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The Political Accomplishments of an Absurd Fear of Traffic
Some Notes on:
City Cycling
John Pucher & Ralph Buehler, eds.
The MIT Press, 2012

This is not a formal review of the subject book, but merely some notes on points that I consider significant, and on points directed at my work. I list page numbers as references, without indicating the particular author(s), except when it references my work.

I show the quoted material both by quotation marks and by italic font.

Emotional Well-Being, pgs 38-9. "*The flip side of the enjoyment of cycling is the psychological distress associated with the actual and perceived risks of cycling in traffic. ... List of references, mostly harassment ... These factors can contribute to what Horton refers to as the 'fear of cycling'.*" There's no recognition that practically all the factors feared have to do with the effect of same-direction motor traffic on persons afflicted with the cyclist-inferiority phobia, or that the conditions cease to trouble the cyclist once he learns to apply proper traffic skills.

Needs of Utilitarian Cyclist, pgs 76-7. "*Desire to wear 'normal' clothing*": Unrecognized is the limitation this places, in American climates, to short trips cycled very slowly. "*Frequent stops and starts*": Utilitarian trips typically involve more stops and starts than do recreational trips. So what? "*Priority of being able to see and be seen*": Author claims that utilitarian trips present greater need for traffic awareness than do recreational trips. While a recreational trip may have fewer interactions with traffic than a utilitarian trip, when such interactions occur they require exercising the same skills. And those skills the cyclist carries around in his mind for both types of trip.

"*Priority of reliability*": Author claims that utili-

tarian cycling requires greater reliability than does recreational cycling. However, when trouble is encountered on a utilitarian trip, the distances are short and help is available nearby, while the recreational cyclist may be a hundred miles from useful help.

Cycling Safety, pgs 141-156. Argues that motor traffic is the greatest danger to cyclists. "*Hence, the most important issue in bicycle safety is that the danger posed by motorized traffic discourages cycling.*" This is the argument that the benefits of cycling are so large and important that it is more important to get more cyclists operating than it is to have them cycling safely. I regard this as the deceitful and immoral ends-justify-the-means policy.

"*Cyclist safety is largely an artifact of traffic safety and to a large extent out of the control of cyclists themselves.*" This expresses the incompetent helplessness aspect of the cyclist-inferiority phobia. It has no recognition of the extent to which cyclists can control their own safety. On the contrary, cyclists with traffic skills understand how traffic operates. This enables them to operate with the fewest conflicting movements while also being able to rapidly detect and avoid errors made by others.

The above are just notes of some points that I consider significant.

However, chapter 6 compares North European with American history and practices, with particular emphasis on what its author, Peter G. Furth, considers my activities adverse to American cycling.

Chapter 6: Bicycling Infrastructure for Mass Cycling: A Transatlantic Comparison, by Peter G. Furth, pgs 105-139.

"The imperative of separating cyclists from fast and heavy motor traffic seems obvious in light of their vulnerability and their large speed and mass differential from motor traffic. ... Separating people from danger is a fundamental principle of industrial safety." Pg 107. Therefore, the first task should have been to see where failure of separation caused the most car-bike collisions. For American traffic the data collected by Ken Cross showed this, and analysis of Cross's data showed as early as 1980 that about 95% of car-bike collisions involved crossing or turning movements by either or both parties, while only 5% involved straight-ahead cyclists and straight-ahead motorists. Yet Furth has chosen to emphasize the least danger, that from same-direction motor traffic, while largely ignoring the much greater danger from crossing and turning movements. In short, Furth is an incompetent engineer.

The reason for Furth's incompetence is next revealed. *"Bicycling can make important contributions to societal goals ... However, meaningful progress toward any of these goals can be achieved only by mass cycling,"* which he then postulates, but in different words, as only producible by separation from same-direction motor traffic. This is the same deceitfully immoral ends-justify-the-means argument. As long as the general public suffers from the cyclist inferiority phobia, mass cycling requires catering to that phobia. Since the phobia creates beliefs that are contrary to the traffic facts of cyclist safety, it appears that mass cycling has to be done without regard to cyclist safety.

"For example, on San Diego's Camino del Norte, a 55 mph divided highway, bike lane users are expected to weave across one lane of 55 mph traffic and then ride 900 feet in a bike lane sandwiched between four lanes of traffic on the left and two lanes on the right." This is a well designed divided highway without access to the adjacent land. Its intersections are properly designed according to the destination positioning principle that vehicular cyclists also follow. The lane sequence from the curb inward is: two right-turn-only lanes, the bike lane, three or four straight-through lanes, one or two left-turn-only lanes, with plenty of longwise distance for traffic to sort itself out without hurry. The cyclist has a lane of traffic to his right that is safe because it will turn away from him. Beyond that is another lane of traffic

that will turn away from both of the other lanes. To the cyclist's left is a lane of straight-through traffic, considerably safer than such lanes usually are because it will go straight rather than having members that turn across the cyclist's path. That lane of traffic protects the cyclist from other lanes of straight-through traffic, and beyond that are one or two lanes of traffic that will turn left, away from all of them. With only one lane of traffic to be even mildly concerned about, the cyclist should be in no greater danger than when cycling on a smaller road that is not as well designed. Yet Furth argues that all of these lanes of same-direction motor traffic spread fear as if it were poison gas.

Furth states: *"The AASHTO Guide implicitly justifies its lack of criteria for separation by asserting a dichotomy between users who care more about speed and users who care more about separation from traffic. The Dutch do not see these differences as presenting a conflict; they require that bicycle facilities offer both a high level of separation from traffic stress and a direct route with as few stops as possible."* (pg 112) First, delays: the safety signaling system on Dutch sidepaths, involving more signal phases, requires both more stops and longer stops than would cycling on the roadway. Second, speed: any of the propaganda photographs showing the great use of Dutch sidepaths demonstrates the impossibility of achieving normal road speed through the traffic on those facilities. Furth fails to understand the obvious, that Dutch cyclists are satisfied with their operation because it is faster than walking while American cyclists have to compete for transportational utility against the speed of cars. Most American urban areas fit the automotive pattern, and most American patterns of living developed to suit motoring. The American transportational cyclist finds that a great hindrance is the extra time required for trips, so he is interested in the speed of traveling.

Vehicular Cycling Theory and Opposition to Bikeways, pgs 114-119. Furth criticizes VC for *"assert[ing] a dichotomy between 'objective safety' (crash risk) and 'perceived safety'"*, this latter being the feeling of safety produced by being separated from same-direction motor traffic. This is another example of the deceitful and immoral policy that the ends-justify-the-means. VC is based on the standard safety program of avoiding the most important types of car-bike collision as shown by the most statistically robust study of car-bike collisions, Ken Cross's, as analyzed by me in greater detail. The "perceived safety" is nothing

more than the feelings felt by the general public afflicted with the cyclist-inferiority phobia. Since those feelings conflict with the statistical data, catering to them produces a policy that quantity is more important than safety.

Furth himself (and other authors in this book) don't like using "perceived safety"; their preferred term is the seemingly more objective "low-stress". Bikeway types "*can be applied to create low-stress bike routes*". "[P]aths appeal to the dual user needs of separation from traffic stress ..." "[M]ake bike lanes more stressful to ride ..." Studies "*found that marking bike lanes had a strong positive effect on cyclists' perceived safety ...*" "*Bike Lane Criteria for Low-Stress Cycling*." "*lines alone can be sufficient to create a low-stress bicycling environment*." "*low-stress bike lanes should satisfy criteria related to right-turn conflicts ...*" "[This is false.] "*For a pocket bike lane to qualify as low stress ...*" "*Bicycling infrastructure in many parts of Europe has been successful in achieving mass cycling because it respects the fundamental human need to be separated from traffic stress*." Furth does not offer a way to correlate stress and causes, but the only stress that he discusses is that associated with nearby same-direction motor traffic. That is, Furth's stress is the feelings of guilt, fear, and helplessness created by same-direction motor traffic in the minds of those afflicted with the cyclist-inferiority phobia.

In summary, Furth criticizes VC for making cycling safer by relying on actual crash statistics while arguing that the European systems succeeded by making cyclists feel safe instead.

Furth provides only a very cursory and inaccurate description of vehicular cycling. "*According to VC theory, when approaching any intersection, it's safer to ride where motor vehicles ride, because that's where motorists are going to look. Their reasoning contains an element of truth -- intersection safety undoubtedly depends on visibility and driver expectations.*" Destination positioning is one part of VC, but Furth does not understand even that part. Intersections are laid out so that users have time and distance to avoid hurried and dangerous swerves across the paths of other users. The destination positioning part of VC is simply a reminder, to those well-informed, or an instruction, to those ill-informed, of the advisability of following the patterns laid out for intersection use. Furth's cursory description demonstrates his traffic-engineering incompetence.

VC is founded on standard traffic-engineer-

ing principles and the car-bike collision statistics that demonstrate that these principles also apply to cyclists. Furth acts entirely ignorant of traffic-engineering principles and criticizes VC for "*ignor[ing] the massive evidence of the European experience, and the engineering solutions developed to improve intersection safety for cyclists.*" VC thinkers are right to ignore those European "solutions" because those are merely attempts to correct the dangers created by the cyclist-inferiority separation designs that contradict the rules of the road for drivers of vehicles. No separation, no need for corrective safety features.

Furthermore, American cyclists have never seen improvements such as those made in parts of Europe, and we doubt whether our traffic system and society would allow them to work as they do in those parts of Europe. The attempts that we have seen to apply European separation facilities to American traffic have generally worked badly.

Furth claims that "*Vehicular cycling theory is preoccupied with a collision type called the 'right hook', which occurs when a through-going cyclist conflicts with a right turning motorist*". It is no wonder that Furth thinks we VCs are preoccupied with this. We accuse Furth and his ilk (both motorists and bike planners) for creating the facilities that encourage and the laws that force cyclists into this type of collision. Those who create dangers should expect to be criticized for it. But expect Furth to accept that criticism? Not on your life; he gloats in his achievement.

Furth criticizes Forester for teaching that facilities for overtaking on the right "*are also part of the 'cyclist inferiority superstition'*". Yes indeed. The cyclist who feels inferior to same-direction motor traffic, which is the emotional stress to which Furth so often refers, stays far right away from same-direction motor traffic and gets smashed in a right hook collision. In contrast, the cyclist who feels equal to other drivers will either stay in line or, if conditions are suitable, will overtake on the left-hand side of the vehicle that may turn right. In summary, the cyclist emotional stress on which Furth bases his system (otherwise properly named the cyclist-inferiority phobia) is the cause of a large proportion of car-bike collisions. The best corrective is to unlearn that phobia by learning vehicular cycling.

Furth claims a bit much for Forester's influence. "*In many cases, bicycle planners hired by state and local government have been VC adherents who used their influence to prevent rather than promote bikeways.*" Furth cites only Dallas

TX and Boston MA as these “many”. While I know of no others, I also know of many cities whose bicycle policies are controlled by bike planners of Furth’s type. It appears that Furth’s exaggeration is merely his attempt to rouse up the opposition to VC.

Furth’s history of my involvement in the first California bikeway program is completely erroneous. *“Responding to demand for bicycling facilities, California produced a bikeway planning guide”* ...This statement combines strict truth with a complete lie, the nastiest form of mendacity. Several historical facts demonstrate that Furth lies. The membership of the committee established by the legislature to change the traffic laws for cyclists consisted of 8 motoring representatives and one solitary cyclist, me (who discovered the existence of the committee from a short newspaper announcement of a meeting). The committee’s actions, which included hiding the bikeway planning guide from the cyclist, pushed only restrictions on cyclists. California’s cycling community knew nothing of these actions until I created a newsletter for circulation around California. The public demand for bikeways did not appear until after the bikeway program was published. The whole operation was conceived and operated by motordom to try to get cyclists out of motorists’ way, all for the convenience of motorists. This has all been published for years.

Referring to California’s first Bikeway Planning Criteria and Guidelines, Furth states *“Forester, then active in bicycle racing clubs, saw such bikeways as a threat to cyclists’ right to ride in the road and a hindrance to fast cyclists and by advancing his VC theory.”* False. The operation of the California Statewide Bicycle Committee, of which Forester was the sole permitted cyclist, forced Forester to conclude that the Committee’s sole task was to work out laws to restrict cyclists’ use of the roads. Only then did he seek, and discover, the bikeway design document on which the Committee’s operation was based.

Forester had, before the start of this committee’s operation, already formalized the principle that cyclists fare best when they obey the rules of the road for drivers of vehicles. At that time, the effort to restrict cyclist’s right to use the roads had nothing to do with cyclists’ speed. All cyclists were equally denied, and Furth’s introduction of the speed issue simply demonstrates his (and other bike planners’) devotion to slow speed mass cycling.

Furth further lies in claiming that: *“At the*

time, Forester’s theory had no empirical support.”

Just another example of Furth’s mendacity. Before the California State operation had started, Forester had been caught up in the sidepath operation started by the City of Palo Alto, and been prosecuted for continuing to obey the rules of the road for drivers of vehicles. Forester had worked out, documented, and tested why it was better and safer to obey the rules of the road for drivers of vehicles than to obey Palo Alto’s sidepath ordinance.

Furth supports his argument by criticizing several studies involving cycling on facilities described only as paths, but also by using the Wachtel and Lewiston study of cycling on the Palo Alto sidepaths. Furth asserts, on the basis of biased analysis by bikeway advocates, that cycling on the Palo Alto sidepaths was no more dangerous than cycling on the roadway. But he ignores the fact that Forester, goaded into performing a full-speed test of his analysis, did so on those same paths. Forester judged that his understanding of the traffic dangers combined with his bike handling skills would allow him to operate along his normal commuting street at his normal morning time and normal commuting speed. These enabled him to survive a series of situations in which almost any other cyclist would have been in a collision, averaging 0.7 miles between such events. However, when in a further situation only dumb luck prevented him being involved in a head-on collision with a car at arterial speed, he decided that this test was far too dangerous. Bikeway advocates derided the test as riding too fast for conditions, which is an admission against interest (in the legal terminology) that these bikeways are dangerous at normal road speed. Furthermore, it is noteworthy that none of them, not Peter Furth, not Andy Clarke, not Mia Birk, has ever dared to repeat the test in order to dispute its conclusion.

That is, cycling at normal road speed using normal city streets fitted with sidepaths incurs great hazard from many types of car-bike collision. Such cycling can be made safer only by special facilities designed to counter each of these hazards, which involves slowing cyclists’ speed and creates additional delays.

Furth calls himself an engineer. When your prototype testing demonstrates great dangers, you don’t call for full production of that design, but stop and try to work out designs that would prevent the dangers. There’s no evidence that that rather simple thought ever crossed Furth’s mind.

Furth's claim that VC "*had no empirical support*", combined with his claim for "*the massive evidence of the European experience*", demonstrates his peculiarly limited view of scientific evidence. Furth praises the massive European experience. That's all very well, but that evidence is so agglomerated that it is impossible to tell which parts do good and which do bad, making it effectively useless. Furthermore, because that European experience has been accumulated in a system that violates the principles of traffic engineering, Furth is forced to ignore such systematic evidence. VC, on the other hand, is based on the principles of traffic engineering and the American statistics of car-bike collisions which show that those principles also apply to cycling traffic. VC is also based on a much smaller data base than that of the European experience. In short, Furth, an engineer, excludes engineering analysis, prototype experiments, directly relevant statistics, and successful small-scale experience from his consideration of relevant evidence, discarding these in favor of a mass of statistics so agglomerated as to be useless in improving design.

Furth praises the Montreal sidepath study by Lusk et al, of which he is second author. That study compares car-bike collision rates between streets with sidepaths and streets without, claiming that side paths reduce car-bike collisions. Apparently unknown to Furth, that study has been completely demolished by on-location independent investigation by Pein, Allen, and Kary, demonstrating that the supposedly similar streets are not at all similar, plus some other errors. This situation demonstrates the errors produced when ideological public health epidemiologists, such as the lead author Lusk, and incompetent ideological engineers, such as the second author Furth, get involved in traffic engineering problems for which they have no expertise.

Furth thinks he has trapped Forester by referring to Forester's argument that the Dutch system is inconvenient for cyclists. "*What Forester does not explain is why, if the measures used to make Dutch bikeways safe are so inconvenient, why do so many people use them?*" This subject has been covered time after time, and Furth should know this. The answers range from the rather easy one of "It's faster than walking" to descriptions of urban patterns (medieval versus automotive), historic patterns of living, societal views of motoring, the difficulty of Dutch motoring, etc. In short, bicycle transport on Dutch bikeways, despite being slower than cycling on American

streets according to the rules of the road for drivers of vehicles, suits the pattern of Dutch life that developed when those cities were walking cities.

Forester asked that question, and supplied answers, contrary to Furth's implication, precisely to illuminate the differences between Dutch and American cities and societies. The issue, for American cyclists, is the extent to which the installation of Dutch-style bikeways would produce the Dutch results in America. Nobody knows the answer, but there are many reasons to believe that it would not do so.

Furth closes his discussion of my work with "*Forester credits his movement for keeping European-style separation out of the United States:*" He supports this by quoting one paragraph taken from one of many of my accounts of this history.

My account may be biased, but Furth's use of it demonstrates that he has read that particular paragraph. The first two sentences that Furth quotes from my work should have informed him of the truth. "When bicycle traffic increased in the 1960s, motorists worried that 'their roads' would be plugged up by bicycles. The motor-minded California legislature attempted (1970-2) to bring in the Dutch-style sidepath system to get cyclists off the roads." Furth neither challenges the accuracy of my account nor does he accept it. He acts as if he thought this so unbelievable that it passed through his mind without leaving a trace. Either that or his ideology forced him to lie about it.

The laws to enforce the proposed bikeway program needed to be worked out. To work out the laws, the legislature established a committee of eight representatives of motoring organizations, to which one cyclist might be added. I read a short newspaper announcement of the second meeting of a committee to revise traffic laws for cyclists. I attended, offered to be the cyclist representative on the grounds that I believed cyclists should obey the laws, and was accepted. I meant cyclists should obey the rules of the road for drivers of vehicles, while I suspect that the other members thought I meant that cyclists should obey any laws they thought up.

As the work of the committee proceeded, it became apparent that its only purpose was to restrict cyclists, as much as legally possible, to the edge of the roadway or off the roadway where sidepaths were built. The other committee members never informed me of the existence of the bikeway design document that their laws were supposed to implement. I finally discovered that through my own searching of documents.

The motorists kept insisting that the safety of cyclists demanded that they stay close to the edge of the roadway. The motorists had no evidence from any source to support their argument. However, I and the cyclists I was associated with knew perfectly well from our own experiences that this was false. The motorists replied that they were not worried about those whom they mendaciously called “professional cyclists”, but about all the other cyclists, particularly children, who were not able to obey the rules of the road for drivers of vehicles.

Then, when the first Cross study of car-bike collision statistics, commissioned by the motorists, completely disproved their argument, they refused to follow the facts. Instead, they suppressed the report and persisted in the effort to restrict cyclists’ right to use the roadways, completely contrary to the evidence.

Furthermore, they refused to consider means of improving the safety of cyclists, and the sidepath designs they offered were without the safety features so loved by Furth. The only time when cyclist safety was considered was when I demonstrated that some design, typically their sidepaths, was so dangerous that a court would invalidate the law. That consideration persuaded them to withdraw that particular design feature, including sidepaths.

There is nothing new in this; it has all been published before. And yet, Furth criticizes me for leading the opposition to this anti-cyclist motorist-favoring program. American cyclists, presumably including Furth and Pucher, ought to be thankful that I was there to discover and resist motorists’ plot to kick cyclists off the roads.

Furth further observes: “*Undoubtedly, a reason for AASHTO’s embrace of VC principles is that they don’t call for any money or roadway space devoted to bicycling. VC demands are music to their ears.*” The claim that AASHTO embraces VC principles is completely absurd. Furth is correct that the AASHTO Guide is descended from the work of the two committees in California (one for laws, as recounted in the previous paragraph, and the second for bikeway design once California’s initial designs had been rejected, as Furth states). I served with both committees, but always, as recounted above, as a small minority voting against the actions of the motorists who were in complete power.

The aim of both of these committees was to restrict cyclists as much as legally possible to the edge of the roadway, or off it where bike paths

have been built, without regard to the safety or convenience of cyclists. One may consider this as a cold-blooded action by motorists for their own convenience. However, this program would have failed had not motorists called up the excuse of cyclist safety. And that excuse, false as it is, would not have succeeded did not the general public believe in the tenets of the cyclist-inferiority phobia that are so loved by Furth.

Completely contrary to that is the vehicular cycling principle that cyclists should obey the rules of the road for drivers of vehicles, and society should facilitate such operation. I suppose that it is unnecessary to demonstrate that this is completely opposite to restricting cyclists to the side of the road for the convenience of motorists.

This has long been published in material accessible to Furth, but he has chosen, or been ideologically impelled, not to accept it.

Certainly, as Furth observes, bike lanes are a cheap option. However, American government and motordom never offered American cyclists any of the features that the Dutch consider safety measures. All we saw were plain bike lane stripes and plain sidepaths (until withdrawn), obviously intended to get cyclists off the roadways at lowest cost, without any evidence of concern for the safety of cyclists.

Regarding cycling on cycle tracks, Furth states, pg 121: “*Riding on a cycle track involves paying attention to traffic for a few moments when crossing an intersection, then relaxing until the next one. Most people find the quality of this experience far superior to riding in an environment in which one has to pay constant attention to traffic.*”

This simply demonstrates that most cyclists are afflicted with the cyclist-inferiority phobia, which creates feelings of guilt, fear, and helplessness when in the presence of same-direction motor traffic. However true Furth’s claim may appear to those so afflicted, that is no measure of its objective truth regarding the hazards of traffic cycling.

The cyclist using the street has to pay attention to the situations that most endanger him, turning and crossing movements by motorists. However, a plain cycle track does not eliminate those movements by motorists; motorists continue to cross at the pre-existing intersections and driveways.

Where those crossing movements occur, as demonstrated both by analysis of the visual patterns of motorists and cyclists, and by experience, they occur under conditions in which it is far

harder, even impossible, for both cyclists and motorists to observe and avoid the other party's movements. It is for these reasons that cycle tracks increase the dangers of cycling in traffic, dangers that increase very sharply as the speed of the cyclist increases.

Furth argues that, outside the locations where turning and crossing movements occur, paying attention to traffic is a very stressful burden. Furth's claim is not generally correct; it does not refer to a human universal (see the discussion of this claim in the next section). It depends entirely on the cyclist. The vehicular cyclist has to pay attention to traffic in the same way as does any other driver, but he doesn't find this particularly stressful. Indeed, he may find his enjoyment of cycling far more significant than whatever stress he feels. The stress to which Furth refers is the feelings of guilt, fear, and helplessness created in the minds of those suffering from the cyclist-inferiority phobia when in the presence of same-direction motor traffic.

Furth also argues, on the same page, that: "*Having only discrete points that demand attention to traffic conflicts makes cycle tracks better suited to children's cognitive abilities.*" (Pg 121) As early as 1972, analysis of the traffic movements around cycle tracks demonstrated that safe operation required visual abilities beyond those of normal adults. Therefore, Furth's recommendation for cycle tracks for children, because they have lower levels of cognitive abilities, is immoral.

Furth recognizes these problems without admitting them, for he describes a range of measures to ameliorate the dangers created by cycle tracks: Removing intersections and driveways; turning cycle tracks into speed bumps for crossing motorists; more traffic signals with more different signal phases; elimination of moped traffic from cycle tracks. Without cycle tracks, none of these measures are necessary.

Regarding the moped issue, it may be that Furth understands the issue but is afraid to admit it. The point was made before 1975 that the dangers of car-bike collision created by cycle tracks increase enormously as the speed of the cyclist increases. Cycle tracks may please the slow-speed, traffic-incompetent cyclist frightened of same-direction motor traffic, but they are far too dangerous for competent cyclists using the normal upper speed ranges.

The Magic of Lines, pgs 123-125. Furth discusses a group of studies of only the overtaking movement, studies which show that bike-lane

stripes make cyclists feel better but have little effect on traffic.

Bike Lane Criteria for Low-Stress Cycling, pgs 125-127. "*[L]ines alone can be sufficient to create a low-stress bicycling environment. ... However, in many traffic environments, bike lanes can subject users to far more traffic stress than the mainstream population will accept.*" Which is it, Furth? Do bike-lane stripes decrease cyclists' traffic stress or do they increase it? Furth can't answer, not without admitting facts he dare not. That is, the cycling population that Furth chooses to serve is so afflicted by the cyclist-inferiority phobia that, even when protected by a bike-lane stripe and, possibly, by an adjacent lane of motor traffic, its fear increases with the volume of same-direction motor traffic.

Conclusion, pg 135. For bicycle transportation to produce significant social benefits, "*it has to appeal to the mainstream, traffic-intolerant population.*" Furth then claims that European mass cycling has been achieved "*because it respects the fundamental human need to be separated from traffic stress.*" He then argues that when America provides funds for cycle tracks and such, some unspecified wonderful events will occur.

Consider these in turn. With American society so well adapted to automotive transportation, getting Americans to greatly switch from motor to bicycle transport won't occur if Americans don't like using bicycle transport. But Furth, along with others, has refused to consider all the other ways in which bicycle transport is disliked or not suited to American conditions. One example: the section on the needs of the utilitarian cyclist (pgs 76-7) illustrates the disdain that bicycle advocates have for recreational cyclists by advocating cycling in the same clothes used at work. In most American climates that limits the cyclist to very short trips at very slow speed. Most American cities have developed in the automotive era, so that American life patterns, employment, business, government, social, have developed to suit automotive transportation rather than either mass transit or walking and cycling. There is much doubt as to whether removing the fear of same-direction motor traffic will persuade many motorists to switch many trips to bicycle transport.

Furthermore, those Europeans whom Furth admires did not achieve mass cycling through separation. Long before separated bikeways, they had mass cycling because their patterns of life, urban, economic, governmental, and social, had all developed through being served by walking

and, later, by cycling as being faster than walking. Those cities could not accommodate the sudden appearance of mass motoring. Motoring proved so popular, a point never acknowledged by bicycle advocates, that cars filled up every possible space in the city, producing disorganized traffic jams, colliding with each other and with pedestrians and cyclists. The effort to bring safe order out of this chaos, galvanized by concern over the deaths of children, required that urban motoring be severely limited in numbers and in space, so that the established patterns of walking and cycling could re-establish themselves.

Consider Furth's claim that European mass cycling has been achieved "*because it respects the fundamental human need to be separated from traffic stress.*" There are fundamental human needs: food, shelter, sleep, a social life that includes family, and it is recognized that stress is bad for people. But Furth is inventing scientific nonsense to suit his ideology when he posits that what he calls traffic stress is a fundamental part of human nature. Furth hides behind the generally accepted generalization that stress is bad because, if he accurately described his meaning, all well-informed people would recognize its absurdity. Real traffic stress for cyclists comes from the dangerous parts of traffic operation, the crossing and turning movements that actually cause collisions.

But Furth doesn't admit that; the only traffic stress to which he pays attention is that associated with the nearby and relatively safe presence of same-direction motor traffic. This fear is not a fundamental part of human nature. Many cyclists have been raised without it, many have discarded it once they learned to use traffic-cycling skills. The stress to which Furth refers is the guilt, fear, and helplessness created by the cyclist-inferiority phobia that has been drummed into the population by seven decades of self-serving motorist-superiority/cyclist-inferiority training.

Forester's Conclusions Regarding Furth's Work

I consider Furth's chapter to be a well-constructed statement of the policy, beliefs, and general practices of the bicycle advocacy movement as it exists in America, although, being the short length it is, it does not cover the details.

The goal of the bicycle advocacy movement is to produce a major switch from motor transport trips to bicycle transport trips. A rational program to accomplish this, from the cyclist's point of view, would be actions to make cycling safer, more

socially accepted, more convenient, and more useful.

Very little has been done to enhance the utility and convenience aspects. There have been some mixed-mode adaptations to some mass transit operations. There have been a few paths and bridges that provide short-cuts. Private industry has produced equipment to increase the carrying capacity of pedal-powered machines, but such equipment has never sold very well. Folding bicycles are a niche product.

However, in the most important fields of safety and social acceptability the American bicycle advocacy movement has done very poorly, producing even negative results. Furth makes it obvious that the foundation of bicycle advocacy is the greatly exaggerated fear of same-direction motor traffic. Everything done that is said to be related to safety or social acceptability has to conform to that fear.

There are two ways to consider this fear. Furth's claim that this fear is "a fundamental human need" demonstrates three things:

- 1: Bicycle advocacy is based on this psychological condition
- 2: This advocacy needs to claim scientific support for its program
- 3: This supposed scientific support enables advocates to ignore other, normal scientific knowledge

The other view of this greatly exaggerated fear of same-direction motor traffic is to consider it a phobia, the cyclist-inferiority phobia. A phobia is a greatly exaggerated fear that causes its victims to act contrary to their best interests. The only characteristic in which this cyclist-inferiority phobia does not meet the definition is that it is frequent, rather than rare. However, since it acts exactly like other phobias, it is reasonable to call it a phobia.

There are several ways to distinguish "fundamental human needs" (FHN) from the cyclist-inferiority phobia (CIP). One distinguishing characteristic is distribution. An FHN is universal and present from birth. The CIP is present in only some people at some ages. Some modern cyclists never have contracted it, while other modern cyclists have discarded it when they learn to cycle properly. Another distinguishing characteristic refers to innateness versus training. An FHN needs no training. The CIP is acquired through training, some formal, the rest in the informal manner by which most social attitudes are transmitted.

History demonstrates the training by which the American version of the CIP was developed. There have been several books about how American motordom managed to achieve motorist superiority on the roads. Although those books say little about the cycling aspect of that operation, the cycling part was carried out in the same way as the other aspects. Starting in the 1930s, motordom started complaining about how dangerous it was for cyclists to be using the roads. The 1944 issue of the Uniform Vehicle Code included the law limiting cyclists to the edge of the roadway, or off the roadway if a path were nearby.

Motordom wrote and published the "bike-safety" materials instructing cyclists to stay far right for their own safety. Long ago, I described that instruction as: "The cyclist who rides in traffic will delay the cars, which is Sin, or, if the cars don't choose to slow down, will be crushed, which is Death, and the Wages of Sin is Death." This instruction inculcated guilt for delaying the cars, fear lest the cyclist be hit from behind, and helplessness because the cyclist could do nothing about the situation. Even when the cyclist was permitted to turn left, he was instructed to start from the edge of the road, stick out his left arm, and make the turn, trusting to the motorists to avoid his movement. This cyclist-inferiority system assumed that the cyclist was not capable of observing and judging traffic and operating accordingly.

These are precisely the arguments used by the motorists controlling the California Statewide Bicycle Committee to justify their establishment of bikeways in 1972. And which are newly evident in the NACTO bikeway designs of 2011, in which Furth is listed as participating. This is the training that, coupled with the similar informal social attitudes, produces the cyclist-inferiority phobia in the minds of those to whom it is administered.

There is also the issue of the accuracy or inaccuracy of this vision of cycling in traffic. It is inaccurate in every respect. The accepted principles of traffic engineering disprove it. Drivers of all vehicles ought to follow the same movement patterns, lest they drive into collisions. The statistics of American car-bike collisions disprove it. Some 95% of car-bike collisions involve turning and crossing movements by either, or both, parties, while only about 5% are straight hits from behind. The principles of human factors disprove it. The cyclist has the same abilities of vision and judgment as does the motorist.

Any cycling program that is based on the

cyclist-inferiority phobia is likely to have the following deficiencies.

CIP produces two different kinds of safety deficiencies: those caused by facilities and those caused by behavior. Because cycling in accordance with the CIP causes the cyclist to take different paths than other drivers, these paths will sometimes cross in dangerous conflicts. The number of these depends on the degree of separation created. Bike lanes create only a few of these dangerous crossing conflicts, while cycle tracks create a great many. Those around bike lanes appear to be concentrated where motorists turn right, while those around cycle tracks are at all points of turning or crossing movements. Correcting for these dangerous crossings requires new equipment, such as traffic signals, and, sometimes, additional space beyond that of the bikeway itself. These incur costs both initial and operating, and the operating costs include not only equipment maintenance but also the costs of the additional delays created for all classes of traffic.

Safety deficiencies created by behavior come from the fact that the CIP both causes cyclists to operate differently from other traffic and it largely prevents them from learning safe cycling practices. They will operate more dangerously whenever there is need to think about operating in traffic. With bike lanes these are the situations in which motorists turn right or cyclists turn left. With cycle tracks these situations can be anywhere.

The dangers of forcing cyclists to obey the side-of-the-road and bikeway laws forced government (first California, then the rest) to enact a series of exceptions to bicycle traffic law. So the nation now has three sets of traffic laws for cyclists. The first requires them to obey the rules of the road for drivers of vehicles (RRDV) when on the roadway. The second prohibits them from obeying the RRDV by restricting them to the side of the road or to bikeways. The third restores some of the rights to use the roadway, some times at some places. Nobody really understands the legal tangle that this has created; mistakes occur all the time.

Any bicycle transportation program that is based on the CIP will decrease cyclists' incentive to learn safe cycling and the opportunities to learn it. Wherever there is no bikeway, its cyclists will operate more dangerously because they have not properly learned safe cycling. Statistically significant measurements of the operation of cyclists have been made as early as 1980. Those cyclists

who chose to obey the RRDV operated safely and effectively with very few mistakes, with average scores about 95%. The general public cyclists showed the result of cyclist-inferiority training (such as it is) by committing many traffic mistakes, many quite dangerous, producing flunking scores averaging 55%. The original method consisted of following cyclists while using a voice recorder to record movements and mistakes, then working out the scores from those data. Nowadays wonderful films taken by cameras mounted on helmet tops, showing both forward and backward views simultaneously, demonstrate the same information visually. VC cycling works; cyclist-inferiority cycling is chaotic.

Any bicycle transportation program that is based on the CIP will frighten its customers, making them feel guilty, fearful, and helpless, not only wherever there is no bikeway, but also about cycling in general. Surely, that is not the best way to promote bicycle transportation. However, as is easily seen, those afflicted with the CIP firmly believe that the bikeways are necessary and are built for their benefit. The extent to which this admiration for bikeways actually persuades motorists to switch trips to bicycling is unknown.

Any bicycle transportation program that is based on the CIP can be put into effect only when the general public is also afflicted with that phobia. Making cyclists feel inferior to motorists has to also make motorists feel superior to cyclists. The feeling that cyclists are inferior cannot be enforced unless the general public feels sufficiently superior to enforce the cyclist inferiority. Building up the superiority of motorists is surely a poor strategy for making bicycle transport popular. Furthermore, this motorist superiority is the great menace to the status and safety of those cyclists who operate as equals by obeying the rules of the road for drivers of vehicles. The safety and utility of vehicular cycling makes this method superior to any cyclist-inferiority system likely to be produced in America.

It is possible to have a bikeway system that inverts this relationship, making cycling superior and motoring inferior. The Dutch proudly make this claim, referring repeatedly to the history of their urban bikeways. The motivation to produce their urban bikeways, so they proudly say, was the horrors produced by the sudden influx of mass motoring into walking and cycling cities that are completely incapable of handling such traffic. This intruding child-murdering monster had to be tamed and restricted so that the traditional walking and cycling activities could be resumed. I think it

unlikely that this inversion will occur in typical American cities.

A large part of Furth's chapter is a grotesque argument against vehicular cycling (VC), as in the fallacy that AASHTO bikeways are based on VC. Just as Furth can justify his bikeway program only by ignoring both traffic engineering principles and car-bike collision statistics, which utterly disprove his program, so he cannot include those matters in discussing VC. Therefore, it is important to compare and contrast the two programs.

The bikeway program is designed to keep cyclists out of same-direction motor traffic, based on cyclists' supposed incapability to operate in it and the supposed great danger of same-direction motor traffic. The traffic complications so produced delay both cyclists and motorists, but its advocates prefer slow cycling. It is justified by only one claim, according to Furth, the claim that the desire to stay out of same-direction motor traffic is a deep human need. However, it is contradicted by traffic engineering principles and the statistics of car-bike collisions.

VC is the operation of cyclists according to the rules of the road for drivers of vehicles (RRDV). It is obvious that obeying the RRDV reasonably prevents drivers, be they motorists or cyclists, from colliding with each other. The car-bike collision statistics disprove the great danger of same-direction motor traffic. Tests going back as early as 1974 demonstrate that cyclists of a wide age range can obey the RRDV at least as well as motorists. The crash histories demonstrate that those groups of cyclists most likely to obey the RRDV have crash statistics only about 25% of those of the general cycling public. Those cyclists who have transferred from inferiority-style cycling to vehicular cycling have found that their traffic hassles disappear, because those were caused by bad cycling rather than bad motorists.

Consider the following history:

- 1: 1903-1944 Bicycles are vehicles and cyclists are considered drivers of vehicles.
- 2: 1930s-1970 America's motordom creates traffic laws to push cyclists aside for the convenience of motorists, made possible by creating the cyclist-inferiority phobia (CIP).
- 3: 1944 Uniform Vehicle Code pushes cyclists to the side of the road, for the convenience of motorists. From now on, America has two sets of laws for cyclists. One set requires them to obey the RRDV, while the other set restricts them to the side of the road, or to bikeways. Well-informed cyclists obey the RRDV.

- 4: 1970-1976 California's motordom creates its bikeway program to enforce cyclist-inferiority cycling, justified by the CIP
- 5: 1972-1974 California's cyclists resist being shoved off the road by producing the first formal statement of VC and creating a VC program.
- 6: 1974-1976 The necessity of avoiding the dangers created by bikeway and edge laws forces government (California first) to create a list of exceptions that nobody really understands. Now America has three sets of laws for cyclists. Obeying the RRDV, prohibiting obeying the RRDV, sometimes obey the RRDV. Nobody understands this legal tangle.
- 7: 1976 and later. Uniform Vehicle Code adopts the California restrictive laws, including the exceptions that nobody understands, while other states gradually follow.
- 8: 1980 and later. Anti-motoring groups promote bikeways in the fallacious belief that bikeways are intended to make cycling safe and actually do so.

The cyclist-inferiority bikeway program, so strongly supported by Furth and others, produces bikeways whose traffic dangers can be corrected only with expensive equipment that delays cyclists (and motorists), and it produces cyclist behavior that, outside of bikeways, has to be described as chaotic. Its only justification is the cyclist-inferiority phobia.

The vehicular cycling program gives cyclists the skills to cycle safely in almost all traffic conditions and the confidence to go anywhere they desire. It is supported by traffic-engineering principles, by collision facts, and by decades of practical experience by many cyclists.

It should be obvious that VC is by far the better program. However, with the political power of motordom enforcing its cyclist-inferiority phobia and anti-motorists clinging to the phobia out of fear, it is unlikely that the cyclist-inferiority bikeway program can be stopped. Cyclist inferiority, now supported by bikeways, and despite its purely superstitious basis, has always been the system chosen by the American public to deal with bicycle traffic. Perhaps one should be sorry for America, or, at least, for American cyclists.

However, there is one more very important point. Professor Furth has so elegantly demonstrated what I have been claiming for forty years: the cyclist-inferiority bikeway system is based only on the superstition of the cyclist-inferiority phobia. And he can claim no other support for it, because it contradicts traffic-engineering principles and known facts.

There is no reason whatsoever that cyclists who prefer to obey the rules of the road for drivers of vehicles should be compelled to use a system based only on superstition instead of traffic-engineering knowledge. Let Furth and the other advocates of cyclist-inferiority bikeway cycling get as much as they can persuade government to give them, but the traffic-competent cyclists who prefer to obey the RRDV must have the legal freedom to do so. The system of traffic laws regarding bicycle traffic must be simplified, for justice and legal clarity as much as for safety, to return to no more than the existing law that cyclists must obey the rules of the road for drivers of vehicles.