

account of Clairaut's treatise on the figure of the earth, we learn that 'in the theory of Clairaut here presented is contained, beyond all doubt, the idea that underlies the doctrine of *force-function* or *potential*, which was afterwards developed with such splendid results by Laplace, Poisson, Green, Gauss and others.' (P. 398).

In the section on mechanical units, adapted to American usage by Mr. C. S. Peirce we notice the suggestion that the unit of acceleration be called a 'galileo,' as one more contribution to supply 'a long felt want.' The suggestion is at once adopted in the illustrations that follow.

Under 'The formal development of mechanics' is presented a view of the characteristic *classes* of problems that have arisen. This, together with a discussion of the various points of view, theological, animistic and mystical, of the great investigators, a section on analytical mechanics, and one on the economy of science, makes a most readable and enjoyable chapter.

The final chapter treats of the relations of mechanics to other departments of science, and is the least satisfactory one in the book. It opens with the declaration that "purely mechanical phenomena do not exist;" an arbitrary assertion which is explained by the equally arbitrary one that 'with dynamic results are always associated thermal, magnetic, electrical and chemical phenomena.' The statements are arbitrary because there is no proof of them. The author deprecates explaining all physical phenomena by mechanical ideas, saying, "we have no means of knowing, as yet, which of the physical phenomena go *deepest*, whether the mechanical phenomena are perhaps not the most superficial of all, or whether all do not go equally deep." Precisely; and for that reason, if for no other, we would take exception to the opening remark quoted above. Even if it were shown that no supposed mechanical phenomenon occurred without one or more of the other effects mentioned, the proposition would be by no means proven. Attraction, repulsion and strain are the very essence of mechanics and it is by no means certain that they are not the essence of other branches of physics also. There is nothing to show that magnetic, electrical and even chemical phenomena may not be ultimately and purely mechanical in their nature.

The translation is occasionally very free, but generally faithful to the meaning of the original, and only varied from it in form, to make the statements more lucid. This effect is heightened by the insertion of several brief notes by the translator.

Reproductions of quaint old portraits and vignettes give piquancy to the pages. The numerous marginal titles form a complete epitome of the work; and there is that invaluable adjunct, a good index.

Altogether the publishers are to be congratulated upon producing a technical work that is thoroughly attractive in its make-up.

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*On a Collection of Mammals from Arizona and Mexico, made by W. W. Price, with Field Notes by the Collector.* By J. A. ALLEN. Bull. American Museum Natural History, vol. VII., pp. 193-258, June 29, 1895.

This important paper is based chiefly on a collection of 1500 specimens of small mammals obtained by W. W. Price in 1894 in southeastern Arizona. Mr. Price contributes an itinerary and descriptions of localities at which collections were made—a useful feature too often omitted in faunal papers. He also attempts to define five life zones, but fails to correlate them with the zones now commonly recognized in the region. His *first* is wholly Lower Sonoran; his *second* comprises the upper part of the Lower, and lower part of the Upper Sonoran; his *third* is the upper or *juniper belt* of the Upper Sonoran; his *fourth* is the Transition, and his *fifth* the Boreal.

The annotated list of mammals by Dr. Allen, with Mr. Price's field notes, covers 58 pages and is a great addition to the published record of our knowledge of Arizona mammals. Several changes in nomenclature are made and one species is described as new (*Thomomys cervinus*, a pocket gopher from Phoenix). The other new forms were described by Dr. Allen in a previous paper. *Perognathus conditi* and *Perodipus chapmani* are allowed to stand as species, although it has not been shown how the former differs from *Perognathus paradoxus*, or the latter from *Perodipus ordi*.

All of the wood rats are lumped under a

single species, *Neotoma mexicana* Baird, and the extraordinary opinion is expressed that *N. albigula* Hartley 'is not separable from *N. mexicana*.' Here, as in a previous paper, the author shows himself hopelessly at sea. *Neotoma albigula* and *N. mexicana* not only inhabit different life zones but belong to different groups or subdivisions of the genus!

The Arizona form of the Plains Prairie Dog is given as a distinct species, but anyone who will take the trouble to compare it with specimens from New Mexico and Texas will see that at most it is only a subspecies. On the other hand, the long-eared Arizona Jack Cottontail is given as a subspecies, though very distinct from any other known rabbit.

By curious lapse of memory the round-tailed spermophile (*Spermophilus tereticaudus*) is allowed to remain in the subgenus *Ictidomys*—a subgenus erected by Dr. Allen in 1877 for species with narrow elongate skulls. The species originally referred to it are *tereticaudus*, *tridecemlineatus* and *franklini*. *S. tereticaudus* has one of the shortest and broadest skulls known in the whole genus *Spermophilus*, but, probably by accidental transposition of skulls, it was described by Dr. Allen as long and slender. When his attention was called to the matter he very properly withdrew *tereticaudus* from the group and suggested that *13-lineatus* be taken as the type of *Ictidomys*, no type having been designated in the original description. But in the present paper the short skulled *tereticaudus* is again placed in *Ictidomys*!

Say's ground squirrel (*Spermophilus lateralis*) is persistently referred to the genus *Tamias*—a genus with which it has no affinity whatever and to which it bears only the most superficial resemblance.

With respect to the white-footed mice of the *Peromyscus sonoriensis* group, it is not likely that the last word has been said.

The generic name *Adelonycteris*, adopted from Harrison Allen for the large Brown Bat, has no claim for recognition, being antedated by at least two names of equal pertinency.

The specific name now in current use for the Mountain Sheep (*Ovis canadensis* Shaw) is replaced by *O. cervina* Desm. without apparent reason. Both names were published in 1804,

but there is no evidence that *cervina* antedates *canadensis*. In the absence of positive proof of priority such changes are most unfortunate and not likely to stand.

Passing from technical matters to the substance of the paper, one finds much of interest and numerous previously unpublished records. And it is gratifying to learn that elk still inhabit the White Mountains on the boundary between Arizona and New Mexico, where one was shot August 10, 1894. It is to be regretted that the specimen was not preserved.

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*La sensibilité de l'œil aux couleurs spectrales.* M. PARINAUD. *Revue Scientifique*, Sér. 4, T. 3, 709-714. June 8, 1895.

In a recent number of the *Revue Scientifique* Parinaud gives the results of certain interesting experiments upon the relative sensitiveness of the eye to spectral colors seen under different conditions of retinal adaptation. Two degrees of adaptation were used, one that of the eye in ordinary vision, the other that of the eye from which light has been completely excluded for 20-30 minutes. The following little table gives

Condition of the Retina.	A	B	C	D	E	F	G	H
20-30 min. darkness...	?	$\frac{1}{400}$	$\frac{1}{100}$	$\frac{1}{10}$	1	1	$\frac{1}{100}$	$2\frac{1}{10}$
Ordinary conditions...	?	$\frac{1}{400}$	$\frac{1}{100}$	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{500}$	$\frac{1}{1500}$	?

the general results of the experiments, the letters standing for the Fraunhofer lines. While the figures are not to be taken in any sense as absolute, there are several interesting relations that appear in them.

The red end of the spectrum, for example, appears wholly unaffected by adaptation, though the place of greatest brightness shifts decidedly toward the violet. It was observed further that, with the adapted eye and the low intensities of light used with it, colors from the yellow onward to the violet (*i. e.*, the colors which are influenced by adaptation) appeared colorless; in other words, adaptation of the eye decreases the saturation of the colors seen until they at last appear entirely white. The red end is seen as red if seen at all. A third observa-