In such a chain, on Pauling's view, there would exist a series of dipoles, while the two ends of the molecule would be charged. The intermediate dipole charges would cause strong lateral attraction between similar chains displaced a few Ångström units with respect to one another, while the end charges may serve to attach the chains to solid objects or other similar interfaces. In this way the *c*-type friction and the Hatschek effect find a ready explanation.

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A New Type of Complex Silver Compounds with Tervalent Silver

IN course of a series of investigations[1] in this laboratory on the complex compounds of biguanide and substituted biguanide with metallic elements, recently my pupil, K. Chakravorty, and I, have obtained a number of 4-co-ordinated silver ethylene-biguanide salts in which the central silver atom shows, rather strikingly, a primary valency of three. Their composition is given by

$$[Ag^{III}(EnBigH)_2]X_3,$$

where X is SO_4, NO_3, ClO_4, or OH; and EnBigH is one molecule of ethylenebiguanide ($C_4N_5H_9$), which behaves as a chelate or bidentate molecule. The salts form beautiful, needle-shaped, prismatic crystals of deep red colour and are quite stable at ordinary temperature (20°–24° C.). The nitrate can be re-crystallized from warm dilute nitric acid. The colour of the base is dark violet-red resembling that of potassium permanganate.

From an acidified solution of potassium iodide the complex ion liberates *two* equivalents of iodine for every silver atom. The molecular conductivity of the nitrate at 20° C. is 455 ohms^{-1} at infinite dilution, as would be expected for a tervalent complex ion. The salts, unlike those of bivalent silver, are *diamagnetic*.

The electronic configuration of a tervalent silver atom should be similar to that of bivalent nickel, just as bivalent silver is analogous to bivalent copper. Hence it is not at all surprising that the four-co-ordinated tervalent silver complex shows diamagnetic character, if the co-ordination bonds be of the hybrid d-s-p^2 type as in the corresponding planar bivalent nickel complexes. In fact, the diamagnetic property of these complex salts furnishes a strong confirmation of the tervalency of silver in them. That a tervalent silver gives a co-ordination number of four, and not six which is the characteristic of a large number of other tervalent ions, is quite in keeping with its position between copper and gold in the same group of the Periodic Table. A tervalent gold, as is well known, shows consistently a co-ordination number of four with planar configuration. There is, therefore, nothing unusual in that the silver atom shares the character of both copper and gold, becoming uni-, bi- and tervalent respectively.

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The Concept of Polygenes

IN spite of Waddington's[1] clear statement to the contrary, the recent correspondence[2,3] on polygenes tends to create the impression among biologists who are not geneticists that polygenes are a new development. It is worth pointing out, therefore, that not only is the concept traceable to Mendel himself, but that the very word "polygene" (equivalent to the English adjective) appears to have first been used extensively by Plate in his 1913 text-book[4]. The word did not meet with general approval at the time, and indeed objections against it very similar to Waddington's[1] were made by that pioneer of quantitative inheritance, Johannsen[5]. Thus on page 669: "Darum ist es auch unzulässig von 'monogenen' oder 'digenen' Merkmalen, als Gegenstück zu (polygenen) Merkmalen zu reden, wie Plate es neuerdings tut. Selbst im populären Abhandlungen dürfen solche prinzipiell unrichtige, eigentlich nur auf Zufälligkeiten der unvolkomenen Kreuzungsanalysen sich beziehende Ausdrücke nicht verwendet werden, weil sie ja nur verwirren können. Es steckt darin ein Rest veralteter Vorstellungen über 'Merkmahle' und deren einheitlich 'Anlagen',—wir müssen aber wirklich aus dem Banne diese Konzeption heraus", and a similar paragraph on p. 561.

Such words are at times convenient, and if their use is not to be accompanied by the kind of misunderstandings mentioned by Waddington[1] it is essential that the underlying fallacies be clearly seen. As the last-named author points out, the fallacy in the use of the nouns polygene and oligogene is the disregard of pleiotropic gene action. The corresponding adjectives imply a converse fallacy, namely, that characters are determined by one gene only.

As Mather[2] states, his point of view differs from that of Nilsson-Ehle. It is, in fact, much more similar to that of Johannsen and of a number of others. Present-day work only differs from that of these early pioneers by its insistence on natural selection and by the idea that linked complexes will be built up through its operation, an idea put forward by Fisher[6]. The actual experimental demonstration of linked complexes is still in its infancy.

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