las), giving as the reason that Linnæus did not give the name *Ursus maritimus*, as usually attributed to him, and that "the next date when any mention of the Polar Bear was made was 1776, when Müller and Pallas each gave it a name." Allow me to suggest that Mr. Rehn's statement is not correct. It is true that Linnæus did not give a binomial term to the Polar Bear, but it is not true that it did not receive one until 1776.

In 1773 Sir C. J. Phipps undertook a voyage to Spitzbergen, and in the account which he published in 1774 * the Polar Bear, with full references to Linnæus and Pennant and measurements from specimen, is formally named *Ursus maritimus*. I have not now at hand the original edition, and consequently cannot quote the page, but I possess the French translation of 1775, † in which the name occurs on p. 188. I may add that Mr. Rehn's is not the first attempt at resurrecting Pallas's name. It was done as early as 1844 by Keyserling and Blasius, who have been followed, among others, by Nilsson and Pleske. But the name of the Polar Bear should be *Thalarctos maritimus* (Phipps).

Leonhard Stejneger.

U. S. National Museum,
Washington, D. C., August 26, 1899.

THE MENTAL EFFECTS OF THE WEATHER.

In reading the interesting article by Dr. Dexter in Science of August 11th under the above heading two or three suggestions as to the causes in action occurred to me and are perhaps worth mentioning. Dr. Dexter's curves show that the greatest number of assaults occur between the temperatures of 50° and 90° F., with a maximum between 70° and 80°. There is a greater number on clear and partly cloudy days than on days with rain. In other words, the conditions which we know attract people out of doors and bring them in contact are the conditions which, it appears, produce the greatest number of assaults and thus, perhaps, are indirectly the cause of them. Even the slightly greater number of assaults on partly cloudy days than on clear days may be interpreted from this standpoint. The partly cloudy days average warmer than the clear days, and people are more attracted out of doors on mild days than on cold days.

The number of errors in banks is found to be greater on cloudy and on rainy days than on clear days. This may be due to the greater amount of light on clear days by means of which the figures are more clearly seen.

The number of people insured appears to be less on rainy days. Again, this may be explained by a tendency of rainy days to keep people in doors. A man having decided to have his life insured on a certain day which proves to be rainy postpones it to a pleasant day, when traveling is more agreeable.

The increased energy which people feel on sunny days also no doubt contributes to the effects described above, as suggested by Dr. Dexter.

The number of deaths he found to increase with the temperature when the temperature was above 80°, and in this case there is probably a direct relation of cause and effect.

H. Helm Clayton.

Blue Hill Meteorological Observatory,
September 5, 1899.

* Phipps (C. J.). A voyage towards the North Pole undertaken by H. M's command, 1773. London, 1774. 4to.

† Voyage au Pole Boréal, fait en 1773 * * * etc. Paris, 1775. 4to.

NOTES ON PHYSICS.

PHOTOGRAPHY OF SOUND WAVES.

Professor R. W. Wood publishes in *Phil. Mag.*, August, '99, some very interesting photographs of sound waves, taken by a modification of the method of Toepler. A telescope objective pointed at a star appears as a uniformly illuminated field to an eye situated at or a trifle behind its focus, inasmuch as light enters the eye from every part of the objective. A condensed mass of air between the lens and the focus turns the light which passes through it to one side of the focus; this deflected light may be cut off by means of a screen, the edge of which just grazes the focus, and the portion of the field of view which is covered by the condensed mass of air appears dark. Instead of the eye an ordinary photographic camera may be focussed upon the telescope objective, and by using the light from an electric spark, instead of

the light from a star, an instantaneous photograph may be taken of a sound wave moving across the field of view.

Professor Wood has in this way obtained photographs showing the wave-front forms which occur in various cases of reflection, refraction and diffraction. An auxiliary electric spark is employed as a source of the sound waves to be photographed.

THE HYDROLYSIS OF STANNIC CHLORIDE.

SOLUTIONS of stannic chloride show abnormally low freezing points. Mr. Wm. Foster* has shown that this abnormal behavior is to be ascribed to the hydrolysis of the stannic chloride, namely, the formation of HCl and stannic oxide, so that in dilute solution there is slowly formed four dissociated molecules of HCl instead of one dissociated molecule of $SnCl_4$. The freezing-point constant calculated upon this assumption is 14.06 and the value observed by Loomis is 14.25.

THE SPECIFIC HEAT OF SOLUTIONS.

PROFESSOR MAGIE† has shown theoretically that the heat capacity of a solution of a non-electrolyte, osmotic pressure being proportional to the absolute temperature, is the sum of the heat capacities of the solvent and of the solute, and he has derived an expression for the change in heat capacity of any solution due to change in concentration when the relation between osmotic pressure and temperature is given.

In case of non-electrolytes the above-mentioned relation is verified by experiments of Marignac and by more acurate measurements carried out by the author. Professor Magie points out that sufficient data are not at present at hand to verify the more general relation mentioned above.

MAGNETISM AND STRETCH-MODULUS OF STEEL.

STEVENS and Dorsey‡ have shown that the stretch modulus (Young's modulus) of iron and steel is very slightly increased by magnetization in the direction of the stretch.

W. S. F.

* *Physical Review*, IX., p. 41.

† *Physical Review*, IX., p. 65.

‡ *Physical Review.*

*THE BACILLUS ICTEROIDES AS THE CAUSE OF YELLOW FEVER.**

Sanarelli reproaches me with not being willing to yield to the evidence in favor of the specific etiological rôle of his bacillus. I am not influenced in my scientific conservatism by any feelings of jealousy, and shall be ready to do full honor to the discoverer when the discovery is definitely established. At present I cannot admit this for the following reasons :

First. Sanarelli's bacillus grows readily in the culture media employed by me in my researches, but in nineteen typical cases of yellow fever in which I introduced into such media blood from the heart of yellow-fever cadavers, this bacillus was not present, the cultures remaining sterile in fifteen. In three of the four cases in which a growth occurred, I identified the bacillus found as bacillus coli communis (my bacillus *a*). I strongly suspect that some of those bacteriologists who claim to have found Sanarelli's bacillus have mistaken for it one of the varieties of the colon bacillus.

Second. In my experiments material from the interior of the liver and kidney, containing blood and crushed tissue elements from fresh cadavers, was added to culture media in which Sanarelli's bacillus readily grows, but I obtained a negative result (cultures remained sterile) in 30 out of 43 cases.

Third. Sanarelli's bacillus is fatal to guinea-pigs and rabbits when injected subcutaneously in very minute doses. In my experiments blood from the heart and crushed liver tissues from the fresh cadaver failed to kill eight out of ten guinea-pigs and seven out of eight rabbits experimented upon. I admit that the value of these experiments is impaired by the fact my laboratory facilities did not permit me to keep these animals under observation as long as was desirable.

Fourth. The experiments made by Drs. Reed and Carroll at the Army Medical Museum, show that Sanarelli's serum in high dilutions, (1–100,000) causes arrest of motion and typical agglomeration (Widal reaction) of theb acillus of hog cholera ; also, that serum from an animal immunized against hog cholera, in high dilu-

*From a reply to Professor Sanarelli, by Dr. George M. Sternberg, published in the *Medical News*.