vation is the least, it unavoidably follows that those left behind to continue the race, are those in whom the power of self-preservation is the greatest—are the select of their generation.

Concerning this passage Spencer says in his "Autobiography," p. 451:

It seems strange that, having long entertained a belief in the development of species through the operation of natural causes, I should have failed to see that the truth indicated in the above-quoted passages, must hold, not of mankind only, but of all animals; and must everywhere be working changes among them.

He attributes his blindness to his belief that the inheritance of functionally produced modifications suffice to explain evolution, and to the further fact that he knew little or nothing about the phenomena of variation.

The great merit of Darwin is, of course, not in originating the idea of natural selection, but in so presenting it to the world that it won acceptance. The fact that others anticipated him so far as the idea is concerned, does not, of course, detract from his merit. Wallace is entitled to much credit for the independent discovery of the idea and its clear presentation, but his anticipation was only in the disposition to proclaim the discovery. The foundation of Darwin's immortality is the book, "The Origin of Species." He was perhaps the only man in the world at the time who could have written that book. We might have attributed the possibility to Wallace, but with a self-abnegation perhaps unparalleled in the history of science, he said:

I have felt all my life and I still feel, the most sincere satisfaction that Mr. Darwin had been at work long before me, and that it was not left for me to attempt to write "The Origin of Species." I have long since measured my own strength and know well that it would be quite unequal to that task. For abler men than myself may confess, that they have not that untiring patience in accumulating, and that wonderful skill in using, large masses of facts of the most varied kind, that wide and accurate physiological knowledge, that acuteness in devising and skill in carrying out experiments, and that admirable style of composition, at once clear, persuasive and judicial, qualities which in their harmonious combination mark out Mr. Darwin as the man, perhaps of all men now living, best fitted for the great work he has undertaken and accomplished.[3]

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THE ATOMIC WEIGHT OF RADIUM EMANATION (NITON)

In the International Atomic Weights Table for 1916,[1] the commission has adopted for radium the value of *226.0*, obtained by Hoenigschmid in 1911.[2] The atomic weight of radium emanation (niton), however, has been retained at its former value of *222.4* instead of substituting *222.0*, which would conform with the new value for radium. The probability of an oversight in publishing the table is perhaps eliminated by the appearance of the same value in the German report.[3]

The retention of the value *222.4* raises a question of considerable interest. The genetic relationship among elements, and the consequent interdependence of the atomic weights of radioactive elements is relatively new, and has as yet been given only indirect recognition in the atomic weight tables (see below). Of the 30-odd new radioactive elements, only radium and radium emanation have as yet been placed in the atomic weight table, since they are the only two which could as yet be obtained in sufficient quantity and purity for the application of ordinary methods of atomic weight determination.

Since no new experimental work has appeared on the atomic weight of niton, the retention of its old value until such work appears might be regarded *a priori* as justified. But it should be recalled that the experimental work of Gray and Ramsay,[4] on which the value *222.4* was based, in reality served only to demonstrate the order of magnitude of the atomic weight and would fit the value *222.0* equally as well as *222.4*. The latter

[3] "Contributions to the Theory of Natural Selection" (1871), preface, pp. iv, v.

[1] *Jour. Am. Chem. Soc.*, 37, p. 2,451.

[2] *Sitzb. Wien Akad.*, 120, p. 1,617; *ibid.*, 121, p. 1,973 (1912).

[3] *Zeit. phys. Chem.*, 90, p. 720.

[4] *Proc. Royal Soc.*, 84 *A*, p. 536.

value was chosen by Gray and Ramsay on purely genetic grounds, in accord with the then accepted value for radium of *226.4*. (The actual average of the experimental results of Gray and Ramsay was *223.0*.) The genetic principle once having been thus recognized in the atomic weight table, it would now appear requisite that the atomic weight of niton should be changed automatically to accord with that of radium. Of course from the standpoint of radioactivity the adoption of this change is automatic, but from the aforementioned considerations regarding the choice of Gray and Ramsay, there appears also no sufficient reason to retain the old value in the Atomic Weights Table.

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THE BRUCE MEDAL

THE notice of the award of the Bruce medal of the Astronomical Society of the Pacific, as recorded on page 285 of the February 25 issue, contains the first public statement that has come under my notice of the very ingenious method of award of this medal, "probably the most unique in the history of science."

The plan is due to the late Dr. Edward S. Holden, then director of the Lick Observatory, who secured the gift of the fund for this international medal. The plan he devised was designed to preserve the value of the medal as an international honor of high character, in spite of the fact that many of the directors of the society who would determine the awards would not be professional astronomers and often would not be capable of forming independent judgments as to the value to science of the distinguished services. In short, it was his purpose to make practically impossible an award to those who appear to be unable to keep their names out of prominent locations in the daily press. A glance at the list of recipients of the medal as published in your said notice shows how very successfully have worked out the plans thus contrived by him.

While the deliberations of the directors in making these awards are kept strictly confidential, a sidelight or two may be interesting. The rules provide that the six observatories named shall be invited to nominate not more than three men distinguished in astronomy. Ordinarily, this insures eighteen names, only one of which can receive the award; but in reaching the decision the directors often have been guided by the number of times the proposed recipient has been nominated. Occasionally, an elderly nominee, nearing the end of his activities, has been preferred over a younger man with the prospect of useful years ahead of him. It is worthy of note that the lists of every one of the six nominating observatories, for the first award of the medal, contained the name of Simon Newcomb.

One very well-known foreign observatory, however, added weight to its nominations in entirely different fashion. The first year it nominated Newcomb, Auwers and Gill, in the order named. Newcomb was the first medalist. The second year it nominated only Auwers and Gill. Auwers was the second recipient. The third year it nominated Gill alone, and Gill was the third. The fourth year it nominated three.

Only thirteen awards have been made in eighteen years because of the comparatively large sum spent out of the fund in the design and cutting of the dies. Designs were requested from experts both in this country and abroad, and the competition was arranged so that the name of the designer was unknown to the committee. When the designs were opened, although all were of high degree of excellence, one stood out in such contrast that only one choice was possible, and, with certain minor modifications, it was adopted. Alphée Dubois, of Paris, was the successful artist, and during his lifetime he personally engraved on the medals the names of the recipients, the dies being kept in the French Mint for this purpose.

This medal fund is only one of a number of such gifts of the late Miss Bruce, she having contributed frequently to the advancement of science.

ALLEN H. BABCOCK