candle in a large dark room, in divers positions to this surface, you may exactly represent all the phenomena of these pits in the moon, according as they are more or less inlighted by the sun." He then goes on to advocate the second theory, and concludes finally that the craters had their origin similar to those formed in the alabaster.

A "tidal" theory, which supposes a time when a thin crust concealed a liquid beneath, which was moved by the action of tides in such a manner as to produce craters, is also examined and rejected by Mr. Gilbert. So also is a "snow" theory, and then are considered the "meteoric" theories, which suppose the pits to have been caused in some way by the impact of extra-lunar bodies. As we have seen, this theory was considered and rejected by Hooke in 1667, but others have not seen the same difficulties that he did. Mr. Gilbert advances the following theory:

"It is my hypothesis that before our moon came into existence the earth was surrounded by a ring similar to the Saturnian ring: that the small bodies constituting this ring afterward gradually coalesced, gathering first around a large number of nuclei, and finally all uniting in a single sphere — the moon. Under this hypothesis the lunar craters are the scars produced by the collision of those minor aggregations, or moonlets, which last surrendered their individuality."

This hypothesis was tested in numerous ways, and it was found

CALENDAR OF SOCIETIES.

Philosophical Society, Washington.

May 27. — S. P. Langley, On Recent Observations in the Infra-red Spectrum; G. K. Gilbert, The Average Temperature of the Earth; Cleveland Abbe, The Formation of Rain.

Chemical Society, Washington.

Apr. 13. — Subject for discussion: Organization as a Section of the American Chemical Society; G. L. Spencer, A New Drying Oven. The walls of the oven are made double and the space between them filled with a non-conducting substance. The bottom of the oven is also made double, the outer wall being made of Russia iron and the inner of copper. The space between is filled with air This oven has lately been devised in Dr. Peale's laboratory by Dr. G. L. Spencer. The drying bulbs are made in the shape of a flask with rounded bottom. The content of the flask varies from 150 to 200 cubic centimetres. From six to eight of these drying flasks are connected *en batterie* with the pump. If a current of hydrogen is to be introduced into the drying flask, it is easily accomplished by passing a very small glass tube through the cork, joined to another tube by a rubber connection immediately below the cork. The inner tube should pass nearly to the bottom of the flask, passing through a wash bottle containing caustic soda, and then through a sulfuric acid bulb. The speed of the current, which need not be very great, is controlled by a stop or pinch-cock. Any of the sample which may touch the inner tube during the intumesence, caused by desiccation, remains thereon and is weighed at the end with the tube, which is detached and left in the drying bulb. H. W. Wiley, A New Lamp for Securing a Constant Monochromatic Flame. This lamp was devised to secure a constant uniform coloration for polarimetric observations. It consists essentially of two wheels with platinum gauze perimetres and spokes, driven by a clock-work and mounted as shown in the figure. The sodium salt, chlorid or bromid, is saturated in solution, is placed on the porcelain crucibles to such a depth that the rims of the platinum wheels dip beneath the surface as they revolve. By means of the crossed bands the wheels are made to revolve in opposite directions, as indicated by the arrows. The solution of the salt, which is taken up by the platinum net-work of the rim of the wheel, thus has time to become perfectly dry before it enters the flame, and the sputtering, which a moist salt would produce, is avoided. At every instant, by this arrangement, a minute fresh portion of salt is introduced into the flame, with the result of making a perfectly uniform light, which can be used for hours without any perceptible variation. The polariscope should be so directed toward the flame as to bring into the field of vision its most luminous part. The platinum wheels are adjustable, and should be so arranged as to produce between them an unbroken yellow flame. H. B. McDonnell, A Filter for Fine Precipitates. To prepare the ordinary Gooch filter for the retention of fine precipitates, the writer adds a little powdered asbestos on top of the ordinary asbestos felt in the bottom of the perforated crucible. The fine asbestos can be purchased from dealers in chemicals, and should be an impalpable powder. It is prepared for use by treating with acid, to remove all soluble matter, and washed a few times by decantation. It is kept in water, in which it is suspended, by agitation, just before use. A filter prepared in this manner will perfectly retain barium sulphate, even when it is precipitated cold and filtered at once.

May 11. — The society amended the constitution and by-laws so as to conform it to the requirements of the constitution of the American Chemical Society, in order to become a local section of that society. Oma Carr, The Predominant Organic Acid in Acid Juices. A tenacious, difficultly soluble incrustation forming upon the tubes of the multiple-effect evaporator at the Medicine Lodge Sugar Works, Medicine Lodge, Kansas, was examined, first with regard to the practical problems connected with its removal, and, second, with regard to its composition, particularly the organic acid in combination with the magnesium and calcium of the scale. The incrustation contained a high percentage of organic matter — 54.4 per cent, of which 43.5 per cent was carbon, or 23.7 per cent on the original material. Sulfuric and acetic acid digestions of the scale were made, the magnesium salt of the prevalent organic acid isolated and converted into a repeatedly purified lead salt. Combustion of these salts rendered results concordant with the theoretical composition of tri-plumbic citrate. Aqueous solution of the acid gave reactions confirmatory of the combustions. Inasmuch as the scale may be taken as an index of the predominant acid combined with the magnesium of the scale, the assumption is plausible that the predominant acid is citric, and not aconitic, as has been commonly supposed. H. W. Wiley, On the Estimation of Levulose in Honey. The principal methods of estimating levulose in the mixtures heretofore practised are those which consist in the destruction of some of the ingredients in the mixture and the estimation of the remaining one, or the method of Wiechmann, which consists in the estimation of the polarizing and reducing power before and after inversion. Neither of these methods can be applied to honey, which contains other optically active bodies besides cane-sugar, levulose, and dextrose. The method presented rests on the principle of the change in the specific rotatory power of honey, due to temperature; the other optically active bodies present remaining practically unchanged, as far as specific rotatory power is concerned, with changes of temperature. Polarizations of many samples of honey were made at intervals of 10 from 0 to 88. The temperature at 88 was chosen as the maximum temperature, because at that temperature a pure invert sugar, composed of equal parts of levulose and dextrose, becomes optically inactive. In other words, the specific rotatory power of levulose at 88 is the same as that of dextrose. A chart was shown giving a graphic representation of the changes in rotatory power, due to temperature. The chart shows that from 20 to 88 the changes are practically equal for either increments or decrements of temperature. From 20 to 0 there is a slight curve, showing a small deficiency in rotatory power at 0 from that which would be calculated from the rate of change from 88 to 20. A table was shown giving the results of the calculation of the per cents of levulose in various samples of honey by this method, which were very satisfactory.