

doubt ranged over the millennia from the hefting of an object in one hand against stones in the other to the more sophisticated balance scale. This form of measure among ancient peoples appears to have been largely restricted to precious metals and gems while in most commercial dealings either capacity measures were used or items simply counted, as they often are today.

By cultural diffusion over thousands of years the variants of many measuring systems, used by great trading states, passed from Mesopotamia and Egypt to Greece and in turn to Rome. South European adoption saw changes in the names of units, but little change in values. Rome made few innovations but nonetheless influenced the development of the traditional system in several ways. For example, through trade and conquest the Roman Empire imposed a fairly uniform system of measurement throughout the known world, although local systems were honoured in many cases. It adopted a duodecimal system (one based on divisions and multiples of 12) which still exists in the 12 ounces in a troy pound and 12 inches in a foot. Much nomenclature in the traditional system derives from Latin. The abbreviation for pound, lb., comes from *libra*, the same word in Latin, and the *libra* and the *pes* (the Roman foot) were divided into *uncia*, or 12 parts. From *uncia* derive the inch and ounce, as does the mile from a thousand paces (a pace equalling five Roman feet or two strides).

After the fall of the Roman Empire a multiplicity of measuring systems were current among the tribes and localities of Europe. The resulting confusion was assisted by the advent of the Dark Ages, the subsequent feudal system, and the widespread introduction of Arabic numerals to Europe after the 10th century. Feudal barons decreed measurement standards in their own territories and the often conflicting edicts or monarchs compounded the chaos. The crude systems of the Middle Ages prevailed without much question until the 16th and early 17th centuries, when scientists began to think of regularization. Science could not progress without an exact, uniform and invariable system of weights and measures. At the end of the 18th century, scientists created the metric system.

Origin of the system is generally credited to Gabriel Mouton, a vicar in Lyons, France. In 1670 he devised a decimal system of weights and measures based on many of the same principles as the metric system.

Subsequently, committees of the Academy of Science in Paris developed the system more than a century later, at the instigation of Charles Maurice de Talleyrand-Périgord. In April 1790 he proposed to the revolutionary National Assembly that the system of weights and measures be reviewed, with a new length unit to be adopted, based on some unchanging standard in nature. It was decided in March 1791 to measure the length of the quadrant which lies on the Paris meridian and let one 10 millionth of this distance equal the basic unit of length for the new system. Units of mass and volume to follow would also be based in some way on this primary measure. It was not until 1793 that a name was picked for the new unit. It was called the *metre*, from the Greek word *metron*, which simply meant "a measure".

It was decided that the *metre* should be based on multiples of 10. It was further decided that all multiples of the *metre* would contain the word "metre" in them with a short prefix. All units smaller, submultiples, would use Latin words or roots as prefixes and all larger units would use Greek prefixes. For most uses, the *metre* needed to be split or expanded into only six other units describing length. Thus multiples between related units ceased to be a confusion of 2s, 3s, 4s, 12s and 16s, among many others, but just simple powers of 10.

From January 1, 1840 the metric system became mandatory in France. The more general acceptance in Europe was gradual, but the London Exposition of 1851 marked something of a turning point. Here businessmen, manufacturers and merchants mingled with scientists, statesmen and economists and a new impetus was afforded the metric principle. Unofficial international committees were formed to consider the subject of weights and measures. In 1870 the French government invited other nations to a conference and 15 nations attended, including Great