ion? The question is easily answered. All these minerals have once been embedded in the granitic gneiss which is the principal rock of the region" (and which weathers readily). . . . "In weathering, the difficultly decomposable precious stones have not been attacked, or attacked only to a limited extent: they have therefore retained their original form and hardness. When in the course of thousands of years, streams of water have flowed over the weathered rock, the softer constituents have been for the most part changed into a fine mud, and as such washed away, while the hard gems have only been inconsiderably rounded and little diminished in size. The current of water, therefore, has not been able to wash them far away from the place where they were originally embedded in the rock; and we now find them collected in the gravel-bed, resting for the most part on the fundamental rock which the stream has left behind, and which afterwards, when the water has changed its course, has been again covered by new layers of mud, clay, and sand. . . . Of all the kinds of stones which are used for ornaments, there are both noble and common varieties, without there being any perceptible difference in their chemical composition. The most skilful chemist would have difficulty in finding, in their chemical composition, the least difference between corundum and sapphire or ruby; between common beryl and emerald; between the precious and common topaz; between the hyacinth and the common zircon; between precious and common spinel: and every mineralogist knows that there are innumerable intermediate stages between these minerals which are so dissimilar, though absolutely identical in composition. This gave the old naturalists occasion to speak of ripe and unripe precious stones. They said that in order to ripen precious stones the heat of the south was required. This transference of well-known circumstances from the vegetable to the mineral kingdom is certainly without justification. It points, however, to a remarkable and hitherto unexplained circumstance; namely, that the occurrence of precious stones is, with few exceptions, confined to southern regions. . . . Another remarkable fact in connection with precious stones is, that most of those that come into the market are not found in the solid rock, but as loose grains in sand-beds. True jewel-mines are few, unproductive, and easily exhausted. From this, one would be inclined to suppose that precious stones actually undergo an ennobling process in the warm soil of the south."

To the writer of this note, it seems more reasonable to suppose that the greater abundance of noble gems in southern climates should be attributed to the more active and thorough-going disintegration which occurs in those regions, and to the consequent — comparatively speaking — enormous accumulation and concentration of the precious minerals, as above suggested. Other things might be far from being equal, and yet the chance of finding a stone of price be greater in a heap of ten thousand rough jewels than in a collection which contains but a few score.

Bussey Institution. F. H. Storer.

The November aurora in California.

Auroras are exceedingly rare phenomena in southern California; yet we had the pleasure of witnessing one Nov. 17, at which time a great electric storm raged over North America and Europe. The photographic traces during the time from Nov. 10 to Nov. 20 are very interesting; as they have preserved a perfect record of the twitchings and jerkings, large and small, fast and slow, to which the magnets were subjected during this time.

A slight shock of earthquake was reported here on Jan. 23, about 5.20 P.M. I was on the street, and did not feel it; and so far as I can detect no harm was done at the observatory. Marcus Baker.

Los Angeles, Cal., Jan. 26.

TRYON'S CONCHOLOGY.

Structural and systematic conchology: an introduction to the study of the Mollusca; by George W. Tryon, Jr. Vol. I. Philadelphia, *the author.* 1882. 8 + 312 p., cuts, 22 pl. 8°.

We have received the first volume of Mr. Tryon's new work (to be completed in three volumes), intended as an introduction to the study of the mollusks. This portion consists of some general considerations, a description of the anatomy, habits, and economy, distribution in space and time, notes on nomenclature, classification and collection, of mollusks. Assistance in paleontological matters has been rendered by Prof. Angelo Heilprin. The work is well printed and bound; but the plates, though not so bad as in the 'Manual' of the same author, contain mostly inferior renderings from old and familiar figures, produced by processes which cannot be made to yield really good results. The map is very badly drawn, and besides this, through 'overlaying,' resulting from folding and inferior or excessive ink, has become nearly illegible. Mr. Tryon frankly disclaims authorship for his compilation, which is derived almost wholly from Woodward's well-known 'Manual,' and the earlier parts of Dr. Paul Fischer's 'Manuel de conchyliologie,' now in process of publication. Since both these works are accessible at a total price less than that of the first volume of Mr. Tryon's book, it is not clear why the latter should exist. Perhaps the future volumes will explain.

Meanwhile we do not feel that any very warm welcome should be extended to a work of compilation so destitute of perspective as this. Though not what the author would have made it had Lovèn's work on the dentition of mollusks appeared ten years earlier, Woodward's book is nevertheless a thoroughly coherent manual, in which the parts retain proper proportions to each other and to the whole. There are many statements in it which are now obsolete, or supplemented by more precise, fuller, or more accurate information. Groups not recognized by Woodward have attained their majority, and no longer train timidly in the leading-strings of a few bold specialists. The study of embryology, histology, and general anatomy, has entirely changed the situation so far as the point of view is concerned; but the great merits of Woodward, as originally published, are as conspicuous as ever. The work of Dr. Fischer is directly on Woodward's lines, and embodies of course much of his information; but it is not a mere revision, an ill-considered conglomeration like that of Tate, nor such a compilation as the present one of Tryon's. Silk and leather are good in their places; but man does not patch one with the other, or, doing so, repents of it. Mr. Tryon's first volume appears to us to resemble a mosaic of granite, chalk, precious stones, and mud, which is not delightful to the eye, neither will it wear. The work of the last twenty years in general, except so far as embodied in the ex-

tracts from Fischer, finds no place in it, though here and there an isolated fact is planted side by side with some crude observation of the first quarter of this century. Ihering's classification, the most pregnant and suggestive (if not the most successful) attempt in many years, is not even mentioned. There is shown no grasp of the subject; and, on contested questions of importance, the treatment recalls a man in a menagerie poking up the animals through the bars. Errors of fact and of the types could be cited in abundance: but it is not necessary to descend to small details; the real fault is with the architecture, not with the bricks.

THE PARIS METEORITES.

Guide dans la collection de météorites du Muséum d'histoire naturelle. Paris, *Masson.* 1882. 40 p. 8°.

THIS little work of some forty pages is valuable as giving in brief the results of the extended studies upon meteorites by Prof. A. Daubrée and his assistant Dr. Stanislas Meunier. Besides furnishing a catalogue of all the specimens to be found in the collection, three hundred and six in number, it discusses the origin, characters, classification, etc., of meteorites. These are regarded as having a common origin, and possessing types corresponding to rocks and structures of terrestrial origin, i.e., to lavas, dunite, lherzolite, serpentine, breccias, pumice, metallic veins, metamorphic rocks, etc. The classification is one which, in its simpler divisions, has been well received, but in the minor subdivisions is but little known; hence it is a matter of interest to place this classification in its latest phase before our readers.

METEORITE.

I. HOLOSIDERITE.
Octibbehite, tazewellite, nelsonite, catarinite, braunite, caillite, schwetzite, jewellite, campbellite, burlingtonite, tuczonite, lenartite.

II. SYSSIDERITE.
Pallasite, atacamaite, brahinite, deesite, lodranite.

III. SPORASIDERITE.
1. *Polysiderite.* — Toulite, logronite.
2. *Oligosiderite.* — Aumalite, chantonnite, aiglite, montrejite, parnallite, luceite, canellite, mesminite, belajite, butsurite, manbhoomite, banjite, limerickite, menite, bustite, richmondite, tieschite, erxlebenite, quincite, stawropolite, tadjerite, rutlamite, renazzite.
3. *Cryptosiderite.* — Howardite, ornansite, chladnite.

IV. ASIDERITE.
Igastite, rodite, eukrite, shalkite, chassignite, bokkevelite, orgueillite.

The principal divisions, as will be readily seen, are based on the presence or absence of iron, and its relations to the associated silicates when they are present. The subdivisions are named from the localities at which the specimen chosen as a type happened to fall. It is unfortunate that the bibliographical index, professing to give the principal works relating to meteorites, should be so very imperfect, — giving only *eight* works and papers, omitting such as the classical publications of Chladni in 1819, Schreibers, and Partsch, and the more recent ones of G. Rose, Shepard, Clark, Harris, Rammelsberg, Kesselmeyer, Phipson, Lawrence Smith, and others.

EARLY ORIENTAL HISTORY.

Histoire des anciens peuples de l'orient; par LOUIS MÉNARD. Paris, 1882. 468 p. 8°.

THIS work contains the outlines of Egyptian, of Assyrio-Babylonian, and of Israelitish history. Parts i. and ii. are profusely illustrated from the monuments. Part ii. (Assyria and Babylonia) covers 102 pages, and discusses in five chapters the region of the Tigris and Euphrates, the primitive times, the Sargonidae, the new Chaldean empire, the monuments, religion, manners, and customs. The author tells in a pleasing way what he knows of these topics; but, unfortunately, he is not a student of Assyriology, nor has he informed himself as to the latest results of Assyrian study. His authorities are the Old Testament, Berosus, and the classic writers and the older generation of explorers and decipherers (Botta, Layard, Rawlinson, Hincks). Of the younger generation, with one or two exceptions, he knows absolutely nothing (Smith and Sayce in England; Halévy, Pognon, and Guyard in France; Schrader, Delitzsch, and others in Germany). Hence he quotes (p. 261) from Berosus the Chaldean legend of the deluge, and points out its similarity to the biblical account, without even mentioning the cuneiform deluge story discovered by the lamented George Smith. On p. 262 he tells us that the name 'Babylon' seems to mean 'gate of god.' Certainly this meaning is above possible doubt. He informs us (pp. 262, 263) that the people of Accad and Sumer are of different race; the former being Cushites, and speaking a language approaching the Semitic tongue, the latter being of the Scythic or Turanian stock. He has evidently never heard of Paul Haupt, who has shown that the peoples of Sumer and Accad spoke the same language with dialectical differences, — a language utterly unlike any Semitic tongue. He says (p. 273) that 1112 B.C. is the oldest date which can be established for the history of Assyria. He should