

tion. All the frogs have a complete set of teeth in the entire circumference of the upper jaw, not inserted into sockets, but kept in place by strong and thick gums. There are no teeth in the lower jaw. There are teeth on the vomer where the internal naris enter, generally in two, sometimes in three groups, and these vomerine teeth are a necessity to the existence of frogs' lives. Their use will be presently explained. The digestive power of the aquatic frogs is very great, and even bones seem easily reduced. The dejecta of land frogs is more solid than the aquatic, as beetles and winged insects enter largely into their food, as slugs, worms, and caterpillars are completely dissolved. Many other most interesting points can be discussed as the various species come under one review. There is one point, however, in frog life that I have never yet seen discussed by any person whatever, and that is the manner a frog manipulates its prey in the act of swallowing it. Here can be seen pre-arranged design in the formation of the throat, vomerine teeth—teeth in the upper jaw, and horns at the base of the tongue. To explain the action of these cornu, let any one hold the finger of either hand to the tip of the tongue, close to the lips, and steadying the head and hand, let him push the tip of the tongue against the finger with all his force. The pressure is much more powerful than at first supposed it could be. Suppose then that the force were reversed, and the tip pointed down the throat as in frogs, and would be applied to a solid morsel, which had to be swallowed somehow, without being masticated, teeth being absent, the action of the horns at the base of the frog's tongue is seen distinctly. Nature does nothing at haphazard. Frogs, as a rule, especially the aquatic division, seize much larger prey than do toads. When such a morsel is seized by a bull frog, as I have often seen, he makes several gobbles as every one has seen a duck do, till it gets the bit into the mouth. It is held there securely by the pressure of the tongue against it, pressing the struggling prey firmly against the vomerine teeth on the palate. The jaws are tightly closed and struggling is futile, yet I have seen the prey escape. The cornu and tongue are next brought forward, and placed between the morsel and the lips. The whole force of the tongue is applied, and thrust it from the cavity of the mouth into the fauces, beyond the vomerine teeth. There, if there be further struggling, the prey is more at the mercy of the two horns, which act like two boneless fingers, and drive the morsel by main force into the short gullet. The frog now lifts its head in jerks, and at each jerk, or even if there be none, the throat is seen to swell, as these powerful yet boneless fingers force the food down, driving it through the fauces and gullet, into the capacious stomach. Once there the muscles of the gullet contract, and it may be safely assumed that this contraction is more or less voluntary, just as a person can shut his hand and retain it so, or the stomach being full, may act as the exciting cause. We have here a beautiful series of preconceived design. The jaws, with teeth in the upper one to seize; the tongue to press against the vomerine teeth to hold securely; the tongue attached at its anterior base, to act as a fulcrum, and thus with the

finger shaped posterior horns to force mechanically through the fauces and gullet, into the capacious stomach; and the gullet to act as the strings of a bag, to retain the food, which often arrives in a living state.

It is not intended here to enter into anatomical nor physiological details. That has been done by better qualified scientists than the writer, men who have had leisure and scientific fervor to pursue these matters, such as Leidy, Owen, Gunther, Lataste, and Bollenger. Let those therefore who wish to pursue these points look after it themselves. However enough for practical purposes, and to assist in demonstrating species shall be given. These would be altogether too prolix to introduce into a series of papers, that are designed for popular instruction and amusement. There has been too much weight allowed to dry anatomical details, and too little attention paid to the life history of these most interesting animals; and in fact, these, the most important portions, seem almost ignored by modern herpetologists. Consequently many errors have crept in. Some of these it shall be endeavored to rectify as the various species come to be considered in their proper places.

TO BE CONTINUED.

J. H. GARNIER.



## THE WORLD'S FAIR.

We have received the last issue of the "WORLD'S COLUMBIAN EXPOSITION ILLUSTRATED," the Official Organ of the Great Fair. The object of this publication is to give complete authentic historical record of the Columbian Exposition. It contains 32 pages of official proceedings, and will give photographic illustrations printed on Enamelled paper, of all the Exhibits, Buildings, and attractions of the great Fair. As a work of Art, containing the most interesting information, it is invaluable to all who wish to keep up with the times and learn of the great International Enterprise.

It will be published semi-monthly in the fall, making eighteen copies for present year. Price, \$4, postpaid; 25 cents a copy. Subscriptions taken at this office, where the paper can be seen, or send 25 cents for sample copy to J. B. CAMPBELL, Editor and Publisher, 218 La Salle St., Chicago, Ill.

FOR THE LAND WE LIVE IN.

## MINE PREDIGEE TROT HOSS.

Me got one hoss me want for sell,  
She's long predigee me lak fo' tell,  
Me heetch heem nup hon top de slay,  
Me no come fraid she'll run away,

Me spoke heem, whee'le heem, she'll don't  
go,  
Me tole dis hon ma broder Joe,  
She'll take de w'eeep fo' mek heem smart,  
Sue'll leet' hees leg befo' she'll start.

She'll keek hees foots hout strait behin',  
Den me'll come fraid dis mek me blin',  
Me tole heem, whee'le heem, spoke heem,—  
so,  
She'll don't hear me, den 'way she'll go.

She'll pass troo de hair lex ball hon de gum,  
An' hall de mans dere, she'll lak dat fun,  
She'll trot two mile one minit an' af,  
Me'll tole you dat fo' mek some laff.

Me tole you dis fo' mek you see,  
Dat hoss she'll got g'ot predigee,  
An' if hee's cot you want for look,  
Dats twanty cent an' fo' freesh-book.

Me h'ask beeg price fo' mek me reach,  
So me not work hon top de deetch,  
Me tole you dis long tam befo',  
You bot heem now you'll gees some mo',  
LEOPOLD, Bard de Jeanville.

—O—

FOR THE LAND WE LIVE IN.

## TO H. R. H. ALBERT VICTOR.

Poor Victor! yet, why should we call thee  
poor?  
Because thou hast entered Heaven's open  
door,  
Heir to a Throne, thou to a higher hast at-  
tained,  
Losing thy earthly crown, a heavenly one  
hast gained.  
Pity we, rather, those you've left behind,  
Queen, father, mother and sweet Mary, kind  
And well beloved, for all her gentle deeds  
Of mercy, in all sufferers' needs,  
How strange that God should order woe like  
this,  
The funeral pall and tears, instead of bliss,  
Well! God allowe it, so it must be goo!  
How little are God's ways by us understood,  
His work was finished here, God needed  
him  
For work on high, with saints and Seraphim  
A prince indeed, far nobler than when here,  
Yet, o'er his young life ended, we must shed  
a tear,  
A virtuous man, with an unsullied youth,  
Unblemished honour, and undoubted truth,  
Beloved and loving was this noble son,  
How true to her, his heart's dear, chosen  
one  
The nation's prince, we mourn with bitter  
tears,  
For God's child, taken home, we have no  
fears.  
With those bereft we grieve with heart and  
voice,  
But for Victor, we can but rejoice.

I fain would hope that your dear eyes may  
read  
The lines my hand has penned,  
I, so long, a humble worshipper  
Of England's sweetest lady.

DOROTHY FORSTER.

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