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ABSTRACT

During his postdoctoral fellowship year, Dr. Rand taught a course on psychology and the physical environment at the Columbia University School of Architecture, worked with the New York City Office of West-Midtown Planning, completed a conceptual design of urban housing, and obtained support for a 3-year study of the fellowship between housing design and the social life of residents of public housing in New York City. He also visited several urban planning laboratories, published articles in several architectural journals, and began writing a book, "The Social Meaning of Space," to be completed by 1971. Dr. Rand felt that the primary value of the fellowship year was that it demonstrated the feasibility of integrating study of psychology and architecture, and thus laid the groundwork for a new career orientation. (An appendix contains a reprint of an article by Dr. Rand. A second article referred to in the report is not included due to marginal legibility.) (RT)

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TEACHERS COLLEGE COLUMBIA UNIVERSITY

NEW YORK, NEW YORK 10027

July 27, 1970

Dr. George Carnett
U.S. Office of Education
NCERD
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Dr. Carnett:

Enclosed please find a brief summary report for my Post-Doctoral Fellowship year supported by the U.S. Office of Education, 1968-69.

I hope the form of the summary is acceptable to the office and will be pleased to expand on the contents, including additional documentation of efforts, should you feel it desirable or necessary.

Thank you.

Sincerely,

George Rand

George Rand, Ph.D.
Associate Professor of Psychology

GR:lh
encl.
cc: Prof. Donald Super

REPORT RECEIVED
AND APPROVED

Chief, Research Training Branch

Approved
8-10-70

OK. EJSC
Aug 5, 1970

SUMMARY REPORT U.S. OFFICE OF EDUCATION

POST-DOCTORAL FELLOWSHIP 1968-69

1. Introduction

The fellowship year proved to be a significant opportunity for me to make a radical change in career goals. It allowed me to become familiar with current architectural and urban planning practices, and with sufficient flexibility to modify or abandon the original objectives as my acquaintanceship with the field became established.

At the outset of the year, I was to have focused on the "environment of education" more than I did. As it turned out, it was more important to acquire fundamental knowledge of the architectural and planning professions before specializing in problems of design restricted to single applications. There is little doubt that my move into campus planning, educational park design, experimental school design, is imminent. This period has been devoted to establishing credibility within the building trades, and learning to convince policy planners of the relevance and cost-benefits of social-science concerns.

2. Specific objectives and tasks undertaken

The fellowship year was spent in a wide range of activities, all related to the interface of psychology and architecture.

a) The social meaning of space. For the first semester I taught a course at the School of Architecture, Columbia University (see attached for course outline) in which I had an opportunity to set forth germinal ideas about psychology and the physical environment. This course has now become a regular part of the architectural program at Columbia University. It deals with the origins of concepts of space and using the history of ideas, the

sociology of knowledge, and data on animal behavior as examples. Further an attempt was made to show the relevance of epistomological concerns for architecture by tracing the concept of space through trends in design from Egyptian to Greek through European history.

This course also provided the opportunity to begin writing a book, "The Social Meaning of Space," to be completed by 1971.

b) Published articles. The fellowship year made it possible to write and publish several articles pertinent to art and architecture. I have included off-prints articles, "What Psychology Asks of Urban Planning," published in the American Psychologist, and "Pre-Copernican Views of the City," published in Architectural Forum, September, 1969. Other articles written during the fellowship year have been accepted for publication in Artforum Magazine, and The Journal of Art Education.

c) City Planning Commission. During the fellowship year I attached myself to the Office of West-Midtown Planning. This office is directly under the Mayor and is responsible for creating a 10-20 year plan for the area in Manhattan bounded by 34-57 Streets, and the Hudson River and Seventh Avenue. I worked under Jacquelin Robertson, Project Director, for approximately three months, March-May, 1969. This experience included work on planning of commercial facilities for the area, the design of new housing including problems of relocation, work with community organizations, planning, siting, and design of educational facilities, design of transportation and parking. In short, it was a sampling of the full range of problems dealt with by urban planners in real urban setting.

d) Vertical Street. As a result of working with the City Planning Commission, I became especially intrigued by problems of design of high-rise, multiple occupancy dwellings. With Bernhard Leitner, a Viennese architect, I did a combined graphic and conceptual study of the design of new housing. Designs provide added facilities for spontaneous interaction of residents with one another without incurring extra building or maintenance costs. The concept underlying these designs was the "Vertical Street," or the equivalent of five story row-houses stacked on one another to conform to the needs of high-rise megastructures while providing an internal street-life. The design proposals were reviewed by the Chief of Design of New York City's Housing Development Administration, and funding is being sought to continue these studies until their ultimate implementation.

e) Defensible Space. The final months of the fellowship year were spent writing proposals for research support. In association with Professor Oscar Newman, Columbia University School of Architecture, I have recently obtained funds from the U.S. Department of Justice Law Enforcement and Assistance Administration to perform extensive studies on the relationship between housing-design and the social life of residents of public housing in New York City. This three-year grant also includes the opportunity to redesign existing housing projects in accordance with psychological knowledge concerning territoriality and privacy. Once these changes have been made to existing housing stock their effects will be assessed through objective measures of attitudinal and behavioral changes.

f) Visits to Urban Planning Laboratories. The fellowship year made it possible to visit Institutes and Universities around the country engaged in academic research on problems of architecture and urban design. This was a necessary part of establishing a new career pattern inasmuch as it allowed me to build a new web of professional associations and relationships.

3. Evaluation of Fellowship Program

The primary benefit of the fellowship program was in the freedom it provided from responsibilities for teaching and supervision of doctoral candidates. The original application I made for support was very general in stating its objectives. Consequently, the mandate of the fellowship year was interpreted loosely. Throughout the fellowship year I felt unlike my colleagues who were more obviously oriented toward specific service to the educational field. My own service to education will no doubt come in the future through the creation of new designs for educational facilities. My major reservation, however, is that I could not find an avenue during the fellowship year through which I could focus on educational environments.

The effectiveness of the fellowship, however, should be made evident. It gave me the opportunity to investigate a completely new field. It enabled me to obtain research support and funding. It made possible the development of new professional affiliations and working relationships outside of psychology. It substantially modified my career plan for the next 10 years by demonstrating the feasability and value of this form of interdisciplinary cooperation.

Dr. George Rand
Spring, 1970

PL 4184 y SOCIAL MEANING OF SPACE

I. Space, object, and object-localization.

Architectural conventions work to convey a sense of the structure of a building, a street or a city. All shape is the form of some content. Begin with the notion of (a) the dynamic nature of perception(aesthetic category of 'balance'), e.g., that all percepts involve the resolution of forces of attraction and repulsion; percepts are dependent on the total context of stimulation(e.g., relations between stimuli, relations between subject and stiumulus, relations between stimulus and framework in which it is apprehended). Then we can consider (b) the problem of shape, "the spatial aspect of appearance", and the Gestalt laws of perception (Pregnanz, simplicity, similarity, continuity, closure).

A. Law of Variance (illusions) and Invariance(constancies).

It is critical to drive home the point that these considerations apply at several levels of analysis(e.g., simple sensory experiences, e.g., Bexold-Brucke effect, elementary perceptual dynamics, e.g., (a) summation and inhibition, (b) assimilation and contrast, (c) simple configuration effects; and finally, more complex experiences, e.g., larger and more varied stimuli in the physical environment around us--architectural shapes, textures, surfaces, volumes, and gradients). I call it shape because we will reserve the notion of form for a shape which has been structured according to its own internal rules, has its own logic--it resists change in appearance despite transformation, e.g., changes in orientation, reduction or schematization, ornamentation, addition of irrelevancies, aspective or projective transformation, subdivision, expansion or contraction(topological transformations).

All these examples of "form" imply the ability to resist essential change in appearance through the function of representation, i.e., that the object has independent rules which one can perceive "as if" the experience of the object did not depend on the way in which we come upon it (e.g., upside down vs. right-side-up, approaching from the left or back vs. the right,or up,as in an airplane vs. as a dot on the ground under it).

This requires making a distinction between factors that enter into the process of making objects invariant despite transformations.

(1) Gestalt dynamics of relationship between parts that determine contours or "unit property" of an object or event(grouping, figure/ground, thing and medium, intervals and terminals). Resist certain transformations based on changes in context.

(2) Composition of a spatial or temporal framework within which objects are given an identity that can resist transformations of orientation,e.g., maintaining upright despite change in visual image on retina by coordination with an external framework; inversion, e.g., that objects have a top and a bottom of their own, i.e., their own internal gravitational organization and internal symmetries that are independent of its orientation with respect to the observer; projection or rotation, e.g., that shape is held constant despite transformations that change the retinal image, i.e., the aspect of an object which is perceived stands for the object in the fronto-parallel plane, and each experience of the object is not taken as a new totality. In other terms, we go experience the "distal" or "real" form, and not its "projective shape".(An aspect of this process is foreshortening, e.g., a line is seen as a volume and not a mere two-dimensional edge); finally, changes in distance or depth, e.g., that an object maintains its apparent size despite decrease in size of the retinal image, this occurs through depth cures, e.g., overlapping, gradients, textures, binocular disparity, visual accomodation; none-the-less it requires

explanation as to how units are composed as being separate and not combined, and how one takes"account" of depth.

B. Symbolism of Space, Light, Color, Form. We are deliberately leaving to another day the manner in which these features of objects are reacted to, perceived, or used as a vehicle of symbolization. And more, the problem of cultural or individual(personal) differences in the ways in which they are exploited. Later in the semester we will deal with the problem of social significance or meaning (shared symbol system)--how people use distance, composition of space, different types of enclosures or settings--as a vehicle through which interpersonal activity is regulated(approach and avoidance),or through which the personal life, history, and feeling-realm is built up, stratified and documented. For the moment, we are not concerned with the exploitation of space, light, color, volume, in the service of some personal, social, cultural, or religious goal. Rather, the transcendental or universal experience of space, and objects within that framework.

Ultimately, we are considering the space of scientific cognition. One should not conclude,however, that this is the necessary antecedent of other ways of knowing the world of space and objects. This point will become more clear(cf. Cassirer, Philosophy of Symbolic Forms) when we take the position that "mythical space" which is tied more directly to ritual and to social organization, e.g., in tribal society, involves a different mode of cognition--one that is more suited to analysis of social significance vs. functional or practical meaning . For example, when considering the problem of territoriality, it is possible to ask, on the one hand, how does an animal define its domain? How is the domain represented in its minds eye? How are the stimuli which evoke mating, courtship, maternal behavior, fighting, etc., represented for organism?

Alternatively, it is possible to be concerned with the underpinnings of human territoriality as a means of establishing and maintaining social equilibria within and between species. How does space (qua territory) represent to each individual the relationship between man and man. How does it operate in relation to the "ego", and how does it acquire and sustain the function of a "place," a "spiritual center," a "home," for man's restless soul. In other words, through what process do we "cathect" feelings on particular places? Why do some other spaces frequently or universally evoke certain universal human sentiments(e.g., a church).

II. Object Properties/Relations.

The first aspect of our study has to do with the object-properties, the concept of space as a fundamental category of human thought and human experience. The second has to do with object-relations, how space, movement, places and objects come to have personal, social, and cultural significance. Studies of the anthropology of perception frequently confuse or conflate these two aspects without preserving their independence as differnet components of a single overall achievement.

Thus, cross-cultural differences in perceptual or cognitive style often reflect only the end-product, and fail to show how the nature of the end-product is a consequence of the cultural context in which it occurs(e.g., mythic world-view) and the manner in which it relates to the fundamental spiritual structure of the society(example of intuitive solution of conservation problem vs. logical solution in African children). This is not the same as cultural relativism--i.e., that each behavior must be viewed in the context of a particular culture. Rather, it is cultural pluralism; that different symbolic forms (e.g., myth, science, art, history) may be used as a means of mapping the experience of different cultures(cf. Ernst Cassirer, An Essay on Man).

SOCIAL MEANING OF SPACE

I. Traditional Notions of Perception (see above)
Review of history of theories of perception and the concept of structure. Distinction between sensation, perception, thought. The constancy hypothesis--one to one relation between perception and sensation.
Arnheim, R., Art and Visual Perception.

II. Experience Conceived as an Active Construction of Reality
Subordination of perception to thought. Notion of partial isomorphisms, parallels. Illusion vs. reality. Principles of variance and invariance, conservation, reversibility. The primacy of considering categories, the intuitions of space, time, number, causality, as the framework within which objects come to be known.
Piaget, J., Child's Conception of Space. Chapters 1,2,8,13,14,15.
(Cassirer, Philosophy of Symbolic Forms. Vol. I.,pp. 198-215; II.,pp. 83-104, III, pp. 149-162, 242-248).

III. The Mythical World View (Space and Time)
Examination of data from psychopathology, primitive religious practice, child-lore. The sacred and the profane. Things of action. Equivalent stimuli.
Eliade, Sacred and Profane. Chaps. 1,2.
(Cassirer, Philosophy of Symbolic Forms. Vol. II., pp. 83-104).
(Bachelard, The Poetics of Space).

IV. The Image of the City
In the context of the foregoing lectures it will be interesting to attempt an evaluation of the types of environmental distinctions which prove critical. The values and disadvantages of the notion of imageability for human adaptation. Intellectual vs. emotional development. Psychological space and time and their meaning for urban design.
Lynch, Image of the City--including appendix.

V. Interaction Ritual
Proxemics, territoriality, use of space to convey, learn or symbolize social relations, social expectations. Space in the context of animal behavior(courtship, mating, nesting). Functions of housing. Socialization and spatial form.
Hall, The Hidden Dimension
Goffman, Behavior in Public Places. Chap. 9.

VI. Effects of Deprivation, Migration, Crowding, Overstimulation
Feral children, sensory deprivation studies, maternal deprivation. Curiousity, exploratory behavior.
(Schorr, Slums and Social Insecurity).

Social Meaning of Space

VII. Social and Moral Development
Basis of public-private dimension, competition and cooperation. The role of knowledge of society surveyed in a manner analogous to the way in which knowledge of the environment was viewed in earlier sessions:
a. social behavior organized by means of passively acquired knowledge (animal behavior--territory, mating--courtship--nesting--migration);
b. social behavior based on tacitly known rules of functioning(interaction ritual, social propriety);
c. conceptual knowledge of society as a human product, as an objective reality and man as a social product.

Boulding, K., The Image
Berger, P., & Luckmann, T., The Social Construction of Reality
Erikson, E., Childhood and Society
Piaget, J., The Moral Judgment of the Child
(Freud, S., Civilization and its Discontents).

VIII. Symbol Formation
Signs vs. symbols. The process of radical metamorphizing, representational activity. Use of non-verbal media to bring to the fore latent properties of vehicle and referent. How does one really get at latent presuppositions. Comments on the planning process, as an attempt to move away from convention and rule-of-thumb solutions.