

end. This explains the attacks on older people in the later phases of the waves of the war-end epidemic. Their immunity was relative, not absolute.

(3) All European countries, neutral as well as belligerent, were greatly upset and tried by the war; and N. America (Canada and U.S.A.) was belligerent.

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Calcium Carbide and the Board of Trade.

THE decision of the Board of Trade Referee that calcium carbide is not a synthetic organic chemical is characterised by "H. E. A." (NATURE, February 23, p. 230) as an offence against both chemical tradition and our chemical conscience. "H. E. A." no doubt may claim to be the keeper of the chemical tradition and conscience of organic chemists, but I should like to dissociate myself personally from his custodianship. How any one can regard calcium carbide, a substance that gives calcium oxide as its sole solid product when moistened with water, as an organic chemical, or an electric furnace operation as the fundamental synthesis of organic chemistry, I cannot understand. What do they know of organic chemical synthesis who only the syntheses of organic chemists know?

FREDERICK SODDY.

PROF. SODDY is a trifle impetuous: my reference to Hazlitt was not out of place, it seems. If I follow my critic, as only a small heap of solid phosphate of lime will be left of me when I am burnt, I am not organic. Granted that calcium acetylide (carbide) gives lime when wetted, it is a little surprising that the putative father of *Emanation* and the first to make clear the significance of helium should attach no importance to the escaping gas. If a man have a wooden leg, he is none the less counted a man, I believe. Now, when zinc ethide is started swimming in water, it leaves behind it its leg, as it were, in the form of zinc oxide, just as carbide does, though in the form of lime; yet the ethide ranks as one of the most honourable of synthetic organic chemicals: why discard the carbide?

One purpose of my article was to direct attention to our lack of logic when using words. Prof. Soddy's comments are but proof that the need to put considered meaning into our words *is* with us. I was led to respect Trench before reading science: in consequence, I have all my life had my attention drawn to words. The term organic has never had any "organic" or vital significance, in chemistry, in Prof. Soddy's lifetime. Thinking chemists have long and logically attached an entirely conventional meaning to it. Before Prof. Soddy was born, I wrote a text-book entitled an "Introduction to the Study of Organic Chemistry," which had as subsidiary title "The Chemistry of Carbon and its Components." I was but adopting a definition put into my hands by my chemical grandfathers. Both carbon and carbonic acid were considered. I would class not only coal but even limestone among "organic compounds."

In conclusion, let me say that the proceedings under the Act are becoming more of a scandal every week. The latest riddle asked is, "When is a chemical not a chemical?" "When it is used as a foodstuff," being the suggested answer. The position of disputants is that defined centuries ago in "Hudibras":

They're catch'd in knotted law, like nets;
In which when once they are imbrangled,
The more they stir, the more they're tangled,
And while their purses can dispute,
There's no end of th' immortal suit.

From beginning to end, every proceeding connected with the Act has been "unscientific." H. E. A.

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The Hormone Theory of Heredity.

I SHOULD be much obliged if you would allow me to correct in NATURE, which is, I believe, widely read in the U.S.A. as well as in this country, the erroneous account of my hormone theory of heredity given by Prof. T. H. Morgan in his memoir on Secondary Sexual Characters, Carnegie Institution, No. 285, 1919. At that date Prof. Morgan could only have known the account of my theory in my paper in the *Arch. f. Entwicklungsmechanik*, 1908. His description of my views is contained in the following two quotations from his memoir: (1) "He imagines these hormones to be collected in the germ cells and transmitted to the next generation, where their presence contributes to the further development of the special region (when it develops) that corresponds to the region in its parent in which the hormone was made." (2) "His special appeal to the hormone theory makes use of that theory in a way to which it was never intended to be put, by assuming that an internal secretion formed in one organ can be stored up in another organ, egg or sperm, an assumption not only unsupported by any evidence, but, as I have stated, quite foreign to the hormone theory."

The theory suggested by me in 1908, and put forward in my recent book, "Hormones and Heredity," is that the increased amount of hormones or waste products given out by a structure in which hypertrophy has been caused by external stimulation, may stimulate the determinants or factors corresponding to that structure in the gametes, and so cause some degree of inherited hypertrophy in the next generation. One quotation from my 1908 paper will prove this:

"At the same time the hormone from the incipient antler stimulates the determinants in the gametes. . . . If the stimulation of the determinants is repeated for an indefinite number of generations the congenital tendency to the hypertrophy will become very strong."

The idea of stimulation of a determinant or factor, which may be as Prof. Morgan maintains a part of a chromosome, is very different from the storing up in the gametes of hormones derived from parts of the soma, and for this latter idea I disclaim all responsibility.

J. T. CUNNINGHAM.

East London College, March 6, 1922.

Neon Lamps.

It does not seem to be generally known that neon lamps, for which many applications can be found in a physical laboratory, are now obtainable very cheaply. They are made to fit an ordinary holder, and contain moderately pure neon (usually somewhat contaminated with mercury) at low pressure. The electrodes are of nickel and are made in various shapes according to the purpose for which the lamp is intended, but they are sufficiently close together for the lamp to run at ordinary supply voltages (down to 100 v.). They are particularly useful for stroboscopic measurements; in this case the lamp is used to illuminate the disc, and may be run from the secondary of an induction coil the primary of which is in series with an electrically maintained tuning-fork.

Another application is to the detection of oscillating P.D.'s in connection with a Fleming cymometer and similar experiments. Possibly, too, they may be of service in spectroscopic work where the dispersion is small or the exposure long, as the lines are not too numerous and their wave-lengths are in many cases very accurately known. Their great advantage over the ordinary neon vacuum tube is of course their cheapness; the last one I purchased cost 3s. 9d.

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March 6.