ber thus obtained being for each body its equivalent weight. We thus find, as has long been suspected, that the equivalent (or so-called molecular) weights of liquid and solid species are exceedingly elevated. That of water, a litre of which at 100° (its temperature of formation under a pressure of 760 mm.) weighs 958 78 grams, corresponds to 1192 volumes of water vapour at standard temperature and pressure ($H_0O=17.96$) condensed into a single volume; or to $1192 \times 17.96 = 21,408$, approximately 21,400. Representing by p the empirical equivalent weight, which is really the specific gravity on the hydrogen basis $(H_{a}=2.0)$, and by d the specific gravity taking water =21,400 as unity, we obtain by the formula $p \div d = v$, the reciprocal of the coefficient of the condensation which takes place in the passage of a normal gaseous species, by intrinsic contraction or polymerization, into the liquid or solid species, the specific gravity of which we have determined by comparison with water.

§ 4. The reciprocal number thus got is, as we shall show, one of great significance. In determining the specific weight of any given liquid or solid species, the fact of prime importance is not simply its specific gravity as compared with water, but the relation of the value thus determined to the equivalent weight, or, in other words, to its specific gravity on the hydrogen basis. It is not d, nor yet p, but the relation p: d, as expressed by v. In the case of volatile species the true value of p may be known, but for the comparison of fixed solids, as oxyds, carbonates, and silicates, we deduce from the received formulas an arbitrary value for p by dividing the value calculated therefrom by twice the number of oxygen portions. Thus for MgO, $p=40\div2$; for SiO₂, $p=60\div4$; for Al₂O₃, $p=102\div6$; for SiMg₂O₄, $p=140\div8$; for CC₄O₅, $p=100\div 6$. For metalline minerals, including metals, and their compounds, with S, Se, Te, As, Sb, Bi, the value assumed for p is that got by dividing the empirical equivalent weight by the sum of the valencies.

While the specific gravity of liquid and solid species is represented by d, the hardness, infusibility and insolubility or resistance to chemical change are, for related species,