of the wings of lepidoptera consists of minute scales, really modifications of hairs, covered with fine lines, giving the bright colours. Another form in O**.** Eng. *scäle* is found glossing the Lat. *lanx,* flat bowl or dish, and is thus used of the dishes or cups of a balance (*bilanx),* the instrument itself being also called “ scales.”

2. Properly a ladder, flight of steps, now only used in the derived “ scaling ladder.” The word is derived from the Lat. *scala* (originally *scandla,* from *scandere* to climb). There are many transferred senses of the word, *e.g.* the distinguishing marks for purposes of measurement on a rule or other measuring instrument; hence a graduated measure or a system of pro­portional measurement or numeration, and particularly, in music, a series of tones at definite standard intervals (see Harmony, Musical Notation).

SCALE INSECT, a name given to insects belonging to the family *Coccidae* of the homopterous division of the Hemiptera and deriving their name from the formation by the females of a waxy secretion which often hardens into a protective scale beneath which the insects live. Honey-dew, a sweet sticky substance is also secreted by some members of the family. The females are always wingless, but are provided with antennae, legs and well-developed mouth-parts. In some cases these organs are retained, in some they are lost in the encysted con- dition. The males, on the contrary, although sometimes wingless, are, as a rule, provided with a pair of large forewings and greatly reduced hind wings; their antennae and legs are longer than in the other sex, but the mouth-parts are reduced and functionless (see Economic Entomology).

SCALIGER, the Latinized name of the great Della Scala family (see Verona). It has also been borne by two scholars of extraordinary eminence.

I. Julius Caesar Scaliger (1484-1558), so distinguished by his learning and talents that, according to A. de Thou, no one of the ancients could be placed above him and the age in which he lived could not show his equal, was, according to his own account, a scion of the house of La Scala, for a hundred and fifty years princes of Verona, and was born in 1484 at the castle of La Rocca on the Lago de Garda. At the age of twelve his kinsman the emperor Maximilian placed him among his pages. He remained for seventeen years in the service of the emperor, distinguishing himself as a soldier and as a captain. But he was unmindful neither of letters, in which he had the most eminent scholars of the day as his instructors, nor of art, which he studied with considerable success under Albrecht Dürer. In 1512 at the battle of Ravenna, where his father and elder brother were killed, he displayed prodigies of valour, and received the highest honours of chivalry from his imperial cousin, who conferred upon him with his own hands the spurs, the collar and the eagle of gold. But this was the only reward he obtained. He left the service of Maximilian, and after a brief employment by another kinsman, the duke of Ferrara, he decided to quit the military life, and in 1514 entered as a student at the university of Bologna. He determined to take holy orders, in the expectation that he would become cardinal, and then pope, when he would wrest from the Venetians his principality of Verona, of which the republic had despoiled his ancestors. But, though he soon gave up this design, he remained at the university until 1519. The next six years he passed at the castle of Vico Nuovo, in Piedmont, as a guest of the family of La Rovère, at first dividing his time between military expeditions in the summer, and study, chiefly of medicine and natural history, in the winter, until a severe attack of rheumatic gout brought his military career to a close. Henceforth his life was wholly devoted to study. In 1525 he accompanied M. A. de la Rovère, bishop of Agen, to that city as his physician. Such is the outline of his own account of his early life. It was not until some time after his death that the enemies of his son first alleged that he was not of the family of La Scala, but was the son of Benedetto Bordone, an illuminator or school- master of Verona; that he was educated at Padua, where he took the degree of M.D.; and that his story of his life and adventures before arriving at Agen was a tissue of fables. It certainly is supported by no other evidence than his own state­

ments, some of which are inconsistent with well-ascertained facts (see below *ad fin.).*

The remaining thirty-two years of his life were passed almost wholly at Agen, in the full light of contemporary history. They were without adventure, almost without incident, but it was in them that he achieved so much distinction that at his death in 1558 he had the highest scientific and literary reputation of any man in Europe. A few days after his arrival at Agen he fell in love with a charming orphan of thirteen, Andiette de Roques Lobejac. Her friends objected to her marriage with an unknown adventurer, but in 1528 he had obtained so much success as a physician that the objections of her family were overcome, and at forty-five he married Andiette, who was then sixteen. The marriage proved a complete success; it was followed by twenty- nine years of almost uninterrupted happiness, and by the birth of fifteen children.

A charge of heresy in 1538, of which he was acquitted by his friendly judges, one of whom was his friend Arnoul Le Ferron, was almost the only event of interest during these years, except the publication of his books, and the quarrels and criticisms to which they gave rise. In 1531 he printed his first oration against Erasmus, in defence of Cicero and the Ciceronians. It is a piece of vigorous invective, displaying, like all his subsequent writings, an astonishing command of Latin, and much brilliant rhetoric, but full of vulgar abuse, and completely missing the point of the *Ciceronianus* of Erasmus. The writer’s indignation at finding it treated with silent contempt by the great scholar, who thought it was the work of a personal enemy— Aleander—caused him to write a second oration, more violent, more abusive, with more self-glorification, but with less real merit than the first. The orations were followed by a prodigious quantity of Latin verse, which appeared in successive volumes in 1533, 1534, 1539, 1546 and 1547; of these, a friendly critic, Mark Pattison, is obliged to approve the judgment of Huet, who says, “ par ses poesies brutes et informes Scaliger a dés- honoré le Parnasse ”; yet their numerous editions show that they commended themselves not only to his contemporaries, but to succeeding scholars. A brief tract on comic metres *(De comicis dimensionibus)* and a work *De causis linguae Latinae—*the earliest Latin grammar on scientific principles and following a scientific method—were his only other purely literary works published in his lifetime. His *Poetice* appeared in 1561 after his death. With many paradoxes, with many criticisms which are below contempt, and many indecent displays of personal animosity— especially in his reference to Étienne Dolet, over whose death he gloated with brutal malignity—it yet contains acute criticism, and showed for the first time what such a treatise ought to be, and how it ought to be written.

But it is as a philosopher and a man of science that J. C. Scaliger ought to be judged. Classical studies he regarded as an agreeable relaxation from severer pursuits. Whatever the truth or fable of the first forty years of his life, he had certainly been a close and accurate observer, and had made himself acquainted with many curious and little-known phenomena, which he had stored up in a most tenacious memory. His scientific writings are all in the form of commentaries, and it was not until his seventieth year that (with the exception of a brief tract on the *De insomniis* of Hippocrates) he felt that any of them were sufficiently complete to be given to the world. In 1556 he printed his *Dialogue* on the *De plantis* attributed to Aristotle, and in 1557 his *Exercitationes* on the work of Jerome Cardan, *De subtilitate.* His other scientific works, *Commentaries* on Theophrastus’ *De causis plantarum* and Aristotle’s *History of Animals,* he left in a more or less unfinished state, and they were not printed until after his death. They are all marked by arrogant dogmatism, violence of language, a constant tendency to self- glorification, strangely combined with extensive real knowledge, with acute reasoning, with an observation of facts and details almost unparalleled. But he is only the naturalist of his own time. That he anticipated in any manner the inductive philo- sophy cannot be contended; his botanical studies did not lead him, like his contemporary Konrad von Gesner, to any idea of a