

needs—so individualised and so hopelessly jealous among ourselves that we will not co-operate and organise our forces. Nothing could show this more clearly than the way in which the Royal Society has sacrificed its opportunities during the war period by failing to bring all its fellows together and thus make our corporate influence felt. Little wonder that science is being more and more excluded. We are talking of government by public opinion but real opinion cannot be made public. The columns of the Press are not open to any serious discussion from our side; the books we write are not understood even by ourselves. Owing to excessive specialisation we are becoming less and less able to express and protect ourselves, less interested in stating our case in any broad way; what is worse, too selfishly immersed each in his own narrow occupation to consider the general interest: an we be not careful the position won for us by the protagonists of the past will soon be lost to us.

Our failure is as window-dressers; we have not displayed our goods in the right manner. When a business is a failure, the only way to re-establish it is to reconstruct the management. That we have yet to learn this elementary truth is clear, however, from the recent appointment to the treasurership. A young man should have been found for the office, gifted not only with scientific experience but also with some breadth of outlook, some understanding of men and affairs; instead, a senior member of the Association has been chosen.

If a senior were desirable, no better choice could have been made; but I believe my old friend Principal Griffiths will not mind my saying that he is saved from inclusion in my class of elderly amiables only by the fact that throughout the war he was conspicuously active in his efforts to bring the value of scientific method before the public; he is far too soft-hearted to face the exigencies of the present situation.

The council must cease to be all but entirely an old or even an elderly man's show; responsibility must be forced upon the younger generation of active workers.

The secretaries obviously have no policy; new men must be chosen at the earliest possible date—I trust on the three years' hire system advocated in my former letter, so that the different subjects may be cared for at shorter intervals.

The real question at issue is: "How are we to get at the public?" To do this we must look beyond the meetings and in some way arrange for the preparation and issue each year of a few authoritative tracts dealing with bedrock problems in language that can be understood by all. Subjects can easily be found; under E alone enough are to hand—*Economics, Education, Energy, Entomology, Eugenics, Evolution*. Nobody believes in these, few know what the terms comprise, yet the future of our race depends on an intimate understanding and application of the doctrines they cover. A great work would be done by the Association if only, by real discussion not the dreamy, introspective twaddle of Section L, the nonsense now spoken of as education were reduced to terms of wisdom.

HENRY E. ARMSTRONG.

The Constitution of the Elements.

SINCE my last letter under the above title in NATURE of July 1, experiments have been made with a few more elements. The work has been progressively more and more difficult, for it has not been easy to find volatile compounds suitable for use, and when

found the very objectionable chemical properties of some of them have led to experimental trouble and disappointing results. Thus selenium, tin, antimony, and tellurium have so far yielded no result of any value.

Fortunately, iodine (atomic weight 126.92) gave definite and unmistakable effects. It proves to be a simple element of mass 127—a result satisfactorily confirmed by a single line at 142 corresponding to CH_3I , the vapour used in the experiments. This result has particular interest in view of the recent work of Kohlweiler (*Zeit. Phys. Chem.*, vol. xcv., 1920, p. 95), who deduces five isotopes of iodine, all of even integral atomic weights, and claims to have effected a considerable separation of these by diffusion.

Owing to the kindness of Prof. Collie and Dr. Masson in providing me with a sample of gas rich in xenon, I have been able to identify two more probable isotopes of that element and obtain trustworthy values for the atomic weights of the five already found. The provisional figures given for these turn out to be too low. The values quoted below were obtained from the position of the second-order line 64.5. They should be trustworthy to about one-fifth of a unit.

Additional evidence on argon leads to the conclusion that its isotope 36 need no longer be regarded as doubtful.

The following table gives the results to date:

Table of Elements and Isotopes.

Element	Atomic number	Atomic weight	Minimum number of isotopes	Masses of isotopes in order of their intensity
H	1	1.008	1	1.008
He	2	3.99	1	4
B	5	10.90	2	11, 10
C	6	12.00	1	12
N	7	14.01	1	14
O	8	16.00	1	16
F	9	19.00	1	19
Ne	10	20.20	2	20, 22, (21)
Si	14	28.30	2	28, 29, (30)
P	15	31.04	1	31
S	16	32.06	1	32
Cl	17	35.46	2	35, 37, (39)
A	18	39.88	2	40, 36
As	33	74.96	1	75
Br	35	79.92	2	79, 81
Kr	36	82.92	6	84, 86, 82, 83, 80, 78
I	53	126.92	1	127
X	54	130.32	5, (7)	129, 132, 131, 134, 136, (128, 130?)
Hg	80	200.60	(6)	(197-200), 202, 204

(Numbers in brackets are provisional only.)

F. W. ASTON.

Cavendish Laboratory, November 30.

Solar Variation and the Weather.

IN NATURE of July 29 last (p. 678) appears an article by Dr. C. G. Abbot on solar variation and the weather, in which reference is made to the use of solar data by the Argentine Weather Service. Drs. Nansen and Helland-Hansen have also found some interesting correlations between the variations of solar radiation as measured by Dr. Abbot and variations of temperature and pressure in Norway.

As other investigators will no doubt be tempted into this field, I feel that it may be of interest to give briefly a summary of our latest results and conclusions. These conclusions are based on the study of an immense amount of data from various parts of