Explanation of Signs used under the head of "Remarks."—The four principal varieties of cloud, Nimbus, Stratus, Cirrus, and Cumulus, will be recognized by their abbreviations. All forms of cloud may be reduced to these elements, alone, or in combination. When in combination, they are expressed by joining them with a hyphen, thus: Ci.-st., cirro-stratus; ci.-cu., cirro-cumulus; cu.-st., cumulus-stratus, etc., The four primitive forms represent the following kinds of clouds:

NIMBUS, the common, uniform leaden-colored, rain-cloud.

STRATUS, the horizontal, stratiform cloud, seen most frequently on the horizon, and at morning.

CIRRUS, the light, feathery, broken clouds of the upper air. Usually very high and scattered.

CUMULUS, the piled up form, occupying middle region of air, and looking like great fleeces of wool. Seen most often in warm weather.

If under the head "remarks" only one form of cloud is given, it refers to the only kind seen that day. If two forms are given, the second refers to the form of a second or third observation.

ART. VI.—*The Liver viewed as a Sugar Producer.*

In writing a thesis on the production of sugar by the liver, I was unable to obtain the results of some observations by Valentin, relative to the condition in respect of sugar, of the organs of the hybernating animals, during hybernation. Having since obtained them, I beg leave herewith to present them.

In the first observation made upon a marmot, which had begun hybernation but four days before, but which had eaten nothing for a week, the stomach being quite void of food, and containing only the grayish-white neutral substance, normally its occupant during hybernation, the liver was found to afford a large quantity of sugar. With a view to a more thorough examination, a second marmot (male) was taken, which, having eaten nothing for some days before hybernation commenced, lay asleep for twenty-five days. It then woke up, but, falling asleep again on the following day, it remained for eleven days in a condition of perfect winter-sleep. It then, for the second time, awoke, passed urine and fæces for the first time since hybernation commenced, and fell asleep again on the next day. Three days after it was

asphyxiated by being placed *in vacuo*. At the commencement of hybernation its weight was $2\frac{1}{3}$ pounds; at death it had diminished nearly three ounces, about $\frac{1}{12}$ of its weight. A solution of the liver, treated by the test of fermentation, by that of copper, by the potash-test, and finally by polarization, distinctly evinced the presence of sugar. The economy of which it was a part had been unsupplied with food for six weeks. From a quantitative analysis it appeared that the organ contained 2.87 per cent. by weight of sugar. Six decoctions were necessary before the liver was completely exhausted of its sugar. But not only in the parenchyma of the liver, but in the blood which flowed from an incision into it, and which manifested almost total absence of coagulability; in the bile and in the normal contents of the stomach, were found manifest evidences of sugar. In the blood the per centage of sugar was 82, by weight. A filtered decoction of the diaphragm of the right supra-renal capsule, and of the substance of the heart, all yielding faint traces of sugar, though in the last two organs it was very weak indeed. Its presence could not be demonstrated in any other organ.

In remarkable contrast with this extensive diffusion of sugar, is the case of a young hedgehog which was also examined. In this animal hybernation was not at all complete. Rapidity of respiration was decreased only about one-half, deep respiration followed any disturbance of his quiet, he woke up about every week, and died after two months, evidently from starvation. No trace of sugar was obtained from any organ.

When the general conditions which obtain, in hybernation, are taken into account, the facts above stated bear weighty testimony to the truth of the theory of M. Bernard. During the winter sleep of the marmot, the contractions of the heart fall from 150 beats in the minute to 15, while the respirations instead of numbering 500 in the hour, as in the summer, fall to 14. The temperature of the body maintains a pretty uniform ratio with that of the surrounding air, being generally but two or three degrees above it. At 30° F. the temperature of the body is 35°, but as the temperature of the air sinks below this point the cold appears to act as a stimulus, and the animal heat is elevated, though only temporarily and antecedent to a fatal depression of it. This elevation of temperature consequent upon the stimulus of cold, or other external irritation, is a constant fact, and as being consequent upon the processes of nutrition and waste the *capability* of this elevation, taken in connection with the results of the experiments detailed above, is a beautiful extension of M. Bernard's ideas. For from what is generally known as to the chemical capabilities of sugar as a supporter of heat, when, in a case like that of the Hibernants, we find the evolution of animal heat so far pro-

longed, during the total deprivation of ingesta of all kinds; and further, when we find the sugar in so much greater profusion and over so much greater extent, than it can be found when the functions of the economy (respiration and circulation in particular) are being performed to their full extent, we can arrive at no other conclusion than that this excess of sugar has been elaborated by the liver, the labors of whose office have been increased in consequence of the general suspension or depression of the functions of the other viscera. And that this sugar, although in such excess, is intended for the purpose of the maintenance of the animal heat, to a low degree, for a long space of time.

W. HOWELL, M. D.

ECLECTIC DEPARTMENT,

AND SPIRIT OF THE MEDICAL PERIODICAL PRESS.

Extracts from the Minutes of the New York Pathological Society.

Dec. 27, 1854. Dr. Clark presented a specimen of blood, from a patient who died of gangrene of the feet, nose, fingers, etc. The following history has been furnished with the case:

"L. W., aged 28 years, was admitted to the hospital about three weeks since, with a sore mouth, which she attributed to some pills that were administered by a physician; she also complained of great tenderness of her feet, which were blue and cold for about three inches above the ankle. Her nose and two fingers of the left hand were in the same condition. Afterward, the other hand and the ears became affected, and, still later, other parts. She died the night before last. At the autopsy, all the internal organs were found healthy. The iliac, femoral, radial, tibial, and brachial arteries were examined, and found pervious and healthy."

The coloring matter seemed to be diffused through the whole mass of the blood, and not to be confined to the red corpuscles, which were very few and strong. The lymph corpuscles were also few, but large.

Dr. Clark exhibited a specimen of cancer of the cardia, of interest from the valvular form of the growth obstructing the passage of the food.

Dr. Peaslee thought this case very interesting, from the satisfactory manner in which the *post-mortem* appearances explained the *pre-mortem* symptoms. Some of the latter, however, reminded him of a case of his, in which malignant disease was entirely out of the question. The patient was a medical pupil, 26 years of age, and perfectly well in every other respect, who for