The Elevated Sidewalk

By Henry Harrison Suplee

ONE of the greatest impediments to city transport to-day is the continuance of the obsolete method of attempting to conduct foot and vehicular traffic upon the same highways.

The engineer, who has occasion to design conduits for inanimate particles, knows very well that he will have trouble if he tries to convey steam and water through the same pipe; and if he wishes a satisfactory and silent circulation in a steam heating system, for example, he provides separate return pipes for the out-flowing steam and the returning water of condensation. It is only beginning to appear, however, that the same laws which are recognized for steam, air, water, gas, etc., hold good also for the flow of human molecules which constitute the elements of the contents of a modern crowded street.

In nearly every large city to-day there appears a tendency to enforce traffic regulations intended to permit the most conflicting elements to be operated together, and the result is naturally the impeding of the very traffic which it is desired to help.

The very general introduction of electric street cars, and the tremendous increase in the number of automobiles, might well be supposed to improve the means of getting about, but as these facilities are increased there appears to come with them a continual increase in plans for reducing their efficiency.

Thus, the automobile enables far higher speeds to be attained, both for persons and for merchandise, than could be secured by the older means of transport. Instead of welcoming and utilizing this advantage, there immediately appears, on the contrary, such speed limitations and traffic regulations as act to neutralize very largely the great improvement which has been developed. The ostensible reason for such obstructive methods is the safeguarding of the foot passenger; the real reason is the attempt to conduct the modern and the antiquated methods of locomotion upon the same highway, thus imposing upon the machine the limitations of the man.

If such a plan had been tried with the steam railway, all the forebodings of the conservative element of the early nineteenth century would have been realized, but fortunately the railways were enabled to use their own right of way, and the advantages of the application of steam to transport were not lost to society.

If the real capacity of power-propelled machinery is to be gained in transport in cities, there is one fundamental condition which must be observed: the segregation of foot and vehicular traffic. This is such a simple and obvious proposition, and has been so successfully applied in certain isolated cases already, that it seems most surprising that it has not been put into general use.

Take the foot passengers off the surface of the streets entirely; and leave the highways solely for vehicles!

This permits, at once, the removal of speed limitations, so that traffic regulations may be framed for but one kind of transport, thus immensely simplifying this portion of the problem. Since we may assume that, for economic and sanitary reasons, the horse will soon disappear altogether from city limits, the surface of the streets would then be used entirely by power-propelled vehicles, and it becomes necessary to provide elevated sidewalks for the pedestrians. Such elevated sidewalks need not be heavy or costly, and would leave the entire middle of the street open, with possibly openings at points along the building line as well. The pedestrian would thus have a level, continuous walk, bridging all streets, and remaining unobstructed at all points at all times.

The feasibility of such a plan needs no argument; it requires only a visit to any one of the great bridges crossing the East River at New York, or a promenade upon a "boardwalk" at any seaside resort, to speak for itself. In the city, however, it offers such special advantages as to demand further emphasis.

The provision of a perfectly safe, smooth, and accessible sidewalk, at the first floor level of all buildings, would add immensely to the value of store fronts, and solve many of the problems of shop and residence construction in cities. Many people would gladly walk considerable distances upon such a free and safe path, who now dread the dangers of street crossings. The removal of an important cause of surface congestion would permit so much greater freedom of traffic upon the highways, that the efficiency of automobile vehicles would be greatly enhanced. The electric cars, given the middle of the streets, would deliver their passengers, not across the path of the speeding automobiles to the surface sidewalks, but to the middle space, permitting direct ascent to the elevated sidewalk level, so that no obstructing rules governing the passing of cars by other vehicles need be enforced. Each type of transport would be free to develop itself along its own lines, unobstructed by the limitations of others.

The simple, elementary laws of the transport of

fluids, providing separate conduits for different kinds, need only application to the flow of people, to permit their rational and satisfactory operation. An important feature in the possible installation of elevated sidewalks in a city such as New York, appears in the manner in which it might be constructed gradually, as demanded. Thus, such sidewalks might be built on Broadway from the Battery to Union Square, there sloping down to the surface level until further extensions were required. As each new section were added, it could be put into immediate use, thus differing from any important construction which cannot be used until wholly completed.

An important extension of the principle, and possibly one which might be first put into operation, would be the introduction of a system of bridges connecting the upper floors of tall buildings. If, say, at the tenth floor level, the cross streets were spanned by foot bridges of ample width, enabling foot traffic to pass freely along, without descending to the lower levels, there would be a marked relief to the surface congestion. Many people would remain upon the upper levels during the noon hours, taking luncheon at some convenient restaurant or club upon the higher floors, and walking a portion of the distance up town at night, and the distribution of elevator service thus effected might be found most advantageous. For many purposes such an upper traffic level would increase the values of the corresponding floors of the buildings, since such upper floors would become another street level for business and for the display of merchandise.

Apart from the advantages already enumerated, the segregation of foot from vehicular traffic upon different levels should lead to further developments. It has been felt by many that the continued construction of tall buildings, both for business and for residence, would inevitably result in darkened streets, congested living quarters, and other disadvantages. If, however, the necessity for descending were removed, at least until the more congested quarters were passed, many of the objections to tall buildings would disappear. The lower floors would follow the tendency already beginning to appear, and be used for storage, for the handling of heavy merchandise, and similar purposes, freed from the disadvantages of obstructing foot traffic, while the facility afforded for free and safe movement at higher levels for business, shopping, eating, and residence, would restore the pedestrian to the brighter light, purer air, and safer movement formerly enjoyed upon the surface.

It is possible that, upon some intermediate level, the "flowing road" in the form of the traveling platform, might follow the general uplift; while more remotely, but yet not beyond practical vision, may appear the coming of aerial transport.

One thing must be firmly understood, however, that the principle of absolute segregation of foot travel from any kind of vehicles is essential for relief, and that any plan which proposes to place both automobiles and pedestrians upon the same level, would be fatal to success. The power vehicles should be kept absolutely to the surface, and there given unrestricted facilities for speed, weight, and numbers; and the foot levels maintained for absolute freedom for pedestrians, with the possible exception of carriages for small children.

The reality of the problem which is already awaiting solution, will be appreciated when it is understood that a single modern structure, such as the Woolworth Building, New York, contains 10,000 people, the population of a good-sized town, and that all these people must enter and leave at least once a day, and many of them more frequently. Such problems of congestion are not to be met by the enactment and enforcement of rules and regulations restricting and impeding the automobiles or street cars, the very means by which, if unrestricted, much of the traffic might be relieved.

Rather, the opportunity for full speed and freedom of movement should be given; as it can be by taking the foot passenger wholly out of the way, and giving to him also that greater freedom and entire safety to which he is entitled.

The Current Supplement

MUCH evidence points to a point 273 deg. Cent. below the freezing point of water as the absolute zero of temperature. Cold approaching this presumably prevails in interstellar space, and has also been produced in the laboratory. Reflections upon these facts form the subject of an article in this week's issue of the SCIENTIFIC AMERICAN SUPPLEMENT.—Dr. A. Gleichen writes on "The Human Eye and the Photographic Camera—Points of Similarity and of Difference."—An account of the measurement of the luminosity of the glow-worm is given by H. E. Ives and C. W. Jordan, showing that this creature is fifty times more efficient than our best light sources.—A laboratory for research in optics and photography, just completed by one of our large manufacturing firms, is described, and the scope of its work outlined.—Prof. Haber describes his process for the synthetic production of ammonia.

Correspondence

[The editors are not responsible for statements made in the correspondence column. Anonymous communications cannot be considered, but the names of correspondents will be withheld when so desired.]

An Opinion on Price Cutting

To the Editor of the SCIENTIFIC AMERICAN:

Legislation that looks toward the abolishment of price maintenance by the manufacturer is a blow at legitimate merchandising. It means death to the small retailer and distributor and confiscation to the manufacturer, and is unfair to the public. It fosters and encourages substitution and adulteration. Wrong in principle and vicious in practice.

S. C. DOBBS, Sales Manager Coca Cola Co.
Atlanta, Ga.

A Suggestion for Flood Prevention

To the Editor of the SCIENTIFIC AMERICAN:

Like Mr. F. A. Day of Ohio, I have followed with interest the various articles on flood prevention, and have often wondered why no one mentioned the plan which he suggests in your issue of June 28th. It seems to me by far the most practical plan so far suggested.

I am not acquainted with the middle West to any extent, but in most places the streams flow through numerous flat meadows admirably adapted to such a scheme, with benefit both to the meadow land and to the country below.

Could not Mr. Day's plan be improved upon, however, by building the dam entirely across the foot of the meadow and providing a suitable culvert in the stream bed of such size as to carry a little more than the normal flow of water. Then if the stream rose above a certain height the additional flow would spread over the meadow until the water had risen to the spillway which would be provided in the top of the dam. In the same way the receding water would flow out gradually till the basin was empty. By providing larger culverts at certain points part of the meadows along a stream would be overflowed only in times of extraordinary flood. In this way the entire action could be made automatic, no attendance being required for closing flood gates, etc.

Southbridge, Mass. H. F. AMMIDOWN.

Solar Physics Observatory for New Zealand

To the Editor of the SCIENTIFIC AMERICAN:

It may interest you to know that owing to the generosity of Mr. Thomas Cawthron of Nelson, New Zealand, a solar physics observatory is to be erected in this part of the world. He has promised to build, equip and endow a solar physics observatory, at a cost of about ten to twelve thousand pounds. The site will probably be on a summit known as "The Fringe," at an elevation of 2,500 feet above sea-level, and easily accessible. The annual average of direct sunshine is 2,500 hours, and the rain register annual average during the past thirty years is 37.88 inches. Nelson has been termed the climate paradise of New Zealand, and according to Prof. Archibald, the well-known meteorologist, Nelson is very suitable for the establishment of a solar observatory.

MARY PROCTOR.
159 Collingwood St., Nelson, New Zealand.

A Few Words of Appreciation

To the Editor of the SCIENTIFIC AMERICAN:

I cannot resist the temptation of inflicting another letter to let you know how I appreciate some things you have recently published. Some issues back you published a recipe for "Salt-rising Light Bread" that has been worth the subscription price of the SCIENTIFIC AMERICAN for many years to us. In your issue of May 31st you have an article entitled "The Embroidery of Knowledge," which I think very appropriate and useful. There is a sentiment gaining ground that the boy should be taught first how to make a dollar and then how to keep it. Now if we become only a nation of money seekers, what will we be but a race of human hogs? All esthetic sentiment and refinement will soon be gone. When wealth is the only object of ambition, any method of obtaining it is countenanced, and so there arise many evil practices among the people. I have the first astronomy I studied at school with a frontispiece map giving the sublime home of the mythological gods. I next got interested in this matter in the *Æneid* of Virgil; have since followed it up in Dante, Shakespeare, Homer, and others, as well as the more prosaic works of Anthon, William Smith, Lempriere, etc. Much pleasure has it given me. The man who wrote that article has my heartfelt thanks and best wishes in all respects.

W. R. SMITH.
Woodbury, Tenn.