

Chaos, Synchrony and Pedestrian Movement: Applied Science for the Street Photographer

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## INTRODUCTION

Street photography takes advantage of curiosities within the landscape of human interactions, reactions, triumphs and foibles. Street photographers are observers but also commentators who enjoy posing rhetorical questions for the viewers of their photographs. Street photography, while imminently intriguing, becomes even more exciting when one adds the knowledge of where those interesting moments are most likely to occur in the act of making photographs.

In this paper, I propose that street photographers, when armed with an understanding of scientific techniques for prediction of human movement with respect to a constructed or natural environment, can increase their success in creating photographs of high-quality unique moments.

Chaos Theory, in combination with traffic pattern analysis and human-decision making parameters, can be used as tools to increase the likelihood of witnessing high-quality unique moments which can be captured and translated photographically. A unique moment is defined for this paper, is a segment of time generally less than 1 second in duration, in which a spontaneous photogenic event occurs.

In pursuit of predictive efficacy, I have begun to explore the scientific aspects of street photography. Knowledge of Chaos Theory allows one to choose areas of potential human turbulence, synchrony, and convergent pedestrian flow, thus giving the photographer the opportunity to predict areas in which a large number of unique moments occur. One can use his intuition in conjunction with scientific understanding to better determine the constructed environments and human activities, which will result in a higher degree of photographically rewarding opportunities.

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In this paper, I suggest that there are Sweet Spots of pedestrian traffic patterns and constructed environments that will produce greater likelihoods of unique events occurring in one location within a short period of time. These are generally areas where pedestrian traffic flow factors have been overlooked in the design of constructed or repurposed public spaces. Since these Sweet Spots are generally areas of poor design, they become a predictor of traffic flow disruption in pedestrian commuting. If a street photographer can locate these areas of potential turbulent flow, then his success ratio with respect to the photography of unique events greatly increases, dependent on the photographer's skill at preparing for, creating, and capturing these moments.

Within these Sweet Spots, there are areas of high interaction and potential turbulence. The photographer, with the appropriate knowledge, can choose a position within or near these areas of high interaction either as observer or active participant. If the photographer is skilled enough to take advantage of these moments, the opportunity for creating powerful images is increased.

### INTRODUCTION TO CHAOS THEORY

Since this paper is designed to offer techniques usable to street photographers, I will discuss chaos theory only as it relates to synchrony, flow, and turbulence. It is worthy stating that full understanding of Chaos and Complexity theories can be a worthwhile endeavor since there are many more applications than will be discussed.

There are experiences in all of our lives that are affected by synchrony, flow disruption, turbulence, and chaos. We travel to work in a flow of pedestrians or cars. We live within the churning of the earth's atmosphere each day. We use rivers for recreation and energy

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production. Pedestrians, like the aforementioned examples, can as a group or as individuals, experience aspects of these same states of flow.

### *Introduction to flow and turbulence*

Imagine a pipe cut in half the long direction. When water is moving at a slow flow rate, there are few disruptions in the water. If a heavy stationary stone is cemented in the pipe, its surface disrupts the flow, but the water still easily moves past the stone. This is the process of flow disruption. If the water supply is increased slightly and the water begins to move faster, the rock will create a greater state of flow disruption, creating eddies of current but still in a semi-controlled rate of flow. If the tap is turned on full, the water will enter a state of unpredictable flow also known as chaotic action, or turbulence. In this state the water begins to churn unpredictably, possibly even flowing over the edges of the pipe. A code change, namely the water's rate of flow in relation to the rock within the boundaries of the pipe, has created a state of chaos. The code change occurs when the flow rate capacity of the pipe in conjunction with the rock exceeds a tipping point (Briggs and F. Peat), or threshold (Strogatz). These same types of flow can be observed in the pedestrian movements within the context of architectural restrictions, human movement, and human emotion.

### NATURE'S SYNCHRONY, SELF-REGULATION AND FLOW MAINTENANCE

Nature has an innate desire to synchronize. Place two or more metronomes proximate to each other, turn them on at separate times and eventually they will begin to synchronize (Strogatz 14). "For reasons we don't yet understand, the tendency to synchronize is one of the most pervasive drives in the universe, extending from atoms to animals, from people to planets.

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(Strogatz 14)” We as humans take great joy in synchronization (Strogatz 2). Music, dancing, coincidences, all provide us with a sense of satisfaction (Strogatz 2) that all is well in the universe.

The idea that flow self regulates through equilibrium (Strogatz 61-63) is a nice one. In Sync, Steven Strogatz gives the example of a glass filled with water. You can agitate it and moments later it returns to a state of equilibrium. “... equilibrium means nothing changes; stability means slight disturbances die out.(Strogatz 61)” It is the curious nature of Chaos Theory in the state of restoring order or creating chaos which I believe creates the interest in making photographs of synchronous and turbulent moments. Grand moments of turbulence, sometimes tragic, sometimes comical, are rare in comparison to flow moments. They speak to sentient qualities as human beings with choices about their behaviors. Synchronous moments are enjoyable since they remind us that we are all connected; even if we don’t always appreciate this fact, we secretly enjoy it

### *Engaging the Flow*

When one passes another person on the street without resistance, this is part of being in the flow. When one happens upon an old friend in an unusual place, this is part of engaging the flow. When one sees others experiencing turbulence in the flow and one is interested in capturing that turbulent flow with his camera, then he is also in the flow. When one arrives at a party late and all of the guests arrive late as well, then too, he is in the flow.

Recognizing the difference between flow and turbulence is crucial in the making of street photographs. If one masters this well, the possibilities are endless. One can engage the flow and enter it to create the proper timing to capture the moments of those resisting the flow, or others

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fully engaged in the flow. Since you reframe your thought processes to capture these unique moments, you create your own flow, the one in which you capture photogenic moments of others struggling against, or engaging the flow.

### CHAOS AND PHOTOGRAPHY

An easy way to make street photographs is to go where the people go. Wherever there are a lot of people, there will be a lot of photographic potential. People have the ability to create turbulence since they have the potential to second guess the natural flow and balance in nature. A person, for example, can be running late for work and start to make judgments and activity changes which are designed to make up for lost time. You will probably notice people like this tailgating in traffic, tapping their foot in lines or becoming impatient with others. This frenetic activity is an act of becoming turbulent within the natural flow of events. These actions are also precursor actions which can result in flow disruption on a larger scale. The true essence of what they create pushes the natural flow over the threshold and into chaos (Strogatz 263-268).

To better understand synchrony, one can complete a personal experiment. The next time you are, by unforeseeable circumstance, late to work or an appointment, take the following action. Instead of rushing to make up for lost time, continue your activities calmly as if you are on time. Often one's experience becomes timed perfectly with the circumstance to which we are attending. Those with whom we intended to meet become synced with our time frame. That which we were meant to accomplish can become synced as well, similar to fireflies blinking in unison (Strogatz 11-13). Other times these delay experiences are in effort to balance your time, say you made decisions which changed your time frame and put you ahead of time of the person whom you are to meet. If you engage the flow instead of pushing, chances are that you will sync

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up with the person you were supposed to meet, or provide them with the extra time they needed to prepare for your arrival.

In circumstances where one encounters excessive resistance seemingly without reason, then one must re-engage the flow to understand the resistance. If the resistance becomes more barrier than flow, for example missing an exit for a road you wanted to take in three successive attempts, then, one can assume that the destination is resistant or an impediment to your flow. While this sounds New Age fantastical, it can once again be thought of as a problem of classical physics, but in the realm of Chaos Theory. If one ignores this resistance to the natural flow and continues to push against it, it will push back with equal and opposite force.

### *Intuition in the prediction of high quality moments*

Engaging Carl Jung's ideas of synchronicity is possible as well. If one devotes his attention to his intuition, he can engage the flow of events such that they can prepare for the unseen event. Engaging the flow can be an element of allowing order to have preference over chaos. Stephen Wolfram, in his book *A New Kind of Science*, suggests that simplicity of action will allow the persistence of order in cellular automata (Wolfram). This can apply to the persistence of order over chaos, in the complex systems of human movement.

Creating moments of synchronicity is a matter of reframing one's mind, changing one's awareness (Dyer)(Chopra) to allow sync to occur. If one leaves to shoot images of the street, he frames his intentions to photograph moments of street life which match his intent (Dyer)(Chopra). The likelihood is increased by the pre-framing of his thought processes that his attention will be drawn to situations in which this intent will be fulfilled.

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In the alternate situation, if the photographer has many other things on his mind, his attention is scattered among these minutia, then his attention will be scattered and while the moments may appear, the chaotic status of his mind will result in missed or unseen opportunities in the synchronized world. There needs to be collusion between the sync in one's mind with his environment.

### FLOW FACTORS IN PEDESTRIAN MOVEMENTS

There are many factors to be addressed when determining pedestrian flow factors. Age-related gait, objectives in mobility can be defined as the reason one wishes to travel from one area to another and the influence factors on the speed of travel and encumbrance. (Willis A, K. Havard C, and Kukla R 805-828) While these factors are numerous, this paper will limit its address to choice point moments and converging movement vectors.

#### *Habit patterns in pedestrian movement*

Generally, people move along a fairly fixed traffic paths when traveling to an often visited destination. Routine can appear in the common activity of moving from one place to another, such as walking to ones workplace from the bus or parking garage, or traveling from ones workplace to a favorite lunch destination. While small adjustments in path are often necessary to avoid other people, one becomes accustomed to the common obstacles along his frequently traveled paths. One is also accustomed to the areas of his route that create flow disruptions and congestion.

A driving route from ones workplace is carefully created for this very reason based on the areas where one traditionally experiences flow resistance. Aspects of turbulence can be experienced when a car accident has changed the traditional traffic-flow patterns. This change in

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information creates turbulence. The rules have temporarily changed and as a unit in the flow, one can't be sure what actions to take since he doesn't have enough information about the change to make a proper flow prediction decision (Hughes 36:507-535). Since other units of the flow have similar judgment difficulties due to lack of information, decisions are made on the immediate flow circumstances, thus throwing the traffic system into an undulation of under-informed decisions. Car A notices that car B's lane is moving slight faster and thusly moves into car B's lane, only to find out that car B's lane is moving faster due to emptying of the lane into Car A's original lane. Depending on ones distance from the flow disruption, this undulation can be magnified as one would expect by the ideas of Chaos Theory.

### FLOW FACTORS IN CONSTRUCTED ENVIRONMENTS

Constructed environments control our movements. In general, when a building obstructs our path, we walk around it. If the only reasonable way across a wide river is a narrow sidewalk on a heavily trafficked bridge, we use it. These constructed environments in conjunction with our various mobility modes, are ripe for unique events at the intersections of humanity.

### AREAS OF ACCESS DEMOCRACY

We each have regular practice in our most common modes of mobility. As a walking person, one develops a proficiency level equal to his need and practice level equivalent to that as that of a professional. A person using a mobility-assist will also develop this professional advantage in their movement. When one drives an automobile daily, there is a proficiency level developed well.

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Areas of Access Democracy are spaces used by a diversity of individuals with varied skill levels in recreational activities. Lakes and parks act as areas of democracy since they are common areas for the mixing of many types of personalities, personal refinement, experimental recreation and mobility acumen. They are a mixture of uncontrolled path usage. For instance, the bicycle paths are used by bicyclists, runners, walkers, roller bladders and roller skiers. There is also a pet and child element which can enter into the fray. Pets have leashes which contribute to the entanglement of its owner and those within proximity of the leash.

Unlike walking, Areas of Access Democracy are often a combination of many levels of personal control in personal and vehicular operation. As an example, think of an iced-over lake. Many people are out on the ice with varying forms of recreation tools. Some are wearing snow boots, some ice skates, some parasailing, and so on. Each of these people share the uncontrolled ice space of the lake. They vary in levels of equipment use proficiency that range from the beginner to amateur to professional. A publicly accessible lake versus a professional skating arena has a higher likelihood of the democratic access of beginners with less potential for control, but at the same time a larger area in which to make mistakes.

The mid-level amateur offers the highest turbulence creation potential since they have the dangerous confidence of mild successes, the desire to improve at any cost, and unpolished motor control. Beginners, while there are always exceptions, tend to be more tentative in their approach to movement when using a new recreational vehicle, and thus much less prone to create catastrophic turbulence.

## MOMENTS IN PHOTOGRAPHY

With an understanding of fundamental sync, flow and chaos theories, we can now discuss moments in photography. A unique moment can be any camera capable moment which makes an interesting photograph. Generally for street photography of people, this moment is anywhere from 1/15<sup>th</sup> of a second to 1/1000<sup>th</sup> of a second, although the capabilities of cameras exceed these ranges. A unique moment is a slice of time defined by intrigue in the photographer's awareness in conjunction with the translation of that moment into a two-dimensional representation of that which he experienced; the photograph. These moments are defined by their subtlety or grandeur of action in a moment of time. A small moment can be a twisted facial expression in reaction to an event. A medium moment could be group of army officers running frantically in full parade regalia. A large moment could be the first few minutes of a hotel fire when a witness desperately calls 9-1-1 on his cellular phone.

### *Quality of Moment in Street Photography*

Moments in street photography have a number of different cumulative aspects that determine their quality. When an event happens and one is awestruck by the strange nature of that which unfolds, it is a high-quality moment. A recent experience was a prime example, and unfortunately a missed example. An inline skater came toward me on the sidewalk, visibly pleased with his speed and skill. As the distance between he and I closed, he had a look on his face of being on top of his game. It was an exceptional moment of triumph on his part, and a perfect opportunity for a photograph.

A high-quality moment can be created by the limitations of the camera in the transformation of three-dimensional subject into a two-dimensional representation on film. The

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convergence of two people, whose actual subject to subject distances are potentially foreshortened by the photographer's choice of a longer focal length lens as in Gary Stochl photograph of two men passing each other, one on bicycle while the other is walking (Stochl 15). In this photograph, one is forced to figure out the actual distance between the subjects. It is a tightly cropped photograph in which the men's faces appear to be within inches of each other, almost as if to kiss. Their limbs appear entangled; however upon study of the image there is an ambiguity as to what exactly transpired and whether their interpersonal distance is great or short. This is a prime example of an exceptional moment that only existed within the mind of the photographer. It, like all photographs, is an image that can't exist in the real world, only as a conversion and projection in two-dimensions.

### *Event recognition: Discovering the code change that will create a moment*

While synchrony plays a major role in determining where you are in relation to your yet unknown photographic subject, one can learn to recognize the pre-moments that can lead to an event. Unique moments often go unnoticed due to the pre-occupation with other thoughts while we are walking. If one reframes his attention (Chopra)(Dyer) to the immediately observable environment he might notice, for example, a person fumbling with his bottled water, groceries, and music player as a skateboarder approaches. If the environment in which these actions take place is a narrow corridor filled with potential obstacles, or if the skateboarder is performing tricks which remove his explicit control over his actions, chances are an event will occur.

PEDESTRIAN CONSERVATION OF MOVEMENT

Pedestrians exhibit a tendency to conserve the number of steps necessary to move from one destination or another. In other words, when possible, people will choose the shortest route to their destination while reducing resistance encountered during that trip. People will choose not to walk against traffic (Hughes 507-535), or through an overly crowded area, instead choosing a circuitous route to their destination if it results in a shorter timeframe and fewer steps (Bitgood and Dukes 38:394-405). These observations were all made from an overhead perspective, which the street photographer often can't use to his advantage.

If one is observing pedestrian activities at the same elevation as his subjects, conservation of movement (Bitgood and Dukes 38:394-405) has to be estimated by the architectural surroundings unless one is an exceptional judge of distance. If one sees his prospective subject walking along a wall, chances are, according to conservation of movement (Bitgood and Dukes 38:394-405), they will turn relative to the wall, or in the direction which closely follows the wall near which they are walking. When one sees someone entering space on the left side, against the flow, according to direction of travel, they will likely be making a turn in the opposite direction, crossing to right from the left due to conservation of movement and preference for following the flow of traffic (Bitgood and Dukes 38:394-405). At an intersection or Choice Point (Bitgood and Dukes 38:394-405) his position within the constructed space will indicate direction due to conservation of movement (Bitgood and Dukes 38:394-405). As a street photographer, one must become adept at triangulation to determine conservation of movement within his subject's destination choices.

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### PERSPECTIVE AND TIME DISTORTION BASED ON PHOTOGRAPHER'S GEOGRAPHY

When evaluating the landscape of pedestrians, one must take into account one's own perspective relative to the scene one is attempting to predict. If the photographer has the advantage of distance and a longer focal length telephoto lens, this perspective is less important since there is a compression of the subject's time relative to the distance from which one is making the photograph. Small camera movements on the part of the photographer translate into large swaths of land coverage for the subject, thus the expansion of reaction time for the photographer. The photographer has the advantage of a broader view from which to predict events, in essence, compressing time, and providing oneself the luxury of time. In street photography however, one is generally immersed in the same time reference activity area one is trying to predict, and frequently doesn't have this perspective advantage. As a street photographer, one has a time disadvantage due to proximity and in addition, a similar altitude relative to the subject. This time disadvantage needs to be accommodated by predictive observation. One of the benefits of using predictive observation in street photography is that these extraordinary moments become opportunities for photographs rather than gawking.

### PREDICTIVE OBSERVATION IN IMAGE FORMULATION

Predictive observation describes the necessity in street photography to observe and calculate when a unique moment is about to occur. This was an attempt to create an opportunity to ready the camera for the image moments before it happened. There is a sense of pattern recognition here—a realization that a moment is about to occur. While these patterns can assume a synchronicity or serendipity, they need to be assessed quickly and turned into a useable moment.

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Pattern recognition in street photography relies on the patterns one creates from his own movement memory (motor memory) and visual experiences (Loula et al 31:210-220). One uses this information in the assessment of other's actions to predict what will come next, as a progression of logical consequences of traditional actions. Pattern recognition of human behavior equates to the equivalent of chance (Loula et al 31:210-220) unless one is familiar with the person that is the subject of the photograph. (Loula et al 31:210-220) Knowing ones subject on a personal basis is rare in traditional street photography. As a boon to street photography, pattern recognition increases when unusual actions such as dancing or boxing are involved (Loula et al 31:210-220). While dancing and boxing are not common on the street, one could assume unusual activities would also translate to skateboarding or other frenetic non-ubiquitous movements.

### TURBULENT SWEET SPOT SELECTION

As pedestrians, we often don't associate turbulence with a Sweet Spot, however as a photographer, it promises to be a gold mine of images. A Sweet Spot is an area of poor architectural planning and design or a convergence of multiple traffic vectors into a central point of activity. Times Square in New York City would be an example of a very large Sweet Spot. In the terms of Chaos Theory, it would be called a fixed point attractor (Briggs and F. Peat 36). There are merging high volumes of traffic of varying speed, mass and maneuverability sporting converging variable travel vectors (Hughes 507-535). This would suggest the number of tourist and artist cameras one sees in use at any given time. This size of Sweet Spot is a haven for the street photographer since one can easily blend into the throng of camera-toting tourists. This is an area where the camera creates fewer ripples in the traffic patterns since it is smoothed out by

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contextual acceptance of photography by the magnitude of photographers, as discussed in the following section.

### *Context: Predisposition of the camera to the crowd.*

When a photographer is walking down the street with his camera in hand, it is an appendage with ambiguous purpose in the minds of nearby pedestrians. Thus when shooting images in the public arena, one might be assumed to be a journalist, artist, or an unknown. When photographing an event such as a wedding, the camera is given purpose in the mind of the observer. It is given validity for event recording, whether deserved or not.

Context also forms this same purpose. When one is, for instance, shooting images on a university campus, one can be assumed to be in an art class, or shooting for the school newspaper. There is a certain predisposition for the subjects to make these assumptions based on the place of activity, in this case photography. Photography, in contextually acceptable areas, will create less disruption since it is an expected activity for which the subject's judgment of the photographer is that of acceptance.

### *Interference objects*

Turbulence can be caused in a pedestrian's habitual travel path by an object which has been placed where it is unexpected, such as a fire hose connected to a fire hydrant or workers working in a manhole during rush hour in a volume-constricted sidewalk space. In intersections of activity, such as a fast runner approaching an impassible group of people, a unique moment is potentially on the event horizon. These are examples of visible and predictable sources of turbulence.

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### *Impermanent flow disruption*

Sidewalk buckling, restaurant clapper signs, outdoor dining areas, street vendors, construction areas, garbage cans, and pan handlers are all examples of turbulent accumulations of stagnant energy or shunts in flow patterns. The pan handler or a street preacher has the largest ability to become a point of extreme turbulence since they are sentient and interactive. If a photographer wants to increase his likelihood of getting some great shots, a place with more of these elements would provide the best Sweet Spot.

Each of these items can be ranked by its turbulence since some of them, by design are supposed to inhibit traffic flow. The restaurant clapper boards are an excellent example of this phenomenon since they are placed, often directly in the traffic flow, to advertise an establishment proximate to its locale. A panhandler might create a diverted flow by the number of people avoiding or interacting with them. A panhandler will request money, and a person stops to get his change thus creating another traffic flow impediment. A person traveling quickly who suddenly swerves to avoid a panhandler will further disrupt traffic flow, potentially throwing it into a state of chaos.

A manageable Sweet Spot for the seasoned street photographer would contain similar turbulence to that of Times Square, however on a smaller scale, and with a less recognizable backdrop. These areas are well known to every person on their daily commute since they have been conditioned to avoid these areas. Think of your first day driving or using mass transit to get to a new job. Chances are you encountered unexpected flow disruptions or possibly even turbulence. You might have even budgeted extra time to get to your new job in anticipation of traffic flow disruptions. You most likely exacerbated the disruption as a new participant in that

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flow location. You were a new unit entering a system that was unaccustomed to accommodating your presence. Since your journey to your new employment wants to settle into the flow with the least resistance, you most likely adjusted your route shortly after discovering more efficient pathways with smoother flow.

### SYNCHONOUS SWEET SPOTS – AREAS OF EQUILIBRIUM

If there are poorly designed and constructed environments that cater to turbulence, there are also spaces that are conducive to synchronous flow. Synchrony in flow is a much more difficult thing to image since overt synchronization is difficult to see from the perspective of the street. There is a ubiquity in synchronization in our world. Capturing it in an interesting photograph as such is elusive. While I have included one photograph of synchronization as an example, it is to date the only example that I have.

Constructed environments that cater to synchronous moments are those which direct traffic flow in to single streams of pedestrians, those which provide one wall of resistance to flow while another wall caters to ones interest in conservation of movement.

### SWEET SPOT EXAMPLES

#### *Intersections*

Intersections can be defined in many ways. An intersection can be the point at which two streets cross, or the point at which two sidewalks meet at the corner of a building. Intersections have one thing in common. They are a pedestrian decision point (Bitgood and Dukes 38:394-405) and an area of flow complexity, since pedestrians with individual purposes cross paths (Hughes 507-535).

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Intersections, in particular, uncontrolled, unmarked intersections, can provide excellent arenas for the street photographer. College campuses, for example are filled with intersections where pedestrians, bikers, runners, street-performers, roller-bladers and stationary pedestrians all intersect. In the case of a large university, there are even cars in the mix. While the laws try to address these intersections of mobility by, for instance, outlawing bicycle riding on campus sidewalks, or requiring motorists to stop for crosswalks, the number of offenders outstrips the ability to enforce such laws. This breakdown in the rule of law creates a number of interactions which can allow one to create interesting photographs just by the body-twisting avoidance tactics that can occur as these incompatible transit choices attempt to coexist. Many of the player's minds are elsewhere as they travel, which only adds to the potential for this arena.

### *Construction Areas*

Construction areas are unique in that they often provide flow constriction to a flow-established system. Where flow constriction is most noticeable is in areas where there are few if any alternatives to the constricted flow, or if there are barriers to overflow. Sidewalk construction is one such example. In a tightly built environment such as a city, a sidewalk flow barrier forces pedestrians to self organize into single file lines. These single file lines contain within them pressure variants based on the individuals in the flow who's cadence is attempting to influence the cadence of others. Chances are they are in a hurry or impatient. These individual pockets of pressure ensure turbulence on the release or entry point of the flow constriction. These release and entry points are excellent areas to make photographs.

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### *Areas with high population concentrations*

Cities are the main source of Sweet Spots, in particular, large cities such as New York, Paris, or London. Smaller organizational units within these populations such as street parties, state fairs, flea markets and demonstrations are all areas of synchrony and chaotic threshold point potentials. Within each of these areas one can find yet smaller iterations of Sweet Spots as discussed by Briggs and Peat in the Turbulent Mirror.

### *Areas of Tourism*

The intersection of tourists with native occupants can create interesting code changes. Imagine for instance the American tourist renting a car for first time use in England. This is an extreme example for illustration of a point, but there are many more subtle versions of this at the intersection of multiple culturally engrained pedestrian habits.

The Sweet Spot we choose will inevitably influence the activity at that spot, and the duration which one can linger on a sweet spot will depend the ones ability to be discreet, or the size and volume of people traversing ones selected area.

## PHOTOGRAPHER AS TURBULENCE CATALYST

As a photographer, one can inadvertently create turbulent flow. The very act of observation changes that which is observed (Greene). The act of observing people with the camera creates the same effect. One's very nature of being in the flow with others creates its own impact. As in the automobile traffic example, a change in the flow of a congested flow pattern creates turbulence in the system. If the flow is smooth and uninhibited by turbulence, just by the nature of stopping in the midst of flow to make an image, one can create disruption in

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the pedestrian traffic pattern. This flow disruption has a psychological component as well which will create smaller eddies of activity on your subject's faces. In terms of Stephen Wolfram's Cellular Automata, if a unit, or cell, within a system suddenly changes its rules of operation, it affects the system downstream of the flow in which it is operating.

### CONCLUSION

Turbulent and synchronistic Sweet Spots are abundant. Wherever there is a designed environment inhabited by people, there is potential for unique moment production, whether synchronous or chaotic. Photographer's can take advantage of these areas through the understanding of some basic ideas of pedestrian movement and the science of Chaos Theory. A photographer can choose spaces that have a high potential for turbulence or a high potential for synchrony. While synchrony is more elusive by its ubiquity, the proper choice of location can increase one's chances of making photographs that match his photographic vision.

In photography, like all skill disciplines, daily practice is essential to increase ones likelihood of achieving their intended results. Adding these simple tenants of Chaos Theory to ones daily practice will increase his effectiveness in attaining compelling images.

Pre-framing one's mind quickly to making street photographs of unique moments can lead to personal synchrony, allowing one to capture the moments other photographers find illusive.

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