The work of Mr. Whipple is an invaluable guide for the microscopical examination of potable water, in comprehensiveness and execution far surpassing all previous manuals of the subject in the English language, or for that matter in any other. It is also of great interest to the biologist, since it summarizes from literature not ordinarily gleaned the contributions of many workers on varions problems of freshwater ecology. It is to be hoped that this book will serve as a stimulus to all engaged in this field of applied biology to contribute to the solution of the many unsolved problems which their facilities and opportunities peculiarly fit them to attack.

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Analyse Chimique Qualitative. Par M.-E. POZZI-ESCOT. Paris, Gauthier-Villars.

This little book is instructive and valuable, as the author, instead of following the beaten track of qualitative separations, adopts mainly the methods of M. Ad. Carnot, and of Engel and Silva for metalloids. He gives especial attention to the detection of the rarer elements, utilizing methods of Cleve, of Wyronboff and Verneuil, and others.

Some of the methods of Carnot are rapid and give elegant results; the method of separating cobalt, nickel, iron, zinc, manganese, thallium, indium, and uranium, utilizing hydrogen peroxide may be particularly commended.

EDWARD RENOUF.

DISCUSSION AND CORRESPONDENCE.

DEFORMED STERNA IN THE DOMESTICATED FOWL.

THE fact that the keel of the sternum is frequently crooked in the domestic fowl has long been known to me, but until the publication of several papers either discussing the cause of this deformation, or bringing it forward as an instance of the inheritance of an acquired character, the reason for it had seemed quite evident. Now it may be that this is one of the cases where a thing is not so simple as it appears to be on the surface, but the primary cause for this curvature of the sternal keel has always seemed to me enforced flightlessness and consequent failure of the pectoral muscles to pull the sternum straight, while this may be aggravated by the feeding of corn which forms flesh, but not bone. Another factor would seem to be the effort to breed fowls that shall be heavy in flesh, attempting to increase the size of the pectoral muscles at the very time the sternum is diminishing in size from the disuse of these same muscles. Thus while the sternum as a whole is degenerating a larger keel is needed for the attachment of muscles and under these conditions the only way to obtain more surface is by the curvature of the keel. It has been remarked that thoroughbred fowls are more liable than others to have deformed sternal keels and these it may be noted are the very birds that get the least amount of exercise. The games, and other breeds not raised for flesh usually have straight sterna while the heavy-bodied Asiatics are particularly liable to have crooked sterna and it may be said that the same deformation often occurs among fancy pigeons bred for show and deprived of exercise by being cooped up in lofts.

That a deformation inconstant in direction and far from universal should not be regularly inherited is not surprising; that it is due to resting the breast on the perch, although this may be one of various causes, is doubtful; that cases where the deformation seems to be passed from mother to chick should be regarded as instances of the inheritance of an acquired character is even more to be doubted.

Finally it may be said that this twisting of the sternal keel is much greater in a dried sternum than in one that is fresh or has been soaked over night in water. Among the sterna of Great Auk collected in 1887 not one was straight, although they could be made straight by soaking and it is a difficult matter to find a straight keel on the dried sternum of a Murre or Razorbill.

F. A. LUCAS.

REMARKS ON THE LOESS IN NORTH CHINA.

ALTHOUGH there has been considerable discussion regarding the loess of North China, there are some facts which have not been presented with sufficient prominence, although mentioned by Pumpelly and others. In a trip of 450 miles