition (Fig. 29). However, with the latest improved condition (Fig. 36), the character can be seen to begin to split away from the symmetrically compressed centralized balance and regaining some of the first variation's asymmetrical directionality

(Fig. 30), while dividing the lower left corner activated space from the previously dominate central activated space. (Fig. 35 and 36) In short, the three variations made a move toward a single solidified character shifting to the right (echoing the original condition), while the recent improved condition maintains that development and is still able to break away a smaller independent activated space toward the lower left.

From the more recent improved condition (Fig. 36), several new variations develop making adjustments and refinements to the character's effectiveness in activating space. The first variation from the improved condition, involves the concentration of influence from the secondary and dependent gestured forms onto a single activated space in the lower left corner of the contextual plane. (Fig. 37 and 38) This results in the shift of the dominate activated space from the previous primary space to the lower left secondary and dependent space; thereby destroying the subtle distinguishing qualities of the initial character and eliminating any possibility of being considered as an improvement. The second variation from the improved condition, shifts the pointed end of the dependent gestured figure downward slightly; to make a subtle enlargement of the primary activated space, establishing a balance between the primary and secondary activated spaces. (Fig. 39 and 40) This movement enhances the character of the condition, however the secondary gestured form feels a little tight at the perimeter as a result of these two activated spaces creating more focused attention. Therefore, with the third variation of the improved condition, the secondary gestured form shifts outward from the two activated spaces, creating a much larger and open contextual plane defined by the three perimeter gestured forms. (Fig. 41 and 42) In doing this, the smaller activated space in the upper left corner of the contextual plane becomes minimized, and is in need of an enhanced definition to compete with the other two more dominate activated spaces. To accomplish that, the forth variation of the improved condition, pulls the primary gestured form to the left, reducing the primary activated space's dominance. This results in a reactionary counter clockwise rotation of the dependent gestured form, balancing the lower left activated space with the newly reduced primary activated space; reaching an equally shared enhancement and balancing point of the three gestured forms and three
activated spaces. (Fig. 43 and 44) The result of this forth variation is another (third) improved condition, from the previous (second) improved condition; drawing closer and closer to the desired unified condition.

The two series of conditions: the three variations from the original condition and the four variations from the improved condition, are given to illustrate the various approaches available in the adjustment and refinement of gestured forms and activated spaces. The three variations of the original condition serve to demonstrate the advantages of an indirect form of visual analysis and familial sedimentation. In contrast, the four variations of the improved condition serve to demonstrate the advantages of a more direct and continuous referral to a foundational framework (the improved condition), as a form of visual analysis and familial sedimentation. Intermediate adjustments and subtle refinements were removed to simplify and clarify the explanation of the design process under study. It is important to point out that the variations and improvements found here, in relation to each other, are not a true reflection of the subtlety in the adjustments studied, but were selected as only a partial documentation of the entire evolution or the resulting unified condition.