of evolution, and of the historical method. These ideas received impressive illustration in such works as Lylle's Principles of Geology at the opening of the era, and Darwin's Origin of Species towards its close; under their influence, not merely natural science, but every branch of thought was by degrees revolutionized.

III.

In time, however, as the wider and more striking applications were exhausted, the ideas themselves began to lose their freshness and stimulus. They seemed less satisfactory; their results were less positive than had been expected. Often they appeared to lead to mere scepticism, to be little else than destructive. The sources of faith and action were sapped. So, in the closing third of the century, the great wave of inspiration of whose beginnings we spoke at the outset, seems wellnigh to have spent itself. The hopefulness and energy of the middle years of the century have departed. There is an awakening from many bright dreams. The age of universal peace looked forward to in the early fifties had not arrived. The great program of political reforms which had been earlier sketched, was with some completeness realized, yet the Golden Age was as remote as ever. And so in the world of literature, there are manifest indications of decadence or, at least, of exhaustion. To be sure the change is gradual; the dividing line is not as distinct as at 1833. Several of the great men of the preceding period continue to live and to write after 1866, but generally speaking their best and most significant work had been done. No genius of the same rank as the leaders of the preceding sixty-six years, appears. Genius of any order is rare, although good writers are not uncommon. Decline is specially evident in the sphere of imaginative literature. Dante Rossetti is the one poet of unmistakable power, but his work is reminiscent of Coleridge and Keats. Even valuing very liberally the novels of Hardy, George Meredith, and others, the fiction of later years is not equal to that of the middle of the century. It is notable that writers of critical and scholarly, rather than of creative, works become more prominent than in the earlier periods. Authors like M. Arnold (as a writer of prose), Walter Bagehot, John Morley, Goldwin Smith, J. R. Seeley, Leslie Stephen are conspicuous figures in our later literature; as are also writers of exquisite but somewhat trivial verse, like Austin Dobson and Frederick Locker. Among younger and later writers, the common phenomena of literary exhaustion display themselves—supreme importance of technique, attention both in poetry and prose to style at the expense of thought, literary ambition and skill with but little or nothing to utter. Writers hit upon a happy vein, but it quickly gives out. With many clever men of letters prose becomes affected; ostentatiously select diction and epigrammatic expression serve only to veil vacuity or triteness of thought. On the other hand it may be conceded that two writers of real genius (of what rank it would be presumption to attempt to determine) have appeared in the old age of the century, Robert Louis Stevenson and Rudyard Kipling. The works of the former have all the marks of the close, not the beginning of a literary epoch,—of the aftermath, not of the springtime of a literary movement. Perhaps the contrary may be true of Kipling.

Extreme lamentation and pessimistic vaticination over the state of literature in these latest years, are scarcely justifiable. There has been a period of comparative barrenness, and the past shows us that this is inevitable after one of extraordinary fertility. There is nothing strange or ominous in the mediocrity of the later production of the century as compared with the earlier. The past does not justify us in looking for an uninterrupted series of masterpieces. Great works are more sparsely scattered, even in the richest epochs, than we are wont to think; the perspective deceives us; they seem massed together as does a group of trees through the effects of distance. Works of genius are by their nature rare; were they common, we would forthwith reduce the number by raising the standard. Again, fears for literature based upon the growth of science are scarcely well grounded. Scientific men, it is true, are not likely to produce imaginative literature. But the knowledge of science does not prevent the enjoyment of literature; and men will continue to be born in the future as they were born in the past, with the desire and power to produce the beautiful,—not to follow abstract truth. Literature is simply the most beautiful expression in language of our experiences and ideas:—the expression of life and thought so that they will seem pleasurable, and come home to us with some of the vivacity of the actual. What has been lacking of late is not the demand for this sort of thing, or the power to appreciate it, or the mere technical skill to embody it, but ideas and experiences which are at once sufficiently fresh and inspiring and important to constitute the substance of great literature.

CHEMISTRY IN THE NINETEENTH CENTURY.

By Dr. W. R. Lang.

The end of the eighteenth century and the opening of the nineteenth saw the world in its relation to science passing from the old to the new order of things. In 1800 the Royal Society of London*—almost the oldest Scientific Society in the world— commenced its "Catalogue of Scientific Papers." Previous to this almost the only science, with the exception of mathematics, that had made substantial progress was astronomy, and that even had to wait almost half a century longer before it became possessed of the spectroscope, and was thus enabled to give the world some facts regarding the composition of the heavenly bodies. The theories of latent heat, of atmospheric pressure, and of the uses of the barometer, were known previously to 1800, but the phenomena of gaseous diffusion were unrecognized and the principle of conservation of energy had not been established.

Of chemistry itself the composition of air, water and of ammonia, the general characters of acids, bases and salts, had been recognized but not fully developed, while Davy, Dalton, Gay-Lussac, Berthollet and Berzelius were hard at work erecting the system of chemical theory, the main principles and essential features of which remain with us to this day. The old *alchemists*, whose chief objects were the discovery of the "Philosopher's Stone" and of the "Elixer Vitae," had vanished and given place to men who were pursuing the study of matter for the sake of knowledge alone.

The scope of this short article will not permit of any extended reference to the theories introduced in the first decades of the century. Prout's hypothesis (1815) had been received doubtingly and disproved, while Avogadro's law and Graham's law—deduced from his experiments on gaseous and liquid diffusion—had each been published. Nicholson and Carlisle had decomposed water into oxygen and hydrogen by means of an electric current, and Davy had, by the same means, isolated the elements potassium, sodium and calcium. Iodine (Curtois and Davy, 1812), Selenium (1819), Bromine (Balard, 1826)—in all some fifty

*Royal Society of London, founded 1663; Royal Society of Edinburgh, 1783; British Association, 1831; Chemical Society, 1841; Pharmaceutical Society, 1841; Société Chimique de Paris, 1858; Berlin Chemical Society, 1867; Physical Society, 1874; American Chemical Society, 1876; Society of Chemical Industry, 1881.