hours at 37 C, caused this to lose from 26 to 36 mg. of glucose per 100 cc.

These results were published in *Journal* of the American Medical Association on June 2, 1923, together with results indicating a diminished glycolytic power of blood from diabetics.

Winter and Smith published a note in the *Journal of Physiology*, 57:40 (Nos. 3 and 4), 1922, which appeared in this country in April, 1923, and in *Nature* of March 10, 1923, that they had obtained an insulin-like substance from yeast.

Collip, in *Nature* of April 28, 1923, states that he, working independently, found an insulin-like substance in various vegetables, in yeast and in clams. Collip's studies on insulin are of inestimable value and made it possible to obtain insulin from animal pancreas in quantities for practical use. He expected to find an insulin-like substance wherever glycogen occurred in nature, and for this reason looked for it in vegetable extracts. Our belief that oxidizing ferments cause glucose metabolism led us to examine vegetables for these ferments and for substances with an insulin-like action. It seems that Collip's theory and ours dovetail. A storehouse of food (glycogen, starch, etc.) and a ferment for the metabolism of this food are necessary wherever growth occurs in vegetables.

Our studies have led us to the tentative suggestion that insulin, which is apparently not itself an oxidase or peroxidase, indirectly stimulates or activates oxidizing ferments in the tissue cells to action upon glucose, whereas vegetable extracts contain active oxidizing ferments and act directly when injected into animals.

It would seem that the work of Winter and Smith, of Collip and of ourselves was being carried on simultaneously and independently. Collip, very properly, suggests that "these authors (Winter and Smith) would, therefore, share coincident priority with me in this particular." We think that we should be included in this share of priority.

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A QUESTION OF RHETORIC

WHY do scientists like to write sentences like the following, which is quoted from the speech of a distinguished man as reported in SCIENCE, "Among the environmental factors which influence the structure and functions of the living organism, nutrition is of primary importance"? The sentence is absolutely correct, and doubtless conveyed the meaning intended to the audience of scientists. But we can sum up the substance of it in three words, "food is important." When so expressed it seems hardly worth saying. Possibly this does not express the meaning quite as accurately as the sentence used, but any doubts that might arise would be fully cleared up in the rest of the speech.

To be sure, more is implied in the sentence used than by the three words, "food is important." There is the suggestion of influencing structural changes by such means, as well as the elimination of any discussion of the effects of heredity, but it is doubtful if many of the scientists in the audience received the full value of such suggestions.

The sentence may have been all right for the audience, but the trouble is that when a person gets used to such methods of expression it is difficult to change when talking to ordinary people. A single unusual word is readily absorbed without breaking the thought. It very often adds to the force of the expression. By unusual word I am not now referring to one that is so unusual that it is not understood, but to one that is not the ordinary expression of the listener. Each such word causes a slight delay in grasping the thought. In the sentence quoted we find seven words which might not convey the thought immediately, and which would therefore be classed as unusual by this definition. Take, for example, the word "primary." The meaning is clear, but how many people would use it as used in ordinary conversation? The only use that most people make of the word "primary" is in connection with the schools.

With seven such words in so short a sentence, a certain amount of mental alertness is necessary to keep up with the speaker, or of concentration to read it. And when the thought reaches home, it is such a commonplace thought that it does not provide any stimulus for concentration on the next sentence.

But why not omit the sentence entirely? Why is it necessary to claim "primary importance" for the subject of nutrition? Would any anatomist deny it?

I do not want to criticize this speaker in particular, but am only pointing out one reason why scientists are not more often asked to explain their observations in publications that pay well. Professor Dry-as-dust is not as often the one whose learning is over the heads of his audience as the one who makes commonplace statements in language that requires an effort to understand it.

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QUOTATIONS

MEMORIES OF SIXTY YEARS

THAT a man who became a university graduate in 1859 has published in this year 1923 a volume of vig-

orous and interesting papers and addresses is a fact to encourage other octogenarians not to let their faculties rust. Dr. W. W. Keen, who is in London now to attend the meeting of the International Surgical Society, took part in what he calls the "horrible surgery" of the American Civil War, and has lived to be able to contrast it with that of the world war of 1914–1918. He himself was a pioneer of antiseptic surgery in America, and the longest article in the book is appropriately entitled "Before and after Lister." In other papers he denounces antivivisection, and advocates abstention from alcohol. But the book is not confined to professional subjects. In an address delivered in 1913 in connection with the hundredth anniversary of peace between Great Britain and America, Dr. Keen tells how, a few days before he spoke, he had been one of the signatories to an address beautifully engrossed on vellum, to be presented to the German Emperor, congratulating him on the fact that on June 15 of that year he would complete a twenty-five years' "reign of unbroken peace." Alas! in the following year the Emperor plunged into the great war, and Dr. Keen italicizes his conclusion that the world's hope lies in the amity, cooperation and solidarity of all the English-speaking peoples.

Medical ceremonials seem to have an attraction for Dr. Keen, and he gives pleasantly readable accounts of some graduation and other celebrations in which he has taken part—at Edinburgh, St. Andrews and Upsala. He also tells the story of the early years of Brown University of which he is a graduate. Though the author is now eighty-six years old, his outlook is rather that of a young man, and he concludes his book with a "message of hope" to the sufferers from malignant disease, if only they will seek advice and treatment early. Some of his cases were enjoying life fifteen and twenty years after operation, and he holds that there is a great field for X-rays and radium. Long may he himself continue to write reminiscently for the edification of the generation which is still in the fighting line of medical and surgical duty.—*The British Medical Journal.*

SCIENTIFIC BOOKS

The Preparation and Significance of Free-air Pressure Maps for the Central and Eastern United States. By C. LEROY MEISINGER, Monthly Weather Review Supplement 21, Washington, 1922, 4to, 77 pp., incl. tables, 31 diagr. and 22 charts.

THIS monograph is a milestone in the progress of American barometry. The last milestone was Frank H. Bigelow's "Report on the barometry of the United States, Canada and the West Indies" (Report of the chief of the Weather Bureau, 1900–1901, vol. II). The foundation of the daily weather map for forecasting purposes has always been the distribution of pressure at sea-level. Sea-level was the natural choice, because the forecasting began as storm warnings for navigators of the ocean. With the spread of the network of meteorological stations over the United States to elevations greater than 1,000 feet, the addition of fictitious air columns of great height in order to get "sea-level pressure" was recognized as a serious source of error. Bigelow very ingeniously patched over this difficulty, in part, but a satisfactory result was not attainable for the elevated western half of the country. Bigelow made an attempt at reducing pressures to levels 3,000 and 10,000 above sea-level, but his temperature argument, based on average temperature gradients of all weather, was too great a source of error. He had done enough, however, to make meteorologists hope for results helpful in forecasting, if accurate maps for levels in the free air could be made. Our weather occurs in the air, not at sea-level underground.

The long-needed revival of free-air pressure maps came as a result of the demands of aerial navigation during the war. Ocean navigation required forecasts from maps of sea-level conditions: now aerial navigation needs forecasts from maps of flying-level conditions. The widely separated observations by means of kites were wholly inadequate for the construction of synoptic free-air pressure maps. But the information gained as to temperatures at different heights provided the data necessary for the construction of reduction tables which could be used at other stations throughout the central and eastern United States. Dr. Meisinger found that for any month the vertical gradient in temperature up to 2 km. over any kite station was practically the same on every occasion with the same wind direction at the ground. He found also that the transitions between kite stations were so smooth that interpolations gave values sufficiently approximate for use over stations where free-air temperatures had not been observed. Thus, the construction of free-air pressure maps for levels such as 1 and 2 km. above sea-level was possible, merely from surface temperatures and wind directions, when based on average temperature gradients interpolated from the kite stations.

The laborious steps by which this possibility was developed into a practicability were, briefly, as follows: First, Dr. Meisinger determined for each kite station the vertical gradient in temperature to 1 km. and to 2 km. above sea-level, with each of the eight wind directions at the ground, in each of the twelve months. These he expressed in terms of the difference between the surface temperature and the mean temperature of the air column to each height. Second, these differences were mapped for each level for each wind direction for each month, lines of equal