THE THERMOMETRIC BUREAU.

We desire to call the attention of our scientific readers to the following extract from a circular, published by the Thermometrical Bureau, Yale College Observatory, New Haven, Connecticut, relating to the importance of the verification of Clinical Thermometers to the medical profession, to whom the true temperature of a fever patient is of great importance to ascertain correctly.

Statistics show that several thousand thermometers of refined construction, and graduated on the stem to 0°.2 F. or thereabouts, are annually procured by the medical practitioners of our country alone for physiological researches and daily practice. The majority of these thermometers are newly made (within six months), and their verification depends on inferior (from the scientific standpoint) thermometers in the hands of individual makers. It is needless to say that the readings of such thermometers have little value in indicating the true temperature of a patient, or affording data in cases which the physician wishes to describe in print.

The makers of thermometers in our country have been in general content to use for their standards thermometers which have been compared at some foreign observatory, or with some more easily accessible instrument in which they place confidence, in the hands of a friendly neighbor. Thus it happens that many thousand American clinical thermometers have been sold, which do not depend upon a comparison with a recognized standard for their scale readings. The result has been that the American instruments have suffered in the estimation of scientific practitioners. This is not so much the fault of the American makers as their misfortune in not having the same facilities offered them by the properly equipped observatories this side of the water, which their favored competitors enjoy abroad.

The meteorlogical observers in this country have now no common standard of easy access; and it seems eminently proper that the observatory should undertake to be useful to the medical profession and the meteorologists in this country, and afford the means of comparison desired. With this end in view the observatory has accepted the aid of the Board of Directors of the Bache Fund of the National Academy in obtaining the standards of the foreign observatories, and has made provision for the constant determination of the errors of the standards themselves. The following is the official circular of the Thermometric Bureau: —

CIRCULAR CONCERNING THE VERIFICATION OF THERMOMETERS.

This Bureau has been established by the Corporation of Yale College, at the recommendation of the Board of Managers of the Winchester Observatory, in order to afford desired facilities for adequate verification of thermometers.

Thermometers will be received at the observatory for the purpose of comparison with the observatory standards, and certificates of comparison signed by the Astronomer in charge will be issued with thermometers so compared. These certificates will contain a statement of the correctness to be applied at intervals of five or ten degrees of the thermometer scale to cause it to have the same reading as the observatory standards. In general these corrections will be expressed in tenths of a degree Fahrenheit, or in twentieths of a degree centigrade.

Thermometers sent for verification must have a name and number engraved upon them; and thermometers which are not graduated on the glass stem must be of sufficiently good workmanship to satisfy the observer in charge that the scale will not suddenly change with reference to the glass stem of the thermometer tube, with ordinarily careful usage.

The Board of Managers have established the following scale of charges for this service, which includes the hall mark and the certificate: —

Standard Meteorological Thermometers	$1,00
Ordinary Meteorological Thermometers	,50
Ordinary Maximum Thermometers	,75
Ordinary Minimum Thermometers	,75
Clinical Thermometers	,50

There will be a deduction of one-fifth of the above charges where more than eight thermometers of one kind are received at the same time. In the case of clinical thermometers the charge will be four dollars per dozen when not less than two dozen are sent at a time.

For other thermometers than the above the charges for verification will be furnished on application.

The letter of advice accompanying thermometers sent for verification should contain the maker's name, the number of each thermometer, and full directions for re-shipment.

All proper precautions are taken by the Board of Managers to guard against loss or injury; but as it is manifestly inexpedient that a University Corporation should be responsible for property in its care for such a purpose, it is to be understood that all risks are assumed by the person sending the thermometers.

LEONARD WALDO,
Astronomer in Charge.

BACTERIA IN THE AIR.

M. Miquel has succeeded in seizing and numbering the spores or eggs of bacteria, and while confirming M. Pasteur's observation; that they are always present in the air, shows that their number present incessant variations. Very small in winter, it increases in spring, is very high in summer and autumn, then sinks rapidly when frost sets in. This law also applies to spores of champignons; but while the spores of moulds are abundant in wet periods, the number of aerial bacteria then becomes very small, and it only rises again when drought pervades the soil, a time when the spores of moulds become rare. Thus, to the *maxima* of moulds correspond the *minima* of bacteria, and reciprocally. In summer and autumn, at Montsouris, one finds frequently 1,000 germs of bacteria in a cubic metre of air. In winter the number not uncommonly descends to four and five, and on some days the dust from 200 litres of air proves incapable of causing infection of liquors the most alterable. In the interior of houses, and in absence of mechanical movements raising dust from the surface of objects, the air becomes fertilizing only in a volume of 30 to 50 litres. In M. Miquel's laboratory, the dust of five litres usually serves to effect the alteration of neutral bouillon. In the Paris sewers infection of the same liquor is produced by particles in one litre of the air. These results differ considerably, it is pointed out, from those published by Tyndall, who says a few cubic centimètres of air will, in most cases, bring infection into the most diverse infusions. M. Miquel compared the number of deaths from contagious and epidemic diseases in Paris with the number of bacteria in the air during the period from December, 1879, to June, 1880, and certainly, each recrudescence of the aerial bacteria was followed at about eight days' interval by an increase of the deaths in question. Unwilling to say positively that this is more than a mere coincidence, he projects further observations regarding it. M. Miquel further finds (contrary to some authors) that the water-vapour which rises from the ground, from rivers, and from masses in full putrefaction is always micrographically pure; that gases from buried matter in course of decomposition are always exempt from bacteria; and that even impure air sent through putrified meat, far from being charged with microbes, is entirely purified, provided only the putrid filter be in a state of moisture comparable to that of earth at 0·30 metres from the surface of the ground.

TO CHANGE THE COLOR OF FLOWERS.—The natural color of flowers may be changed by exposing them to the diluted fumes of ammonia. Most of the blue, violet and light crimson flowers turn to a splendid bright green. Dark crimson clove pinks turn black, other dark red flowers turn dark violet, all white flowers turn sulphur yellow. This change of color is especially beautiful when they are variegated or the single petals possess a different color. As soon as the new color is fully developed, the flowers must be dipped at once in cold water, when they will keep their new shade for two or six hours; by degrees then their natural color returns. If flowers be exposed to the vapors of ammonia for one or two hours they turn a dirty chamois, which is permanent. Blue, violet and red asters are dyed or turned intense red when they are exposed to the fumes of muriatic acid gas; it takes from two to four hours or more before the shade is fully developed. The flowers are then removed to dark cool rooms to dry.

TO PRESERVE AND RENOVATE RUBBER INSTRUMENTS.—It is well known that many articles and instruments made of rubber are apt to become dry with time, and to crack, grow brittle, and lose all elasticity. According to a Russian journal, this may be prevented by the use of a simple mixture of one part aqua ammonia with two parts of water; in which the article should be immersed for a length of time varying from a few minutes to one half or one hour, until they resume their former elasticity, smoothness and softness.