Dr. Ernest Anderson, research instructor in chemistry at the University of Chicago since 1909, has been appointed assistant professor of general and physical chemistry at the Massachusetts Agricultural College, Amherst, Mass.

James A. Gibson, instructor in analytical chemistry at the University of Missouri, has been promoted to be assistant professor.

Dr. Geo. I. Adams has been appointed professor of geology in the Pei Yang University at Tientsin, China, and sailed from San Francisco on July 12.

Dr. E. E. Glynn has been appointed to the George Holt professorship of pathology at Liverpool, vacant by the death of Sir Rubert Boyce. Dr. Glynn has for some years held the post of lecturer in clinical pathology in the university.

Discussion and Correspondence

The Misuse of the Term "Melanin"

Inasmuch as there has recently been a plea for a more exact nomenclature in genetics, it may not be amiss to ask for a more exact terminology in some divisions of bio-chemistry. It is but natural that we should think of a substance in the terms of its most prominent trait, and that whenever we see that trait we should associate it with the substance. It has thus come to pass that all substances which are dark in color and presumably "indestructible" have been termed "melanins." This terminology has nothing to commend it and it often leads to great confusion. To one who has been endeavoring to arrange the literature of the animal pigments the misuse of the term "melanin" has caused an immense amount of unnecessary reading.

All bio-chemical text-books define melanin in more or less the same language "amorphous black or brown pigments . . . which occur in the skin, hair, epithelium cells of the retina, in certain pathological formations, and in blood and urine in disease."[1]

[1] Hammarstein-Mandel, "Text-book of Physiological Chemistry," Wiley & Sons, 1911, p. 792.

Among those who do not use the term "melanin" in its true meaning are a large number of chemists. In nearly every chemical journal we may find in the tables of the decomposition products of protein hydrolysis, a certain amount of "melanin" or "melanin nitrogen." It has long been known that when proteins are heated with mineral acids a black residue is produced which is insoluble in mineral acids, and *because it is black* it has been called "melanin." It may, or it may not, be related to the true melanin; there is at present absolutely no proof on either side; *but until it is shown to be related to the melanins in more ways than color or solubility, it should not be confused with the true animal pigments.* Whenever it is shown that the structure of the molecule of these products is essentially the same as that of the melanins then, and not until then, should they be classed with the melanins. In order to prevent the confusion which arises from this terminology I propose that we substitute for the "melanin" and "melanin nitrogen" of protein hydrolysis the terms proposed by Osborne, "*humin*" or "*humin nitrogen.*"

There are some chemists and many biologists who contend that the production of this black humin by the acid hydrolysis of proteins, indicates that the true melanins have an origin in the proteins. There is no evidence excepting the fact that humins are black and look like melanins. Cane sugar, when boiled with hydrochloric acid produces black humins, which are indistinguishable, except for the absence of nitrogen, from the humins of protein decomposition. Indeed, many of the protein humins may originate in the carbohydrate groups which some proteins carry. In all probability the formation of humins from proteins is the same sort of a reaction as the formation of the black products from sugar (*i. e.*, dehydration), and in the latter case there can be no doubt that the product is not a melanin.

Piettre[2] and myself[3] have isolated pigments

[2] *C. R. Acad. Sci.*, 153, p. 782.

[3] *J. Biol. Chem.*, 8, p. 341; *Biochem. Bull.*, 1, p. 207; *Bull. Soc. Chim.* (4), 11, p. 498.

which contain a protein residue, and Dyson,[4] has secured histological evidence which supports the belief that the mother-substance of the melanins is a protein. From my "melanoprotein" (*i. e.*, melanin containing the protein residue) I split off the pigment portion by a short boiling with acid, and obtained a nearly clear solution of amino acids and polypeptides. *By a longer boiling of these amino acids and polypeptides with hydrochloric acid, I obtained a considerable amount of humin.* In this instance both a melanin and humin were obtained from the same protein and are, therefore, very probably not identical. If humin is substituted for melanin in referring to the products of protein hydrolysis, there will be less danger of confusing those who are not chemists, and who are accustomed to scientific terms which have a definite meaning.

A second instance of *possible* misuse[5] of the term occurs in a recent article in SCIENCE (N. S., 35, p. 765). In speaking of the coat-colors of cow-peas Dr. Spillman states that "breeding experiments lead me to think that buff, brown and black were pigments related to melanin." Just how they were related chemically is not stated, but presumably it is by color and solubility, but as seen in the case of humin these are no criterion. Inasmuch as melanins are everywhere defined as *animal pigments,* or *pigments of animal origin,* it is as impossible for a melanin to appear in the vegetable kingdom as for the coat color of a rabbit to be due to anthrocyan. It would be far better to coin a new term for these plant pigments, and reserve melanin for *those dark pigments, which occur normally or pathologically, in the animal body, skin, hair or feathers.*

ROSS AIKEN GORTNER
COLD SPRING HARBOR, N. Y.,
June 19, 1912

[4] *J. Path. and Bact.*, 15, p. 298.

[5] Dr. Spillman does not say these pigments are melanins, but that they are "related to the melanins." Dr. Mann, in a later note (SCIENCE, N. S., XXXV., p. 1004), does state that a yellow or brassy-brown pigment and an intense black pigment are melanins.

"PRONOUNCED GĒN"

TO THE EDITOR OF SCIENCE: One of your correspondents, Dr. G. H. Shull, discussing in SCIENCE for May 24, 1912, the spelling and pronunciation of the word *gene,* used by writers on genetics, says that it is "pronounced gēn."

This is a good example of the dilemma in which men of science are placed. They must use language, they must translate and transliterate language, they must concern themselves endlessly with nomenclature, they must strive to change nomenclature or strive to prevent any change. And they must at times mention pronunciations, if only to object to them. Sometimes they seriously wish to convey a pronunciation on paper to their intelligent readers. And here is a case. Dr. Shull, a trained man of science, writes to the intelligent readers of SCIENCE, and says that a certain artificial word is "pronounced gēn."

And what does that mean? It means one of two, three or four or more possible pronunciations. The reader has to *guess* what pronunciation is intended. In other words, a man of science, writing in a journal of science, about an elementary matter, completely fails to accomplish his purpose.

Why? Because some orthodox men of science object to any accurate indication in print of the sounds of the human voice; because they object to any representation of sounds that is not contained in certain traditional spelling-books and dictionaries (that is, in certain stereotype plates owned by certain dealers in printed ware); because they will not give a hearing to the men of science who understand the subject; because they close their minds and their journals to science itself, when it mentions language. The Jaspers of science will not listen to the astronomers. "The sun do move," and we won't hear another word! And so our real men of science, when they wish to state facts of language, must express their meaning imperfectly or ambiguously, or else keep silence. But silence also is ambiguous.

How long is this condition to continue? How long will the controlling men of science