

analysing raw materials, auxiliaries, boiler feed waters and rendering suitable advice. It also advises the Public Health Department on problems connected with water supply and food materials. It has investigated the conditions of manufacture of "lime washes" from China clay and has rendered immense help to small manufacturers by giving advice and guidance whenever these were sought. The research section is at present engaged in studying (i) the polymerisation of Indian vegetable oils with a view to their utilization in the manufacture of patent leather, book binding leather, etc., and also (ii) the sulphonation of the same oils with a view to their utilisation as textile auxiliaries as wetting out, emulsifying and cleansing agents in textile industry. These investigations have been allotted to the Institute by the Industrial Research Bureau, New Delhi. The possibilities of manufacture of ultramarine, water-glass and the whitening of China clay of Ransipur Mines, are now under investigation.

The Agricultural Chemists' Laboratory was a long-felt want in the State. His Late Highness, as far back as 1912, expressed his desire that the chemical analysis of the soils of the State should be undertaken by the Agricultural Department. With the establishment of the Sayaji Jubilee Science Institute, this hope was realised and the Agriculture Department now possesses a well-equipped chemical laboratory.

Among the problems that are being investigated in this section, mention may be made of the following:—(1) Effect of small doses of potassium nitrate on the growth and quality of

tobacco. (2) Studies in Electroculture: Effect on soils and on composition of the plants. (3) Growth of different varieties of cotton on typical State soils, and (4) Composition and nutritive value of *Trichosanthus diocea*.

The Public Health Laboratories, which were equipped in January last, have started work on the Grading of Ghee on the same lines as those carried out under the Agricultural Marketing Advisor to the Government of India. These laboratories are now equipped for carrying out the analysis of food materials such as milk, tea, coffee, flours, etc., with a view to detect adulteration. The laboratories are so designed that if and when the Food and Drugs Act comes into operation, space will be available for additional equipment to cope with all the work in that direction.

It is proposed to house the Excise Laboratories in the same building. These laboratories will undertake the analysis of spirituous preparations with a view to determine the excise duties to be levied on such preparations. The laboratories will be adequately equipped to meet the exacting requirements of the British Government and to enable spirituous medicinal preparations manufactured in the State to pass through the customs on the strength of the analytical reports of the Science Institute. The Sayaji Jubilee Science Institute thus embodies a unification of scientific efforts in research, both pure and applied. It is needless to state that the Government of Baroda deserve warm congratulations from the public for such a sound forward policy.

ASTRONOMICAL NOTES

Planets during August 1939.—Mercury will be in inferior conjunction with the Sun on August 10 and will afterwards become a morning star. Venus continues to be close to the Sun and is not in a favourable position for observation during the month. Mars which is in opposition to the Sun on July 23, will be a conspicuous object in the eastern sky, immediately after sunset; it is however getting fainter, its stellar magnitude decreasing to -1.8 at the end of the month. On August 24, the planet will be at one of the stationary points of its geocentric orbit.

Both Jupiter and Saturn can be conveniently observed in the latter part of the night. The latter will be stationary on August 15 and will be seen on the meridian about an hour before sunrise. Uranus continues to move slowly eastwards in the constellation Aries until August 28, when it becomes stationary. On August 9, the planet will be in close conjunction with the moon.

Comets.—Pons-Winnecke Comet has, as pre-

dicted, become brighter, an observation of June 12 showing its magnitude to be 8.5. Information has been received of the discovery of a new object by Jackson at Johannesburg, which, later on was found identical with comet 1925 II. Schwassmann Wachmann (*U.A.I. Circ.*, 777). At the time of discovery it was a faint object of the 13th magnitude, but it is receding from the earth and becoming fainter.

Perseid Meteors.—The Perseid showers, one of the principal meteoric showers, will occur on August 10-12; the position of the radiant point is R.A. $3^h 0^m$; Declination 57° N. in the constellation Perseus.

A Supernova.—In a photograph of the elliptical nebula N.G.C. 4621, taken at Mt. Palomar, Zwicky has found a new object of magnitude 15 (*U.A.I. Circ.*, 774). Spectrographic observations at Mt. Wilson have shown that the object is a supernova about three weeks past maximum. The nebula is a member of the Virgo cluster of galaxies.