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Summaries of Addresses of Presidents of Sections

MATHEMATICS AND PHYSICS

President: DR. K. R. RAMANATHAN, M.A.,
D.Sc., F.N.I.

THE EARTH'S MAGNETISM AND THE UPPER ATMOSPHERE

DR. RAMANATHAN mentioned that the study of the origin of the earth's magnetic field began with Gauss's systematic attempt in 1839. Gauss had shown how the field could be divided into two parts, arising from causes within the earth and outside the earth respectively. He concluded that the permanent field arose mainly from causes within the Earth, but did not overlook the possibility that electric currents outside the earth, evidenced by auroral phenomena, might contribute to this field.

The permanent part of the Earth's magnetic field consists of a regular part which would arise from the terrestrial sphere magnetised to an intensity of $\cdot 074$ units along an axis at $11\frac{1}{2}^\circ$ to the rotational axis, and an irregular part which arises from an excess of intensity in regions where land predominates. The internal system accounts for 94% of the total field, and the rest arises from an external non-potential system. The permanent moment of the Earth has been slowly decreasing at $1/1500$ of its value per year, and the magnetic axis is also slowly changing. The origin of these changes is uncertain.

Analysis of the variable part of the field shows, besides irregular changes, periodic changes following the sun and the moon, and also associated with the rotation of the sun and the sunspot cycle. Investigations of Schuster and Chapman connected the solar diurnal variation, which has a 12-hour period, with systems of electric currents in the upper air, and it was suggested that these currents were due to an oscillatory motion of the air, ionised by solar radiation, across the Earth's magnetic field. The currents flowing according to this 'dynamo' theory have to be of the order of 6×10^4 to 9×10^4 amperes. The first attempt to connect these currents directly with the observed oscillations of atmospheric pressure at ground level presented difficulties with regard to their phase and the magnitude of the conductivity of the upper air where they flow. This conductivity had to be of the order of 10^{10} E.S. units, whereas, calculations based on electron densities of about 10^5 per c.c. at those levels, obtained from ionospheric measurements gave conductivities of the order of 10^{11} to 10^{12} E.S. units. Pekeris sought to solve the problem in terms of the free oscillation of the atmosphere, which, with a nodal surface at 30 km. height would

have a period of 12 hours, coinciding with the observed period, and which would be maintained by daily solar insolation. At 100 km. height, this oscillation would have an amplitude 200 times that at ground level and the phase would be opposite. This removed the phase difficulty to a large extent, but the conductivity required yet presented difficulties. The next step was taken by Massey who showed that at the levels considered, an equilibrium ratio of 1 : 100 between electrons and negative ions would be set up, so that the preponderating ions, of relative mass, say 28 (N_2^-) would be primarily responsible for the conductivity. On these bases the 'dynamo' theory seems fairly adequate to explain the solar variations of the magnetic field. A further support arises from the observations that radio fadeouts have been associated with bright solar eruptions on the one hand and magnetic disturbances on the other. The inference is that the solar eruption sends a blast of radiation with resultant change of ionisation of the air, and this change is responsible for the fadeout as well as the magnetic change.

The lunar variation, about $1/5$ of the solar variation in mean value is semidiurnal, and is associated with the tidal action of the moon over an atmosphere of varying conductivity and is influenced by sunlight.

Of the irregular variations of the Earth's magnetic field, the most important is the "magnetic storm". A magnetic storm has generally three phases. In the first, an impulsive change in H —usually an increase—is felt all over the Earth in 2 minutes, and is followed by oscillations. In an hour or two, the second or main phase begins, during which H diminishes rapidly over a period of 6–12 hours. Finally in the third phase there is a gradual return to normal lasting three to four days. The change may amount to over 20% of the normal value in moderate storms, and is greatest near the equator, diminishing towards the poles. Analysis of the field variations shows that the main source of disturbance lies outside the Earth. Birkeland put forward the view that this source is a system of currents in the upper air or outside it. According to this, the part of the current system located in the upper atmosphere, mainly in the auroral region, has a strength of 2 to 5×10^7 amps. and occurs in the region of highest conductivity, at a height of 100–150 km. The other part is a ring current with a diffuse maximum over the equatorial region. It is necessary to place this well outside the Earth's atmosphere, at a distance of a few earth-radii and its magnitude is estimated to be of the order of 10^4 to 10^5 amps. The theory of Birkeland and Stormer explains these currents as

due to streams of corpuscles from outside, presumably from the sun, moving towards the Earth and deflected in their paths by the Earth's field. In spite of many uncertain points waiting clarification when studied in exact terms, the main outlines of the theory appear reasonable. Another theory, based on the emission by the sun of a sudden blast of ultra-violet radiation whose effects on the atmosphere might produce the effects studied, has been advanced, but at present, it fails in many material aspects.

CHEMISTRY

President: DR. P. B. SARKAR, DR.ES.Sc.,
A.I.C., F.N.I.

ANALOGY AMONG CHEMICAL ELEMENTS AND RADICLES

THE early portions of the Address are devoted to an elucidation of the causes of chemical similarity among elements. Illustrations are provided by comparison of the valency shells of thallium, silver and the alkali metals, to explain the chemical similarities and differences of the compounds of these metals.

Where the similarity exists only in the outermost electronic shell and the structure of the penultimate shell varies, there exist appreciable differences in properties.

The complete chemical analogy observed in the series of the rare earth elements is accounted for, on the basis of electronic structure. Considerable variation exists in their other properties such as basicity, paramagnetic susceptibility, absorption spectra and colour. The anomalous valency possessed by certain rare earths is of great practical interest and this principle finds application in the separation of cerium from other rare earths as a ceric compound, and of europium and ytterbium from other rare earths by means of their insoluble sulphates. A classification of the ions into six different types according to their structure reveals several interesting relationships.

The address then proceeds to deal with the properties of complex ions or radicles. Isomorphism is a criterion of chemical analogy but in addition to similarity in crystalline form, there should be ability for syncrystallisation.

The investigations of Goldschmidt regarding the connection between crystal structure and chemical and physical properties and the observations of Fajans regarding polarizability or deformation of ions are of profound help in explaining chemical analogy of radicles.

A short account is given of the investigations by Dr. Sarkar and his co-workers on the sulphate and the fluoberyllate ions. These two ions are isosteric and their charge is identical and so they are isoelectric as well. Their chemical analogy is illustrated in two tables giving their formulæ, Mol. vol. (30° C.), and ability to form mixed crystals.

The investigations of Lange on the PO_4F^- and SO_4F^- ions established their close analogy. The stability of the three homologous complex ions decreases in the order $\text{SO}_4\text{F}^- \rightarrow \text{PO}_3\text{F}^- \rightarrow \text{BeF}_4\text{F}^-$.

P. C. Ray's observation of isomorphism supported by mixed crystal formation of formates and nitrites is of great interest. The CH group in formic acid can be considered to be a condensed nucleus and equivalent to nitrogen atom in its behaviour.

The formulation of the electronic structure of the atom has rendered possible the discovery of many interesting relationships between elements and radicles which could not have been predicted from a consideration solely of the periodic table.

K. R. K.

GEOLOGY

President: DR. S. K. ROY, B.Sc., PH.D.
CONSERVATION OF INDIA'S MINERAL
WEALTH

IN his Presidential Address to the Geology Section, Prof. S. K. Roy deals with the important problem of the "Conservation of India's Mineral Wealth". In tackling this problem, he points out that "the first step is to know our resources—our national wealth in things and in their possibilities; the second step is to know their availability for immediate use; the third step is to guard them against waste, either through ignorance or wantonness; and the fourth step is to prolong their life by invention and discovery". After giving an account of the present unsatisfactory condition of mineral mining in India, Prof. Roy proceeds to consider the ways in which the proper conservation of our important mineral deposits should be accomplished. Talking first about the conservation of fuel, he deals with the two important mineral fuels found in India—Coal and Petroleum. Regarding coal, he refers to the findings of the recent Coal Mining Committee, and discusses the importance of the various recommendations they have made, especially as regards the necessity for 'sand-stowing' in coal mines, which not only solves the most important problem of safety in mines, but also helps in the conservation of coal. Immediate provision has also to be made in India for fuel research to prevent the enormous wastage of the by-products formed during the conversion of coal into coke. Talking of petroleum, Prof. Roy points out that its conservation is quite as important as that of coal at the present time, when we are living in an 'age of petrol'. India's total consumption of petroleum and its by-products is about 300 million gallons per year, and of this, only about 76 million gallons are produced in India. In view of this limited supply, it is obviously necessary to do all that we can to conserve our resources. He then refers to the several factors which now lead to various kinds of wastage in the oil industry, and makes several suggestions for improving the position, on the lines adopted by the leaders of the petroleum industry in the United States of America. In the latter part of his Address, Prof. Roy deals with the conservation of various other minerals of economic value, such as mica, chromite, magnesite, beryl, garnet, bauxite, wadfram, etc., and

also puts forward a plea for the revival of certain forgotten mineral industries in India.

For securing the proper conservation and utilization of India's mineral wealth, Prof. Roy urges the necessity for each Province in India having a geological department of its own manned by capable geologists and efficient mining engineers. As he points out, "Indian Universities, like those of Benares, Bombay, Calcutta, Madras, Mysore, and Punjab, as well as the Indian School of Mines, Dhanbad, are now-a-days producing very efficient and capable geologists qualified to take up the mineral investigations in our country", and the provincial governments can easily recruit their staff from among the young men coming out of these institutions. There is no doubt, that the organisation of such provincial geological departments all over the country will "eventually lead to the conservation of our mineral wealth, and to the re-opening of many deposits of the neglected and unknown minerals of India".

GEOGRAPHY AND GEODESY

President: N. SUBRAHMANYAM, Esq., M.A., L.T.,
F.R.G.S.

THE GEOGRAPHICAL PERSONALITY IN INDIA

IN his Presidential Address to the Geography and Geodesy Section, which was constituted this year permanently into a separate section of the Indian Science Congress, Mr. Subrahmanyam has shown that India has an individual geographical personality of her own which is quite distinct from the others of the world.

While dealing with the Static Geography the President observes that the physical features, hydrosphere and atmosphere, have been favourable to India; they have made her self-sufficient and isolated. By this aloofness she has developed many commendable traits such as simplicity, toleration and spirituality, which have been helpful in stabilising the Indian civilization. This same isolation has been responsible for the many-sided variety in the habit, religion, food, etc. Thus constituted and provided by nature, India developed a level of civilization not behind that of the world from the earliest times till the 18th century. From the 18th century to the present day, while the West has been forging ahead, India has remained static—she has reached the bottom level of Static Geography.

Under Dynamic Geography the President continues, by saying that India's place in the world politics is connected with that of the British Commonwealth, and world events affect her indirectly through the British relationship.

Under the non-political spheres, she has responded to the changes brought about by Science. Her village-life, caste, self-sufficiency, etc., have all been smashed, and many modern cities have sprung up attracting people from the villages. She has just started what other nations have already achieved by the aid of modern conveniences in bettering the conditions of her peoples.

The Industrial Revolution has brought about dislocation of the occupation of the sons of the

soil. The old professions have been wiped out of existence by the new ones, which have not been able to absorb all the throwouts. And, further, extensive production in India itself has added to the dislocation of the equilibrium.

Apart from cultural contacts of Hindus and Moslems seen in architecture, music and painting, the influence of the British could be traced in modern town planning, and in the evolution of different types such as ruler, businessman, planter, companies, etc., corresponding to British types. The Indian exercises have given place to British sports, and in fact, there is a strong tendency in her to modernize after the European model, in all walks of life.

The President remarks that any Britisher who comes to India does carry on the work to the profit of both countries and attributes, rightly, the lack of that spirit in Indians partly to the cultural lag. While dealing with the utilization of the wealth of India, he observes that it can be multiplied and applied to the reduction of poverty of her own people. The utilization of her resources is far from complete, and the Dayalbhag experiment in manufacturing marketable articles and Gandhiji's Khadi movement go to show that improvement in the utilization of wealth could be effected, and that the disabilities are more human than physical.

The President concludes his address by the following remarks: "The old Static Geography sees only the pressure upon land, the appalling poverty, etc., of an improgressive India. The new Dynamic Geography can see the forces at work, and disengage the true causes from the false. It finds that the causes are not inherent but removable; that man in India has fallen behind and is catching up; only he has not, as yet, risen to the height of his opportunities.... Here, in India all the cultures of the world meet, in all their variety and range; and a great composite civilization is growing under the influence of them all. Therein will lie the diversity, richness, comprehensiveness and greatness of the Indian civilization that is to be".

S. L. R.

ZOOLOGY

President: PROF. C. R. NARAYAN RAO, M.A.

BATRACHIANS AND THEIR ENVIRONMENT

PROFESSOR C. R. NARAYAN RAO's address is based on the data accumulated by his faunistic studies of the batrachians of S. India, and is an exposition of the interrelations of the environmental complex and their general morphological organisation, producing marked effects on somatic and genetic variations. Ecological communities of amphibians can be recognised which resemble each other superficially in correspondence with resemblances between their environment. The tailless amphibians inhabiting the rain forests of the different parts of S. India are reported as exhibiting a whole series of obvious resemblances, among which adaptational modifications for climbing, burrowing, crawling and for parachute leaping are especially noteworthy. Batrachians and their

larvæ affecting the rapid hill streams where they periodically encounter floods, have developed adhesive discs for firm attachment to rocky surfaces or as in the case of larvæ are provided with organs of flotation as well. According to Professor Rao the necessity for definite adaptational devices operating upon this plastic group of lowly organised animals form a sort of wicket gate through which only forms possessing similar adaptations can pass, thus giving rise to common morphological features of batrachians living under more or less similar environmental conditions. The warm air saturated with moisture in the tropical forests renders the ghats an ideal place for the occupancy of amphibians and the physiological influence of factors such as the varying amplitudes of temperature, humidity, intensity of light, air pressure, food, and the presence or absence of plants, produces significant regulative modifications both in the character of structural organisation and general habits. To illustrate the extent of such modifications, the common toad and the common water frog, which occur in the plains and which have extended into the deeper regions of forests and the summits of the higher ranges of hills, have been selected and the limits of variations have been noted. There is an astonishing profusion of amphibian life in these regions, and the members of the different groups present common characters and common habits which have resulted under the influence of common environmental factors, and Professor Rao indicates that so close is the correspondence that without recourse to anatomical examination their classification offers perplexities. According to him ecological studies of amphibians in their morphological and physiological aspects throw considerable light on the problems of their taxonomic relationships, rendered complicated by the frequent occurrence of interbreeding among the members of the different genera and by the presence of hybrids closely intermingling with the natural species. The suggestion is made that spatial distribution of the members of an original stock into regions totally different in physical characters, aided by the process of selection, may be presumed to be the stimulating factor in the evolution of new species.

ANTHROPOLOGY

President: DR. D. N. MAJUMDAR, M.A.,
PH.D., F.R.A.I.

TRIBAL CULTURES AND ACCULTURATION

IN his introduction, Dr. Majumdar refers to the imperfections of the monographic treatment of cultures in transition; to the discomforts of primitive communities and to the need of administrations employing trained anthropologists to study the adaptive processes among men of simpler cultures. The main thesis of the address is a discussion of the importance of cultural contacts, the effects of such contacts on primitive institutions and of the blending of cultures with one another to form new complexes. In the presence of an alien culture,

relatively backward groups adopt, selectively, some of the traits of the former, which process is called *acculturation*. Geographical juxtaposition leads to co-operation, social commensalism, and ultimately to cultural miscegenation with new planes of integration.

The area selected for the study of *acculturation* is the State of Bastar in the Central Provinces with aboriginal Gond tribes and immigrant groups from the surrounding districts who have more or less mixed with the former. *Halbi* (an Aryan dialect) is the *lingua franca* of the State, but various Dravidian tongues, dialects of *Gondi*, *Telugu*, etc., are spoken by the different tribes. The highest in social gradation are the Rajput Dhakars, descendants of the Kshatriyas who originally followed the ruling family to Bastar. These immigrants used to add to their numbers through the custom of *ghaita pani* (family rehabilitation) and by taking to tribal women. The Halbas who have given their name to the common language of the State, are a mixture of foreign and aboriginal blood, and outsiders are still admitted to their ranks. The Halbas represent the plastic state of local culture. The Marias of Abujmar Hills are the rudest of the tribes and have not yet begun generally to participate in the economy and culture of the rest of the people of Bastar. Some of the wild Marias have settled in the plains and are known as Dandami or Bison-head Marias, while those who have been still more modified are known as Murias. Druvas, known otherwise as Parjas, are tribal groups that have adopted Uriya as their mother-tongue. The very numerous Bhatras are immigrants, hinduised and with sacred threads. Certain other groups such as Panra, Sunri, Kalhar, Rawat, and Kurukh are only functional and numerically small. The coming in of foreigners and the introduction of money economy have weakened the solidarity of the aborigines and at the same time reduced many of them to serfdom under employers of the immigrant groups. The administration of the State is trying to counteract this tendency, but under existing economic conditions, it is doubtful if these efforts will succeed.

Next is described at some length the *gotul* or communal dormitory which is an indigenous institution serving a variety of needs. It is a kind of club of adolescents of both sexes where they receive informal education in arts and crafts, tribal codes, sex behaviour, etc. Whatever be the origin of the *gotul*, it survives, as it has a definite rôle in the economy of tribal life.

The manner in which all the various sections of the people of Bastar, immigrant and native, high and low, are getting integrated into a greater community is illustrated in the religious rites, division of labour, prerogatives, etc., in connection with the celebration of the Dusserah festival in honour of the goddess Dantesvari, the tutelary deity of the ruling family of Bastar. Every group has its contribution to make to the rituals. Contrasting the manner of participation in religious rites by interior and exterior castes of S. India on the one hand and the immigrant and indigenous groups in Bastar on the other, Dr. Majumdar says, "While in the

South the economic partnership between primitive and backward groups has been regarded as essential but no serious attempt has been made to bring together the different groups into a common religious fold, in Bastar the fact of their cultural difference has been forgotten and there is one festival for all in which rites and customs of primitive and advanced cultures have blended together."

A. AIYAPPAN.

AGRICULTURE

President: DR. T. V. RAMAKRISHNA AYYAR,
B.A., PH.D.

INSECTS AND THEIR RÔLE IN INDIAN AGRICULTURE

OVER 60 per cent. of the known living species of animals in the world are found to be insects. No single group of animals plays such a prominent and important rôle in a variety of ways with regard to the agriculturist, the grocer, or the stock breeder, as insects. The rôle that insects play in agriculture is the most important of all, as enormous loss is caused to growing crops and the farmers suffer heavy losses.

According to the very modest calculation of the President, the extent of damage caused to the Indian agriculturist is 200 million rupees per year due to the ravages of insects on a few of the important crops, viz., rice, wheat, sugarcane, cotton and oil-seeds. Other serious wholesale losses by plagues of locusts, hairy caterpillars, bugs, beetles, etc., have not been taken into consideration.

A few paragraphs in the address are devoted to pest outbreaks and factors influencing them, nature and range of insect injury, incidence. Importance of supplying the farmer with information on noted pests and their incidence—a crop pest calendar—for some of the important crops, is emphasised. In the discussion on some of the insect problems connected with Agriculture in India, a pest survey of South Indian region alone reveals 535 insects in association with 125 plants. Although many of these are minor, some very important and noxious forms affecting crops are rightly termed the K.D.'s among Indian insects.

Among all-India and local insect pest problems, the periodical invasion of crops by locusts in North and Central India, the boll-worm on cotton, insect pests of sugarcane, wheat, paddy, Deccan grasshopper, pests of plantation crops like coffee, cardamom, tea, rubber, pepper, etc., are mentioned.

Different methods of control of insect pests in India—from faith and magic cures of old to the modern methods of chemical, biological and legislative, are mentioned.

Among biological methods of insect pest control in South India mention is made about the present work in Mysore on the control of sugarcane borers—a serious pest of sugarcane throughout the cane-growing tracts in India—by means of breeding in the laboratory, millions of the well-known natural enemy (*Trichogramma minutum*) a very minute wasp and their large-scale releases in the cane fields. Mention is also made about the more or less

complete wiping out of what was once a very noxious weed in South India, viz., Prickly pear (*Opuntia*) by means of the introduction of scale insect (*Dactylopius*), which destroyed the plants wholesale within a few years after its introduction. Among chemical methods of controlling insect pests, although insecticides used to fight pests infesting valuable and well-paying crops like fruit trees, cotton, tobacco, etc., are quite practical and economical, the use of these insecticides by the Indian agriculturists for staple food crops like paddy, millets, etc., that give only poor returns, is quite impracticable and uneconomic. Mention is made here about the investigations in Mysore about local readily available vegetable insecticides for the control of insect pests.

Before concluding, the President makes some observations on the existing conditions and suggestions regarding the future Economic Entomology in India.

The organisation for work on economic entomology all over India should be increased and intensive work should be done on the subject of crop pests on the following lines:—

1. Study of the bionomics of crop pests from their entomological side.
2. The relation of climate and weather conditions to insects. Co-operation of economic entomologists with other workers in allied sciences, viz., mycologist, plant breeder, biochemist and agriculturist is emphasised.

The address concludes by pointing out to all interested in agricultural prosperity of our land that the insect problems of the Indian farmer are increasing day by day and it is up to Governments and the educated farmers to do all that should be done to save the numerous valuable products of the country from the clutches of noxious insects.

T. V. S.

PHYSIOLOGY

President: MR. N. M. BASU, M.A.

PHYSIOLOGICAL RESEARCH IN INDIA

IN his Presidential Address Prof. N. M. Basu lays emphasis on the need for giving an impetus to the study and research in physiology. Whilst deploring the present difficult circumstances in which physiology is taught in the Indian Universities, the President makes a strong appeal in favour of establishing an organization for research in physiology. He surveyed very rightly too, the progress of research in physiology in India, and indicated the main lines on which research may be carried on.

Prof. Basu anticipates that on the establishment of an organization for research in physiology, the subject will be as "intellectually responsible as physics, mathematics and chemistry and men of really first class ability will be attracted to it". The Presidential Address ought to command the earnest attention of all interested in the study and development of research in physiology.

A. S.

PSYCHOLOGY

President: H. P. MAITI, M.A.

DYNAMIC STRUCTURE OF THE
HUMAN PERSONALITY

PSYCHOLOGY OF PERSONALITY

THE Presidential Address of the Psychology Section of the Indian Science Congress (Twenty-sixth Session, Lahore, January 1939), was delivered on the 6th January, by H. P. Maiti, M.A., who has endeavoured to focus attention on the Psychology of Personality and on the vicissitudes of the development of the concept ever since the recognition of the claims of psychology to rank as a scientific discipline. Observing that Functionalism did not supply an adequate explanation of "personality as a whole", (p. 2) Mr. Maiti refers to Behaviorism which has come to stay in any classification of modern sciences. Janet's differentiation of the types Psychasthenic and Hysteric, though helpful, did not disclose the "mechanism of personality integration". In America and Germany, Personality Tests have commenced their career of experimentation *a la* the Intelligence Tests, and Mr. Maiti refers to "three current Personality Tests", namely, Extraversion, Intraversion; Cyclothymic and Schizo-thymic; and Eidetic types. Emphasizing the need for a revised, dynamic conception of personality, Mr. Maiti recognises the part played by the Gestalt Psychology and suggests that Functional Analysis, i.e., "correlated variation of function in actual working" (p. 5) would be a suitable method.

Proceeding, Mr. Maiti refers to Freud's Id, Ego, and the Super-Ego, and observes that the "main purpose of this discourse is to emphasize that the three factors in their mutual interaction may be said to constitute the fundamental scheme of personality...." (p. 7) The dynamic view of personality is correlated, in the second section of the address, with the general theory of learning. Having explained the nature of animal intelligence, Mr. Maiti goes on to sketch the development of Human Personality, explaining the stages marked by the inadequacy of organic intelligence, clash and conflict with social environment and the origin of the Super-Ego. In the third section conclusions are indicated and results summed up.

In the concluding section, Mr. Maiti has indicated patterns of behaviour grounded on patterns of personality in reference to the

tripartite of Id, Ego, and the Super-Ego. Behaviour normal and abnormal, is explained on the basis of the triad. Mr. Maiti ends on a note of optimism. Psychological sublimation of the unhealthy manifestations of the Id, and the Ego would seem to guarantee the advent of the millennium.

From the foregoing summary of Mr. Maiti's presidential pronouncement, it must be pretty obvious that *two* conclusions emerge: (1) The first is that no static conception of personality would be adequate to do justice to the psychological data and interpretation thereof relating to personality. (2) The second is that equilibrium or harmonization among the Id, Ego, and the Super-Ego would indicate a normal personality. It follows that a disturbance of the equilibrium indicates abnormal personality.

I have no doubt students of psychology will feel thankful to Mr. Maiti for having emphasized the dynamic character of personality, but, I am afraid he is just carrying coals to Newcastle, in respects of those acquainted with the conclusions of Indian Psychology on the subject-matter of personality. The strictly psychological or para-psychological quest of the nature of personality or self, free from pre-occupations pre-eminently physiological, anatomical, neurological and clinical is *yet to be*. American and European Psychology may never rise above Behaviorism reducing personality just to a sum-total or summation of reactions to environment. Totalitarian politics at one extreme, with severe suppression of the claims of individual personality, and democratic politics with free-vote of personality at the other, notwithstanding their apparent opposition in political ideology and governmental methodology are just species of one and the same genus of Behaviorism!

That outlook will have to be abandoned sooner or later. Indian Psychology makes out that personality is identity-in-difference, unity-in-multiplicity, one-in-many, static-in-dynamic. The differentiation of aspects of the mind, (Manas) the inner-sense into Manas, Buddhi, Ahamkara, and Chitta, and the recognition of Atman as the core of personality would lift Indian Psychology above the chaos and confusion concomitant with the Id, the Ego, and the Super-Ego. I have permitted myself the foregoing observations, simply because, Indian Psychology has a place in the sun.

R. NAGA RAJA SARMA.

Triplicane, Madras,
February 6, 1939.