

are insignificant as compared with the internal attractions and repulsions of the electric monads. Each atom of matter is the theatre of energetic forces, however inert may be its external relations.

UNITY THE AIM OF SCIENCE.

"Will this bold attempt to unify physical nature last?" asked Mr. Balfour. A world built-up out of sixty or seventy eternally different chemical elements is just as rational a conception as if it were constructed out of a single medium: but men of science have always been impatient of multiplicity. Reduction of plurality to unity is a scientific instinct not to be ignored.

EXPERIENCE UNTRUSTWORTHY AS A SCIENTIFIC BASIS.

The President then considered the basis of experience upon which scientific research founds its laborious investigations. Scientists formerly held that to go behind experience was impossible, yet Faraday's disbelief in that *dictum* led to the modern electrical theory of matter. Gravity itself, says the physicist today, must be explained, it is no longer held to be an ultimate property of matter admitting of no explanation and requiring none. Matter itself, in masses or in minute particles, molar or molecular, is resolved by recent science into that which is not matter at all. The minute particle, called the atom, is a relatively vast theatre in which the sub-atoms or electrical monads perform their evolutions. The minuteness of these monads may be judged from Prof. J. J. Thomson's statement that radium throws off, as cathode rays, streams of these corpuscles, each of which has a mass of about one-thousandth part of the hydrogen atom and thus they are the smallest bodies known to science. (See *Harper's Mag.*, l. c. p. 279).

SCIENCE CONTRASTS WITH COMMON EXPERIENCE.

Matter, as viewed by scientists, could hardly be more divergent than it is from prevailing ideas or common experience, yet all science must inevitably be based upon experience, which is really but another name for the perceptions of the bodily senses.

EXPERIENCE WHOLLY ILLUSORY.

Starting from experience, scientific thought yields conclusions which prove experience to be misleading. "Our knowledge of reality" Mr. Balfour pointed out, "is thus based upon illusion,