Academies and Societies.

Indian Academy of Sciences.

February 1936. SECTION A.—MAX BORN: *Unitary Theory of Field and Matter. II. Classical Treatment. Charged Particle with Electric and Magnetic Moment.*—If the classical treatment of the unitary theory has any meaning at all, it leads to the conclusion that point singularities are not the correct representation of particles. P. K. RAMAN: *The Measurement of the Transmission of Heat by Convection from Insolated Ground to the Atmosphere.*—With the apparatus described, it is shown that a simple formula can be used for estimating the rate at which heat is transferred to the atmosphere from heated grounds in terms of the surface temperature of the ground, and the meteorologically measured quantities, temperature of air and wind velocity at 4 ft. M. U. PARMAR, S. M. MEHTA AND MATA PRASAD: *Studies in Thorium Phosphate Gels.* C. V. RAMAN AND N. S. NAGENDRA NATH: *The Diffraction of Light by High Frequency Sound Waves. Part IV.—Generalised Theory.* R. S. KRISHNAN: *Molecular Clustering in Liquid Fatty Acids.*—Of the four acids, formic, acetic, propionic and *n*-butyric, the first two alone show a value of less than 1 for the depolarisation factor ρ_h with the incident light horizontally polarised. This indicates presence of large molecular clusters in them. S. BHAGAVANTAM AND A. VEERABHADRA RAO: *Deformation Frequencies in the Raman Spectra of Linear Molecules: Acetylene.*—Two new bands at $\Delta\nu$ 589 and 646 have been recorded in the Raman spectrum of acetylene gas by giving a long exposure, and their origin is discussed. Dr. N. R. TAWDE: *Intensities in the Bands of the Violet Cyanogen System.*—The vibrational intensities in $^2\Sigma \rightarrow {}^2\Sigma$ system of CN have been utilised to explain some aspects of Condon's theory. P. K. SESHAN: *The Absorption Spectra of Some Aromatic Compounds. Part I.—Hydrocarbons.*—Several aromatic hydrocarbons have been studied for their absorption spectra in the vapour state over the spectral range 7000 Å to 2200 Å. P. K. SESHAN: *The Absorption Spectra of Some Aromatic Compounds. Part II.—Quinones and Hydroquinones.*—Many of the spectra show a vibrational structure, and some of them also a rotational fine structure. B. NAGESHA RAO: *Diamagnetic Susceptibility of Sulphuric Acid-Water Mixture.*—There is no definite break anywhere in the concentration susceptibility curve, and thus the magnetic measurements do not support the theory which assumes the presence of definite hydrates in solution.

February 1936. SECTION B.—COL. I. FROILANO DE MELLO: *An Explanation to the Occurrence of Sporadic Cases of Urinary Schistosomiasis in India.*—A definite case of human urinary Bilharziosis was registered in October 1934, the infection being probably conveyed by some local mollusc. It is reasonable to postulate that the infection occurred only *eventually, accidentally* in a mollusc showing some affinities to these miracidia. LT.-COL. PROF. ALBERTO CARLOS GERMANO DA SILVA CORREIA: *The Blood Groups in Portuguese India.*—This constitutes the first contribution on the blood groups in Portuguese India. The studies concern the Marathas. COL. I. FROILANO DE MELLO AND MISS CIRIACA VALLES: *On a Trypanosome Found in the Blood of the Indian Fresh Water Fish* Clarias batrachus *Linn.*—Fishes of the genus *Clarias* are parasitised by trypanosomes, which on morphological grounds are considered to be varieties of a single species. M. B. MIRZA: Subulura hindi *n. sp. A New Nematode Parasite of* Sciurus palmarum.—The male and female worms have been described. BENI CHARAN MAHENDRA: *Contributions to the Osteology of the Ophidia. I.—The Endoskeleton of the so-called "Blind-Snake"*, Typhlops braminus *Daud.*—The osteological features of four alizarin-stained specimens of *Typhlops braminus* have been described. T. R. BHASKARAN AND V. SUBRAHMANYAN: *Studies on the Mechanism of Biological Nitrogen Fixation. Part I.—Economy of Carbon during Fixation of Nitrogen by the Mixed Flora of the Soil.*—The water soluble residue obtained during the decomposition of glucose by the mixed flora of the soil is largely utilised for the fixation of nitrogen. T. R. BHASKARAN: *Studies on the Mechanism of Biological Nitrogen Fixation. Part II.—Rôle of Lime in the Fixation of Nitrogen by the Mixed Flora of the Soil.*—The presence of calcium carbonate in the medium serves to maintain the medium at the neutral reaction, when the fixation proceeds unimpaired. L. RAMA RAO, S. R. NARAYANA RAO AND K. SRIPADA RAO: *On the Age of the Deccan Traps near Rajahmundry.*—The examination of the fossiliferous sediments associated with the Deccan Traps near Rajahmundry confirms other palæontological evidence in support of the eocene age of the Deccan Trap. C. BHASHYAKARLA RAO: *The Myxophyceæ of the United Provinces, India. II.*—The communication deals with some Myxophyceæ (hitherto unrecorded with the exception of *Stichosiphon indica* Rao) from Benares.

Indian Mathematical Society:

June 1935. "A NOTE ON THE VALUES OF AN ANALYTIC FUNCTION NEAR AN ESSENTIAL SINGULARITY," *V. Ganapathy Iyer* Let $f(z)$ be an integral function. Let the z-plane be divided into rings Γ_n, $n = 1, 2, \ldots$ by circles with centre at the origin and radii $\frac{3}{4}.\ 2^{n-1}$ and $\frac{3}{4}.\ 2^n$. Let $f_n(z) = f(2^n z)$, $n = 0, 1, 2, \ldots$ With this notation, P. Montel has stated without proof, in *Collection de Monographies de E. Borel*, pp. 80–81 the following:

(1) there cannot exist two different numbers a and b such that the numbers of zeros of $f(z)-a$ and $f(z)-b$ in Γ_n have a finite upper bound as n tends to infinity.

(2) the family $\{f_n(z)\}$ cannot be quasi-normal in Γ_1.

Ganapathy Iyer shows that both these statements of Montel are incorrect, by considering the example $\phi(z) = \prod_{n=1}^{\infty}\left(1 - \frac{z}{2^n}\right)$. He proves that for this function, for an infinity of values of a,

$\phi(z)-a$ has just one zero in Γ_n, and that the family $\phi_n(z)$ is quasi-normal in Γ_1.

THE ASYMPTOTIC CURVES OF THE CUBIC AND QUARTIC SCROLLS. *C. N. Srinivasiengar.* Wilczyuski and Snyder have studied the properties of the asymptotic curves of the two types of cubic scrolls, by using Wilczyuski's differential equations of a ruled surface. Dr. Srinivasiengar shows in this paper how these properties can be discussed by means of the theory of correspondence. He considers the correspondence set up on any generator by its intersections with an asymptotic curve, and observing that the torsal generators are generators which touch the asymptotic curve, deduces the results of Wilczyuski and Snyder. The actual equations of the asymptotic curves on the cubic scroll of the first type $x^2z=y^2w$, and on Cayley's cubic scroll $y^3=x(zx+uy)$ have been obtained. These methods are then applied to find the nature of the asymptotic curves of the different types of quartic scrolls.

ON THE AFFINE CLASSIFICATION OF QUADRIC LOCI. *R. Vaidyanathaswamy.* Let $f(x_0, x_1, \ldots\ldots x_n)$ be a real quadratic form of rank r, so that it can be transformed by a real projective transformation into $\epsilon_1 y_1^2+\epsilon_2 y_2^2 + \ldots\ldots + \epsilon_r y_r^2$, each ϵ being ± 1. If s of the ϵ's are equal to -1, then the smaller of the two numbers $r-s$ and s is called the *signature* of the quadric locus f in projective n-space. Let (r, s) be the rank and signature of the quadric locus Q in S_n and (r_1, s_1) those of Q′, the section of Q by a real prime S_{n-1}. Using these ideas, and taking S_n to be an affine space, and S_{n-1} as the prime at infinity, it is proved that the total number of affine types of quadric loci in S_n is $(n+1)(n+2)$, of which one half are elliptic, and the other half are hyperbolic. The cases for plane geometry and three-dimensional space are exhibited in tabular form.

ON DESMIC TETRAHEDRA. *Nathan Altshiller-Court.* From simple geometrical considerations, the following theorems are proved:

(1) *The twelve vertices of a desmic group of* three tetrahedra may always be considered to be the centres of similitude of four spheres, taken in pairs.

(2) The mid-points of the six segments which the twelve vertices of a desmic group of tetrahedra determine on the six edges of a tetrahedron of the associated group are coplanar.

Indian Chemical Society.

January, 1936.—J. C. GHOSH AND B. B. RAY: *Oxidation of Monochloroacetic Acid by Potassium Permanganate at Wave-Lengths* 366 $\mu\mu$ and 436 $\mu\mu$ *with Uranyl Salt as Photosensitiser.* KALI PADA BASU AND SATI PRASAD MUKHERJEE: *Action of Dye-Stuffs and other Substances on Milk Dehydrogenase. Identity of Schardinger Enzyme with Xanthine Oxidase.* PULIN BIHARI SARKAR: *Electronic Theory of Valency and the Constitution of Aromatic Diazo Compounds.* N. R. DHAR AND S. K. MUKHERJI: *Available Nitrogen in Tropical Soils.* K. C. NAIK AND S. A. VAISHNAV: *Interaction of Sulphur Dichloride with Substances containing the Reactive Methylene Group.—Part II.* K. G. NAIK AND S. A. VAISHNAV: *Interaction of Thionyl Chloride with Substances containing the Reactive Methylene Group.—Part V.* PHULDEO SAHAY VARMA AND S. SHANKARANARAYAN: *Halogenation.—Part XIII. Bromination and Iodination of Some Halogenated Benzenes.* KALI PADA BASU AND MADHAB CHANDRA NATH: *On the Proteinase in the Milky Juice of* Calotropis gigantea. *Its Purification and Activation by Ascorbic Acid and Glutathione.* SACHINDRA NATH ROY: *A Method for the Estimation of Lead Volumetrically by Fajan's Method.* JNANENDRANATH MUKHERJEE, RAMPRASAD MITRA AND NARAYANCHANDRA SEN-GUPTA: *On the Measurement of Absolute Rates of Migration of Ions by the Method of Moving Boundaries.—Part II.* S. M. MEHTA, M. U. PARMAR AND MATA PRASAD: *The Preparation of Thorium Phosphate Gels.* SRISH KUMAR SAHA: *A Modified Micro-Method for the Estimation of Nitrogen in Soil.* M. GOSWAMI AND B. C. DAS-PURKAYASTHA: *Analytical Uses of Nessler's Reagent. A Preliminary Note.*

Meteorological Office Colloquium, Poona.

Three meetings were held during February. At the first of these, held on the 1st February, Mr. Krishna Chanda of the Agra Observatory, gave an account of the experimental investigations undertaken by him recently at the London University under Prof. D. Brunt on the instability phenomena in thin layers of gases. The programme at the other meetings was as follows:—

18—2—1936 Dr. S. K. Banerji—"The theory of development of electric charges on liquid drops and solid particles subjected to various mechanical processes."

25—2—1936 Dr. C. W. B. Normand—"The order of operations in the analysis of weather charts in Norway."

Mr. J. M. Sil—"The history of Standard Barometers in India."

Mr. S. S. Lal—"The Bay of Bengal storm of May 1932."