

# BRIDGES AND APPROACHES

Modern Structures Neither Durable Nor Artistic.

ANCIENTS BUILT WELL.

To Achieve the Proper Result the Engineer Should Co-operate With the Architect in the Design of the Bridge and its Approaches.

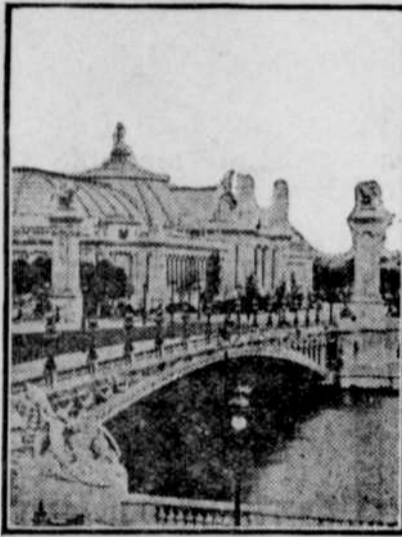
By FRANK KOESTER.

[Consulting civil engineer Hudson Terminal building, New York, and author of "Modern City Planning and Maintenance."]

Of all the structures erected the bridge is possessed of the greatest individuality, unity and feeling. It is at once an inspiration and a utility, and it marks as no other structure does the progress of man from barbarism to civilization. It is one of his greatest triumphs over nature's obstacles, for it is not only an evidence of his ability to merely construct—that is, to place one stone upon another—but of his ability to think and so to utilize the forces of nature as to cause one stone to stand upon another with nothing directly beneath.

A building can never produce the sense of unity of the bridge and thus can never inspire as the bridge does, because, while portions of a building may be eliminated and still leave it a building, the elimination of a portion of a bridge means its destruction for the purposes for which it is erected.

The bridge occupies thus a unique position among the structures of man, approached only by the dam, to which, however, it is far superior, since the dam always lacks in the sense of self evident security which the bridge imparts. Not only is the bridge unique in its position among structures, but it is the largest single structure erected by man and the most costly. It is also highly important in point of numbers



BRIDGE OVER THE SEINE IN PARIS.

and in the investment involved. There are, for example, some 80,000 metal bridges in the United States, or one for every three miles of railroad, and they aggregate 1,400 miles in length, representing an investment of \$800,000,000, or several times the cost of the Panama canal. The subject of bridges is therefore one which demands the most careful attention of all who have to deal with it. It is not a subject which should be reserved to the officials and engineers in charge, but is one in which the public should take an active and decisive interest. When a bridge of any consequence is to be erected the designs should be open to public inspection and all objections and suggestions should be dealt with in advance.

The pleasing psychological and aesthetic effect of bridges has been recognized since the earliest times, but great bridges are a result of modern invention, being dependent upon the cheap production of steel for their evolution, since stone bridges have never been constructed in anything like the great spans of the modern steel bridges. The railroad, too, has greatly increased the necessity for bridges, so that except for the comparatively small stone bridges of ancient and medieval times, the principles of which were early mastered, bridge building is a modern science.

The success achieved has been little less than stupendous in a material and engineering sense, for enormous structures have been erected which meet the demands of traffic and the various conditions which were presented.

In two respects, however, the modern bridge is for the most part a great fail-

ure. It is neither artistic nor will it have the long life of the ancient bridges. The Romans 2,000 years ago built bridges which are in use today, but no modern metal bridge, even with the most careful attention, can be expected to last even a small part of such a period. Even if protected from the action of the elements, the steel which might then be reasonably expected to last indefinitely will be subject to crystallization from the effects of vibration. Thus all our steel bridges are temporary structures. This, however, will in the most cases prove a matter of congratulation, as when they pass away they will be undoubtedly replaced by more artistic structures. Only our stone bridges, however, may be expected to endure into the eras of new races, if such are to succeed us.

### Both Ways.

Woman—Now that I have fed you, are you going without doing your work? Tramp—O! couldn't wurruk on an lumpy stomach, mum, an' O! nivr wurruk on er full one, so there yez be! —Smart Set.

### Rich Beans.

Roasted cocoa beans contain an average of nearly 50 per cent of pure oil.

### The Legs in Swimming.

The correct stroke of the legs is exactly like that of a frog's hind legs. Watch one of these frogs and copy his style. You cannot do better. The legs are drawn up together slowly, not with a jerk, until they are gathered in close under the body. Then with a sudden, quick spring they are shot out behind, the ankles being turned so that the soles of the feet present as flat a surface as possible to the water and so offer more resistance from which to make progress. As the kick is made the legs should be spread out in the shape of a letter V, but not allowed to sink far down under the surface of the water. If they kick downward at an angle instead of out straight behind much of their energy is wasted in unnecessarily forcing the body out of the water instead of forward.

### Curious Epitaphs.

Old New England graveyards are not the only ones which contain curious epitaphs. The old time dweller of Maine who "died of a falling tree," as his headstone asserts, had a fellow in misfortune in faroff Austria, as is shown by W. A. Baillie-Grohman's "The Tyrol and the Tyrolean."

A wooden slab, painted with the representation of a prostrate tree under which lies a man in spread eagle attitude, bears testimony to the violent death of "Johann Lemberger, aged fifty-two and three-quarters years. This upright and virtuous youth was squashed by a falling tree."

The record of Michael Gerstner is even more succinct and convincing. He "climbed up, fell down and was dead."

### Baseball Versus Cricket.

We have known only one big league ball player to partake both of baseball and cricket as a pastime. He was the late Harry Vaughn, who played cricket in his early English days and later on became one of the star catchers of the Cincinnati Reds. Remember Rhines and Vaughn?

We asked Vaughn one day what he regarded as the main difference between baseball and cricket.

His answer was the keenest we have ever heard to this query.

"The main difference," he replied, "might be summed up in the difference between the war cries of the two sports—between 'Well tried, old top,' and 'Slide, you bonehead, slider'"—Collier's.

### Reparation.

Judge (to prisoner at the bar)—So you confess that you robbed the savings bank. Have you anything to urge in the way of extenuating circumstances? The Prisoner—I have, y' honor. I deposited all the money in the savings bank the very next day. —New York Post.

### Didn't Want to Lose Her.

"Why are you going around in that horrible coat?"

"My wife needs a new gown."

"You shouldn't spend all your money on her."

"Well, if she doesn't get that new gown I'm afraid she'll get a new husband."—Exchange.

### What to Take For It.

Smart—I know just what to take for seasickness. Waggles (eagerly)—Do you? What is it? Smart—An ocean steamer.

### Her Dear Friend.

Maud—Jack told me last night that I was beautiful. Ethel—And yet people say Jack has no imagination.—Boston Transcript.

Don't dissipate your powers. Strive constantly to concentrate them.—Goethe

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### USES FOR ORANGE PEEL.

It is said by some that orange rind strengthens the digestive organs and invigorates the nerves, that it is fragrant and, if properly served, delicious. It is not only useful as a preserve, but the sirup can be used to flavor cakes, pies and sauces. It makes a good drink in ice water and is often used by druggists to conceal the disagreeable taste of some medicine.

### A Delectable Confection.

Candied Orange Peel.—Strip the oranges of peel and soak the skin in salt and water (a tablespoonful of salt to a quart of water), leaving them in overnight. Then parboil in water, changing this several times, until tender. Weigh the fruit. Add one pound of sugar and one cupful of water to each pound of fruit. Cover and boil for an hour, remove the lid and let the sirup boil away. When nearly dry roll in granulated sugar.

Orange Butter.—Cook together in a double boiler one-fourth pound of butter, one cupful of sugar, the grated rind and the juice of three oranges and two whole eggs or four yolks. Strain and use when cold between layer cakes, or with the addition of chopped raisins, currants, citron and candied peel as a filling for pastry.

### Nice For Breakfast.

Orange Delight.—Slice very thin, rind and all, two large seedless oranges and one large lemon. Pour over them several tumblers of water and let stand twenty-four hours. Then boil one hour. After boiling add four pounds of granulated sugar and let stand another twenty-four hours. Then boil one hour and twenty-five minutes. Pour in glasses and cover with oiled paper. This will keep years. It is a delicious confection on hot muffins for breakfast.

Burnt Orange Flavoring.—Grate the rind of the oranges, avoiding the white skin; add two tablespoonfuls of granulated sugar and cook carefully in a little saucepan, stirring to avoid burning, until they form a rich reddish brown mixture. Then stir in two or three tablespoonfuls of boiling water. When the caramel is dissolved mix with it enough sifted powdered sugar to make a firm icing, or use it in flavoring candies.

Anna Thompson

### It Gets the Criminals.

According to the Chinese method of criminal prosecution, a man is responsible for the crime he may have committed personally, but if he chooses to escape justice by running away from the place where the deed was committed then the remaining members of his immediate family are held and punished in lieu of the real culprit. This may seem a strange way of attracting the real criminal back to the scene of his crime, but it appeals to the religious side of the man's superstitious nature. According to their religion, the man who forsakes his parents when in peril will find his soul sailing around through hades without chart or compass for all eternity. In view of this, compliance with the law is very prompt, for John Chinaman does not care to take the desperate chance.

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