

pound crowns of this type are formed by the concrescence of three separate denticles.

Dr. Carl Röse has also completed a most valuable investigation upon the causes of the decay of teeth. (*'Ueber die Zahnverderbniss in den Volksschulen.'*) With the aid of two colleagues, in the schools of Freiburg and the Black Forest he has examined 7,364 children and 179,087 teeth. Special objects of the investigation were the relations of dental caries to the geology of the country, and the presence of a greater or less amount of lime salts in the water, and, secondly, the influences of the consumption of different kinds of farinaceous food. In general the use of water or food poor in lime salts affects the development of the teeth very unfavorably; and the use, especially, of fine milled white bread is very prejudicial to sound teeth, whereas the use of the common black bread keeps the teeth clean and the gums in a healthy condition. As regards stratigraphy the investigation shows that as we pass from granitic to overlying calcareous formations there is a steady decrease in the number of unsound teeth—falling from 35.3 to 16.1%. These figures are taken without regard to the character of the bread and other food consumed by the children and show exclusively the influence of water. The conclusion is that the worst teeth of the calcareous districts are always better than the very best teeth found within the non-calcareous districts, the degeneration of the teeth being indicated by a yellowish white and bluish gray color.

In the matter of food, meat is a great luxury among the peasant children, enjoyed, if at all, only upon Sundays, and can be left entirely out of account. Dr. Röse finds that the consumption of the German 'Kuchen' (made of white flour with milk, butter or oil and more or less sugar, raisins, etc.) is very prejudicial to the teeth; and, in fact, the very worst teeth are regularly

found within those districts where these cakes are habitually consumed. The conclusion as to food is that the very best form of foods, so far as teeth are concerned, is the black bread with its coarse, thick crust. The investigation extends to the relation between the general condition of the mouth and gums and epidemics of diseases such as diphtheria, which principally affect children, and Dr. Röse maintains that there is a direct relation between the unhealthy condition of the teeth and gums and a predisposition to epidemic diseases. He believes that in times of epidemics these disease germs are found in the mouths of nearly all children and that a healthy condition of the mouth resists the infectious power of the germ. As regards sex, there is very little difference between the boys and girls in the matter of decay. It is an interesting point that the development of the teeth is very much more rapid in girls than in boys, so that in children of the same age a much larger proportion of milk teeth are found among boys than among girls.

The article closes with a strong appeal for the education of children in the schools in the proper care and protection of the teeth, and the author recommends not only the careful instruction of children in this respect, but also the award of prizes.

H. F. O.

CURRENT NOTES ON PHYSIOGRAPHY.

THE MARGINAL PLAIN OF CHINA.

SKERTCHLY AND KINGSMILL describe 'the loess and other superficial deposits of Shantung, North China' (Quart. Journ. Geol. Soc., London, li, 1895, 238-253), recognizing the alluvial delta plains of the great rivers, a plain of marine sands, and a somewhat denuded lowland of loess. The delta of the Yangtse is estimated to increase by two square miles a year. The sandy marine plain is broadly developed over a bay-like area up the Yellow River,

back of its delta. The surface of the loess is diversified by valleys of denudation. This peculiar formation is explained as consisting neither of glacial flour nor æolian deposits; it is 'plainly stratified,' certainly of aqueous and probably of marine origin; but in the discussion following the reading of the essay the latter conclusion was disputed by several geologists present at the meeting. The outer margin of the loess lowland is an old, rounded sea cliff, with headlands and bays, overlooking the uniform level of the delta; but details of this interesting geographical feature are unfortunately not given.

RIVER VALLEYS OF THE HIMALAYAS.

THE occurrence of the chief water parting back of the highest range of the Himalayas has called forth various explanations, to which R. D. Oldham, Superintendent, Geological Survey of India, adds another (Jl. Manchester Geogr. Soc., ix, 1894, 112-125). He suggests that the south-flowing rivers have extended their headwaters backward through the main range, by reason of their great slope in comparison with the rivers that flow northwards from the mountains to the elevated table-lands of Thibet. The contrasted river slopes on the two sides of the present main divide are illustrated by a well drawn section. The author points out that the divides thus shifted away from the axis of the range always provide low passes through the mountains, because the former high slopes of the axial divide have been obliterated. [Heim describes terrace-like remnants of the upper parts of beheaded valleys in cases of this kind in the Alps, overlooking the deepened valley of the beheading stream; but no mention of these details is made by Oldham.] The larger rivers are thought to be antecedent to the out ranges of the Himalayas, across which they have cut profound gorges; but it is suggested that the heavy alluvial de-

posits in the inner valleys were formed while the uplift of the outer range decreased the grade and the activity of the rivers.

ORIGIN OF THE VALLEY OF THE RHONE.

THE geological changes which have preceded and led up to the existing structure of the valley of the Rhone are traced by Depéret, of Lyons (*Aperçu sur la structure générale et l'histoire de la formation de la vallée du Rhône*, Ann. de Géogr., Paris, iv., 1895, 432-452, two maps). The theme is an interesting one, and its treatment appears to be thoroughly competent in a geological sense; but although published in the most scientific of French geographical journals under the heading of *Géographie régionale*, the essay appears to us to lack the essential quality of geographical matter, inasmuch as the sequence of geological changes in the order of time, and not the development of existing superficial forms, constitutes its chief object. Anything that will throw light on existing forms contributes to their recognition and may be properly included under physiographical geography. No collateral study gives more assistance of this kind than geology, from which a knowledge of the structure of a land mass and of the processes at work upon it are derived; but structure and process must be studied strictly in relation to the forms sculptured by their interaction, if the study is to have a geographical flavor; and not simply in relation to their order of occurrence, for then the flavor is wholly geological. The first step in the study of form as dependent on structure and process is a thorough knowledge of local geology; this being already acquired and presented for the valley of the Rhone in the above-named essay, we hope that the learned author will now take the next step and describe the regional geography of the valley.

W. M. DAVIS.

HARVARD UNIVERSITY.