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Planning and Other Scientific Pursuits

Richard Neutra

PROFESSIONS should profit from each other in an age increasingly troubled by the blinkers of specialization. Designers and renewers of cities, especially, must have curiosity and peer into many procedures.

The American Institute of Planners recognizes planning as both a science and an art, in need of advancement. Man has advanced since antiquity largely through two methods. The one is the team-work practice in conversation and dialectics, the stimulating exchange of opinions and ideas. The dialogue reported in Plato's Republic, the medieval scholastics, the discussions at planners', housers', and architects' conventions are attempts to "talk things out."

In contrast, observational curiosity is rather a silent pursuit and the second method. It was first applied by lonely individuals who watched things grow, age, and decay on the green earth. They followed with curiosity celestial bodies moving in the starry sky of night, and finally set up experimentation in the attic, the backyard, the laboratory. Here phenomena are observed upon pre-arrangement, with ever improved safe-guards against error. The city planner will hardly have his chance to become completely scientific in this sense.

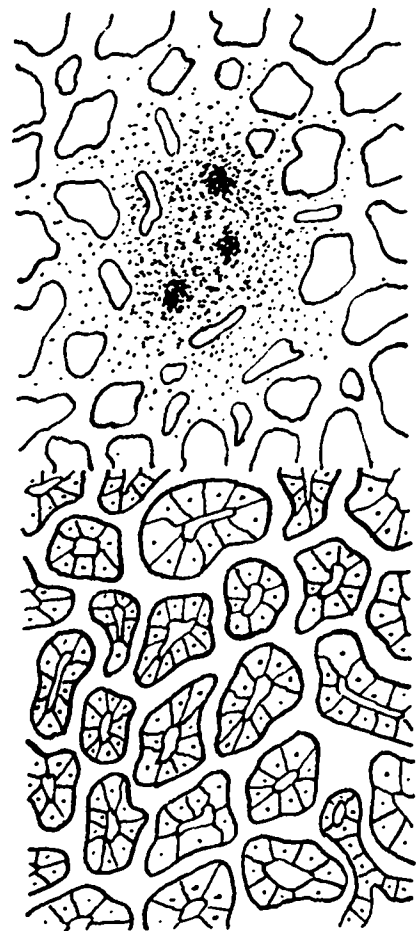
There is, in spite of mechanical artificialities galore, something organic about city growth, circulation, thrombosis, decay, degeneration. The writer has in a series of essays over many years gathered his wishful thinking that planning could profit from the biological sciences, which have, in the last two generations, had a progress every bit as stupendous as that of the physical sciences, which early sired a bumper crop of commercialized technology.

The younger science of physiology is not mechanical or geometrical. Especially, it can make no final conclusions from post mortems alone. A good part of its observation is bound and pledged to *a policy of not interrupting life-processes but watching them in flux and progress* just as the city planner is obliged to do.

Yet Samuel R. Detwiler of Columbia, the renowned physiologist, has expressed doubt that observation can be pure and inactive. He thinks that a little active meddling into life processes helps, when linked with observation, curious and capable to gauge what happens then, after this experimental meddling. Organic realism in design also as it applies to the living city can take a leaf from morphology and operative physiology.

We quote here from the above mentioned essays:

"Observational methods alone, without a bit of experimental interference with the observed processes,



are bound to remain more or less static,' said Samuel R. Detwiler, professor of anatomy at Columbia University, in his outstanding work on neuro-embryology. He maintained that this realization 'has gradually transported the embryo into the hands of those who are subjecting living embryos to such alterations . . . in environments as are pertinent to an analytical study of the dynamics of the developing organism.' Would it not, then, be interesting to proceed from here and experimentally alter also that 'post-natal' environment, i.e. the neighborhood, the community in which dwell the infant, the adolescent, and the never quite finished adult?" Human beings individually and in the group retain a certain plasticity of behavior all their lives.

"This physical environment, the neighborhood, the town itself, can be observed as an organism or the extended shell of one. According to Detwiler, always speaking of organisms, there are 'many lines of experimental study dealing with the nature of forces underlying the development of normal architecture in both central and peripheral systems.' Such study will be concerned with the much needed

'knowledge of the interacting morphogenetic agencies.' Well, these are heavy scientific terms — and "All this may seem rather doctrinaire to the practical planner who is forced to be a politician when he finds himself up to his ears in opportunistic 'spot-zoning' to please business interests here and there, or when he has to struggle against the superficial aestheticism of an amateurish lady or gentleman on the planning board. What can the statements quoted above mean to him?

"If properly grasped, they can be eye openers. It is indeed possible and fruitful to speak of 'morphogenetic agencies' in relation to the physical growth of a human community. We have here a splendidly pointed expression for *form-creating forces*. Science has, in many cases by means of objective observation, established *influences that determine the emergence* of forms, and thus a recognized scientific term signifies a known and fascinating phenomenon. In architecture, the idea is still rather muddled, that is to say, in the architecture of architects, not the 'architecture' of embryos and organisms in general of which anatomist Detwiler speaks, and which has been so meticulously investigated by men like him.

"Through studies upon regeneration, and, in recent years, by the methods of surgery on the embryo and penetrating explanation, many interesting and highly significant facts have been made clearer. From these assembled data have emerged various hypotheses regarding the role of agencies underlying normal architecture in the nervous system.' If the physiologist does so readily and repeatedly resort to architectural allusions, perhaps the planner may in turn cast his glance on natural prototypes and be well advised to profit from physiological terms. After all, physiology has precedence in studying the interrelations of forms and functions. But on another level, this is also the job of the planner as well as the architect. And so a physiologically minded planner may discover useful hints in terms as well as in certain practical methods of research developed by physiologists. Analogous ideas will indeed suggest themselves to him, while the possibilities inherent in such methods are not likely to come to the mind of one who still has some habitual tendency to speak and think of a city in static geometrical terms.

"For example, an anatomic-histological-physiological procedure has been developed to study and control flow patterns and dependencies of a conduc-

tive system, such as a system of nutritive distribution. This procedure consists of cutting that system once at this, once at that point. The observer then tabulates what happens. This is done while the system is actually functioning, in order to study its degeneration, its devious, interrupted, and abnormal operation under specifically selected conditions.

"The traffic system of a city might be similarly cut or blocked here and there for repeated short test durations as part of a well-planned act of research. This should give the planner a chance to observe the resulting difficulties (degeneration) as well as any undirected, spontaneous tendencies toward rerouting (regeneration).

"Or, to give another illustration: the method of 'staining' is quite commonly used for purposes of physiological observation, especially the staining of a flowing medium when the study concerns the pattern and speed of a living circulation. This method might be borrowed for telling experiments in the field of city planning. For instance, on a certain test day all trucking traffic entering a specified section of a city might be required to display flags of certain pre-arranged colors, which would designate points of departure or of destination. The measure would make possible a quantitative and qualitative source analysis of particular categories of heavy traffic and their characteristic in mingling with the rest, crowding it, or avoiding it."

We have come to allude to traffic and transport within an organism, where circulation intimately relates to body-wide and local transactions of substance and energy. This is only one of many examples. It is more fruitful to think in these terms of fluid continuous exchange also concerning a community and city body, than using static sheer geometrical concepts. Pulsating life must be watched. The life processes of a city are after all accumulations of individual human life processes. Human beings cannot continue to live beyond their biological purchasing power; but only if they go on to act without too grave a violation of healthy patterns of existence, can their cities thrive.

If on the one hand, physical planning is done by a mixed team of technical specialists, supplementing each other's approach — and if on the other hand design of communities is an art, there is also need of a large scientific advisory board. This might be beneficially chaired by an expert in applied biology.