and plans; whilst short references are made to the most notable masonry dams in other countries. La Grange dam in California, for diverting the water of the Tuolumne River for irrigation, 125 feet high, resembles the Vyrnwy dam in section, the outflow in both cases taking place over the top of the dam. The San Mateo concrete dam in California, designed to have a height of 170 feet, but stopped at present at 146 feet, and a total length at the higher level of 680 feet, has a bottom width of 176 feet, and is arched up-stream with a radius of 637 feet; and the reservoir formed by the completed dam will have a capacity of 29,000 million gallons. The Ash Fork steel dam, 184 feet long and 46 feet high for a central 60 feet, built in 1897 across Johnson canyon in Arizona, is a novel type of dam, constructed with triangular steel frames covered with steel plates; but the experiment has not proved satisfactory, as the steel dam leaks considerably at its junctions with the masonry buttresses at both ends, and with the concrete foundation at the base. An interesting form of the failure of a masonry dam is furnished by the history of the Austin dam in Texas, illustrated by views, 1091 feet long and 68 feet high, built in 1891–92 and founded on limestone rock. In April, 1900, an unprecedented flood of the Colorado River raised the water-level of the reservoir 11 feet above the crest of the dam; and 500 feet of the dam slid forward on the foundation about 60 feet down stream, though a flood in the previous summer, raising the water 9⅘ feet above the crest, had passed down without injuring the dam. Another interesting feature of this work was the filling up of over two-fifths of the reservoir capacity with sand and silt in four years, owing to the yearly discharge of this sediment-bearing river amounting to about forty times the capacity of the reservoir.

Some earthen dams constructed in California and Colorado, for forming reservoirs for irrigation, are described in a short chapter. Natural reservoirs in the great plains to the east of the Rocky Mountains, formed by depressions collecting the storm waters from the adjacent districts and devoid of an outlet, can be readily utilised for irrigating arable lands at a lower elevation; and examples of such reservoirs are described in the fifth chapter. The final chapter is devoted to schemes for reservoirs, mainly in California, Colorado, Montana, New Mexico, and Utah, and like the preceding chapter possesses mainly a local interest; but the descriptions serve to show what a field there is in these Western States for such works, and what a large development of irrigation, with its attendant benefits, may be accomplished in these regions.

OUR BOOK SHELF.

The Anatomy of the Cat. By Jacob Reighard and H. S. Jennings. Pp. xx + 498. (New York: H. Holt and Co., 1901.)

YET another book upon the cat! With the great treatise of Strauss-Durckheim, and the books of Mivart, Wilder and Gorham, published, and the great work of Jayne in course of publication, there would seem little room left for this now before us. When, however, it is remembered that the treatise of the first-named author is not available for American students; that, like that by Wilder, it deals only with parts of the animal described; that the late Dr. Mivart's book, rather a general treatise on mammalian morphology than a special one upon the cat, fails completely in most parts where anatomical detail peculiar to this animal is concerned; that the book by Messrs. Gorham and Tower, though a laboratory treatise, is but brief—it will be clear that ample room is left for the work under review, which is designedly a laboratory book, giving a complete and well-balanced description of the facts of anatomy of the animal concerned "in moderate volume and without extraneous matter."

There are in all 472 pp. in the book, of which the appendix of 44 pp. is wholly given to directions for practical dissection. The body of the work consists of brief but concise descriptions of the organic systems taken in order—the skeletal, muscular, visceral, circulatory, nervous and sensory systems (the latter with the integument) being in turn dealt with. Anatomical characters are alone recognised; neither those histological nor which concern growth stages of even the bones are in any way given; nor is there any reference to literature beyond brief mention of the works by the aforenamed anatomists and some few others, together cited in the preface. Our authors have done well to consult the myological observations of Windle and Parsons, but they have omitted to even record the important work upon the morphology of the digestive tract of the cat, by Dr. Franklin Dexter, of the Harvard Medical School, which has been progressing side by side with their own.

This book is what it professes to be—a laboratory treatise, clear, deliberate and clean cut, in its style and method most nearly akin to the didactic laboratory treatises of the late Milnes Marshall, so fully in vogue by the type of student who cares only for facts. It is based upon an earlier account of the anatomy of the cat, designed by the senior author for class use in the University of Michigan in 1891-92. The junior author is responsible for its completion for publication, and the 173 text illustrations, which, though clear, are in no way remarkable, have been prepared under his supervision by his wife.

The chief novelty of the book is a system of nomenclature, based upon that proposed in 1895 by the German Society of Anatomists. A large section of the preface is devoted to a discussion of this and cognate subjects; the use of Latin terms in their English form, and the significance of topographic terms and terms of precise orientation, being among the more important topics discussed.

We are informed that the notes which furnished the basis of the book have been used with success in four or five of the American Universities, and although among English teachers, who prefer the rabbit to the cat for educational work, the book will be little in demand, it will be welcome beyond those upon the cat hitherto in use on account of its accuracy of descriptive detail and uniformity of treatment.

Essays in Illustration of the Action of Astral Gravitation in Natural Phenomena. By William Leighton Jordan, F.R.G.S., M.R.I., Assoc.Inst.C.E., F.S.S., F.S.A., F.R.M.S. Pp. xv+192. (London: Longmans, Green and Co., 1900.)

WHEN an author puts forward perfectly new views in opposition to those generally accepted, using technical terms like *force* and *energy* in several new senses, it is very difficult to find out exactly what he means. In his definitions he says that gravitation resists all impressed motion with a force as the square of the velocity. He defines *vis inertiae* as the force with which matter resists motion. It is as the mass multiplied by the square of the motion resisted. After defining momentum, he says that it is resisted by the inertia of matter in its origin and in its progress, whereas Newton's first law of motion supposes inertia to resist its origin but to sustain its progress. The author's membership of many learned societies might warrant the belief that he has some meaning in what he says, but it is certainly very carefully concealed.