In spite of this incompleteness of the bibliography the Concilium service is exceedingly valuable and the writer has been surprised to discover that many zoologists, especially among the younger investigators, are ignorant of the Concilium Bibliographicum and the assistance which its services can render. It is not necessary in this connection to call attention to the difficulties caused by disregard of previous or contemporary work, or by wrong, inadequate and incomplete references. Practically every investigator has had experience with such difficulties. Nor is it necessary to give any explanation as to the value of the card index system. Its handy size, flexibility, rapidity of adjustment and ease of use are well known to-day. It is not so well known, however, that one can procure at short notice the printed cards of the index size from the Concilium Bibliographicum at Zürich, bearing the usual bibliographic information and in addition brief notes as to new categories in systematic works, or as to data or discussions contained in the paper which may not be suggested by the title. It makes no difference whether one wishes a bibliography of the literature on metamorphosis, the insects of Palestine, the fauna of Japan or the coelenterates of the world or any one of numerous other subjects that might be suggested.

This service is valuable to many sorts of workers and in many ways but appears to the writer to be most valuable to those who are working with inadequate literary facilities. A young zoologist, for instance, in an Asiatic country or in a small college here finds himself confronted by a new and important problem which promises to be of considerable interest. Libraries may be lacking, very distant, or if available hopelessly inadequate, funds are notoriously difficult to obtain, and the need of literature is often not appreciated by those who control the budgeting of appropriations. Back numbers of journals are difficult to secure, expensive, and when obtained may contain only a small amount of material which will be immediately useful for the problem in hand. With the cards of the Concilium and the notes they furnish as to subject-matter, number of pages, illustrations, etc., it is possible to determine to some extent at least the relative importance of the papers and plan the expenditure of limited funds more wisely than would otherwise be possible. Reprints, odd number of journals, monographs, can then be secured from dealers or authors, and arrangements made for loans from libraries at a distance.

Furthermore, one can subscribe for the cards of any group in which one is especially interested. This service is again particularly valuable to those working under the handicap of inadequate literary equipment, as the cards constitute announcement of publication of papers that might not otherwise be encountered. Even those who have occasional or frequent access to large libraries find their task simplified by this aspect of the service.

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THE DISCOVERY OF VITAMINES

LAFAYETTE B. MENDEL, in his "Nutrition, the Chemistry of Life" (p. 59), has, by a quotation from Pereira's "Treatise on Food and Diet" (New York, 1843), reminded us of the fact that, long before Lunin, the existence was surmised of those substances in food which, at Funk's proposal, have been combined under the name of vitamines.

Without in the least derogating from Hopkins' great deserts in this matter, but only for the sake of completeness, I venture to state that in 1905, a year before Hopkins published his interesting communication in the *Analyst,* the late C. A. Pekelharing, professor of physiological chemistry and histology at the University of Utrecht, delivered an address at the annual meeting of the Netherlands Medical Society[1] which, appearing only in Dutch, did not, we regret to say, become known abroad, and in which the following passage occurs:

> When white mice are fed on bread baked with casein, albumin, rice-flour, lard and a mixture of all the salts which ought to be found in their food, while they are only given water to drink, the animals starve to death. During the first few days all is well. The bread is eagerly nibbled and the mice look healthy. But soon they get thinner, their appetite diminishes and in four weeks all the animals are dead. If, however, instead of water they are given milk to drink, they keep in good health, though the quantity of albumen, lactose and fat which they assimilate with the milk is quite negligible in comparison with what the bread on which they are fed contains. The element in the milk which keeps the animals alive also occurs in the whey from which casein and fat have been eliminated. Till now my efforts constantly repeated during the last few years, to separate this substance from the whey and get to know more about it, have not led to a satisfactory result, so I shall not say any more about them. My intention is only to point out that there is a still unknown substance in milk, which, even in very small quantities, is of paramount importance to nourishment. If this substance is absent, the organism loses the power properly to assimilate the well-known principal parts of food, the appetite is lost and with apparent abundance the animals die of want. Undoubtedly this substance not only occurs in milk but in all sorts of foodstuffs, both of vegetable and animal origin.

[1] *Nederlandsch Tijdschrift voor Geneeskunde,* 1905, II, p. 111.

On an objective consideration of the development of our knowledge concerning the existence of vitamines we must, in my opinion, come to the conclusion that it is impossible to speak here of a discovery made by one person and of no use to quarrel about who was the discoverer, but that we can only think here of a conviction, growing in the course of years, that there are indispensable, though still unknown elements in food—a conviction which has led to a more and more searching investigation.

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A LOGIC POEM

WHAT is logic? Are not the following examples cases of logic? The first is a poem developed out of a well-known Irish distich. (1) It goes thus:

Unless the kettle boiling be
They labor in vain who make the tea;
Unless the tea be properly made
My guest will not like it, I am afraid;
Unless my guest contented be
She 'll never again come visiting me.

Consequently:

Unless the kettle boiling be
She 'll never again come visiting me.

(2) Are the two following sentences logically equivalent or are they not? "Not unless it rains do I take an umbrella," "Not unless I do not take an umbrella does it not rain."

(3) A child of four, sitting at the dinner table, was making the interesting experiment of eating her soup with a fork. Her mother said to her: "Nobody eats soup with a fork, Emily," and Emily replied, "*But* I do, and I am somebody."

This last is an antilogism—a form of reasoning which it has been proposed to substitute for the syllogism. It is the argument of rebuttal, the conversational argument, and it doubtless arose earlier, in the development of the human race, than the argument of drawing conclusions. It is certainly fully as easy, as is proved (if proof were necessary) by its having been used, in exactly this form, by a very young child. Here is another example of it, expressed in terms of the logician's favorite s, m and p:

"If no priests are martyrs and there are no saints who are non-martyrs, then it-is-impossible-that any saints should be priests." Here it will be noticed that the common term of the first two premises is martyrs and non-martyrs, *i.e.*, a positive and a negative term. Common logic, however, insists upon it that the term common to two premises must be absolutely and exactly the same; nevertheless, this argument would appear, to the untrained logician, to have a certain degree of validity; what is the trouble? Senator N. said: "*It-cannot-be-that* any of these measures are idiotic, *for* they are all necessary, and nothing that is necessary is idiotic." This is not common logic. What, then, is it? What *is* logic?

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QUOTATIONS

A BERTHELOT MEMORIAL

IT is not as a man of a particular nationality that a monument to Berthelot, one of the pioneers of synthetic chemistry, is proposed. France has reason to be proud that she gave birthplace and domicile to this great chemist, "the undisputed head of French chemistry and perhaps the most versatile of modern chemists" (as one of our foremost chemists wrote a few years ago), as well as to Pasteur, the pioneer in another field of science; Mme. Curie in still another, Henri Poincaré, "the greatest mathematician of his age," and Henri Bergson, who has illustrated in his own achievement the claim he has made for France in the field of philosophy that she has been "the great initiator"—not to go back into certain other periods when the scepter of science was undisputedly held in her hands.

It is characteristic of the French that they hold their supreme men of science and the arts and letters in highest popular esteem. There is scarcely a town in France that does not have a street or a square bearing the name of Pasteur, while no great scientist, man of letters, artist, musician, is without his monument. When Goethe was in Paris a century ago (1827) he wrote of the sympathetic atmosphere of the place:

> Only imagine a city like Paris where the cleverest heads of a great kingdom are grouped together in one spot and in daily intercourse incite and stimulate each other by mutual emulation, where all that is of most value in the kingdom of nature and art from every part of the world is daily open to inspection, and all this in a city where every bridge and square is associated with some great event of the past and where every street corner has a page of history to unfold.

The thing celebrated is not always nor even usually military achievement but intellectual power. Goethe said that such intellectual power could never be met with a second time on any single spot in the whole world. It was entirely in character that the people of Paris, when the days were almost if not quite the blackest in the war, when the city was within reach of the guns of the enemy and when there were night