and to secure more perfect constructions and more permanently valuable operation of his machinery, is lamented in some of the discussions and with good reason ; yet it is obvious that this lack is entirely natural ; but it is equally obvious that when the technically educated and professionally trained men of the coming generation, now just issuing from the technical and professional schools, to take the lead in the work of the industries of all departments, shall have reached their period of maturity and of maximum usefulness, this difficulty is likely largely to disappear. In fact, the technical papers of the time are coming to more and more illustrate the literary, as well as professional powers of this class.

The illustrations are all well-made, some half-tone, others engraved, many diagrammatic, and constitute a most important feature of the volume. The book-making is excellent and the whole may be taken as among the best, if not itself the very best, of illustrations of the character of the work of the contemporary man of science in these departments of application. The mechanic and engineer of to-day is the maker of the modern material world and it gives the average citizen of every civilized country a feeling of satisfaction and of safety to find that he is at once 'practical' and scientific, experienced and learned, competent to unite the best of scientific knowledge with the richest of technical experience in the design, the construction and the operation of the machinery of the world and in thus building the foundations of our civilization broad and deep and solid. This volume has large significance from the point of view of the economist, the educator, the philosopher and the statesman, as well as from that of the technicist and the engineer.

Its editor, the secretary, deserves cordial congratulations.

R. H. THURSTON.

BOOKS RECEIVED.

Elementary Anatomy, Physiology and Hygiene. WINFIELD S. HALL. New York, Cincinnati and Chicago, American Book Company. 1900. Pp. 273. 75 cents.

Life and Letters of Thomas Henry Huxley. LEONARD HUXLEY. New York, D. Appleton & Company. 1900. Vol. I. Pp. xi + 539. Vol. II. Pp. vii + 541.

The Limitation of Learning and other Science Papers. ALBERT SCHNEIDER. Chicago, Chicago Medical Book Company. 1900. Pp. 100.

Text-book of the Embryology of Invertebrates. E. KORSCHELT and K. HEIDER. New York, The Macmillan Company. London, Swan Sonnenschein and Company. 1900. Vol. IV. Pp. xi + 594. 18s.

One Thousand Problems in Physics. WILLIAM H. SNYDER and IRVING O. PALMER. Boston, Ginn & Company. 1900. Pp. v + 142.

An Elementary Treatise on Qualitative Chemical Analysis. J. F. SELLERS. BOSTON, Ginn & Company. 1900. Pp. ix + 160.

The Progress of Invention in the Nineteenth Century. EDWARD W. BRYN. New York, Munn & Company. 1900. Pp. viii + 476. $3.00.

Die Erdströme im deutschen Reichstelegraphengebiet und ihr Zusammenhang mit den Erdmagnetischen Erscheinungen. B. WEINSTEIN. Braunschweig, Friedrich Vieweg und Sohn. 1900. Pp. vi + 78 and 19 plates.

Theoretische Betrachungen über die Ergebnisse der wissenschaftlichen Luftfahrten. WILHELM VON BEZOLD. Brunschweig, Friedrich Viewig und Sohn. 1900. Pp. 31.

Über Museen des Ostens der Vereinigten Staaten von Nord Amerika. A. B. MEYER. Berlin, R. Friedländer und Sohn. 1900. Pp. viii + 72.

The Biography of a Baby. MILLICENT WASHBURN SHINN. Boston and New York, Houghton, Mifflin & Co. 1900. Pp. 246. $1.50.

A Reader in Physical Geography. RICHARD ELWOOD DODGE. New York, London and Bombay. Longmans, Green & Company. 1900. Pp. ix + 231.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 329th meeting was held on Saturday evening, December 1st.

L. Stejneger presented a paper 'On Post-Pliocene Migrations of Siberian Animals into Europe,' saying that three invasions of Siberian higher vertebrates into western Europe are distinguishable since Pleistocene times. The first one took place before the maximum glaciation of the ice age, at a time when Ireland and Norway were both connected with Great Britain,

and the latter with France. The second invasion, the so-called 'Great Siberian Migration,' took place after the deposition of the continental boulder day in Central Europe, and the retreat of the glaciers, reaching only England, as Ireland and Norway had become detached by that time. A branch of this invasion reached Scandinavia from the east. The third invasion is still in progress, being most marked and most easily demonstrated along the shores of the Arctic Ocean, entering Scandinavia from the northeast over Finland and northern Russia, a comparatively recent connection between Norway and Siberia. The immigration of a number of birds and mammals into Scandinavia by this route was treated in detail, from both a historical and a distributional point of view.

Erwin F. Smith spoke of 'Sugar Beets in New York and Michigan,' describing the methods of beet cultivation and the various steps in the process of making beet sugar. As many as three hundred acres of beets were raised on one farm, and the daily output of one of the smaller factories was five tons. In theory, the speaker stated, the beet crop was one of the best possible for the land, since by utilizing the waste products of the sugar factory, the potash taken from the soil could be returned to it, but unfortunately in practice this was not done and the waste products, instead of being used, were in Michigan dumped into the streams. Beet diseases, it was said, were already a serious problem, causing serious losses to the farmer, and other diseases would doubtless be introduced from Germany, whence came most of the seed used in this country.

F. A. Lucas.

THE ROYAL SOCIETY.

The report of the Council states according tot he London *Times* that during the past year its time and attention had been largely occupied by business connected with matters of national and international scientific interest, in which her Majesty's Government had either directly sought the advice and assistance of the Society, or had itself given assistance and financial support to undertakings promoted by the Society in the interests of science. The operations of the National Physical Laboratory had been carried on in the buildings of the Kew Observatory. The control of the work carried on by the Kew Committee of the Royal Society was taken over by the executive committee from January 1st, and the property of that committee was made over to the Royal Society from that date. The committee, which was incorporated as a public company, has since been dissolved. The work at Kew Observatory had been continued in all its branches. After considerable discussion, plans for a physics building, at an estimated cost of £6,000, and an engineering laboratory, at an estimated cost of £4,000, were approved by the executive committee and submitted to the general board. Unfortunately, all these plans must be discarded, and very grave loss of time had been caused by the unexpected opposition to the erection of the laboratory in the Old Deer-park. Her Majesty's Treasury had now informed the Council that her Majesty was willing to assign the lease of Busheyhouse and the surrounding ground, thirty acres in extent, for the purpose of the National Physical Laboratory, and that the Government would increase the grant for building by £2,000 in order that the extensive alterations and repairs which would be necessary might be carried out. Though the Council regretted the decision of the Government not to erect the laboratory in the Deer-park, they recognized with gratitude that her Majesty had been graciously pleased to place at the disposal of the Society a site in which the work of the laboratory could be carried on, and they had, therefore, accepted the offer made to them by her Majesty's Treasury. The committee had to thank various donors for gifts. Sir Andrew Noble had contributed £1,000 for the purchase of apparatus. Dr. Isaac Roberts had given a spectroscope and two very valuable induction coils. Dr. Common had provided apparatus for determining the magnifying power and testing

* 'The Principles of Stratigraphic Geology,' by J. E. Marr, 1898, p. 98.

† See *Bull. Amer. Paleont.*, No. 13, November, 1900. Ithaca. 26 pp., 5 pl. Describes twenty new species of calciferous Gastropoda, Brachiopoda and Trilobites; also one new genus of Trilobita, all from the Mohawk Valley, usually considered unfossiliferous.