

SCIENCE

FRIDAY, SEPTEMBER 15, 1911

THE BRITISH ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE

THE CHARACTERISTICS OF THE
OBSERVATIONAL SCIENCES¹

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It will doubtless startle my audience to hear that this section has only once in its history been addressed by an astronomical president upon an astronomical topic. I hasten to admit that I am not using the term astronomical in its widest sense. Huxley once declared that there were only two sciences, astronomy and biology, and it is recorded that "the company" (which happened to be that of the Royal Astronomical Society Club) "agreed with him." One may agree with the company in assenting to the proposition in the sense in which it is obviously intended without losing the right to use the name astronomy in a more restricted sense when necessary; and at present I use it in its classical sense. At Brighton, in 1872, Dr. De La Rue addressed Section A on "Astronomical Photography" in words which are still worthy of attention, though they are all but forty years old; and this is the only instance I can find in the annals of the section. There have, of course, been occasional astronomical presidents such as Airy, Lord Rosse and Dr. Robinson, but these presided in early days before the address existed, or when it was brief and formal; and the only allusions to astronomical matters were the statements, by Robinson and Airy, of what the association had done in subsidizing the reduction of Lalande's observations and the Greenwich lunar observations. In 1887 Sir Robert Ball occupied this chair, but he

¹Address of the president to the Mathematical and Physical Section. Portsmouth, 1911.

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land. Philadelphia, P. Blakiston's Son & Co. 1911. Pp. 114, with eighteen maps and illustrations.

This is an attractive and well-printed work, yet withal a great disappointment. The principal title, "The Reduction of Domestic Mosquitoes," covers so fully one of the present great needs in the book line, that it is a distinct shock to discover that it practically applies "in warm climates" only. Mr. Ross was "late health officer, Port Said and Suez Canal District," and his practical experience seems all to have been gained in those localities. He tells, most interestingly, of the methods there adopted, of the difficulties encountered with the native population and of the successes attained. But the smallest portion of all this is applicable, except in the most general way, to American (United States) conditions.

Nearly half the book is taken up with generalities, telling of the life history of the domestic mosquitoes, by which he means chiefly the *Stegomyia fasciata* (yellow fever carrier) and *Culex fatigans* or *pipiens* (ordinary rain-barrel mosquito) and how objectionable they are. There is nothing new in this and the information is not even reasonably complete. American work is scarcely referred to at all and even the New Orleans, Havana and Panama work receives only more than a mere mention. It is perhaps natural that Theobald's work should be the only one considered worthy of mention from the systematic standpoint; but surely from the practical point of view the work done by Dr. Howard and his assistants in the U. S. Department of Agriculture deserves at least some notice.

Some of the statements concerning the life cycle are perhaps open to question, unless there is a greater difference between *C. fatigans* and *C. pipiens* than is usually supposed, and so in the brief consideration of natural enemies, not all can be considered strictly applicable to our conditions. Some of the matters are absolutely incorrect, as where waterboatmen or "backswimmers" (*Notonecta*) are credited with catching wrigglers and pupæ in their "jaws"—appendages which

they do not possess. That there may be no doubt of the mix-up, it is said that "it is a water-beetle," instead of as should be, a water-bug.

The importance of the mosquito work and the difficulties are not minimized and that a really effective campaign is an expensive matter is well brought out; but unfortunately the calculations and the preliminary work required do not fit or even serve as fairly accurate guides to conditions in those sections of the United States where "the reduction of domestic mosquitoes" is just now considered rather a timely matter, and the figures supplied would discourage the average American municipality if offered as a basis of an effective campaign.

JOHN B. SMITH

NEW BRUNSWICK, N. J.,
August 23, 1911

SCIENTIFIC JOURNALS AND ARTICLES

THE number of the *Journal of Medical Research* issued in September contains the following articles:

"The Vaccination of Cattle against Tuberculosis. II.," Theobald Smith.

"Organic Matter in the Expired Breath," Milton J. Rosenau and Harold L. Amoss.

"A Study of Primary Intimal Arteritis of Syphilitic Origin" (with one plate), Fraser B. Gurd and H. W. Wade.

"The Rapid Isolation of Typhoid, Paratyphoid and Dysentery Bacilli," Arthur I. Kendall and Alexander A. Day.

"An Investigation on the Permeability of Slow Sand Filters to *Bacillus Typhosus*," Edward B. Beasley.

"Certain Fundamental Principles Relating to the Activity of Bacteria in the Intestinal Tract," Arthur I. Kendall.

"Tuberculosis among Ground Squirrels (*Citellus beecheyi* Richardson)," George W. McCoy and Charles W. Chapin.

"Precipitation Tests for Syphilis," Lawrence W. Strong.

"Notes on Twenty-two Spontaneous Tumors in Wild Rats (*M. Norvegicus*)" (with one plate), Paul G. Wooley and Wm. B. Wherry.

"The Isolation of Typhoid Bacilli from Urine and Feces," F. F. Russell.

"The Isolation of *Bacillus Typhosus* from Butter," D. H. Bergey.

"Note on a Peptid-splitting Enzyme in Woman's Milk," Louis M. Warfield.

"Carcinoma Involving the Entire Kidney" (with two plates), Lindsay S. Milne.

"A Study of a Case of Thrombo-angitis Obliterans," Harlow Brooks.

"The Value of the 'Hormone' Theory of the Causation of New Growth," I. Levin and M. J. Sittenfeld.

THE contents of the *Astrophysical Journal* for September are:

"Spectrum of Comet Morehouse (1908 c)," A. de la Baume Pluvinel and F. Baldet.

"The Discovery of Eclipsing Variable Stars," Joel Stebbins.

"A New Bright Variable Star, β Aurigæ," Joel Stebbins.

"Motion and Condition of Calcium Vapor over Sun-spots and other Special Regions. II.," Charles E. St. John.

"An Enclosed Arc for Spectroscopic Work," James Barnes.

"The Spectra of Aluminium, Copper and Magnesium in the Arc under Reduced Pressure," James Barnes.

"An Inquiry into the Variation of the Spectroscopic Binary κ Pavonis," Alex. W. Roberts.

SPECIAL ARTICLES

THE ORIGIN OF THE GREAT PLAINS

PASSARGE'S dictum that "Wasser ist nicht im Stande solche Ebene zu erodieren" now seems eminently applicable to vast, arid and remarkably smooth plains other than those of the great South African plateau. In the light of the recent advances in our knowledge of general desert-leveling, or regional planation and lowering without base-leveling, the vastness and evenness of the Great Plains lying between the Rocky Mountains and Mississippi River at once raise the query whether genetically their dominant characters have been properly interpreted.

At the present time the geologic formations receiving greatest critical attention are those known as continental deposits, or terranes laid down and preserved on land instead of in lakes or seas. In the recent considerations of

the subaerial formations so many novelties enter that in many an old and well-known field a new interest is aroused. The Great Plains and their deposits are one of these. On a grand scale they appear to introduce to us a mode of terranal genesis hitherto almost unrecognized. Continental deposits thus begin to assume in this country an importance which has never been before accorded them.

Singularly enough, the so-called fresh-water Tertiaries of the Great Plains have had ascribed to them every known method of origin. The same is true of the surface-relief. In the descriptions and discussions of this one geologic formation and of this single topographic feature is reflected in all its various phases a century's trend of sedimentative and physiographic thought in America. For this reason, if for no other, the theme is deserving of more than passing notice.

The origin of the Great Plains and their deposits has been ascribed to (1) normal marine deposition, (2) lacustrine sedimentation in vast bodies and (3) fluvial aggradation. To these hypotheses must now be added a fourth—that of eolic planation. In the extreme west in front of the Rocky Mountains is a belt of deflative character where often the substructure forms a typical rock-floor. In the broad median belt eolian deposition to vast extent has taken place, and is still going on. In the eastern belt along the Missouri River wind-effects, although extensive, are almost wholly obscured by moist-climate phenomena.

The two essential points to be noted are, first, continental deposits may be as important as marine or lacustrine deposits; and second, that on the American continent eolic deposits are of vast extent and are being formed under conditions whereby they may be preserved through the geologic ages as effectively as any of the marine Cambrian terranes have been.

In this new century the theory of eolic planation and deposition promises to be one of the half-dozen great and novel thoughts in the domains of geology.

CHARLES R. KEYES