mous determination without nuclear participation of the specificities of cytoplasmic particles. Following a hypothesis by T. H. Morgan, he finds the most attractive speculation on the nature of differentiation in a sequence of changes induced reciprocally on each other by nucleus and cytoplasm—a point of view the present writer has also taken.

All in all, one is left with the feeling that the concept of gene-initiated plasmagenes has received no support in this volume, especially in the light of Sonneborn's more recent work. But the importance of this type of work for the understanding of cellular heredity cannot be overestimated. The plasmagenes are only one hypothesis; it is from the experimental material that new ones are born. The plasmagene hypothesis itself, aside from Spiegelman and Monod's kinetic considerations, was essentially the full recognition that a hierarchy of hereditary units may exist, in which the genes take precedence. The nomenclature is unfortunate; as said before, the most diverse types of material have been called plasmagenes. That this should occur at a time when the approach is being made to a definition of the gene in terms of a single function per gene has not conduced to clarity in thought. Defining the term *plasmagene* in one paper as an incomplete gene replica, and in another as an independent symbiont is not helpful.

One aspect of the results that may be stressed is the substantial importance of symbiosis in biological systems. We have become increasingly aware of the important role of the intestinal flora of such organisms as the mammals. In the context of this symposium, the problem of symbiosis appears on an intracellular basis, where the statistical considerations of the competitions between types are difficult to distinguish from those involved in such systems of chemical reactions as that postulated by Delbruck as an alternative to plasmagenes. Indeed, if plasmagenes existed, they might very well behave according to Delbruck's "alternative." It is necessary to develop concepts of the kinetics of self-perpetuation which might permit a testable differentiation.

It is evident, with this resumé, that the only definite cases of self-perpetuating elements in the cytoplasm that require the presence of identical preexisting elements for their formation, and that perpetuate specific changes in their own structure (mutants), are plastids, viruses, and the "central apparatus" in plants and animals. The existence of subsidiary levels of self-perpetuation remains in the questionable state it occupied in Wilson's time. Such phenomena are by no means excluded, but ways of testing for them have still to be devised—methods that will directly attack the function of the nucleus and its relation to the growth of cytoplasmic units.

References

1. KNIGHT, M. M. *Cold Spr. Harb. Symp. quant. Biol.*, 1947, **12**, 115.
2. MORGAN, T. H. *et al. Mechanism of Mendelian heredity.* New York: Henry Holt, 1915. Chap. 5, p. 135 ff.
3. PREER, J. R. *Amer. Nat.*, 1948, **82**, 35.
4. SPIEGELMAN, S. *Cold Spr. Harb. Symp. quant. Biol.*, 1946, **11**.
5. WILSON, E. B. *The cell in development and heredity*, 3rd ed. New York: Macmillan, 1925. Chap. 9, p. 716.

The Committee on Foreign Compendia

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THE COMMITTEE OF American Chemists which eventually became the Committee on Foreign Compendia of the American Chemical Society had its beginning when Aristid V. Grosse, then with the Houdry Corporation, proposed the idea to me on Thanksgiving Day in 1945. Dr. Grosse offered to take on the burden of being secretary if I would serve as chairman. We held these offices until January, 1950, when Dr. Grosse was prevailed upon to accept the chairmanship. At present the other members of the committee are: Roger Adams, Marston T. Bogert, W. Conrad Fernelius, Henry Gilman, Ernest H. Huntress, C. S. Marvel, Linus C. Pauling, Glenn T. Seaborg, and Floyd T. Tyson.

The purpose of the committee is to follow the situation with respect to the two most important encyclopedias of chemistry: Beilstein's *Handbuch der organischen Chemie,* and Gmelin's *Handbuch der anorganischen Chemie.* It was fairly obvious that the devastation of World War II must have interfered seriously with the functioning of these two organizations. A poll of practicing chemists disclosed no one who felt that these great handbooks were dispensable. The important questions were: Could the compendia be saved? What could we do to help?

It was soon discovered that very little foreign literature had been available to either Beilstein or Gmelin from 1940 on, and lists were secured from Drs. Richter and Pietsch of the books and journals which were indispensable to the task of summarizing the world's research in organic and inorganic chemistry. Appeals were then made to American chemists who had such journals and were willing to sacrifice them for the common good. The result was a heartwarming evidence of the generosity of American chemists and of the truly international nature of science. Most of the requested publications were promptly supplied. The American Chemical Society appropriated funds to cover the cost of transshipment.

Almost at once the problem of duplicate sets of journals arose. It was decided after consultation with the editors that these also would be forwarded, to be used toward the restoration of bombed-out libraries or in trading for missing journals.

Many authors or publishers of desired books contributed copies. The American Chemical Society donated copies of its journals. In short, the problem of literature has been solved fairly completely.

This proved insufficient. Word reached us that such ordinary commodities as incandescent bulbs were in short supply. Dr. Tyson found that they could legally be inserted in CARE packages in adequate numbers. Food was short in Germany, and was supplied through the generosity of American chemists.

Beilstein rather promptly published Vols. VI to X of the second supplement to the fourth edition and found that American sales had doubled as a result of World War II. During the war Edwards Bros. of Ann Arbor, Michigan had sold a cut-rate edition of Beilstein as a substantial aid to American chemistry. Because they had to bear no part of the editorial expense the cost was low enough to permit many libraries to purchase Beilstein's for the first time. Naturally, these libraries now wish to keep these compendia up to date. At present, Beilstein is operating on a balanced budget and, while far from prosperous by American standards, seems to be keeping its head above water and swimming vigorously.

The situation with Gmelin has been more difficult. This is due in part to the relatively smaller emphasis now being put on inorganic as against organic chemistry. In part it is due to the greater antiquity of inorganic chemistry and the basic Gmelin principle of critical evaluation and complete coverage of all material in the field published since 1750. In view of the tremendous increase in the number of papers published in recent years, it has become increasingly difficult to treat the entire material in all details. As a result, it will be necessary in forthcoming issues of the *Handbuch* to place greater emphasis upon recent developments at the expense of earlier information, to summarize related subjects more briefly, and to speed up publication. The publication program for the fiscal year 1949–50 comprises approximately 1,920 pages of new Gmelin issues. The first postwar publication in the inorganic series (System No. 10-B, Selenium) reached this country in the summer of 1949. The translation, with annotations, of Libavius' *Alchemia,* the first chemical compendium, dating back to the year 1597, was also completed last year and is awaiting a publisher.

The American Chemical Society, led by Roger Adams, then chairman of the Board of Directors, solicited the chemical industry of this country for help for Gmelin and sent $30,000 last year. An equal amount is expected to be donated by German industry. These donations have so far kept the Gmelin Institute functioning; the future is still obscure.

Under present conditions of international tension, it is no comfort to the Gmelin workers to realize that their location at Clausthal-Zellerfeld is only six miles from the boundary of Russian-occupied Germany.

The precarious position of the Gmelin Institute points up what is one of the most serious of the problems confronting modern science. Every year our universities turn out more researchers. Every year industry, governments, research institutes, and the academic world produce more and more research results. The editorial offices of our principal journals are clogged with worthy articles which should be published. Even with highly condensed presentation and the increased numbers of pages provided in the journals, the flood of research results is all but overwhelming. Yet for maximum utility this great volume of research must not only be published, but must be coordinated, correlated, systematized, and made available. The organized scientists of the world are simply not devoting sufficient effort to the task. Research is so fascinating as compared to the drudgery of compiling and coordinating!

As a result, the library of each important chemical company repeats in part the work which would need to be done only once if it were done promptly and thoroughly. Here is a task worthy of the attention of every important organization of scientists.