A Reminiscence.

Some several years or more ago,
When Jones served up unknowns
In the ancient gym., — his stock in trade
An oyster and other bones,
— We all believed, I am forced to say.
This mollusk was a myth,
Till once I ordered stews for five,
And caught it in the fifth.
Oh what a shout we fellows gave!
We bound it with a thong;
('T was roast-beef day, you may surmise,) It struggled hard and long.
We hustled in a camera,
Our Sam sustained his head;
The machine was fixed for spectrum work,
He took at the infra-red.
I never can forget that day,—
And I sit for hours and laugh
At the wrinkled smile that oyster gave
As he posed for his photograph.

About Cantilever Girders.

THE attention of engineers has been of late so strongly turned towards the subject of cantilever girders by the successful completion of the great bridge across the Niagara River just below the Falls, and the statement has been so often made that this structure is the first of its kind which has ever been built, that the readers of THE TECH may be interested in a few words of explanation regarding cantilever girders in general and the different structures which have thus far been constructed upon this principle.

The simplest kind of bridge — the so-called simple girder — is supported only at its two ends by vertical forces. If there are several openings to be spanned in succession, the bridge over each one is entirely independent of those on either side of it; resting on the same piers, but not being connected with them in any way. But engineers soon came to see that if several openings were to be crossed a saving of material might in some cases be effected by making a structure which should be continuous over several openings, — a so-called continuous girder.

Such a girder not only effects a saving of material, in the case of long spans, but in some cases it is much easier to put it in place, as it can be built on shore and pushed out over the piers; or, one span being erected on scaffolding, the others may be built out piece by piece, the weight of the span first erected serving as a counterpoise to balance the projecting part, dispensing in either case with most of the false works which are necessary in the erection of a simple girder; and it might be even possible for one of the piers to be washed away without carrying away the bridge, which might remain supported by the piers adjacent, while under these circumstances two spans of a simple girder would be carried away. But the continuous girder has some very grave disadvantages, and one of them will easily be recognized by considering the point just referred to; for it is evident that if one of the piers should settle sufficiently it might throw all of the weight which it previously supported upon the other piers; or, in other words, it might sink so far as to clear the girder entirely. Under these circumstances it is plain that the bridge could not bear as great a load as it previously could, because of two of its spans being thrown into one. We see, therefore, that the continuous girder is liable to have the forces which act in its different parts very greatly changed by circumstances over which we have little or no control, and it may be shown by calculation that a very small settling of one of the piers may change the calculated forces by a very large amount. We can never be sure, then, just how much a bridge of this kind can safely bear, — we are to a certain extent in the dark as to its strength.

Under these circumstances, engineers have cast about for some form of bridge which should combine the advantages of the continuous girder, as regards quantity of material and ease of erection, without possessing its disadvantages; and they have found the desideratum in the cantilever girder.

The general arrangement of this type of bridge, for any number of spans, is shown in Fig. 1. It consists of a series of cantilevers $dg$, $hk$, etc., projecting beyond their supports, and