Cobbler of Aggawam in America,' where it is said, at page 13, "It is less to say *Statuatur veritas, ruat regnum*, than *Fiat justitia, ruat cælum*."

The death is announced, at his house in George Street, Edinburgh, of Mr. Alexander Sinclair, a distinguished antiquary and genealogist. He was an uncle of Sir Tollemache Sinclair.

The remarkable series of papers on the Eastern Question which have been appearing in the *Rundschau* are by General Hartmann, of the Bavarian army.

The New York *Nation* says:—

"The *Transactions* of the American Philological Association for 1876 makes, with an abstract of the proceedings, a volume of 224 pages. Five out of the nine papers printed in full have Latin and Greek subjects. Dr. J. Hammond Trumbull's is on the Algonkin verb. Prof. W. D. Whitney exposes forcibly a botanico-philological vagary of Max Müller's. Prof. S. S. Haldemann shows briefly that the *u* of French words like *sauce* (Lat. salsus), *faux* (Lat. falsus), &c., is not, as is commonly supposed, derived from the *l*, but from the preceding vowel of the Latin word. One's first impression on seeing the strange forms 'independentli,' 'similarli,' and 'orthographi' in this paper, is that the proof-reader had nodded; but on reflection it appears that Prof. Haldemann thus utters his protest against the prevailing orthography, and naturally begins with the affixes."

The 'Sayings of the Jewish Fathers,' comprising the Hebrew text and the English translation, with critical and illustrative notes, by the Rev. Charles Taylor, Fellow of St. John's, Cambridge, has appeared. The second part of it, which will give a catalogue of manuscripts of the Hebrew text, and of commentaries on it, of which Mr. Taylor made use, is in the press. We hope to review this important publication when the work is completed.

M. Willem, of Paris, is about to reprint, from the 1839 edition, the 'Madame Putiphar' of "Pétrus Borel," one of the pioneers of romanticism in France. The work will be in two volumes, and contain a "Préface" by M. Clarétie, the author's biographer.

Of Manzoni's celebrated novel, 'I Promessi Sposi,' 116 Italian editions have been issued, 37 printed at Milan, 18 at Florence, 11 at Naples, 7 at Lugano, 6 at Turin, 3 at Parma, 3 at Mendrisio, 2 at Leipzig, 2 at Malta, 1 each at Leghorn, Placentia, Pesaro, Vienna, Rome, Brussels, and London; 20 in Paris. Of translations, 17 in German; 19 French; 10 English; 3 Spanish; 1 Greek, Swedish, Dutch, Russian, Hungarian, and 1 Armenian.

The death is announced of Mr. W. Lovett, well known as a Chartist leader, but worthy of mention here for his efforts to promote education. In 1852 he published some elementary lessons in Anatomy and Physiology, and he also brought out lectures on Social Morality. About a year ago appeared his Autobiography.

SCIENCE

The Different Forms of Flowers on Plants of the same Species. By Charles Darwin. (Murray.)

Under this awkward but expressive title Mr. Darwin publishes a reprint, with numerous additions, of his celebrated papers on the dimorphic condition of primroses which appeared in the *Journal* of the Linnean Society so far back as 1862, as well as other papers relating to the similar conditions met with in Lythrum, Linum, and other plants. Among the individuals of the same species, nay, sometimes on the same individual plant, flowers may be met with whose structure is strikingly different. These variations had long been noticed, but it was reserved for Mr. Darwin to show experimentally what the purport of this diversity really is. A flower having stamens and pistils within its own coverings might naturally be expected to ripen and perfect its own seed without the intervention of any other flower. By Linnæus and other botanists the form and movements of the several parts of the flower were thought to be contrived and devised for this special end. Mr. Darwin's experiments, however, showed that cross-fertilization was very frequently effected to the great benefit of the offspring. The polymorphism in the structure of the flowers above referred to was, by experiment, proved to have direct relation to the process of cross-fertilization. To take the simplest case, that of primroses and cowslips: the tube of the flower is filled up sometimes by a conical point, consisting of the anthers with their contained pollen, at other times by a little semi globular mass like the head of a pin. Dissection of the flower shows that, in the first case, the stamens are attached to the tube of the flower in such a way as to protrude, while, in the second case, they are so short as to be concealed within the tube, the style with its button-like stigma, on the other hand, protruding. In the one set of flowers, then, we have a combination of short stamens and long styles; in the other, of long stamens and short styles. To ensure the most complete fertility—that is, the largest proportion of healthy well-organized seeds,—the pollen from the flowers with short stamens must be transferred from the flower in which it was generated to another flower on the same or, more often, on a different plant possessing a short style. The transfer is effected by the agency of insects. Similarly, the pollen from the long stamens must be applied to the long styles if the most complete fertility be required. The pollen from the short stamen may be, and, indeed, often is, applied to the long style and *vice versâ*; but the resulting seedlings are neither so numerous nor, as a rule, so robust. Mr. Darwin followed up his discovery in primroses with others of a like character, but more complex in their details, in Linum, Oxalis, Lythrum, and other plants. His teaching soon bore fruit. Countless observations have since been made at home and abroad, but substantially they all confirm the opinions arrived at in the first instance. The present work contains a digest of these observations, and, together with the companion volumes on 'Orchid Fertilization,' and on the 'Effects of Cross and Self-Fertilization in the Vegetable Kingdom,' noticed by us in these columns soon after publication, forms by far the most important contribution to the history of fertilization among the higher flowering plants that has yet been made.

Polymorphism in the so-called lower plants, as among the Fungi, is carried to a higher degree of complexity than among flowering plants. Thus the potato fungus is known to exist under several modifications, or rather to

produce reproductive organs of very different nature and appearance, some sexual, others of the nature of buds. The particular form assumed at any given time seems to depend on particular conditions, as yet but very imperfectly known or appreciated. So, in like manner, the different forms of flowers in the same species among the higher plants may be—nay, are—adaptations to fulfil particular ends in conformity with varied conditions.

Reverting to these dimorphic flowers, we have seen that, in the same individual plant, there is very frequently a practical separation of the sexes, though, structurally, they may be in juxtaposition. The step, therefore, to dicœcious plants—plants, that is, which have the sexes formed on two different individuals—is but a short one, and, in discussing it, we are naturally led into speculations concerning the origin of the two sexes, and into inquiries whether flowers were originally hermaphrodite, structurally and functionally. Supposing this to have been the case, the principles of subdivision of labour and of economy of force may have gradually acted so as to produce a more or less complete structural and physiological separation of the sexes, with the beneficial result already alluded to. On the other hand, it is possible that such dicœcious plants are the descendants of plants which had from the first their sexes separated. Here is room for abundant speculation, but more useful work may, we think, be done by continuing and varying, according to circumstances, the careful observations and protracted experiments initiated so remarkably by Mr. Darwin. In such observations lies the key to the secret of the relationships between structure and function, of which we have at present only imperfect conceptions.

We cannot follow Mr. Darwin through the mass of technical details he has laid before us in the present as in his former publications. They are given with all the fulness and candour we have been led to expect from him. One point strikes us, however, as having been overlooked, or, perhaps, purposely passed over—we mean the relation between the geographical and topographical distribution of plants, and their varied capacity for forming seed, in accordance with their diversities of sexual organization as described in this volume.