

THURSDAY, OCTOBER 19, 1916.

## REMINISCENCES OF RAPHAEL MELDOLA.

*Raphael Meldola: Reminiscences of his Worth and Work by Those Who Knew Him, together with a Chronological List of his Publications, MDCCCLXIX-MDCCCXV.* Edited by James Marchant. Pp. xv+225. (London: Williams and Norgate, 1916.) Price 5s. net.

ALTHOUGH the late Prof. Meldola's oft-repeated warnings to the nation on the decline of our chemical industries would fully entitle him to a place among the prophets, yet it could not truly be said of him, as was stated of the earlier seers, that he was "not without honour, save in his own country," for in spite of the distractions and anxieties of the present troublous times, more than twenty of his friends and colleagues, men eminent in their respective professions, have already in a few months contributed in his memory their tributes of appreciation and respect. These reminiscences of Meldola's worth and work have now been collected in a convenient volume which includes a chronological list of his original papers and other publications.

The biographical memoir by Sir William Tilden serves to emphasise the many-sided character of Meldola's scientific activities. Not only was he a brilliant chemist of wide experience, with special knowledge of synthetic dyes, but he was also a practical astronomer and a first-rate biologist.

A glimpse of Meldola's early days is furnished by Miss Neumegen, whose father taught him from the age of seven to fourteen years. His first chemical lecture was delivered at the age of fifteen to an audience of schoolfellows, of whom Sir Isidore Spielmann was one. Reminiscences extending over a period of forty years are contributed by Sir Edward Thorpe. Some of the incidents recorded have their humorous side, and testify to Meldola's sense of fun and love of the whimsical. His surpassing merits as professor of chemistry are cordially depicted by his former pupils, Dr. M. O. Forster and Prof. W. J. Pope, and by his colleagues of the Finsbury Technical College, where he presided over the chemical department for thirty years.

Prof. Green deals sympathetically with the classification of his technical and scientific researches. The technical investigations were often of a pioneer character. They opened up new ground, but in many cases the harvest was reaped in other countries. The first oxazine dye, "Meldola's blue," was not introduced into commerce in England, but was manufactured in Germany, where it became the forerunner of the still more important galloxyaniline blues. His study of betanaphthylated rosaniline led to a sulphonic acid which has since acquired importance in cotton dyeing. The researches on azo-dyes, although ignored in England, were utilised profitably by the astute colour-makers of Germany. His scientific

chemical work can be classified under eight headings, of which the most important are the studies on azo- and diazoamino-compounds, and on substitution in the naphthalene series. In recent years Meldola and his assistants were engaged in studying imidazole and quinone ammonium bases, these researches being still in progress when death overtook him last November.

Prof. Poulton, who edits the bibliography of published works, contributes also an essay on Meldola as a naturalist. This appreciation contains many interesting reminiscences, some of which are published for the first time. Although Meldola received numerous scientific and academic honours from British sources, it is significant that during his lifetime he was even more appreciated in France. Twice he was offered a decoration of the Legion of Honour, and one learns with amazement that on each occasion the Foreign Office forbade him to accept this distinction!

Where so many distinguished contributors have united in a labour of love to place on record their happy recollections of this great teacher's work and personality, it would be superfluous to add more than that all these praises are worthily bestowed as a last fitting tribute to a life of high ideals and great accomplishment. It may, however, be mentioned that in addition to his published works and the grateful remembrances of his pupils, Meldola leaves behind another memorial in the form of a unique collection of research chemicals. The writer and two other former students of Prof. Meldola have spent a portion of the summer recess in arranging and cataloguing this collection, of which the specimens represent every phase in his career as chemical investigator. The preservation and study of these historical substances will constitute another method of keeping his memory green in the school of chemistry which he inspired and adorned for many years.

G. T. M.

## ANIMA ANIMANS.

*The Breath of Life.* By John Burroughs. Pp. xi+295. (London: Constable and Co., Ltd., 1915.) Price 5s. net.

TWO ideas struggle for mastery in the mature reflections of this lover of nature and poetry: the one the super-mechanical and super-chemical character of living creatures, the other the continuity of natural processes and the universality of natural law. Living organisms transcend machinery; they are so persistent, insurgent, constructive, and inventive; but they are not possessed by any extraneous entelechy. They are solitary with the inanimate, though the creative energy or "procreant urge" finds freer expression in them than it does in crystal or star. It is a modernised hylozoism to which the essays composing this volume give beautiful expression: "The psychic arises out of the organic, and the organic arises out of the inorganic, and the inorganic arises out of—what? The relation of each to the other is as