

tional support. One hundred more subscribers in this country would probably encourage the editors to go on with it. These ought not to be difficult to get. To those who are unacquainted with it we may say that it is quite unique and occupies a different and higher plane than most bibliographic works. There is not merely a more or less roughly classified list of titles and brief abstracts of contents, but a series of logically arranged *critical* reviews pointing out the bearing of the paper, reviewed on the state of knowledge of the subject. The systems of cross referencing and indexing are wonderfully complete. The reviews are arranged primarily into twenty chapters, as follows: Cell, sex products and fertilization, parthenogenesis, asexual reproduction, ontogenesis, teratogenesis, regeneration, grafting, sex and pleomorphism, alternation of generations, latent characters, correlation, death, general morphology and physiology, heredity, variation, origin of species and specific characters, geographic distribution, nervous system and functions, general theories. Most of these chapters are elaborately subdivided. A feature has been comprehensive reports on the state of our knowledge of special topics. No one who is interested in the development of the topics named above can view with equanimity the prospect of the loss of this review. It is to be hoped that every biological laboratory and every library that has a scientific department and which lacks *L'Année biologique* will at once send a subscription to Schleicher frères, Paris, the publishers, or to Professor Y. Delage, Sorbonne, Paris, the chief editor.

CHAS. B. DAVENPORT,
JACQUES LOEB.

THE EPIDIASCOPE.

TO THE EDITOR OF SCIENCE: Who saw the epidiascope at the St. Louis Exposition? It appears in the catalogue of German scientific instruments at page 211, and is a most interesting type of projection apparatus, of especial utility to all schools. The possibility of speedy and facile transition from reflected to transmitted light, if worked out to the last optical and mechanical detail, would render

it worthy of wide adoption. The diffusion of knowledge of all the arts and sciences ought to be very materially enhanced by this perfected apparatus. The projection of printed pages, photographs, charts and works of art, all without the necessity of photography, is most important. The name of the inventor is not given: presumably Carl Zeiss, of Jena.

DAVID P. TODD.

AMHERST COLLEGE OBSERVATORY.

SPECIAL ARTICLES.

THE INFLUENCE OF CAVERNS ON TOPOGRAPHY.

It is well known that caverns, particularly those in regions underlain by limestone, are frequently associated with depressions in the surface above them, such as sink-holes, or swallow-holes, as they are commonly termed. It is also a familiar fact that the falling of portions of the roofs of caverns sometimes gives origin to ravines, canyons, etc., which are occasionally spanned by remnants of the roofs which remain in place, as in the case of the natural bridge of Virginia, and in other similar ways influence surface relief. A characteristic feature of this class of topographic changes is that depressions in the surface of the land are produced. The class of land forms to which attention is here invited, however, are exceptional, and, as it seems, have not been recognized as having a direct association with caverns, for the reason that they stand in relief and in some instances are conspicuous and picturesque on account of their height and boldness.

The topography of most regions the world over owes its leading characteristics, aside from elevation above the sea, to erosion. The chief exceptions are elevations produced by volcanic and glacial deposition. Erosion, particularly by streams, leads to the production of two classes of earth features, one class being due to the removal of material, as in the excavation of valleys, while the other class includes the remnants of uplands left when erosion to a plane surface is incomplete. In the production of such topographic changes, weak rocks, as a rule, are removed most readily and are replaced by depressions; while resistant rocks persist longer and are left in relief.