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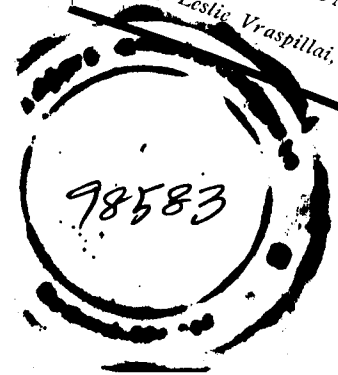
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Rev. Fr. Peter Carty, S. J.

EDITORIAL



THE frontispiece of this year's Magazine is a reproduction of the portrait of Rev. Fr. Carty which hangs in the Senate House of the Madras University. And the first article is a tribute to him by one of his pupils. This is fitting as the death of Fr. Carty is certainly the most significant event in the current academic year at St. Joseph's. For the past 40 years he has been the head of the Economics department in the College. His former students are to be found holding the highest positions in the Provincial and Central Government. To the end there were many who would turn to him for advice and help in solving the problems of the day. For among the chief characteristics of Fr. Carty was his deep human understanding. And it is his trait of this character which is emphasised in the numerous telegrams and letters which reached the College immediately his death became known. His warm heart was for all, from the former pupil in high position in Delhi to the youngest student just entering the Economics course.

Fr. Carty



IF it were true, as Rev. Fr. Jerome D'Souza said in his College day address, that the passing of Fr. Carty marked the end of an epoch in the history of the college, then we may say that we are fortunate in having with us a link with that past era. For Fr. Haas is still with us. No one who sees him daily inspecting the new Chemistry block would imagine him to have reached the age of 82. Yet at that age he is still the busy head of the Chemistry department which he joined in the year 1904. He witnessed the laying of the foundation stone of the Digby Hall and watched its walls rising just as today we see him watching the rising walls of the new block. But Chemistry is not Fr. Haas' sole interest. He is still one with his youthful students in his interest in sports and games and never does he allow a day to pass without a visit to the playing fields of the College.

Fr. Haas

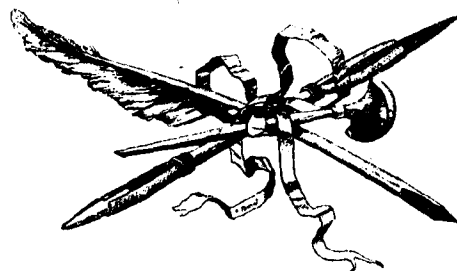


WE must not fail to congratulate Loyola College on its Silver Jubilee which it celebrated in October 1950. St. Joseph's offers these congratulations with the pride of a Mother who celebrates the coming of age of her daughter. The Centenary Celebrations of St. Joseph's five years ago had shown to Loyola how such events are conducted and the grand three day celebrations at Madras were a faithful echo of that historic occasion. The Music on the occasion was supplied by our College band. Loyola was fortunate to have as Rector of the Jubilee Year Rev. Fr. Gordon, a student of the College in its early days.

Loyola
Jubilee

THE death of Vallabhbhai Patel last December has removed from the central scene a great leader and powerful administrator. He was the man chosen by Providence to steer the young Republic through the shoals and eddies of communalism, while his younger colleague, Nehru, brought respect and popularity to her from abroad. Patel's chief service to India was the integration of the six hundred and more 'States' which had basked in the British sun and talked big of privileges and covenants. In this painful operation India's Deputy Prime Minister showed not only strength but also tact and even sweetness which accounts for the painlessness and noiselessness with which the stupendous feat was done in such a short time.

Patel



Father Peter Carty, S.J.

1876—1950

FATHER Peter Carty was born on August 4, 1876, in the lovely city of Pau, the capital of Bearn, the south-westernmost province of France. After his early studies in his native city, he went to Bordeaux, the seat of the Provincial Academy, and took the B.Sc. degree of that University. Soon after he joined the Madura Mission, arriving at Trichinopoly on October 6, 1894. The Sacred Heart College of Shembaganur was just then started and he was among the first batch of young Jesuits sent there for training. On completing his Philosophy course, he came down in 1901 to St. Joseph's College, Trichinopoly, where he taught in the High School and in the College Department, his subjects being History and Economics. In 1907 he went back to Europe for his theological studies. During his stay in Belgium for this purpose he also pursued his economic studies at the Louvain and Brussels Universities, availing himself at the latter place of the renowned treasure-house of information, *L'Institut International de Bibliographie*. Next he attended the lectures on Politics and Economics of the *Ecole des Hautes Etudes* in Paris, and latter he spent some months at Oxford and Cambridge where he came into contact with some of the leading economists of the time, particularly Francis Y. Edgeworth and L. L. Price at Oxford and W. Cunningham and A. C. Pigou at Cambridge. Thus, when he returned to Trichinopoly in March 1911, he was fully equipped for the position that awaited him as the Head of the History and Economics Branch with the newly-constituted Honours course in these subjects—a position which he held with distinction for the next forty years until the very moment of his death. Quickly and easily he made a mark as a brilliant professor. But the class-room could not for long retain the monopoly of the benefit of his outstanding abilities. Other wider spheres claimed a share of that benefit. He was appointed Rector of the College in 1918 and during the next three years he shouldered the heavy responsibilities of this high office in addition to his teaching work. He was offered, several years later, another term of Rectorship which he had to decline for reasons of age and health.

Meanwhile the University of Madras had been availing itself of his services more and more. As a member of the new Honours Board of Examiners in History and Economics for more than ten years he laboured

hard to fix and maintain the standards of the new courses, continuing that good work also as a member of the three Boards of Studies in History, Economics and Commerce. He served on the Senate from 1914, the Academic Council and the Council of Affiliated Colleges from 1923 and the Syndicate from 1925, retiring from all these academic bodies only four years ago as he felt that travelling was becoming too much of a burden to him and that he must step aside for younger blood to come in. In 1933, on the invitation of H. E. the Chancellor of the University, he had the honour of delivering the Convocation Address to the graduates of the year. It was a remarkable address ranking with the best of its kind and giving a masterly synthesis of the essence of a sound system of education. Six years later the University further honoured him by inviting him to deliver a series of lectures under the well-known and much coveted Sir William Meyer Endowment. His lectures, which were highly appreciated, have since been published in book form under the title *Economics, A Social Science*. In the words of *The Indian Review* the lectures are "a brilliant piece of criticism and constructive analysis, full of forceful arguments and amply supported by the views of eminent authorities." The grand celebration of his sixty-fifth birthday was a rare manifestation of the universal esteem in which he is held by his pupils as well as the public. Organised by a Committee of his old boys with Sir A. Lakshmanaswamy Mudaliar, Principal of the Medical College and now the Vice-Chancellor of the University, as President, the celebration was held on September 12, 1941, in the Senate House under the presidentship of the Vice-Chancellor, Sir Muhamad Usman, when a Commemoration Volume of essays on Politics and Economics was presented to him by Sir C. R. Reddy, the Vice-Chancellor of the Andhra University, who described it, in his own inimitable style, as "your own light reflected through your students." The Committee presented to the University an oil painting of Father Carty and endowed a University lectureship in his name. This was indeed a unique honour as it was the first of its kind to be conferred on a Jesuit educationist in India. Father Carty's services were also extended, in a smaller measure to the sister University at Annamalainagar. He was a member of the Tamil University Committee (1928-29) of which the final out-come was the Annamalai University, and he made a valuable contribution to the organization and working of that University as a member of its Senate for some years. But, owing to the heavy calls on his time and energies, he could not do more, which he regretted very much, all the more so as there were, on occasions, pressing appeals to him from the University authorities to accept a seat on the Syndicate and even the Vice-Chancellorship. All though, his work in the various University bodies was in addition to

his teaching work which he regarded as his primary duty and to which he devoted himself to his last breath. Indeed death came when he was about to commence teaching for this academic year and thus carried him off in full harness. Arriving at Trichinopoly on Sunday, June 25, from Shembaganur after the summer vacation, he took ill the following day and, feeling better on Tuesday morning, he started back for Shembaganur in the afternoon hoping that a further short stay on the hills might improve his health. But he expired on the way at Manaparai.

Rev. Fr. J. Kalathil, S.J., Rector, who accompanied him, describes his last moments thus :

"On Tuesday 27th at 2-15 p.m. Father Master, myself, Br. Susaimanickam and 8 candidates with Fr. Carty started from here in our van driven by Fr. Coyle. When the van started from the College, nearly 400 Catholic boys were in the portico to say good-bye to the Jesuit candidates who were starting for Shembaganur. They never thought that they were giving the last sent-off to Fr. Carty. On the way Fr. Carty was talking to Fr. Coyle. At the 17th mile the good Father felt bad; convulsions began from head to foot. We stopped the van. He felt slightly better. We drove slowly to Manaparai. The Presbytery was closed, and so we went to the Travelers' Bungalow, carried Fr. Carty, and placed him on a cot in one of the rooms. The eyes were rolling, and the Father was unconscious. This was at 3 p.m. At 4-35 p.m., all of us kneeling down near his bed and reciting the prayers for the dying, the good Father expired. There was hardly any struggle or agony. Immediately we placed the corpse in the van, and, the candidates the whole time reciting the rosary, we returned."

Such is the bare outline of a life that was so full of vision, work and achievement. Father Carty was a man of large vision who would examine a problem in all its aspects so as to gain an over-all, complete and balanced view of it. He would study it, moreover, not only in its immediate setting but also against a background projected into space and time and foresee possible developments and repercussions not perceptible to the less discerning. With his broad perspective he would appreciate or sponsor schemes and proposals which could not appeal to men of restricted outlook. His opinion was therefore eagerly sought on all important issues, though at times he had to pay the price of those who are far-sighted and ahead of the times. He was also a man of work, his whole life being one continuous stream of work well done, with not a single idle moment anywhere in it. Each day he was at his desk long before most of us rose from bed and remained at it writing, reading or receiving visitors the whole

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day except for intervals for meals, prayers or other work elsewhere in the class room or meeting hall etc. It was truly said therefore that he was always at work in class or in his room. He did the work of ten men and that was partly the measure of his superior abilities and partly that of his unremitting toil. Time and talent are God's gifts and he would use them, as he did so magnificently, to the last ounce of service he could extract from them for God's glory and the service of his fellowmen. And when it is remembered that he worked as he did, despite several physical disabilities, not the least of which was a life-long maddening headache, his devotion to work was indeed heroic. Vision and work together brought achievement. For instance the academic honours heaped on him were an achievement of which anyone could be justly proud. But behind them lies another which is far greater and of which they are a public recognition, viz. his service in the cause of higher education in the Madras State. The greatest achievement in this line, however, is the large corps of young men trained by him and engaged in the service of the country in various capacities.

Every phase of his life was marked by this triple trait of vision, work and achievement, so that, in the result, he adorned whatever he touched. He was unrivalled as a Professor of Economics. His teaching of this rather unsettled and intricate subject had an excellence all its own, on account of the rare combination of qualities he brought to bear upon it. His pupils could never forget the characteristic clarity of thought, lucidity of expression, unerring logic and delicate humour with which he analysed and criticised the theories of Marshal, Pigou, Keynes or Robbins, nor the vividness, with which he described historical scenes and personages making them live before his listeners, when he taught history earlier in his career. The brilliant teaching this of prince of teachers contributed not a little to secure for Economics the popular and honoured place in University education which it now enjoys. He not only *taught* Economics but *thought it out*, which is as much as to say that he did research in the Science all along, though not of a formal kind. His research was not directed to the study of any special problem in Applied Economics after the manner of all research in Indian Universities so far. It was concerned with Economic Theory and even here the purpose was not to develop any particular theory or theories but to bring out the true nature of Economic Theory as a whole. This study was obviously of far more fundamental importance than that of any selected particular problem, and the conclusions of it have been embodied in his book, *Economics, A Social Science*, though in essence they were available to his students long before. The

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book makes a distinct contribution to modern economic thought by focusing attention on the human character of Economics and showing that both that standard both *laissez-faire* Economics and Socialist Economics are found wanting and that Economics if it is to be worth anything at all must be a science based on sound social values, truly a Social Science. That eminent economists in the West are already veering round to such a position, abandoning *laissez-faire* and socialism, is an unconscious and on that account, all the more valuable tribute to his great contribution to Economics of placing it in the proper social perspective.

Father Carty was no less renowned as an educationist. With New man he believed that University education must be a liberal education. Therefore, while he was the first to recognize the importance of developing the science courses, he emphasized the value of the study of the humanities and strove hard to retain for them the place they deserved in the University courses. His work in this direction was all the more needed as the prevailing tendency was all on the side of the sciences to the detriment of the arts subjects and the championship of the latter saved them from severe inroads, though, unfortunately owing to a curious shape of circumstances, history went to the doldrums. In the interests of sound education, he held that specialisation should begin only in the College as it was too early to start it in the High School and therefore he always had a preference for the Matriculation over the S. S. L. C. course, which he regarded as a concession to the 'hardness of heart' of some educationists. In these and other educational matters he stood by principles and experience and endeavoured to secure the best system of education in the circumstances. Apart from shaping the educational framework and policy, he served the cause of education by helping educational institutions with his advice and encouragement. While practically every Catholic educational institution has thus benefited from him in some measure, some have done so much more than others, owing their very existence to him. Like all great educationists, he valued the freedom of education and spared no pains to defend it against the danger of state monopoly of schools and colleges, for he knew, and none better, that such monopoly would mean the end of true education. He was indeed, as the *Mail* described him, a champion of education.

It was Father Carty's unique privilege to be the Father of the University Catholic Action movement in India. Always burning with zeal for God's cause, he set about to organize the Catholic intelligentsia of the country so as to constitute a power house of Catholic influence and apostolate. Thus came into being the Catholic Young Men's Guild in

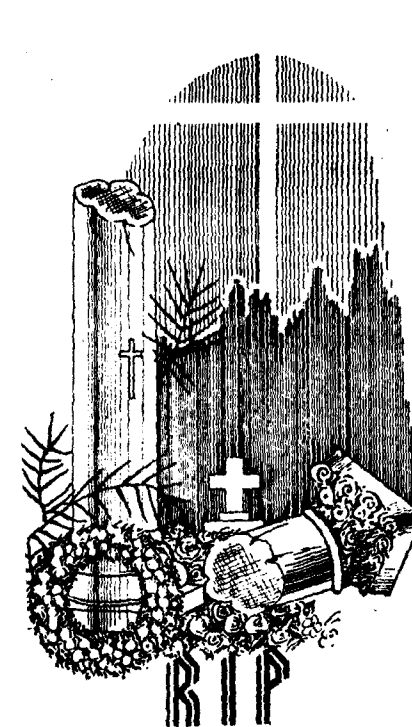
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1924. In 1929 the Guild joined with the Malabar Catholic Youth League, an older organization of the kind founded by Fr. D. Honoré, S.J., in the West coast, to form the Catholic Young Men's Federation. Subsequently at the invitation of Pax Romana, the University section of the C. Y. M. Federation became a member of that international movement of Catholic students and graduates. Meanwhile the C. Y. M. Federation reorganized itself as a purely University students organization under the name of the S.I.C.U. Federation which in 1949 developed into the All India Catholic University Federation and was approved by the Hierarchy as constituting the University Catholic Action movement in India. The A.I.C.U. Federation is made of a students' section, the C.S.U., and graduates' section, the Newman Association. With a C.S.U. in every Catholic College and a Newman Association Branch in every important town, all knit together under the A.I.C.U. Federation, we should have a powerful organization of the Catholic intelligentsia of the country. That was the ambition of Father Carty which, in broad outline, he was glad to have realized before his death. It was an extremely uphill task to build up the movement, and there was no end of difficulties, sometimes from the most unexpected quarters. But the movement went steadily ahead, which was a sign that it had God's blessing. That such a movement should have developed at all, as it has done, apart from its results, is a monumental tribute to the broad vision, organizing ability, tenacity of purpose and hard persevering work of its founder who also remained its prime mover till his last breath. No less a tribute is *The King's Rally* which he founded and so brilliantly edited. His masterly editorials and other articles set the high tone of the paper and placed it in the front rank of Catholic journalism in India. Being the organ of the University Catholic Action movement, its contents have conformed, as they should, to the needs of the movement, and could not include, as suggested by some well-meaning critics, the popular features of a journal of general interest. It has accordingly given prominence to Pax Romana news and to reports of the activities of the different centres of the Federation. While in this manner it has served as a link connecting the various units of the Federation with one another and with the Federation as well as Pax Romana in Fribourg, it has also been the instrument of developing in the members an informed Catholic mind particularly with regard to the social teaching of the Church. It is no exaggeration to say that it has done more than any other journal in the country to expound and disseminate Catholic social principles. Moreover it has played no small part in the defence of Catholic interests. Both the Federation and *The King's Rally* built up by Father Carty with the pioneer's care and

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trouble over the last quarter of a century, richly deserve to be cherished. At the same time they constitute a challenge to us to carry them forward to ever greater heights of fulfilment.

Great as his works were, Father Carty was immeasurably greater than all of them. It is impossible to portray in a few words so charming and versatile a personality, or to choose out of his rich and varied graces and virtues the outstanding one, as all are equally so. If, however, there is a trait which may be said to be in some measure a synthesis of all his qualities, it is undoubtedly his deep human understanding. He had a large and warm heart which felt and sympathised with the difficulties and sufferings of others and which went aglow with the desire to help and comfort them, not counting the cost or sacrifice to himself. A man of boundless human sympathy and understanding—that was dear Father Carty. And how could he be anything else when he was all his life, so intimately united to Christ, the God of love and charity?



Raman Effect

By D. Ramachandran, V B.Sc. (Hons.)

and

R. Anantapadmanabhan, V B.Sc. (Hons.)

Introduction :

IN 1928 Sri C. V. Raman, while studying the scattering of light by liquids with the intention of explaining and reproducing such natural phenomena as the blue of the sky and the sea, found that when a monochromatic beam of light was passed through certain organic liquids, such as benzene, the scattered light contained new frequency components in addition to that of the incident radiation. Such appearance of new lines on either side of the main exciting line, which was quite contrary to the expectations of the classical theory led Raman to consider the phenomenon as a new type of scattering—essentially distinct from the simple Rayleigh scattering and the more complex fluorescent scattering. The main features which characterised the Raman effect and distinguished it from other types of similar phenomena were the appearance of new lines on both sides of the incident line, called the *Stokes'* and *Anti-Stokes'* lines, the direct relation between the new frequency components and the frequency of the incident radiation, the effect of polarisation of the observed Raman lines and the fact that Raman frequencies were either actually the infra-red frequencies in the absorption spectrum of the scatterer or their simple algebraic functions. Although such an effect had been predicted on theoretical grounds by Smekal as early as 1923, Raman was the first to observe it experimentally and to correlate the theoretical conclusions in the light of experimental facts.

Experimental Study :

The general principle involved in the experimental study of the Raman effect is to illumine the substance under investigation with an intense monochromatic source of light and photograph the scattered radiation in a perpendicular direction. But the technical details vary with the nature of the specimen, that is, whether a liquid, solid or gas is under study.

The experimental technique developed by Wood for the study of Raman effect in liquids consists in essentials, of a container C, known as the *Raman tube*, which is a glass tube about 10 cms. long and 1.5 cms. in diameter drawn out at one end in the form of a horn and blackened on the outer surface. The other end is closed by means of an optically plane

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glass plate constituting the window W through which the scattered beam emerges. The experimental tube is surrounded by a cold water jacket to avoid overheating of the liquid due to the proximity of the exciting arc. The source ordinarily employed is the mercury arc with a suitable filter F to give a perfectly monochromatic beam of light. For example, to get the 4358 line of mercury a slightly acidulated quinine sulphate solution contained in a novial glass is used as a filter, while for the 4046 line a solution of iodine in carbon tetrachloride is used. A semi-cylindrical aluminium reflector R enhances the intensity of the incident illumination. A spectrograph of high light gathering power consisting of a high resolving prism and a short focus camera are arranged in front of W and aligned carefully along the axis of the Raman tube. The time of exposure of the photographic plate of the spectrograph essentially depends upon the intensity of the incident illumination, the speed of the spectrograph and the intrinsic brilliance of the Raman lines.

FIG. 1—Raman effect in liquids

In the case of solids certain modifications are necessary. If it is available in the form of a big block of crystal, it is directly used in place of the Raman tube, while if in powdered form the Raman tube filled with the powder is made use of. But to avoid the masking effect due to the direct light falling upon the spectrograph two techniques have been used. One by the use of complementary filters as developed by Ananthakrishnan in the Raman laboratory and the other by the use of a special type of spectrograph devised by Billroth, Kohlrausch and Reitz in Germany. In the former method two filters are used one interposed in the path of the incident light and the other in the path of the scattered light. The arrangement is as shown in the figure :

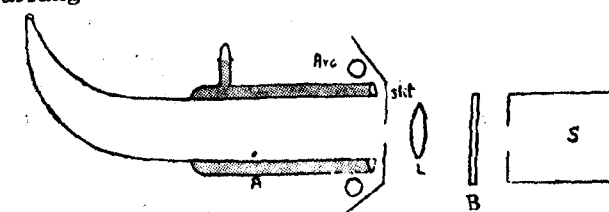


FIG. 2—Raman effect in solids

RAMAN EFFECT

light is then passed through the filter B consisting of a solution of NaNO_3 , which freely transmits all the longer wavelengths but considerably weakens the incident 4046 line. Such a procedure results in a vast improvement in the technique of photographing the Raman spectra of crystal powders.

In the case of gases the intensity of the scattered light is very weak and this difficulty is overcome by having the gases at high pressures and by using spectrographs of high light-gathering power. Rasetti was the first to develop the technique of exciting Raman lines in gases under high pressure which shortened considerably the time of exposure. Bagavantham has constructed a Raman tube for gases, which can stand pressures upto 500 atmospheres. It is made of transparent silica and enclosed in an outer steel tube for protection. With this apparatus very good photographs are obtained in about 40 to 50 hours exposure using the lines 3650, 4046 and 4358 as exciting radiations.

Summary of Results :

Raman effect has been extensively studied in a large number of substances—liquids, solids and gases.

Raman Spectra of Liquids:—About a hundred liquids examined so far exhibit the phenomenon in an unmistakable manner. The frequency shift of the Raman lines in the case of benzene corresponds to an

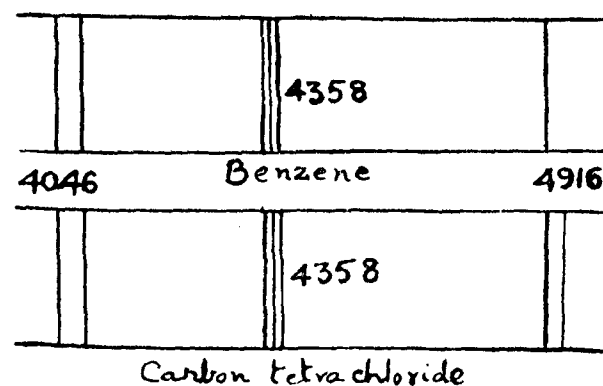


FIG. 3—Raman spectra of benzene and CCl_4

$\lambda = 3\mu$. It is also found that the solutions of substances in water give Raman spectra characteristic of the substance and of water.

Raman Spectra of Gases:—Wood and Rasetti were the first to conduct experiments in gases, like HCl and CO_2 , and subsequent studies have been carried out with various gases like H_2 , N_2 , O_2 etc. With HCl the frequency

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shift corresponds to $\lambda = 3.466\mu$ which is almost the same wavelength of the central missing line in the absorption spectrum of HCl . O_2 and N_2 give patterns of equally

spaced lines. The intensities of the lines in the case of N_2 alternate between a maximum and a minimum, while in the case of O_2 the alternate lines are absent. These peculiarities in the intensity variations have led to very significant conclusions as regards molecular structure and nuclear spin. McLennan and McLeod have conducted experiments with liquid hydrogen and found from the intensity variations the existence of two types (i.e. *ortho* and *para*) of hydrogen.

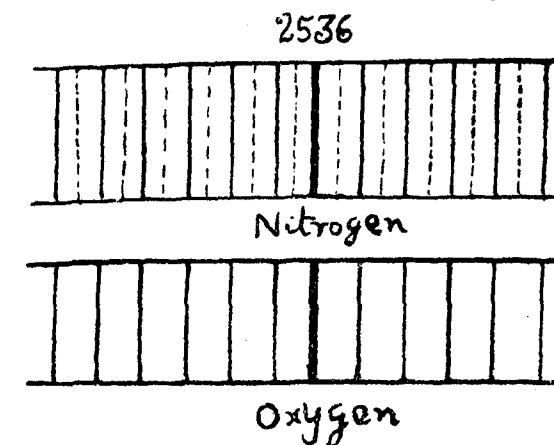


FIG. 4—Raman spectra of N_2 and O_2

Raman Spectra of Solids:—On account of the numerous experimental difficulties only a few solids have been studied, all giving, in general, sharp Raman lines, that become diffuse with rise of temperature. In calcite (CaCO_3) two lines which are nearest to the parent line have been definitely identified with the oscillations of the crystal lattice, while the others are due to the vibration of CO_3 groups. With gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) which contains two molecules of water of crystallisation, Krishnan found in addition to the wavelengths which could be attributed to the SO_4 radical three sharp lines at $\lambda = 2.8\mu$, 2.9μ and 3μ , which are evidently due to the water of crystallisation and are practically in the same position as the bands obtained with water.

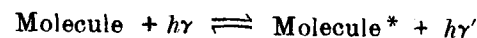
Intensity variation:—Raman lines are generally very weak having an intensity which is a fraction of one in a few hundredths of the parent line in the case of liquids and one in a few thousandths in the case of gases. No accurate data are yet available as regards the absolute intensity of the Raman lines in liquids and gases. Some reliable results have been obtained in the determination of the relative intensities of a given set of Raman lines excited by a given parent line. In spite of the numerous experimental difficulties in the determination of the intensities of the Raman lines, results of fundamental importance and for reaching consequence have been obtained in problems concerning molecular structure and chemical constitution.

Polarisation.—Raman lines show a wide range of polarisation characteristics. To study this, a quartz prism cut suitably so as to give two refracted images is arranged along the axis of the Raman tube in front of the glass window W. The ordinary and extraordinary scattered refracted beams are simultaneously photographed. The study of the polarisation of the Raman lines has taken two different courses by using unpolarised light and circularly polarised light. In the former case the *depolarising factor*, which is the ratio of the horizontal and vertical components of the intensities of the lines, is found to vary from zero to 0.86. The rotational Raman lines have a constant depolarising factor 0.86. With circularly polarised light the direction of the polarisation is, in general, reversed, while the nature of light remains the same. It is also found that Raman lines in molecules having similar structure have nearly the same constant depolarising factor since the polarisation is mainly decided by the symmetry of molecular oscillations.

Raman lines and infra-red spectra:—The rotational and vibrational Raman spectra closely resemble the far and near infra-red absorption spectra of molecules. Further, in many cases the Raman frequencies are equal either to the actual infra-red frequencies in the absorption spectrum of the scatterer or the difference of such frequencies. But there is little correlation between the intensities of the two. Moreover, not all Raman lines have their corresponding infra-red frequencies, nor all infra-red bands their corresponding Raman lines. Raman lines are also observed corresponding to certain forbidden infra-red transitions, as in the case of HCl. In such cases Raman effect provides a means of detecting the energy levels of molecules in the infra-red absorption spectra.

Theory of Raman Effect :

A simple theory of Raman effect is that when scattering of light with altered frequency occurs, the phenomenon may be represented by the relation



The asterik on the right hand side indicates an excited condition of the molecule, ν' the frequency of the scattered radiation and h the universal Planck's constant. If E and E' are the intrinsic energies of the molecule before and after collision

$$\begin{aligned} E + h\nu &= E' + h\nu' \\ h(\nu' - \nu) &= E - E' \\ \nu' &= \nu + \frac{E - E'}{h} \end{aligned}$$

$$\text{where } \nu_1 = \frac{E - E'}{h}$$

This quantity $\nu_1 = \frac{E - E'}{h}$ represents the shift in frequency due to Raman scattering. In the case of light scattered by free molecules three different kinds of Raman shifts having rotational, vibrational and electronic origins may be thought of. In solids where the atoms are not free the effect is merely due to the vibrations of the crystal lattices. The general relation given above implies that the exchange of energy between the molecule and the incident quantum may take place in either direction so that we may have in Raman effect not only a diminution in frequency as in Compton effect but also an increase of frequency as clearly shown by the presence of anti-Stokes lines in Raman spectra. This quantum theory explanation of Raman effect, though sound and satisfactory, as far as it goes, yet is found to be too simple as it does not completely cover the other complicated features of the actually observed effect such as the discrepancy between the Raman and infra-red absorption spectra, viz. want of correlation between the two and the different conditions that determine the appearance of the rotational or vibrational lines individually or altogether.

A more complicated theory has been proposed by Kramers and Heisenberg in their treatment of the phenomenon of dispersion, worked out first from the point of view of the Correspondence Principle and later perfected by the use of Quantum Mechanics.

Importance of Raman Effect—Applications in Physics and Chemistry :

Over and above the unique theoretical interest of the Raman effect as a further confirmation of the quantum theory of radiation, it is of immense practical importance owing to its many useful applications in Physics and Chemistry. The universal nature of the phenomenon, the relative simplicity of the experimental technique, the easy control to which it yields to get lines in the different parts of the electromagnetic spectrum and the appearance of a number of new frequency components usually prohibited in the infra-red spectra, make Raman effect a very important and convenient tool of research in problems concerning the structure of matter. Making a comprehensive study, qualitative as well as quantitative, of the nature of the observed lines, like their polarisability, intensity and relation to infra-red spectra, a complete picture of the atomic and molecular constitution can be outlined with sufficient precision. We shall now give a summary of these attempts.

I. Nature of the Solid State :

Most of the solids are crystalline in nature. Raman effect gives information about the forces binding the atoms or the molecules in the crystal lattice, which determine the physical properties of the crystal, and hence of the solid. This information is precise in character since the Raman lines are very sharp and can be measured very accurately. Using the frequencies deduced from Raman spectra, in conjunction with the known results about the position and masses of the atoms obtained from X-ray diffraction methods a determination of the binding forces in the crystal becomes possible. Ramaswami and Bagavantham studying the case of diamond concluded that a crystal need not contain molecules to exhibit Raman effect. The study of some of the crystalline nitrates by Krishnamoorthy and Gerlach has led to the conclusion that the assumption of complete ionisation in solid crystal is invalid.

II. Nature of the Liquid State :

Considering the gaseous state it can be readily shown that the translatory motions of the molecules are such that the Rayleigh scattering will be spread out in accordance with Maxwell's law. On the other hand, for the solid state, Brillouin, disregarding molecular structure and replacing the solid by a homogeneous elastic continuum, in order that the translatory motions may be resolved into system of sound waves traversing the medium in all directions, arrived at an expression showing that the scattered light should merely consist of two displaced components depending upon the velocity of sound in the medium and the angle of scattering. Now, as regards the intermediary liquid state, Raman and Ragavendra Rao, in their study of the Raman spectra of a number of liquids, found that while Brillouin's theory was verified, a central line brighter than the displaced components was seen, which with increase of temperature grew in intensity at the expense of the neighbouring Brillouin components, which themselves broaden out and tend to merge into the centre. The two Brillouin components are found to be completely polarised in transverse scattering, while the central one is also very nearly fully polarised in non-polar liquids. In strongly associated liquids, like formic acid, the central line shows appreciable depolarisation, while in viscous liquids the Brillouin components are faint.

The experimental finding of the Brillouin component is characteristic of the elastic continuous medium. The presence of the central component, however, which is not to be expected in Brillouin's theory, can be accounted for solely on the basis of random type of movements as in a

gas. The central component is always brighter and this readily follows from the fact that gaseous Rayleigh scattering is always much brighter than the corresponding scattering from liquids or solids. The relative intensities of the central and Brillouin components vary from liquid to liquid and this may be taken to show how the thermal energy is shared between the two types in each liquid. The observations of Raman spectra have thus led to an important conclusion regarding the liquid state, namely, that it is characterised by both types of thermal energy, one in which it is organised in the manner of elastic waves and the other in which it is akin to random types. In other words "the thermal motion of liquid molecules which goes to make up its heat content is neither wholly disorganised in the form of random movements as in a gas, nor wholly organised in the form of elastic waves as in a solid".

Two other interesting applications of Raman effect in the study of the liquid state are (i) Electrolysis and (ii) Hydrolysis :

(i) *Electrolysis* :—Raman effect affords an ideal method for investigating the phenomenon of electrolytic dissociation, as it is possible to obtain Raman spectra both for the pure substance and for the aqueous solution of it at different concentrations. It is also possible to determine whether the dissociation is complete or partial. For, a direct determination of the nature and number of ions produced can be had from the observed positions and the variations of the intensities of the lines. For instance, in the case of an aqueous solution of nitric acid the Raman spectrum of the HNO_3 molecule is different from that of the NO_3 molecule and from the relative intensities of different lines of either of the molecules at different concentrations the rate at which the concentration of the NO_3 ion is progressively increasing with dilution may be obtained.

(ii) *Hydrolysis* :—Is a phenomenon similar to that of electrolysis. If a salt which exhibits a Raman spectrum different from that of the base or acid is hydrolysed by water, the degree of hydrolysis can be established by measuring the relative intensities of a set of lines of either the base, acid or salt.

III. Molecular Structure :

Raman effect derives its importance mainly from the fact that it has led to very precise and conclusive results as regard the structure of molecules. Raman spectra are, in general, determined by those factors which affect most the nature of vibration, the number of atoms in the molecule, the mass of the atoms and the strength of the chemical bonds between the atoms.

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Considering a *diatomic* molecule, for example, its natural frequency of vibration is given by $\nu_0 = \frac{1}{2\pi} \sqrt{F/\mu}$ where F is restoring force per unit displacement and μ the resultant mass. From this it follows that (i) there is only one vibration frequency in diatomic molecules (ii) the infra-red frequencies of molecules containing lighter atoms are greater than those containing heavier ones (iii) a molecule in which the force binding the atoms is great should have a higher characteristic frequency than one in which the force is weak. This force depends upon the nature and strength of intra-atomic bonds. Naturally then, a diatomic molecule with a double bond should have a higher frequency than one in which there is only a single bond.

The Raman spectra of *polyatomic* molecules will be much more complex. First of all, more than one characteristic frequency is to be expected. Thus, for instance, triatomic molecules will, in general, have three such frequencies. Secondly, the arrangement of atoms such as symmetrical or unsymmetrical, linear or non-linear symmetry, is an additional factor which determines the intensity of the Raman lines. Thus from the number and intensity of the observed lines in the Raman effect, in conjunction with infra-red data, it is possible to draw interesting conclusions about molecular structure.

Isotopes:—The substitution of an isotopic atom for the original one in the molecule is expected to alter the symmetry of the molecule and the effective mass. Many isotopic molecules have been studied from this stand point and it has been found that the phenomenon of alternating intensities in the rotational Raman lines, well exhibited by the spectra of H_2 and D_2 , is absent in the spectrum of HD showing that the substitution of D for H has destroyed the symmetry.

Chemical constitution and valency bonds:—Much information has also been gathered pointing to the relation existing between Raman effect and chemical constitution. The extensive study of a good number of halides undertaken by Krishnamoorthy has established beyond doubt that Raman lines are intense only in the case of *covalent* (i.e. homopolar or electrically non-polar) compounds, while the reverse takes place in the case of *electrovalent* (i.e. heteropolar or polar) compounds. This is well illustrated by the fact that salts like $NaCl$, KCl etc., which are electrovalent exhibit no Raman lines corresponding to their infra-red frequencies, whereas HCl and the chlorides of non-metals (which are covalent) give vibrational Raman lines. The reason for this is to be found in the fact that the Raman lines essentially depend upon the symmetry of the molecules

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and the extent to which the polarisability is affected by the oscillations. In the case of electrovalent linkages the electrons have definitely gone over from one nucleus to the other in molecule formation. This means that the polarisability is not at all affected by the oscillations and hence no Raman lines appear. On the other hand, if the binding electrons remain common to the nuclei (as is the case with covalent linkages) the polarisability has a strict dependence upon the position of nuclei and naturally nuclear oscillations are followed by variations in polarisability and these give rise to Raman lines.

Raman effect also reflect the strength of chemical bonds so that the calculation of the force-constants with the help of Raman frequencies, bring out three types of chemical bonds—single, double and triple.

Complex Compounds: Raman spectra, as we have stated, are characteristic of molecular structure. The formation of complex compounds consisting of one or more like or unlike molecules would therefore be characterised by marked changes in the Raman spectra of these. Complex compounds are designated by different terminologies, such as *polymerisation*, *dipole association*, *co-ordination* etc., to convey that the mechanism of complex compound formation is different in each case. Taking for instance the case of polymerisation, a common illustration is that of the formation of a distinctly different structure as $S_2O_8 \rightleftharpoons 2SO_3$ etc. The intensities of the Raman lines at different temperatures enable us to make a quantitative study of the relative proportions of different structures in these complex compounds.

IV. Constitution of Organic Compounds:

The great utility of Raman effect in organic chemistry lies in the fact that different types of linkages exhibit characteristically different Raman spectra. We shall here enumerate the results obtained with a few important compounds which are striking examples of certain specific linkages:—

(a) *Saturated hydrocarbons upto $C_{12}H_{26}$ and some of their isomers*:—In the spectra emitted by these the frequencies are divisible into four general ranges. Those which lie in the region 200 to 800 and 800 to 1100 may be attributed to longitudinal and transverse oscillations of the (C-C) linkage; those in 1100 to 1460 and in 2700 and beyond to the (C-H) linkage.

(b) *Unsaturated hydro-carbons*:—(*Olefines and Diolefines*):—Most of these show very prominent lines. The characteristic frequencies of C=C, C=C=C, C≡C linkages are 1650, 1100 and 1960 to 2250 respectively.

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These lines are very intense and are hence of use in detecting small impurities containing the corresponding linkages.

(c) *Alcohols*.—The lines found at 1030 in methyl, 885 in ethyl, 856 in propyl and 825 in butyl are characteristic of the (C-O) linkage. Most of the alcohols give a broad band with a maximum near 3400 attributable to the (O-H) linkage.

(d) *Acids and their derivatives*.—The Raman spectra of these exhibit strong lines in the region of 1700 due to the $C \equiv O$ group. A few associated liquids, like formic acid, show faint lines, while the anhydrides are peculiar in that they give two lines in the region of the $C \equiv O$ frequency.

Many other organic compounds have been subjected to such analysis, the purpose being to get information about their chemical constitution, chiefly their isomeric properties. Generally, as the whole structure changes from one isomer to the other the entire symmetry is altered with the consequent variation in the nature of the Raman spectrum emitted.

Conclusion :

Raman effect is thus a valuable asset in the study of the constitution of matter in the different states, solid, liquid and gas, and in the different forms, organic and inorganic. Its potentialities are so vast and varied that it is bound to lead to many other interesting discoveries.



Equal Protection of the Laws

By Clement S. D'Cruz, V Hons.

ARTICLE 14 of the Constitution of the Indian Republic declares :
"The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India."
It is applicable to citizens and non-citizens alike. The Article merely gives a concrete expression to the general principle of British jurisprudence in regard to a particular aspect of the rule of law. The rule of law means that all actions of Government must conform to the law and an individual cannot be prejudiced in person or property by the Government or any one else except in accordance with existing law. The principle of the rule of law on which the British Constitution is framed emphasises inter alia equality before the law as the equal subjection of all classes to the ordinary law of the land administered by the ordinary law courts. It is this aspect that Article 14 affirms.

Equality

This equality means that no man not even the law makers is above the law. Every person, irrespective of rank, or position, or condition, is subject to the ordinary law of the land and amenable to the jurisdiction of the ordinary courts. It is best expressed in what is termed legal equality, as distinct from human equality, meaning social justice or social intercourse on an equal footing. The former is closely akin to the rule of law as practised in Britain. There this idea of legal equality has been pushed to its utmost limit. Every official, from the Premier down to the lowest peon is under the same responsibility as any other citizen for every act done without legal justification. In this connection we can contrast Britain with other European countries, particularly France where Officials are, to some extent, exempted from the ordinary law of the land and protected from the jurisdiction of the ordinary courts. Here legal equality is thrown over-board.

Limitations

The doctrine of equality is not without limitations. It cannot be pursued to its logical conclusion. A general proposition has always the disadvantage of saying more than what is meant. The doctrine cannot mean that the powers and duties of a private citizen are similar to those of Government Officials. A Prohibition Inspector can enter your house on inspection; your neighbour cannot. A Commercial Tax Officer can examine

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the accounts kept by a merchant; his customers cannot. The President has rights to give assent to the bills passed by Parliament; his peon has not. The list can be expanded ad infinitum. Even in England certain immunities and privileges are granted to the Crown, to Public Bodies, to the Heads of foreign States and their diplomatic Agents. The Trade Disputes Act of 1906 gives special statutory privileges to Trade Unions. The Public Authorities Protection Act restricts the rights of citizens to take proceedings against Public Bodies in respect of acts done bona fide in the course of their duties. Then again the judges enjoy immunity from actions arising out of the performance of their official duties. Moreover certain actions and disputes are dealt with by special tribunals, not by the ordinary courts of the land. In all these cases the rule of equality before the law is not kept in abeyance. But all the same some limitations, real as they are, need recognition.

American Practice

In the United States Constitution there are two articles which deal directly with the subject of equality, Articles 5 and 14 (which was introduced as a later amendment to the Constitution) the Articles state that "no State shall deprive any person of life, liberty or property without due process of law or deny to any person within its jurisdiction the equal protection of laws." The expression "due process of law" has been the storm-centre of bitter controversy over the past forty years. It can be traced back to the early history of English law and is reminiscent of the tone of Magna Charta. The exact phrase used in the Constitution, however, comes from John Locke who declared that the rights of man to "life, liberty and property" were natural and fundamental. The Supreme Court of the United States has been deeply divided over its meaning and this in turn has aroused acrimonious political debate within and without the country. Different judges have given different interpretations to the spirit embodied in the two Articles. Eminent judges like Matthews, Taft, Holmes and Brandeis have differed from one another. As Mr. Justice Matthews put in the famous case of *Yickoo vs Hopkins*, "the equal protection of the laws is a pledge of the protection of equal laws." In fact several legislative measures have been passed in the United States recognizing distinctions based upon colour, race, objects, occupation etc., thus offending the spirit of the equality clause.

Contrasted with India

Article 21 of the Indian Constitution states that no person can be deprived of his life or liberty except according to procedure established by law. The expression "due process of law" is deliberately omitted, probably

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with a view to avoid fluctuation of judicial opinion. But difficulties and uncertainties seem to creep in. The fathers of the Constitution appeared to be wiser. They considered that it would be preferable to place the ultimate authority for the conferment of this fundamental right in Parliament rather than to give the judiciary the authority to sit in judgement over the will of the legislature. The Constitution gives the legislature the final word to determine law. This method of making it more powerful than the judiciary is rather a dangerous game. Then the Constitution becomes very much like the Weimar Constitution which Hitler pushed aside like a cardboard construction. India cannot stand such a shock. The legislature with such plenitude of powers can ride rough-shod over the judiciary. It will be a day of shame and sorrow when the judicial pronouncements have to be tossed about to suit the idiosyncracies of the legislature.

An interesting case arose a few months ago when A. K. Gopalan, a Madras Communist Detenu, filed a Habeas Corpus Petition in the Supreme Court challenging the validity of the Preventive Detention Act. Appearing for the Union government Mr. M. C. Setalvad, the Attorney-General, identified "procedure established by law" in Article 21 with the "due process" clause in the United States Constitution. Referring to Irish, English and U. S. Courts' reports, he said there was no absolute and fixed doctrine of what is procedure established by law which varies with differing circumstances. According to Mr. Setalvad the two minimum tests of "due process of law" are notice and an opportunity to be heard. But he added the rider that in taxation, extradition and similar matters these are not essential. When the counsel for the Petitioner, Barrister M. K. Nambiar, said that there should be an objective standard in law, Mr. Setalvad answered that law laid down only policies and principles, not the objective standard.

An equally interesting case arose when the Presiding Officers of legislative bodies in India met in conference to decide whether or not privileges of legislatures in the Union and the others should be codified. In Britain the courts had held that if the Speaker of the House of Commons issued a warrant, which did not state the grounds for contempt, they would not look into the merits of the case. This right placed the issue beyond the jurisdiction of the courts. Since the privileges of legislatures in India remain equated with those of the British Parliament the position here remains the same. The Speaker of the Union Parliament Mr. G. V. Mavankar and some other members were of the opinion that the privileges should not be codified. If they are codified and made part of statute law,

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they may be held to come within the scope of Article 21. In fact it was under this Article that Section 14 of the Preventive Detention Act, which provided that the grounds of detention need not be disclosed to the court, was recently declared ultra vires by the Supreme Court. If the privileges are codified their right to issue warrants without stating the grounds might share the same fate as Section 14 of the Preventive Detention Act.

It is said that the golden thread of the principle of the rule of law is seen in the warp and woof of the Indian Constitution. We have a very important piece of work to do, to ensure that this kind of law does not become merely a way in which the bureaucracy can decide any disputed point to its own advantage. We have to remember that among the "whips and scorns of life" of which Hamlet spoke meditating on the ills of life, come "the laws' delay." If the rule of law is to prevail, the lawyers have to take a prominent part in the administration. No and wonder it is humorously remarked that the Indian Constitution is the lawyers' paradise. And there is always a poke in a joke. Law gives stability without stability neither the lawyers nor judges can exist as useful members of society. The rule of law has to be worked out in every walk of life, in each phase of society, according to the rhythm of time, according to its twist and turn. As the Irish poet said "no country can marry any particular solution and live happily ever afterwards."



A Visit to Annamalai University

By S. Madhu, V B.Sc. (Hons.)

and

S. Krishnaswamy, V B.Sc. (Hons.)

THE visit was suggested to us by Rev. Fr. Rajam, S.J., as early as November. He had been invited by the Annamalai university to deliver three special lectures on "Nuclear Isomerism." Desirous of giving us an opportunity to visit the university and to move with the students there, he proposed to take us with him. Further, he arranged a short colloquium for the occasion, in which some of us, along with others from Annamalai university, were to take part.

Most of our classmates jumped at the idea, and necessary arrangements were made. On Monday, the 15th January, a party of fifteen students, including two from the IV B.Sc. (Hons.) left Trichy by the evening train. After a very pleasant journey we reached Chidambaram at about 10-30 p.m. The student-secretaries of the Physical Society of Annamalai University had come to the station to receive us all, and we were taken to the University, which is about a mile from the station. Excellent arrangements had been made for our stay; we were given a big hall which was entirely at our disposal. Our professor, Fr. Rajam, S.J., was given apartments at the University Guest House.

The next day, after our morning meal, we went to visit the famous Chidambaram temple. The university being separated from the town proper, we had to walk more than a mile to reach the place. As many a temple in South India, the Chidambaram temple is a magnificent work of skill and beauty. One of the masterpieces is a chain, a foot long, carved out of a single stone, and hanging from the mouth of a mythical animal. Along the walls of granite several legends and many dancing poses are depicted. The skill of the artists who carved them is something marvellous when we consider how much labour and time—months, perhaps years—each wall should have taken to be decorated so beautifully. It would require a life-time to study those carvings and admire them, and we could see only a few of them. But the little we saw was enough to inspire in us a great admiration for those artists who passed away centuries ago, but

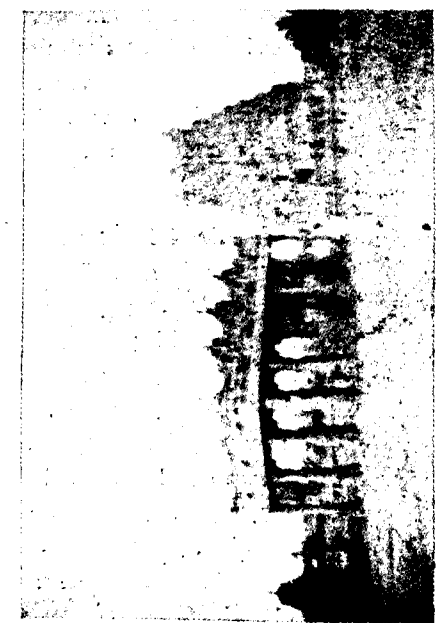
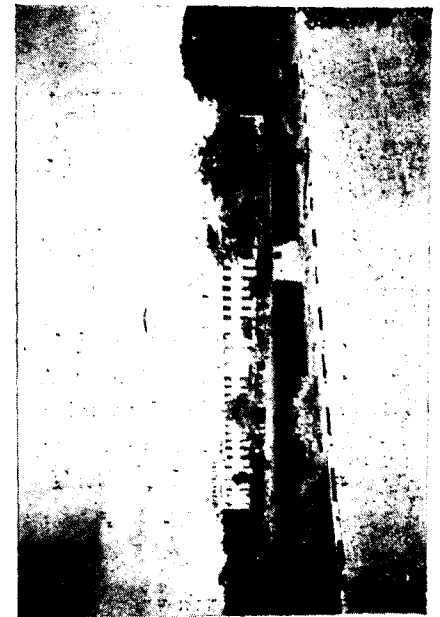
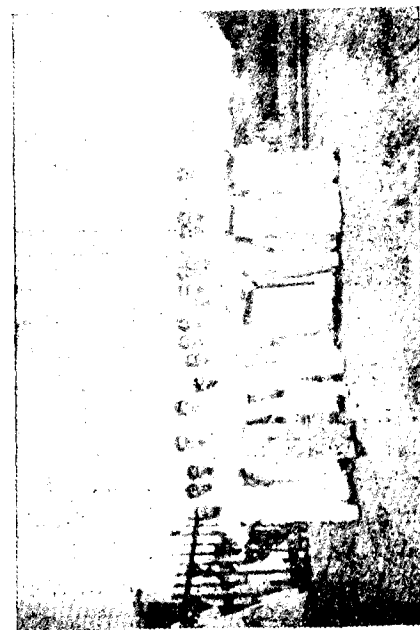
A VISIT TO ANNAMALAI UNIVERSITY

who still live with us in those sculptures. We felt that even though India might be inferior to the West in scientific advancement, yet here were instances to prove that Indian art can compete with that of any other country. There are some historic monuments also. One of them is the golden roof over the shrine of Lord Nataraja, which was erected by Paranthaka Chola, centuries ago. We spent about three hours in the temple, and then returned to the University.

At 4 o'clock in the evening, we went to attend Fr. Rajam's first lecture. As mentioned earlier, the topic chosen by him was "Nuclear Isomerism," which was the subject of his doctorate thesis. During that evening he explained clearly the fundamental concepts of atomic physics and gave a brief summary of the various atom models. The lecture was followed by epideascopic projections.

The colloquium of the students took place the next morning. The topic was "Cosmic Rays," the whole subject having been divided into six lectures, four to be delivered by our students and two by the students of Annamalai University. From our students Messrs. N. Krishnamoorthy, T. A. Subramanian, S. Krishnaswamy, and S. Madhu had been chosen. It was quite a new experience for us to address a gathering of strangers, and we were not sure whether we would be able to impress them. The previous night we spent some time in preparing for our lectures. At 8 a.m. sharp, on the 17th, the colloquium began, presided over by Prof. Navanithakrishna, of Annamalai University. The president gave a short introductory lecture. Then Mr. N. Krishnamoorthy gave the introductory talk on "Cosmic Rays." He was followed by Mr. Govindaswamy (Annamalai University), who gave a brief account of the various experimental techniques employed in researches on cosmic rays. Mr. S. Krishnaswamy talked on the "Mesons." Then "Cosmic Ray Showers" were dealt with by Mr. S. Madhu, after which a solution of the most difficult problem in cosmic rays viz., their Origin, was attempted by Mr. T. A. Subramanian. The last talk was on the "Geomagnetic Latitude Effect" of cosmic rays, given by Mr. Ramanarasiah, the secretary of the Honours branch of the Physical Society of Annamalai University. Prof. Navanithakrishna, in his concluding remarks, stressed on the necessity for frequent contacts between the students of various institutions, for the main idea of university education is not simply to study certain books and get a first class in examinations. He said that he was glad to find that St. Joseph's College had taken the initiative in this matter. He appreciated the clear and easy manner in which our students dealt with the topic on hand, and congratulated us on our able performance. The colloquium was a grand success,

ANNAMALAI EXCURSION



Photos by S. Madhu

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we must heartily thank Prof. Navanitakrishna and Fr. Rajam for having arranged it.

As we were returning from the meeting, we were informed that Mr. N. Ananthakrishna Iyer, Mr. P. Savarimuthu, and Mr. K. Ananthapadmanabhan had arrived at the University, and we went to meet them. That morning we accompanied them to the temple.

That evening Fr. Rajam, S.J. delivered his second lecture. He explained the structure of the nucleus, and then gave a brief summary of artificial radioactivity. Next morning, that is on the 18th, he gave the third and last lecture in which he dealt with the main topic, nuclear isomerism, giving a brief account of the theoretical as also the experimental study of the phenomenon. The meeting was brought to a close after a few concluding remarks by Prof. Navanitakrishna.

The Annamalai University, where we spent three happy days, occupies a vast and extensive area and is a city by itself. It is a beautiful and healthy spot, with plenty of trees and well-kept gardens. There is a big library and reading room, where the students are allowed to take the books directly from the shelves. The Shastri hall, in which all public meetings of the University are held, is a magnificent two story building, the whole of the ground floor being paved with polished stones. There is a portrait of Rajah Sir Annamalai Chettiar, the founder of the University. As we go upstairs, we could see a portrait of the Rt. Hon. V. S. Srinivasa Shastri, the 'silver-tongued' orator, who was the first Vice-chancellor of the University.

The Physics laboratory of Annamalai University is quite extensive. Some of its special features are a powerful electromagnet, and arrangements for photographic study of the ultra-violet and Raman spectra. A student is doing post-graduate research in the laboratory on the meteorological effects on the transmission of wireless waves. He was very kind to us and took us round the laboratory.

We also visited the Engineering workshops and the technology laboratory. We were kindly received by the foremen and lecturers in charge of them and they took plenty of trouble to show and explain everything to us.

We left the University on Thursday the 18th at 3 p.m. Our stay, though very short, was a most pleasant one, and we were treated with kindness by all people concerned. We must express our profound thanks to the professor and the two student-secretaries, Messrs. Kalyanaraman and



By T. A. Dorairajan



By V. Sundaresan

SCULPTURE



By V. Sundaresan



By T. A. Dorairajan

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Ramanarasiah, for having taken a lot of trouble to provide us with meals in the hostel section itself. Their hospitality was overwhelming. Fr. Rajam was more than a father to us all, and he was extremely kind and generous during our stay, and words cannot express our sincere gratitude. Our visit to the Annamalai University was not of the type of pleasure excursions. It marked the beginning of an inter-university alliance; in fact, the students of Annamalai University have promised to visit our institution in the near future. The colloquium, especially, was the first of its kind, and if we find more instances of such student-reunions in future, we may rightly feel that we were the first to start it.



The Manufacture of Vanaspati

By K. S. Venkataramani, III B.Sc.

IN the manufacture of Vanaspati in India groundnut oil is largely used. Nowadays about 5% of gingelly oil is added. The presence of gingelly oil in all products of Vanaspati is essential in the sense that it makes the detection of Vanaspati possible by simple chemical test, when it is used as an adulterant.

The manufacture of Vanaspati consists of the refining of crude oil and the hydrogenation of the refined oil, again refining the hydrogenated oil and finally deodorisation. Refining consists of removing the free fatty acids present in the crude oil, by neutralisation with caustic alkali, and the removal of colour pigments by bleaching with Fuller's earth and active carbon. Refining before hydrogenation is called pre-refining and consequently pre-neutralisation and pre-bleaching and that after hydrogenation is called post refining.

Pre-Neutralisation

This process is conducted in a vessel. The removal of free fatty acid is done by the process of neutralisation with caustic soda as the neutralising agent. Hot salt water solution is employed for complete salting out of soap from the oil, the soap being produced in the process. Water is used to settle down the soap formed and to drain it out. Calculated amounts of groundnut oil and gingelly oil are pumped together in a cylindrical vessel with a conical bottom with a drain valve at the tip of the cone, and provided with steam heating device by heating coils placed inside the vessel, a variable speed agitator shaft and spray nozzles which are directly connected to overhead tanks intended to store the caustic solution, salt water and hot water. The caustic solution employed is about 12% by weight for preneutralisation and about 3% for post refining. The salt solution should be nearly saturated and the temperature must be at least 200° F. while the hot water must be near its boiling point. The initial free fatty acid content of the oil is found in the laboratory by simple titration of oil with standard NaOH and the acid as oleic acid ($C_{17}H_{33}-COOH$) is calculated. The amount of NaOH solution required with 10 to 20 % excess is calculated as the no. of inches of solution in its holding tank, using the quantity of oil pumped, the free fatty acid present and the capacity of the tanks for calculation. This amount of NaOH is sprayed on the oil kept at a temperature of 130° to 160° F.

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Full speed agitation is employed at first for about 30 minutes or till the break occurs, (break is simply the separation of the oil and soap stock from their emulsion state) indicated by deep furrow over the surface of the oil. Then the speed is reduced to a minimum and the oil is given a fine spray of hot salt water solution for complete salting out of the soap from the oil; then another spray of hot water to give weight to the soap stock for easy settling. The settling time is usually three hours, at the end of which the soap stock is drained through the bottom valve taking care not to drain any oil along with the soap. After this the oil is given a series of salt water-washes and hot water-washes to remove the soap fully from the oil, each wash being drained after one hour's settling. The conditions stipulated must be strictly adhered to, a deviation from which will cause a huge loss of oil. The neutralised and washed oil is then sent for bleaching.

Bleaching

The bleacher is a closed vessel provided with a high speed agitator, steam heating coils, steam pump and a filter press. A steam ejector is provided for producing vacuum in the vessel. The oil is first heated to 200° F. under vacuum and is kept at that temperature for about an hour, or till the oil is completely free from moisture. At this point bleaching materials such as active carbon and Fuller's earth are added through a chute provided for the purpose. After one hour of strong agitation the oil is filtered through the filter press, the steam pump being used to pump the oil through the press. The storage tank is directly connected to the press. The process employed for final bleaching is exactly analogous.

Hydrogenation

This process is the most important one. Hydrogenation is done in presence of finely divided nickel (nickel being manufactured by the reduction of nickel formate) as catalyst and the gas (Hydrogen) used should be of the highest purity (98%). The required quantity of catalyst (0.25% by weight of Nickel) is first heated to a small rise of temperature with a small quantity of bleached oil and is pumped into the vessel; the rest of its volume being filled later with the bleached oil to its full capacity. The convertor, or the hydrogenator as it is called, is a closed vessel capable of withstanding high pressures and vacua, provided with a high speed agitator, hydrogen injector, a high capacity duplex steam pump, double heating coils and a filter press. Here the complete mixture of oil and gas is very essential and hence, along with the bubbling of the gas through the oil by a circular ring with minute holes provided for the purpose, the oil is taken out of the vessel by the steam pump and is pumped

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ped back into it as a fine spray over the free surface above the oil level in the vessel.

The oil is heated under vacuum to 250° F. at which stage the injection of gas is started. The vacuum is released, not to air, but to hydrogen, and the gas pressure is maintained at 7 to 10 lbs per square inch. Once the absorption of the gas is started the rise in temperature is rapid by virtue of the exothermic nature of the reaction. Heating is continued till the temperature of the oil reaches 300° F. after which further heating by steam is stopped though there is a rise in temperature which is never allowed to go beyond 380° F. When this point is reached it is necessary to cool down the oil by sending cold water inside the heating coils from the bottom. The amount of hydrogen to be injected is indicated by the attainment of the required melting point of the oil, samples being tested periodically. As soon as injection is stopped the oil is cooled under vacuum to 180° F. and is filtered through the filter press. The catalyst is reused again for the next batch until it becomes quite inactive. The spent catalyst is rejected.

Post Hydrogenation

Hydrogenation increases the free fatty acid content, though the colour pigments are completely destroyed, and hence the necessity of neutralising the oil once again. The process of post neutralisation is exactly similar to that before hydrogenation except that a weaker caustic solution is employed and the neutralisation is done between 190° F and 210° F. Here most of the unfiltered nickel present in the oil is removed, combined in a colloidal state with the soap stock. The oil is once again washed free from soap, dried and bleached and is sent to the deodorizer.

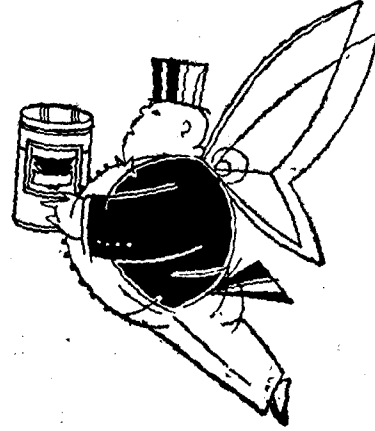
Deodorization

Steam deodorization is employed to remove the odour from the oil. The vessel is a heavily built closed cylinder erected in a vertical position and capable of withstanding a very high vacuum. The highest vacuum is very essential for this process as otherwise the process is delayed considerably and the oil gets darkened since the temperature employed is also very high. Further exclusion of air must be made to the greatest possible extent. The vessel has two types of coils. One is a closed one for heating the oil and the other an open one for letting in superheated steam through the oil direct. A two stage steam ejector and a barometric condenser are provided for producing vacuum and a fat catcher to condense the volatile fatty matter and to collect the oil that reaches the top owing to violent agitation.

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The oil is heated in vacuum to 350° F. and superheated steam at 500° F is let inside at 20 lbs. pressure for about five hours at the end of which the oil is taken out and is tested for odour. Prolonged injection is given if necessary, and when the oil is completely odourless it is partially cooled in the vessel and drained to a vacuum cooler where it is further cooled to 160° F. and is filtered. The filtered oil is taken to a filling tank where any colouring or flavouring materials are added. It is then stored in tins.

The sealed tins are stored in an air conditioned room for eight to ten hours or overnight and at the end they are taken out and sent for despatch.



இத்தாலியத் தமிழர்

By V. M. Gnanapragasam, S.J., III B.A.

தமிழ் நாட்டில் அவருக்குப் பெயர், இத்தாலியாவில் பெற்ற பெஸ்கி என்பதல்ல; சந்தா சாகிப் கொடுத்த இஸ்மத்தி சந்நியாசி என்ற பட்டமும் அல்ல; ஆனால் தமிழறிஞர் இட்ட வீரமாமுனிவர் என்ற தமிழ்ப் பெயரேயாகும். இவர் தந்த தமிழ்க் கதிர்கள் பல. அவற்றை, முனிவர்க்கு ஏற்றவை, மாமுனிவர்க்கு ஏற்றவை, வீரமாமுனிவர்க்கு ஏற்றவை என வகைப்படுத்தி நோக்குவோம்.

முனிவர்

முனிவர் கத்தோலிக்க சமயத்தைச் சேர்ந்தவர்; அதன் திருப்பணியைத் தலைக்கடனாகக் கொண்டவர். வேத உண்மைகளை விளக்கவும், அவற்றை மறுப்போருக்கு மறுப்புக் கூறவும், வேத விளக்கம், பேதக மறுத்தல், லுத்தேரினத்தியல்பு, வேதியர் ஒழுக்கம் முதலிய உரைநடை நூற்கள் எழுதினார். பைபிள் என்னும் வேதநூலுக்கு எல்லோரும் உரை கூறமுடியாது, அதனால் உரை கூறக் கூடாது என்பது முனிவர் கொள்கை. அதை வெட்டிப் பேசினவர்களுக்கு இவர் பதில் எழுதும் முறை தமிழ் முறைதான். அரிய முத்துக்கள் உள்ள பெரிய கடலில் எல்லோரும் முத்துக் குளிக்க முடியுமா? துணி வெளுக்கும் பெண்ணும், வயலில் நண்டு பிடிக்கும் பெண்ணும், சிந்தாமணிக்கு உரை கூறவும், தொல்காப்பியத்திற்கு விளக்கம் தரவும் முடியுமா? என்று கேட்டு, ஆழ்ந்த கடல் போன்ற வேத நூலாம் பைபிளுக்கு உரை கூற எல்லோராலும் கூடுமா என்பதைத் தெளியவைக்கிறார் அத்தமிழ் முனிவர்.

மேலே சொன்ன உரை நடை நூற்களைவிட, முனிவரின் தமிழ் உள்ளத்தை மிக விளக்கமாப்க் காட்டுவன அவரது செய்யுள் நூற்கள். இவற்றில் தலை சிறந்தவை: கித்தேரியம்மாள் அம்மாளை, திருக்காவலூர்க் கலம்பகம், தேம்பாவணி.

கித்தேரி என்ற போர்த்துக்கல் தேயப் புனித மானது 'பூவினத்துள் தாமரை போல், புள்ளினத்துள் ஓதிமம்போல்' தோன்றினளாம். இவளது தலையைக் கொய்ய எண்ணி, காயன் என்ற மன்னன் போர் தொடங்குகிறான். அதுபோது,

கினை மறுத்துக் கிள்ளி அழ, தேன் மறுத்துத் தும்பி அழ
தனை மறுத்து மஞ்ஞை அழ, தாய் மறுத்து மான்கள் அழ
ஒடி புனல் ஏங்கி அழ, ஒல் எனவே தென்றல் அழ
ஆடு(ம்) இலை விம்மி அழ, ஆ எனவே யாவு(ம்) அழ

இயற்கை படும் நெருக்கடியை வரைந்த முறை தமிழ் முறையல்லவா?

தமிழ்ப் பக்தர்கள் இறைவனின் திருக்கோயிலில் தொண்டு செய்ய விரும்பி, கோவில் படியாகக் கிடக்கவும், கோவில் மரமாக நிற்கவும், கோவில் தடாகத்தில் மீனாக வாழவும் விழைந்தனர். நம் முனிவரின் விருப்பமும் அத்தன்மையதே. திருக்காவலூரில் கோயில்கொண்டிருக்கிறாள் தேவமாதா. அவளடி தாங்கும் சந்திரனைப்போல் நானும் “அக்கமலத் தாள் தாங்கிலேனோ”; அவள் அணிந்த மாலையின் தேனை உண்ணும் வண்டுபோல் நானும் “புகழ் பாடி மது வுண்ணேனோ”; அக்கோயிலின்முன் விளங்கும் புல் தரையில் “பசும் புல்லாய்க் கிடவேன் நானோ”—என்பது அவர் தமிழ் உள்ளத்தின் ஏக்கம்.

தேம்பாவணிபென்னும் திருக்காவியத்தின் தமிழ்ப் பண்பைப்பற்றி அதிகம் கூற அவசியமில்லை. சேசநாதரின் வளர்த்த தந்தையாகிய சூசையென்னும் வளன் சரிதையை, மூவாயிரத்து அறுநூற்றுப் பதினைந்து விருத்தப் பாக்களால் விரித்துரைப்பது அந்நூல். அதில் தமிழ் மாபுக்கேற்ச, அவையடக்கம், நாட்டுப் படலம், நகரப் படலம் முதலிய நூற்பிரிவுகளையும், குறிஞ்சி, முல்லை, மருதம், நெய்தல், பாலை என்ற நிலப் பிரிவுகளையும் பார்க்கிறோம். வரலாறு நடந்தது யூதேயா நாட்டில்தான். ஆனால் அந்நாட்டுச் சோலைகளில் திரிவன தமிழ் நாட்டுப் பறவைகளே; மலர்வன தமிழ் நாட்டு மலர்களே. வளன், கருணையன், நகுலன் என்னும் பெயர்கள் நூலில் வரும் யூதேயா நாட்டுப் பெயர்களின் தமிழாக்கம். கம்ப ராமாயணம், சிந்தாமணி, சிலப்பதிகாரம் போன்ற காவியங்களின் ‘செவ்விய மதுரஞ் சேர்ந்த நற்பொருளில், சீரிய கூரிய தீஞ் சொல்’ செறிந்துவரக் காணலாம், நூலின் ஒவ்வொரு பக்கத்திலும். திருக்குறளின் திரு மொழிகளை பதித்துக் காட்டி மகிழ்வது கவிஞர்களின் நெடுங்கால உரிமை. முனிவரும், குறள் கருத்துக்களை, குறள் அடிகளையே பெயர்த்தெடுத்து, பொன் தகட்டில் மணிகளெனப் பொறித்துள்ளார் தேம்பாவணியில்.

அன்னிய நாட்டார் இத்தனை சிறந்த நூற்களை எழுத, ‘புனல் பரந்து பொன் கொழிக்கும்’ வெள்ளமென விளங்கிய அவரது தமிழ் உள்ளமே காரணம்.

மாமுனிவர்

இனி, மாமுனிவர் என்றழைக்கப்பட்டவர், அரியவும் பெரியவும் ஆற்றினாரா என்று ஆராய்வோம். ஏட்டுத் தமிழுக்கும், பேச்சுத் தமிழுக்கும் வேற்றுமை உண்டு என்பது எல்லோருக்கும் தெரியும். அவ்வேற்றுமை என்ன என்று நுணித்துணர்வதும், அதைப்பற்றி இலக்கணம் எழுதுவதும் எல்லோருக்கும் இயலாது. ‘கொடுந்தமிழ்’ ‘செந்தமிழ்’ என்ற நூற்களில் இவ்வரிய செயல் செய்தார் நம் மாமுனிவர். தமிழ் கற்கும் வெளி நாட்டாருக்கு ‘கொடுந்தமிழ்’ பெரும் உதவியாயிற்று. இவற்றில் மொழியின் தீட்புதுட்பங்களை உணர்த்துவதால், முனிவர் தமிழ் மொழி நூலுக்கு அடிகோலினார் என்று கூறலாம். தவிர,

‘தொன்னூல் விளக்கம்’ என்ற செந்தமிழ் இலக்கணம் தமிழில் செய்தார். இதில் எழுத்து முதல் அணியீடுகவுள்ள ஐந்து இலக்கணங்களைச் சூத்திரங்களில் சுருங்கக் கூறி விளங்க வைக்கிறார். இவையெல்லாம் அரியனவல்லவா?

கடலைக் கடப்பதற்கு நீந்தித்தான் ஆகவேண்டும் என்றிருந்தால், வெகு சிலரே கடலைக் கடக்கமுடியும். ஆனால் ஒரு படகு கிடைத்துவிட்டால்? தமிழ் இலக்கியக் கடலை நிகண்டு தெரிந்த சிலரே கடக்க முடிந்தது. நிகண்டு கற்றோரன்றி மற்றோரும் தமிழ் இன்பக் கடல் கடப்பதற்கு ஒரு படகு செய்து தந்தார் நம் மாமுனிவர். அதுதான், மேல் நாட்டு முறைப்படி அகர முதல் தொடங்கும் அகராதி. அகராதியின் தந்தையென அழைக்கப்படும் அவர் முதன்முதலில் எழுதிய சதுரகராதி “தமிழ்ப் பெருங் கடற்கு...ஓர் மாக்கலமாகத் திகழ்ந்தது” உண்மைதான். அதை அடிப்படையாகக்கொண்டே, இன்று நாம் பயன்படுத்தும் அகராதிகளை ஆக்கினர் பொர்சிவால், வின்ஸ்லோ முதலியோர்; கடின பதங்களுக்கு எளிதில் பொருள் தெரிந்துகொள்ளும் வாய்ப்பும் கிட்டியது நமக்கு.

மேல்நாட்டு முறைகளைத் தமிழுக்குப் பயன்படுத்துவதோடு, தமிழ்ச் செல்வங்களை வெளிநாட்டார் வணங்கச் செய்வதும் தமிழனின் கடமைதானே. “தெளிந்துணர்ந்து எங்கும் ஒரு விளக்கென நின்றுயர்ந்த திருவள்ளுவர்” என்று வாழ்த்தும் மாமுனிவர், அவ்விளக்கை வெளிநாட்டாருக்கு அறிமுகப் படுத்தாதிருப்பாரா? திருக்குறளின் அறப்பாழையும், பொருட்பாழையும் மொழி பெயர்த்தார் பழம் பெருமை வாய்ந்த இலத்தீன் மொழியில். இம்மொழி பெயர்ப்பு, ஜெர்மன் மொழியிலும், ஆங்கில மொழியிலும் குறளைப் பெயர்த்தெழுதினோர்க்கு மிக்க உதவியாயிருந்ததென்பர்.

வீரமாமுனிவர்

அடுத்து, இத்தமிழ் மாமுனிவரின் வீரம் எதில் விளங்கிற்று என்று பார்க்கலாம். பழையன கழிதலும் புதியன புகுதலும் வழுவல்ல என்று இலக்கணம் கூறினாலும், அது எளிதல்ல என்று எவரும் கூறுவர். தமிழ் வழக்கில் மாற்றங்கள் செய்வது மலையைக் கல்லுவதை ஒக்கும். வீரமாமுனிவர் இவ்வீரச் செயல் செய்தார்.

அக்காலத்தில் தமிழ் எழுதும் விதம் தனிப்பட்டது. அதைப் பொருள்பட வாசிப்பது பகோதப் பிரயத்தனந்தான். “வாசிக்கவேண்டும்” என்று எழுதுவார்கள். வாசிப்பவன் அதை “வாசிக்கவேண்டும்” என்று வாசிக்கவேண்டும். —புள்ளி வைக்கும் வழக்கமில்லை. “கெட்டான கெட்டான” என்பதை, “கேட்டான் கெட்டான்” என்றும், “கோட்டையைக் கொடுத்தான்” என்பதை, “கோட்டையைக் கொடுத்தான்” என்றும் வாசிக்கவேண்டும்.—கெ, கொ: இவற்றிற்குமேல் கோடிழுத்தால், அவை நெடிலாகும். “ஏட்டை எடுத்தான்”

இத்தாலியத் தமிழர்

என்று எழுத விரும்பினால், நம் முன்னோர், “எட்டை எடுத்தான்” என்று எழுதுவார்கள்; “ஒட்டை ஒடித்தான் என்று நினைத்துக்கொண்டு, “ஒட்டை ஒடித்தான்” என்று எழுதுவார்கள். வாசிப்பவன் எந்த எகரத்தை நீட்ட வேண்டும், எந்த ஒகரத்தை நீட்டவேண்டும் என்று தெரிந்துகொண்டு வாசிக்க வேண்டும். இவ்விதம் குறிப்பறிந்து வாசியாதவனுக்கு ‘நல்ல மரம்’ என்ற பட்டம் கிடைக்கும்.

இன்று நாம் தமிழ் எழுதும் விதத்தில் அக்குறைகள் இல்லாததற்கு, வீரமா முனிவர் புகுத்திய சீர்திருத்தங்களே காரணம் என்று அறிஞர் கூறுகின்றனர். “பழங்காலந் தொட்டுத் தமிழர் தலைமுறை தலைமுறையாக எழுதி வரும் எழுத்து முறையை, இங்கு நேற்று வந்த இந்த இத்தாலிய நாட்டு முனிவர் மாற்றுவ தாவது!” என்று எத்தனையோ உள்ளங்கள் குமுறியிருக்கும். ஆனால் எண்ணி யதை எண்ணியாங்கு எய்தினார் நம் வீரமாமுனிவர். இவரது வீரம் நிறைந்த வினைத்திட்டம் வியக்கத்தக்கதுதான்.

எனவே, தன் தாய் நாடான இத்தாலியாவை முப்பதாவது வயதில் விட்டு, தமிழ் நாட்டில் முப்பத்தேழு ஆண்டுகள் ஒரு தமிழ்ப் பயிராய்த் தழைத்து, சிறந்த சமய நூற்களைத் தமிழ் இலக்கிய முறைப்படி எழுதி, இலக்கண வகையிலும் அகராதி வகையிலும் செயற்கரிய செய்து, தமிழ் மறையின் செல்வங்களை உலகி னுக்குத் தந்து அதன் வான் புகழ் வளரச் செய்து, தமிழ் எழுத்து வகையில் வேண்டிய மாற்றங்கள் உண்டு பண்ணி,—இவ்வாறு ஒல்லும் வகையால் உண்மைத் தொண்டாற்றிய வீரமாமுனிவர் உண்மைத் தமிழர்தானே. இவரது சேவையைக் குறித்து சிறப்புடன் சுருக்கமாய்க் கூறுகிறார் அறிஞர் ரா. பி. சேதுப் பிள்ளை, கிருஸ்தவத் தமிழ்த் தொண்டர் என்னும் நூலில்.

“அவர் ஆக்கிய நூல்களால் தமிழ்த்தாய் அழகு பெற்றாள். தேம்பாவணி, தமிழ் அன்னையின் கழுத்தில் வாடாத மாலையாகத் திகழ்கின்றது. காவலூர்க் கலம்பகம் கதம்ப மாலையாகக் காட்சியளிக்கின்றது. தொன்னூல் பொன்னூலாக இலங்குகின்றது. சதுரகராதி முத்தாரமாக மிளர்கின்றது. வீரமாமுனிவர் தமிழ் முனிவர்களில் ஒருவராக விளங்குகின்றார்.”



Particular Integrals

By T. P. Srinivasan, IV Hons. (Maths.)

THE particular integral is as much an important part of the solution of a differential equation as is the complementary function. To facilitate the evaluation of the particular integrals, we have certain simple formulae as

$$\frac{e^{ax}}{F(D)} = \frac{e^{ax}}{F(a)} \dots \dots \dots [A_1]$$

$$\frac{\cos mx}{\sin \varphi(D^2)} = \frac{\cos mx}{\varphi(-m^2)} \dots \dots \dots [A_2]$$

In the above, special restrictions are being placed on the nature of the functions F and φ viz. that

(i) the quantity “a” should be such that it is not a root of $F(z)=0$

(ii) the function φ should contain even powers of D only or at any rate, even if it contains odd powers of D the formula A_2 is applicable only to the even powers of D in φ and that

(iii) the function φ should be such that $\varphi(-m^2) \neq 0$.

2. Formulae of much more general character can however be established which include these particular cases also.

3.1. Statement: The generalised form of (A_1) will run as follows: If “a” be a root of $F(z)=0$ repeated exactly r times, then

$$\frac{e^{ax}}{F(D)} = e^{ax} \cdot \frac{x^r}{F'(a)} \dots \dots \dots [B_1]$$

where $F'(a)$ denotes the rth differential coefficient of $F(z)$ with respect to z, z being replaced by “a” after differentiation.

[The proof of the above can be had from Forsyth’s “Treatise on Differential Equations”]

3.2. In particular when $r=0$, i.e. when “a” is not a root of $F(z)=0$ we have the formula (A_1) namely

$$\frac{e^{ax}}{F(D)} = \frac{e^{ax}}{F(a)}$$

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3.3. When "a" is a simple root of $F(z)=0$ as is often the case then

$$\frac{e^{ax}}{F(D)} = \frac{x e^{ax}}{F'(a)}.$$

3.4. The following examples may serve as illustrations:

$$(a) \frac{e^{ax}}{D^n - a^n} = \frac{x e^{ax}}{n a^{n-1}}$$

$$(b) \frac{e^{iax}}{D^2 + a^2} = \frac{x e^{iax}}{2ia} \quad (c) \frac{e^{3x}}{D^2 - 5D + 6} = \frac{x e^{3x}}{2 \times 3 - 5} = x e^{3x}.$$

$$(d) \frac{e^{ax}}{(D-a)^n} = \frac{x^n e^{ax}}{n!}; a \text{ being a root repeated } n \text{ times of } (z-a)^n = 0.$$

4.1. The generalised form of the formula A_2 may be given as follows:

Let $u = \frac{\cos mx}{F(D)}$ where $F(D)$ is any polynomial in D .

and let $F(im) = A + iB$. Then

$$u = \frac{A \cos mx + B \sin mx}{A^2 + B^2} \dots \dots \dots [B_2].$$

Proof:

$$\begin{aligned} u &= \frac{\cos mx}{F(D)} = \frac{1}{2} \left[\frac{e^{imx}}{F(D)} + \frac{e^{-imx}}{F(D)} \right] \\ &= \frac{1}{2} \left[\frac{e^{imx}}{F(im)} + \frac{e^{-imx}}{F(-im)} \right] \text{ from } A_1. \\ &= \frac{1}{2} \left[\frac{e^{imx}}{A + iB} + \frac{e^{-imx}}{A - iB} \right] \\ &= \frac{1}{A^2 + B^2} \left[A \cdot \frac{e^{imx} + e^{-imx}}{2} + B \cdot \frac{e^{imx} - e^{-imx}}{2i} \right] \\ &= \frac{1}{A^2 + B^2} \left[A \cos mx + B \sin mx \right] \text{ which is the result} \end{aligned}$$

required.

4.11. For instance let $u = \frac{\cos mx}{aD^4 + bD^3 + cD + e} = \frac{\cos mx}{F(D)}$

$$F(im) = (am^4 + e) + im(c - bm^3).$$

$$\therefore u = \left[\frac{(am^4 + e) \cos mx + m(c - bm^3) \sin mx}{(am^4 + e)^2 + m^2(c - bm^3)^2} \right].$$

4.2. The result corresponding to 4.1 for the sine function will be as follows:

If $v = \frac{\sin mx}{F(D)}$ and $F(im) = A + iB$ then

$$v = \frac{A \sin mx - B \cos mx}{A^2 + B^2} \text{ The proof runs on exactly similar lines as}$$

in 4.1.

4.3. It is easy to infer from the method of proof given in 4.1 that the corresponding formula for direct operators will be

$$F(D) \{ \cos mx \} = A \cos mx - B \sin mx$$

(where A and B have the usual meaning) and

$$F(D) \{ \sin mx \} = A \sin mx + B \cos mx.$$

In particular $D \{ \cos mx \} = -m \sin mx$ and

$$D \{ \sin mx \} = m \cos mx.$$

5. Interesting results can be obtained from the formula of Art. 4.1. For instance

$$\int e^{ax} \cos bx \, dx = \frac{e^{ax} \cos bx}{D} = e^{ax} \cdot \frac{\cos bx}{D+a} = e^{ax} \left[\frac{a \cos bx + b \sin bx}{a^2 + b^2} \right] \text{ and}$$

$$\int e^{ax} \sin bx \, dx = \frac{e^{ax}}{a^2 + b^2} [a \sin bx - b \cos bx].$$

6. The three special cases of 4.1 that arise are worth noting:

6.1. Case 1. When $B=0$ and $A \neq 0$. When B is replaced by zero in the result of 4.1 we get $u = \frac{\cos mx}{A}$ thereby leading us to the formula

$$\frac{\cos mx}{F(D)} = \frac{\cos mx}{F(im)} \text{ provided there is no imaginary part in } F(im).$$

Now when we substitute for even powers of D only in $F(D)$ clearly there will be no imaginary part in the resulting $F(im)$. Therefore we have our usual result A_2 - viz.

$$\frac{\cos mx}{\phi(D^2)} = \frac{\cos mx}{\phi\{(im)^2\}} = \frac{\cos mx}{\phi(-m^2)}$$

which is a very particular case of the general formula discussed in 4.1.

6.11. Examples.

$$(i) \frac{\cos mx}{D^4 + D^3 + m^2 D + n}. \text{ Here } F(im) = m^4 + n. \text{ Therefore } u = \frac{\cos mx}{m^4 + n}.$$

$$(ii) \frac{\cos mx}{D^4 - 2D^2 + 3}. \text{ In this case } F(D) \text{ contains only even powers of}$$

D and hence clearly $B=0$. Therefore $u = \frac{\cos mx}{m^4 + 2m^2 + 3}$.

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6.2. Case 2. When $A=0$ and $B \neq 0$. In this case

$$u = \frac{B \sin mx}{B^2} = \frac{\sin mx}{B}.$$

Where B is given by $F(im) = iB$. Therefore we have

$$\frac{\cos mx}{F(D)} = i \frac{\sin mx}{F(im)}$$

provided there is no real part in $F(im)$.

This leads us to a new result viz. that if $\psi(D)$ be a function which contains odd powers of D only (and not even constants) then

$$\frac{\cos mx}{\psi(D)} = i \frac{\sin mx}{\psi(im)}.$$

Note:—Analogous to the function φ in case 1 which contains even powers of D we have here the function ψ which contains odd powers of D .

6.21. Examples.

$$(i) \quad u = \frac{\cos mx}{aD^4 + bD^2 + cD - am^4} \quad \text{Here } F(im) = i(cm - bm^2)$$

$$\therefore u = \frac{i \sin mx}{im(c - bm^2)} = \frac{\sin mx}{m(c - bm^2)}$$

$$(ii) \quad \frac{\cos mx}{D} = \frac{i \sin mx}{im} = \frac{\sin mx}{m} \quad \text{in conformity with}$$

$$\int \cos mx \, dx = \frac{\sin mx}{m}.$$

6.3. Case 3. When A and B are both zero. In this case

let $u = \frac{\cos mx}{F(D)}$ and $v = \frac{\sin mx}{F(D)}$. Then $u + iv = \frac{e^{imx}}{F(D)}$ where (im) is a root of $F(z) = 0$.

Therefore $u + iv = \frac{e^{imx}}{F(D)} = \frac{x e^{imx}}{F'(im)}$ from 3.3. Separating real and imaginary parts in this expression u and v can be obtained.

7. The particular case of 6.3 that occurs very often in practice is when $F(D)$ contains even powers of D only, say equal to $\varphi(D^2)$ where $\varphi(-m^2) = 0$. In this case the process of evaluating the integral can be simplified still further. The result can be got from the formula

$$\frac{\cos mx}{F(D)} = -\frac{x}{i} \frac{\sin mx}{F'(im)} \dots \dots \dots [C].$$

$$\text{Proof: } \frac{\cos mx}{F(D)} = \frac{e^{imx} + e^{-imx}}{2F(D)}$$

$$\frac{e^{imx}}{F(D)} = \frac{x e^{imx}}{F'(im)} \dots \dots \dots \text{from 3.3}$$

$$\text{and } \frac{e^{-imx}}{F(D)} = \frac{x e^{-imx}}{F'(-im)}.$$

Now $F'(D)$ will contain odd powers of D only (and not even constants) since $F(D)$ contains even powers of D only, so that $F'(-im) = -F'(im)$.

$$\text{Therefore } \frac{e^{-imx}}{F(D)} = -x \frac{e^{-imx}}{F'(im)}$$

$$\begin{aligned} \text{Therefore } \frac{\cos mx}{F(D)} &= \frac{1}{2} \left[\frac{e^{imx}}{F(D)} + \frac{e^{-imx}}{F(D)} \right] \\ &= \frac{x}{2} \left[\frac{e^{imx}}{F'(im)} - \frac{e^{-imx}}{F'(im)} \right] \\ &= -\frac{x}{i} \left[\frac{e^{imx} - e^{-imx}}{2i} \right] \frac{1}{F'(im)} \\ &= -\frac{x \sin mx}{i F'(im)}. \end{aligned}$$

7.1. The corresponding result for sine function is

$$\frac{\sin mx}{F(D)} = \frac{x}{i} \frac{\cos mx}{F'(im)} \quad \text{under conditions stipulated in [7].}$$

7.2. Examples.

$$(i) \quad \frac{\cos mx}{D^2 + m^2} = -\frac{x}{i} \frac{\sin mx}{2im} = \frac{x}{2m} \sin mx.$$

$$(ii) \quad \frac{\cos mx}{\{D^4 + (m^2 + 2)D^2 + 2m^2\}} = -\frac{x \sin mx}{i [-4im^3 + 2im^2 + 4im]} = -\frac{x \sin mx}{2m^2 - 4m}.$$

8. Summing up: the formulae that one needs to remember for the evaluation of integrals of the type considered, are only

$[B_1]$; $[B_2]$ and $[C]$ given above.



The Pallivasal Hydro-Electric Scheme

By Antony Joseph Elenjical, IV Hons.

I hope I shall not raise a controversy in assuming that in any large scheme of national planning in India, the development of hydro-electric power must hold priority. It has been shown by reliable statistics and felt by experience that one of the heartening features of the economic condition in India during the past ten or fifteen years has been the steady increase in the generation and consumption of electricity. The installed capacity has risen from 1.070 million kws. in 1939 to 1.537 million kws. in 1949.

The Pallivasal Hydro-Electric Scheme is the first and still the only one of its kind in Travancore-Cochin. A bird's eye-view of the location and a short account of the history of the place may serve as an introduction to the description of the scheme.

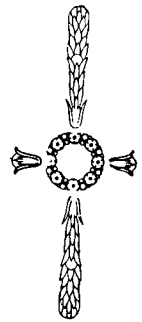
The "High Ranges" of northern Travancore are about 50 square miles in area and have an annual rainfall of 400 inches. Quite naturally this region is blessed with thick vegetation and plenty of natural resources. A considerable part of the High Ranges once belonged to the Raja of Poonjar who entrusted the region to Kannan Devan, the leader of the aboriginals of the place called the Muduvans. The Raja was satisfied with an annual revenue of a few pounds of honey, two deer skins and two elephant tusks. Later on the Europeans, with the help of Kannan Devan obtained from the Raja vast tracts of land in this region and converted them into smiling tea gardens which are known today as the Kannan Devan Tea Estates. Munnar, the chief town in this region is situated about 5,000 feet above sea level and has a very uniform climate which makes it a health resort to many in summer.

Pallivasal is about four miles east of Munnar and has an area of 27,000 acres. The opening of the Nariyamangalam—Pallivasal road and the construction of the Nariyamangalam Bridge, which is a huge piece of workmanship in cement and steel opened a new chapter in the history of this region as they connected "the High Ranges" which produce valuable spices with the port of Cochin.

ELECTRIC WORKS

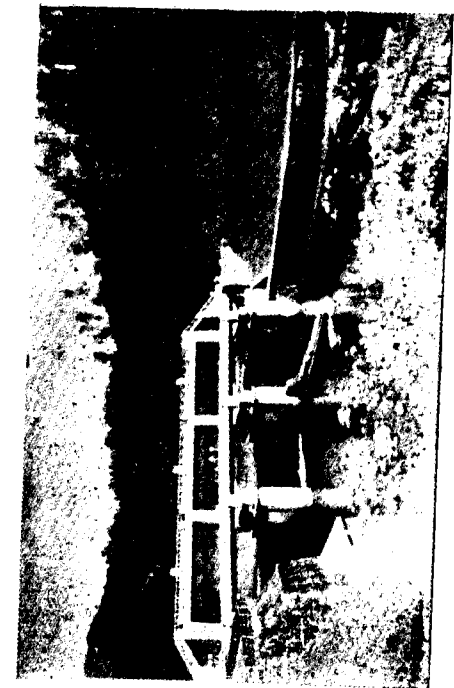


A. J. Elenjical



by A. J. Elenjical

Main Inlet



by A. J. Elenjical

Head Works

PALLIVASAL

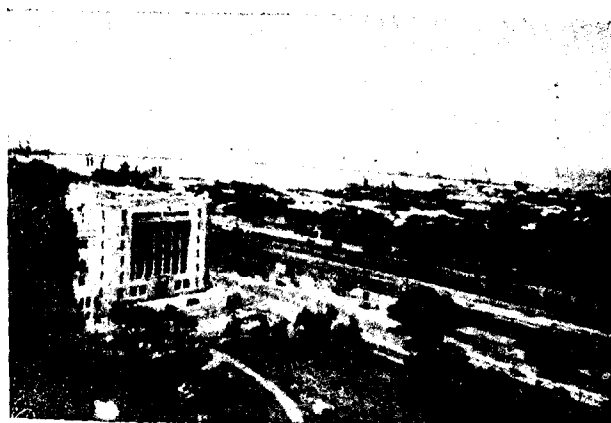


Madras High Court—By V. Sundaresan

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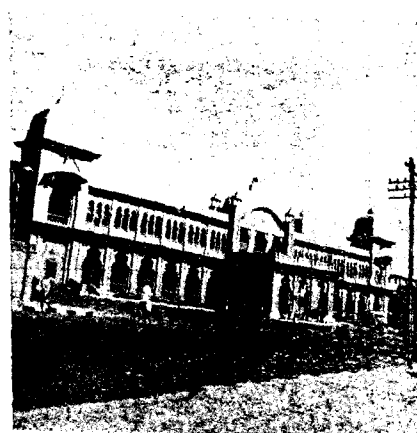
Central Station
By V. Sankaranarayanan



Parry's corner
By V. Sundaresan



Senate House
By V. Sankaranarayanan



Egmore

THE PALLIVASAL HYDRO-ELECTRIC SCHEME

The Kannan Devan Company had a 500 horse power dynamo worked with the waters of the Mudirapuzhayar, a tributary of the Periyar, generating electricity for the tea factories. But the devastating floods of 1924 completely destroyed the company's power station and a large amount of equipment, the remnants of which can be seen even today. Thereupon the company wrote to the government asking permission to install another power station which could resist the forces of nature, such as floods and earthquakes. In their reply the government made it clear that a plan for the installation of a power station at Pallivasal was under consideration. Work commenced by 1933.

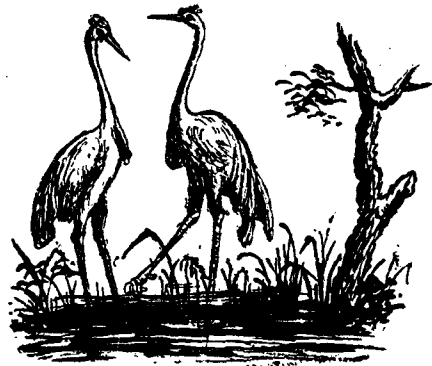
At Munnar 4,750 feet above sea level a dam has been constructed with most up-to-date sluices, in the Mudirapuzhayar, with a catchment of about 90 sq. miles above head works. This dam is known as the Sachivotama Head Works, named after the man behind this vital step in the industrialisation of the State, Sir C. P. Ramaswamy Aiyar. The water collected in the dam is taken in through the Main Intake and allowed to flow through a canal till it reaches the Main Inlet. From there the water flows through a tunnel 10,424 feet in length underneath the mountains and reaches a reservoir at Pallivasal. The water from the reservoir is then conveyed to the power house through four penstock pipes of huge size having an average length of 7,600 feet. It is calculated that the water falling on the wheels of the dynamo in the power house through the penstock pipes has the velocity of water falling from a vertical height of 1,860 feet.

The first installation comprised of three 4500 kw. sets and was inaugurated in March 1940. The second stage of the Pallivasal Scheme was sanctioned in 1941. But due to war time conditions this stage of the scheme was completed only very recently. With the completion of the second stage, the generating capacity was increased from 13,500 kws. to 37,500 kws. at about 90 percent load factor. The electricity thus generated is then passed through wires supported on huge steel posts which are erected 1,000 feet apart in the mountainous regions and 750 feet in the plains. Trenches are dug around the posts in the mountainous regions in order to protect them from any damage done by wild animals, especially wild elephants. Along the wires attached to these posts the power reaches the Sub-station at Kothamangalam, a place 31 miles west of Pallivasal, leaving behind the beautiful tea gardens, flourishing cardamom estates and crossing the mighty forest studded with flora of great variety, which provides shelter and shade to thousands of the denizens of the forest from the fierce tiger, the mighty elephant to the gentle deer and squirrel and the mischievous monkey.

THE PALLIVASAL HYDRO-ELECTRIC SCHEME

At Kothamangalam the flow of electricity is divided, one line reaching Pallam 21 miles south of Kothamangalam and the other Alwaye to the north. At present a special line from Pallivasal goes to Alwaye for its different factories and from there it proceeds to the former Cochin State. From Pallam the line is extended to southern Travancore. To be complete, the Pallivasal Hydro-Electric Scheme supplies with electricity the whole of the Travancore-Cochin State. It is claimed that the generation of electricity at Pallivasal is cheaper than that of any part of India.

In order to meet the increasing demand for power and to economise the tail water of Pallivasal a dam is under construction at a place near Pallivasal called Sengulam. The Sengulam Scheme is expected to start the generation of electricity by 1952. This contemplates the development of 48,000 kw. at about 50 percent load factor. When this work is completed the combined installed capacity of the Pallivasal and the Sengulam Schemes will be 85,500 kw. and effective capacity 73,500 kw. at 70 percent load factor. The annual generation is expected to be 440 million units, which will enable the government to carry out their plans of industrialisation lift irrigation and rural electrification.



Our College

By R. A. Padmanabhan, V B.Sc. (Hons.)

Sweet mansion—loveliest College of its kind
Where peace and plenty cheers the youthful mind,
Where smiling friends their early greetings pay
And reach their morning class rooms, chatting gay ;
Dear lovely pavements of majesty and ease,
Scene full of charm for those who learning seize.
Oft have I entered from the busy street,
Where smart young men are seen in groups discrete ;
How often have I paused on every charm—
The splendid class rooms, the refreshing lawn,
The unfailing library, the majestic hall,
The Church that rivals the old temple hill,
The margo trees with seats beneath their shade
For friendly chats before the chimes are made ;
How often have we blessed the coming day
When toil remitting lent its time to play ;
And all the hostel-hosts, from labour free,
Began their sports beneath the spreading trees.
These are the charms which here the students mind,
And this the joy one nowhere else can find.

பாரதியார் கவிதைகளின் யாப்பமைதி

By S. Somasundaram, II U.C.

“கவை புதிது, பொருள் புதிது, வளம் புதிது,
சொற் புதிது, சோதி மிக்க
நவ கவிதை யெந்நாளு மழியாத
மகா கவிதை”

என்று கவிக்கிலக்கணம் கூறுகின்றார், கவிஞர் பாரதியார். உள்ளத்தில் பொங்கி
யெழும் உணர்ச்சிப் பெருக்கை இனிமை இசை பொருந்திய சொற்சித்திரமாக
வடித்துக் காட்டுவது கவிதை. இதனை இன்னும் அழகாக அமைத்துவிடுகின்றார்
கவிமணி, தேசிக விநாயகம் பிள்ளையவர்கள்.

“உள்ளத் துள்ளது கவிதை—இன்பம்
உருவெடுப்பது கவிதை
தெள்ளத் தெளிய தமிழில்—உண்மை
தெரிந் துரைப்பது கவிதை”

தொடர்பு, செய்யுள், கவி, கவிதை, பா, பாட்டு, யாப்பு.—இவைகளெல்லாம்
ஒரு பொருட் பன்மொழிகளாம்.

“தூக்கு மியாப்புஞ் செய்யுளுங் கவிதையும்
பாட்டுந் தொடர்பும் பாவென் றாகும்”

என்று பிங்கலத்தை கூறும். உரையினின்றுந் தூக்கி நிறுத்தலின், தூக்கென்
றும், பல்வகைச் சொற்களைக் கொண்டு பொருள் தோன்ற ஆக்கப்படுதலின்
யாப்பென்றும், இனிமை, எளிமை, ஆழம் நிற்ப செய்யப்படுதலின் செய்யு
ளென்றும், பார்த்த பாணியையுடைதலின் பா என்றும், “பருந்தொடு நிழல்
போக்கன்ன” பொருளும் இசையும் தொடர்ந்து நின்றலின் தொடர்பு என்றும்
முன்னோர் வழங்கினர். சிறந்த கருத்துக்களால் கேட்டார்ப் பிணிக்கும் தகைய
வாய்—கவரும் பெற்றிபதாய்—இருத்தலின், செய்யுள் கவிதை எனப்பெற்றது.
ஆயின், சிலர் கவிதை என்பது வடமொழிச் சொல்லென்பர், வடமொழியில்
கவி என்றால் புலவன் என்று பொருள்படும். அவனால் அழகுபட வரையப்
பெற்றது ‘கவிதா.’ இதுவே திரிந்து தமிழில் கவிதை என்று வழங்குகிறது.
தொல்காப்பியரும், பவணத்தியாரும் கவிதைக்குத் தெளிவான முறையில் இலக்
கணம் சொல்லியிருக்கின்றனர்.

“எழுத்து முதலா ஈண்டிய அடியிற்
குறித்த பொருளை முடிய நாட்டல்
யாப்பென மொழிப யாப்பறி புலவர்” —தொல்காப்பியம்

“பல்வகைத் தாதுவி னுயிர்க்குடல் போற்பல
சொல்லாற் பொருட்கிட னாக வுணர்வினில்
வல்லோ ரணிபெறச் செய்வன செய்யுள்” —நன்னூல்

எழுத்து, அசை, சீர், தளை, அடி, தொடை என்பன ஆறும் யாப்பின் உறுப்புக்
களாம். பண்டை இலக்கியத்தி னமைதியை இலக்கணமாக வகுத்தனர் தொல்
காப்பியர், அமுதசாகரர் போன்றோர். பாரதியார் பாடல்கள் மேற்குறித்த
இலக்கண அமைதிகளுள் அடங்கியிருக்கிறதா?

பாரதியார் நூல்களில் காவடிச்சிந்து, நொண்டிச்சிந்து, கண்ணிகள்,
பண்டாரப் பாட்டு இவையன்ன இசைப் பாட்டுகள் செறிந்தும், வெண்பா,
கலித்துறை, விருத்தம், அகவல், கலிப்பாபோன்ற பண்டை இலக்கணமமைந்த
பாக்கள் நலிந்தும் காணப்படுகின்றன. இங்ஙனம் அரிதிற் கிடைக்கும் இலக்கண
அமைதி பெற்ற பாக்களும் வகுத்துவைத்த இலக்கணத்தின்படியும் செல்லவில்லை.
இதற்கு ஈண்டு சில உதாரணங்கள்.

முதலில் ஒரு வெண்பாவினை எடுத்துக்கொள்வோம். பாரதியார் வெண்
பாக்களில் இலக்கப்பிழை காணாமுன், வகுத்த இலக்கண நெறியை அறிதல்
நன்று. வெண்ணிறம் வேறொரு வண்ணம் விரவியவழிக் கேடுறுதல்போல பிற
தளை விரவியவழி இசை கேடுதலால், வெண்பா எனப்பட்டது. ஈற்றடி சிந்தடி
யாகவும், மற்றையடி அளவடிகளாகவும் பெற்று காய்ச்சீர், மாச்சீர், விளச்சீர்
களும், இருவகை வெண்டளைகளும் கொண்டு, நாள், மலர் என்ற ஓசை வாய்
பாடுகளுள் ஒன்றினாலாவது, காசு, பிறப்பு என்ற உகரவீற்று ஈரசை வாய்
பாடுகளுள் ஒன்றினாலாவது முடிந்து, ஒன்று அல்லது இரண்டு விகற்பங்களால்
வருவது வெண்பாவாகும். இனி பாடலைக் காண்போம்.

பாரதமாதா நவரத்தின மாலையின் ஓர் இரத்தினம்.

“திறமிக்க நல்வயிற் சீர்திகழு மேனி
அறமிக்க சிந்தை அறிவுபிற—நலங்கள்
எண்ணற் றனபெறுவார் இந்தியா என்றநின்றன்
கண்ணொத்த பேருரைத்தக் கால்”

அழகான ஆசிரை நேரிசை வெண்பா. செப்பலோசை தொனிக்கும் வெண்பா.
எதுகை,மோனைச்சிறப்புக்கள்பெற்றவெண்பா. எளியநடையில் இயன்றவெண்பா.
ஆயினும் முன்னோர் வகுத்த இலக்கணங் கொண்டு பார்க்குங்கால், பிழை மலிந்த

பாரதியார் கவிதைகளின் யாப்பமைதி

வெண்பா. இப்பாட்டு போன்றதொன்று பிள்ளைப்பாண்டியன் கையிலகப்பட்டிருந்தால் அதன் ஆசிரியரைக் குட்டாமல் விடுவாரோ? வில்லியின் கண்ணில் பட்டால் காதைக்குடைந்து தோண்டி எட்டினமட்டும் அறுக்காமல் விடுவாரோ? கூத்தனின் கைப்பட்டால் தலையிறங்கப்போட்டு வெட்டாதிருப்பாரோ? இருபதாம் நூற்றாண்டில் தோன்றியதால்தான் அவர் பாடல் பிழைத்தது, அவரும் பிழைத்தார்.

“அறிவுப்பிற நலங்கள்.” “நலங்கள் எண்ணற்” என்ற தொடர்கள் முறையே கவித்தையும் நேரொன்றாசிரியத்தையுமாகும். ஆனால் வெண்பாவிற்குரியது வெண்டளை. இவ்வெண்பா பிற தளைகள் விரவிவரப் பெற்றதனால், அப்பெயரொழியவேண்டும். “தளையும் ஒன்றாத் தன்மையான” என்ற தொல் காப்பிய விதிக்குப் புறம்பானது இவ்வெண்பா.

விநாயகர் நான்மணிமாலையில் “எனைநீ காப்பாய்” என்று தொடங்கும் பாடல் நேரிசை யாசிரியப்பாவாகும். “அகவலிசையும் இயற்சீரும் அளவடியும் பெற்று ஏ, ஒ, என், ஈ, ஆ, ஐ என்பவற்றுள்ளே ஒன்றினை இறுதியிற்கொண்டு முடியும் செய்யுள் ஆசிரியப்பா” என்று யாப்பருங்கலக் காரிகை கூறுகிறது. ஆனால் இவ்வாசிரியப்பா ‘இ’ என்ற விசுவநாதர் போற்றி என்னுஞ் சொல்லொடு முடிகின்றது.

“காலன் எதிர்ப்படிற் கைகூப்பிக் கும்பிட்டுக் கப்பன்முற்
ரோலமிட் டோடி மறைந்தொழி வான்பகை யொன்றுளதோ?
நீலக் கடலொத்த கோலத் தினுல்முன்று நேத்திரத்தான்
காலக் கடலுக்கோர் பாலமிட் டான்அன்னை காற்படினே”

இது கட்டளைக்கவித்துறையில் அடங்கும். எழுத்து, சீர், தளை, அடி, எதுகை, ஆகிய செய்யுள் உறுப்புக்கள் எல்லாம் இலக்கண வரம்பில் அமைந்துள்ளன. இதுபோன்ற இலக்கண அமைதி தோய்ந்த பாடல்களும் அவர் நூல்களில் உண்டு.

மேற்கூறியவற்றிலிருந்து பாரதியார் பாக்களின் இலக்கண அமைதியை முற்றும் வெறுத்து ஒதுக்கினால் என்பதும் இலக்கணக்கட்டுகளைவிட இசை, பொருள் இவற்றையே போற்றினார் என்பதும் போதரும்.

கறங்குபோல் காலச்சக்கரம் கீழதுமேலும் மேலதுகீழுமாகச் சுற்றி வருகிறது. அத்துடன் மக்கள் தொழிலும் நாகரிகமும் மாறிவருகின்றன. மனிதன் அறியவேண்டியன மிகுந்துள்ளன; காலம் குறுகியுள்ளது. ஆதலின் எதையும் ஊன்றி—ஆழ்ந்து—சுற்க முடியாமல் தவிக்கிறான். இந்நிலையில் அகராதிகளையும் நிகண்டுகளையும் துணைக்கொண்டு பாடபேதங்களறிந்து பொருள்

பாரதியார் கவிதைகளின் யாப்பமைதி

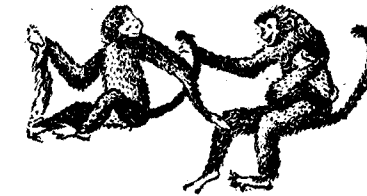
விளங்காதிருக்கும் பகுதிகளைப் படிக்க உரைநூல் கைக்கொண்டு ஆய்ந்து கற்பது எங்ஙனம் இயலும்? அதே காரணத்தினால்தான் நக்கீரர் நடை நலிய பாரதியார் நடை பரவியது. எளிய உரைநூல்களும், இனிய கவிதைகளும் எழுந்தன. இவ்வாறு தமிழிலக்கியத்தில் புதுமை புகுத்தியவர் பாரதியார்.

இலக்கியம், இலக்கணம் இவற்றில் எது தொன்மையானது? இலக்கியமே முதன்மையானது, தொன்மையானது, பழமையானது என்பதில் எள்ளளவும் ஐயமில்லை. “இலக்கியத்தினின் றெடுபடும் இலக்கணம்” என்ற அகத்தியர் கூற்றும், “இலக்கியம் கண்டதற்கிலக்கணம் இயம்பலின்” என்ற இலக்கண நூலார் பவணந்தியார் வாக்கும், “இலக்கணமென்பது இலக்கியம் முறையற வைத்ததென்று வழங்கப்படுமே” என்ற மறைமொழியும் இதனை நிறுவுகின்றன. பழைய இலக்கியத்திற்கேற்ப, இலக்கணம் கண்டனர் தொல்காப்பியரும், நன்னூலாரும். ஆதலின், புதிய—நவீன—இலக்கியத்திற்கியைய புது இலக்கணம் வகுத்தல் தேவையாயிற்று. இதனை, “இனிய தமிழ் இலக்கணம்” என்ற புதுநூல் புனைந்து ஆரம்பித்து வைத்தார், யோகி சுத்தானந்த பாரதியார். அம் முயற்சி வளர்க!

பழைய இலக்கண வரம்பில் தடையின்றி பாடும்—ஆசுகவிபோல் பொழியும்—புலவர்கள் இலராயினர். ஏன்? அத்தகைய பாக்களைப் போற்றுவாரும், ஏத்துவாரும் இல்லாத குறையே. இங்கு, “கொள்வா ரில்லாமையால் கொடுப் பாரு மில்லை” என்ற கவியாசர் வாக்கும் ஒருவாறு பொருந்தலாயிற்று. இலக்கியம் புரட்சி கண்டது. எளிய இனிய நடை வரவேற்கப்பட்டது. பள்ளிப்படியறியாத பாமரனின் உள்ளத்தையும் உருகவைக்கும்படி பாடல்களைப் பாடித் காண்பித்தார் பாரதியார். அப்பாடல்கள் குற்றமற்றன, பிழையற்றன, ஊக்கமுட்டுவன, உயிரூட்டுவன,

“பழையன கழிதலும் புதியன புகுதலும்
வழுவல கால வகையி னாலே”

என்பது விதியாகலின்.



English in Republican India

By V. Karunanidhi, III B.A. (Hons.)

INDIA is today a sovereign independent democratic Republic. If it be true that culture of country is to be judged largely by the progress which it shows in the field of education then today the educational problem in India, has become more or less a national problem. Opinion is much divided on the subject. Here are some views on the topic.

That India, with regard to education is a most backward country, is a plain fact. Compared with such countries as England and America, India's 18% literacy is certainly unfavourable. The credit at least of this little success is due to the educational policy of the government under the British whose efforts were partly concentrated in creating a large and fairly well-educated literary class. In spite of our many attempts to credit Englishmen with all defects and drawbacks in their administration of India and deprivation of a Great Nation of all her wealth one cannot shut one's eyes to the fact that they deserve some fraction of our gratitude. India's indebtedness to Englishmen in respect to education is incalculable. Among the literates in India, the strength of those who know English, at least in its initial stage is very insignificant. But there is hope that this regrettable position will not continue for long in the years to come in Liberated India, which, like every nation, is bound to have close contacts with the outside world!

Can you imagine for a moment that India could have attained her independence and her people freed from the clutches of foreigners three years ago but for the fact that the cause of India was championed by able leaders beginning from Raja Ram Mohan Roy and ending with Gandhiji who fought for India at home and abroad with more or less a thorough knowledge of English at their beck and call? It is to the Englishmen goes the credit of having trained such a large body of like minded people all over India who talked the same language, had the same points of view, and were able to think in terms of India.

So it was. Today the problem arises: Is it desirable to give English an alien language a prominent place as the national language? Certainly not. Everyone who has a head on his shoulders will approve this. Attempts to retain an alien language as the national language of a country will not be in the interests of the country. Sooner or later it will prove disastrous to the culture of the nation. Every nation under the sun must

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have a language of its own as the vehicle of its traditional culture, and it necessarily follows that India also must. That language must not be English.

But it would be a hasty generalization to rush to the conclusion that English must be driven out of India to the land of its birth merely because it deserves no longer to serve as the national language. Can you expect Srimathi Vijayalakshmi Pandit to discuss in Hindi with the Americans 'the Asian crisis'? Will it be very highly valued in the eyes of the world if a scientist like Sir. C. V. Raman expounds in Tamil the discovery of a new planet? Will many Europeans appreciate the commentary on Bhagavad Gita written in Sanskrit by Sri C. Raja Gopalachari? Do you think that the members of the United Nations will understand the views of Mr. B. N. Rao, if he proceeds to discuss in Telugu the treatment of Indians in South Africa? Can any Russian make head or tail of what Muhammad Abul Kalam Azad says when he is giving an 'interesting' lecture in Urdu about the progress of education in India at Moscow? Do you hope that the British people will lend ear to the Malayalam speech of Sri. V. K. Krishna Menon? Is it possible for you to think that the relations with our fellow-neighbour, Pakistan can be settled in terms other than English? In short is there the least hope that in present and future foreign politics India can play a part worth the name by packing off English, bag and baggage? The answer to all these questions is a definite negative. Being an international language, every nation in this world is bound to retain English, whether or not it is the national language of the nation concerned.

Apart from English being an international language, the retention of English as the medium of instruction in the universities at this juncture requires sympathetic consideration. The plan of using either Hindi or any of the regional languages is not a rational and sensible one at present. English is required for higher studies even in arts, political sciences, psychology, economics, and constitutional law. One cannot ignore this fact. In Economics, how would you translate into Hindi or Tamil the "Marginal Utility" Theory, or in politics Rousseau's view about the 'State of Nature.' Or in constitutional law, Dicey's interpretation of the 'rule of law'? Hence "any forced displacement of English or use of Indian languages at the universities," to quote Mr. Ruthnaswamy, "will be disastrous for university education and will benefit no one."

After giving ear to these arguments the conclusion every one is likely to arrive at, is that English is absolutely necessary for India at least "in

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the beginning of the first decade of the second half of the present century.' In the international sphere, as an international language, there is no possibility whatever, of giving the death-blow to English. At least, for that reason English must at any cost, hold the field. If India considers fit and proper to have her name stand high in the world, if she wishes to take a rank with the most civilized countries and powerful nations, if she desires the outside world to be familiar with Indian culture, if she thinks that she is or may be in need of the help of other nations in her political and economic development, 'English' is the life-blood of India. Since these are vital matters and since a nation cannot carry on its life without blood, English is as assured of continuance as the Solar System.

But as a national language for India in the future it can no longer be utilized. India must have a separate language of its own. There are languages enough and to spare in India itself and for this there is no necessity at all to resort to an alien language. The government must take the initiative of giving prominence to one or other of the regional languages.

Similarly with regard to any language that may be used as the medium of instruction at the university. At present English must continue until one or other of the regional languages at the universities is developed to serve as the medium of instruction. Till then English must continue at the universities.

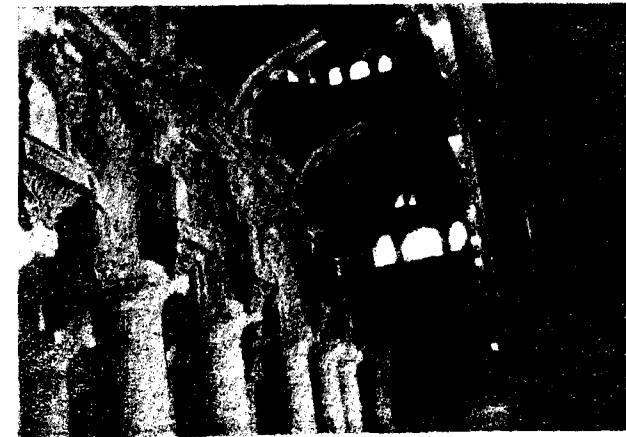
There is also some reason for the ever continuance of English inside and outside university even after one or other of the regional languages is proclaimed by the Federal government as the national language; the former as the international language and the latter the national language. Our present duty is to develop one of the regional languages to serve as the national language. It would be all for the better if this same language were to serve also as the medium of instruction at the university. Let us begin first of all to clean our slate before we begin to practise good hand writing!



By
S. Thillainayagam



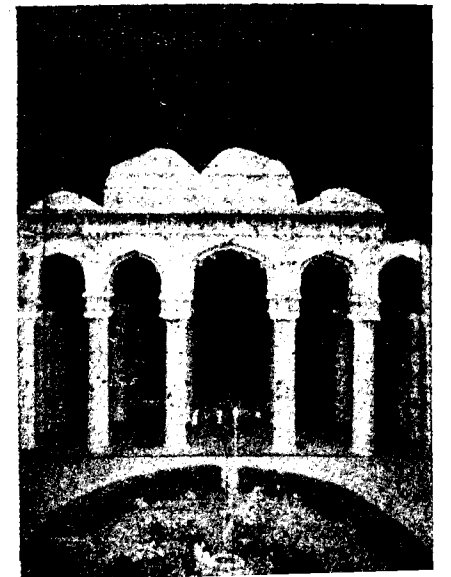
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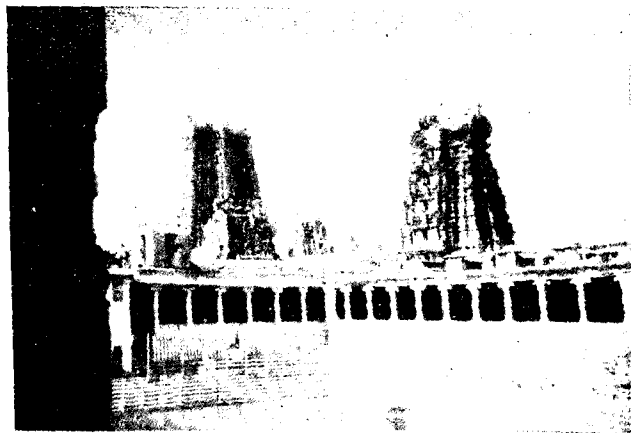
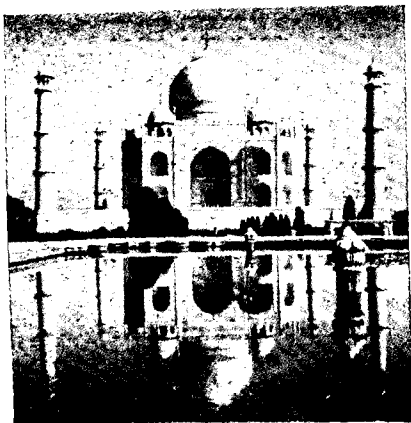


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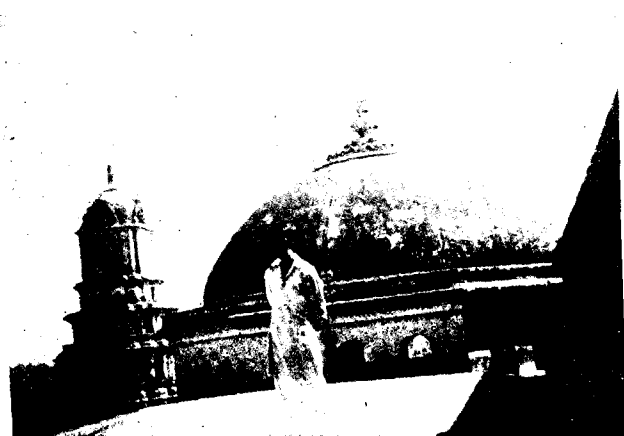
PALACE





Madurai Temple

By R. S. Chari

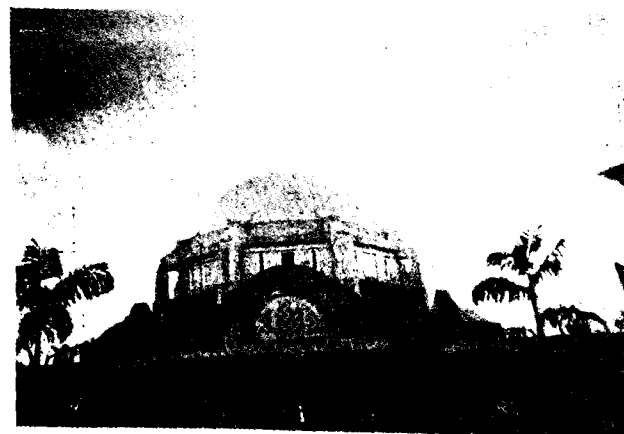


Madurai Palace

By R. S. Chari



Birla Mandir



Vellore Medical College

By V. Sankaranarayanan

The Plants' Pump

By K. J. Isaac, IV B.A.

IT is a matter of common knowledge that plants take water from the soil to a very great height. Experiments prove that a single sunflower plant under summer conditions lifts about one thousand cubic centimetres of water in a single day from the soil to its leaves. So we can imagine how much water is pumped up by a big tree such as the banyan.

How does so much water rise up to such a height and reach the leaves? By atmospheric pressure water can rise only up to a height of thirty feet while *Sequoia*, a giant tree in California, raises water to its branches which are at a height of 400 feet from the ground. Certainly, it is not by the principle of the suction pump.

Various theories are brought forward to explain the phenomenon of ascent of water in plants; such are the Vitalistic theory, Capillarity theory, Imbibition theory, Root pressure theory etc., but they all lack experimental evidence or theoretical basis or both.

Mr. H. H. Dixon was the professor of Botany in Trinity College Dublin. His attention had been directed to the problem in the year 1892, when the late Professor Strasburger had been good enough to show him some of his experiments on high trees. After more than a year's experimental work and discussion, he was able to give an outline of the theory in March, 1894. The theory states that water can be raised to the top of the trees through the conducting vessels (conducting vessels or *tracheae* are tubular structures formed by the total dissolution of the end walls of a chain of cylindrical and elongated cells). The force which retains water in them without breaking, is the cohesive force between water molecules. A force of at least 5250 pounds per square inch is required to separate one molecule of water from another! So this force is ample to keep unbroken a column of water only 400 feet high.

If a pull is exerted on a liquid which thoroughly wets and adheres to the internal surface of a rigid narrow tube and if there are no discontinuities in the liquid, a state of tension inevitably supervenes. Evaporation of water takes place all the twenty four hours from the outer surface of the *mesophyll* cells. (ordinary cells inside the leaf). These *mesophyll* cells are in contact with *tracheae* in the leaves. Thus there is continuous abstraction of water from the top. Owing to the permeable nature of

THE PLANTS' PUMP

their walls, the water in one trachea is continuous with that of its neighbours and consequently the tension in one is transmitted to the water in the neighbouring tracheae. Thus the tension applied at the wet surface of mesophyll cells is conducted downwards through the water in the tracheae of the leaf blade, leaf stalk, branch, stem and roots, and the roots are in contact with water in the soil. Therefore for every molecule evaporating at the top, one enters the root from the soil. Thus water rises in the plants.

According to this theory, there is a continuous water column in the stem. But some scientists say that air bubbles are noted in the vessels of the stem. It is not proved that there are air bubbles in all vessels. Even if air bubbles exist, they are always surrounded by a thin film of water, otherwise these cannot be called "bubbles." So there is a molecular continuity in the water column. As even the tallest trees are only 400 feet high, a force of 3000 pounds per square inch is quite enough to keep unbroken the column of water in them.

Is a continuous water-conducting vessel from roots to leaves necessary in this theory? Trees such as *Sequoia* have only tracheids. (These are long tubes closed at both ends) Even in plants with vessels, a few cross-walls are noted here and there in the vessels. But if the conducting tubes are closed at both ends, the molecular cohesion of water is not thereby broken, because even the end walls are wet with water. So a break in the water column is not effected.

The great difficulty arises in plants that grow completely submerged under water, where we can not speak of evaporation. But according to the cohesion theory, what is required is loss of water, not loss of water as vapour. In aquatic plants water is pumped out as liquid by the living cells of the epidermis. (outermost covering) of the plant body. Such a loss of water is enough to account for ascent of water from the roots of water plants by the cohesion theory.

It is clear from the above mentioned reasons that water rises through the plant body by virtue of cohesion between water molecules, the adhesion water to walls of conducting tubes, the loss of water from the top and the supply of water from the moist soil through the roots.

This simple explanation of the wonderful lift of water to great heights in plants does not, of course, exclude the influence of living cells in the roots, stems and leaves. But that influence can be only of secondary importance. The main agent is the physical cohesive force between adjacent water molecules.

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One last point: Can this cohesive force be utilised to devise a machine to lift water to great heights? The answer is "Yes", but such a machine will be much more costly and much less efficient than an ordinary force pump. The fact however remains that plants in their pumping action utilise the immense inter molecular force of cohesion of which man till recently had not the slightest notion. This is the distinction of plants in the technique of hydraulic engineering.



Mark Antony's Funeral Oration

By Leslie Vraspillai, II U.C.

MARK Antony stands out as the model of public speaking and oratory. On account of the unparalleled characteristic which Shakespeare has bestowed upon him he rightly deserve that title of fame. Though psychological analysis might be said to have developed only in recent times, in Antony's oration one runs across such a diversity of thought that even if mob psychology was not known explicitly one may infer from his oration that he realised the significance of what is now called soap-box oratory or harangue. It is this realisation of the effect of speaking to passions and sentiments that accounts for the success of Antony's talk to the crowd.

To begin with we may at first examine the feelings of the people towards Antony and his opponents. The conspirators under the direct guidance of Cassius and Brutus had contrived and succeeded in turning the people against the despotic tendencies of the existing order of things. They stood for equality, liberty and freedom. Everyone born into the world has within him the inner urge to be free from restraint and to develop his own traits of character, to develop his full stature. Cassius had realised this and dinned the doctrine into Brutus' ears at first and then to all the other conspirators. Thus the Romans were one and all, save a few like Antony and Publius, deadly against the rule of Caesar. Hence the successful assassination. Antony was clever enough to perceive this and began his speech referring, in fact so often as to be sarcastic, cynical and ironic, to the honoured position of Brutus and the rest. He told the people that he was there to address the gathering by the permission of those honoured leaders. The people were flattered for they felt that Antony had deserted his cause and joined the conspirators in the interests of the Commonwealth of Rome. But Antony had not, he was only trying to win over the crowd to his side. Having thus pleased the audience by recalling the nobility of Brutus and the rest, he tells them that he is there with Brutus' approval to deliver the funeral oration over the dead body of his one time friend, Caesar. "I come not to praise Caesar but to bury him" he tells the crowd and refers to the fact that the good deeds of men are often interred with their bones whereas the evil deeds are often remembered long afterwards. In this instance Antony is prepared to wrong the dead and himself so that the

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honoured men like Brutus may carry the day. Thus only after he has won the people to his side does he dilate upon the good qualities of Caesar.

He insinuates that ambition should be made of sterner stuff for Caesar had been offered the crown thrice and all the three times he had refused it. He had wept over the sufferings of the poor and whatever booty and spoils he collected after the war and the ransoms he obtained were given over to the Public Treasury. Furthermore he had left a will and at this stage the mob grew curious to know what exactly was in the will. But Antony goes on dwelling on the supreme worth of Caesar and then requests the people to allow him to come down and show them the will as also the body of Caesar. Having won over the people to his side by flattery and also giving out the noble features of Caesar he indirectly points out the cruelty of the conspirators. The ambition which the conspirators complained of were revealed to be unreal and without foundation. Antony was not of course speaking the truth. He was not appealing to reason but rather to sentiment and mob passion. He succeeded to an immeasurable degree in this on account of his cunning and oratory.

The will was then disclosed and the Romans were given to understand that each one of them had been bequeathed seventy-five drachmas and the property of Caesar was to be used for ever more as public parks. This swelled the hearts and minds of the people with deep emotion and gratitude. They flew into a rage and wanted to avenge the enemies of Caesar. The wounds of Caesar spoke for themselves. "If I were Brutus and Brutus Antony then there were an Antony who would cause even the stones of Rome to rise in mutiny and rage" said Antony. The passion of the Romans had reached the boiling point. The next step was the determination to bring down destruction upon the conspirators. But dexterously Antony holds the crowd and enlarges upon the wounds and blood of Caesar and remarks that even a hair or a napkin dipped in his blood would be for ever more regarded as a relic and become a heirloom to be carefully bequeathed to posterity.

Thus having first won over the people to his side through flattery, then dwelling on the accusations levelled against Caesar and showing them to be baseless, next enlarging upon the virtues of Caesar and the granting of the will and in the end having enraged the people against the conspirators Antony successfully closed his oration leaving the rest for the mob to do. This is a clear illustration of the fact that demagoguery instead of learned dissertations, will work wonders with an illiterate world.



தென்றலின் ஆசி!

By T. P. Muthu, IV B.A.

மணமக்கள் :

தூய்மை—மகிழ்வு அவர்களுக்குத்

தென்றல் அளிக்கும்

திருமண வாழ்த்து

நுன்றென நல்லறிவாளர் போற்றும் நலனும் பண்பும் நாட்டமும் ஒன்றி, அறம் பொருள் இன்பம் சேர்ந்த புறப் பொருட் சிறப்புக்காண இயற்கை யோடு ஒன்றிய இல்லற வாழ்வை ஏற்கும் இளந்தளிர் மண மக்களே!

மல்லிகை மலரும் அதன் மணமும் போல, மருதமும் அதன் வளமும் போல, கார்முதிலும் அதன் பயன்கருதாச் செழுமைச் செயலும் போல, தமிழும் அதன் மொழி வளமும் போல, தங்கமும் அதன் மங்காச் சிறப்பும் போல, பண்பிலும், அன்பிலும், செயலிலும், சீர் பெறுவதிலும் ஒற்றுமை மிகக் கொண்டு நகை, ஈகை, இன்சொல், இகழாமை, இந்நான்கும் வகையாக மிளிர் வான்புகழ் வாழ்வு பெறுக!

திறன் ஆய்ந்த கல்வியும், தெளிந்த சிந்தையும், நெளிவிலா நேர்மையும், பாரோர் போற்றும் பயன்மிகு செயலும், கருணை உள்ளமும், அயர்ச்சியற்ற ஆனால் பயிற்சி மிகுந்த மன வலிமையும் ஒருங்கே அமையப் பெற்ற அன்ப!

வாழ்க்கைத் தோணிக்கு உறுதுணையாய்த் தங்களுக்கேற்ப அமைந்த உயர்தனிப் பண்புகள் நிறைந்த மகிழ்வுடன் இன்புடன் மருவி, நந்தமிழகம் முன் போல முன்னேற்ற சக்திகள் மலிந்து, பல துறைகளிலும் திறமை மிகுந்து, மொழி, கலை, பண்பு, செல்வம் முதலியவற்றில் சிறந்து விளங்க தாங்கள் தளராத பணி யாற்றி பார்புகழ் சீர்பெற்று வாழ்க!

தூய்மைக்கு ஆருயிராய், இல்லற வாழ்வில் ஈழில்லாத்துணையாய், உள்ளம் ஒன்றிய தெள்ளமுதாய், வந்த பைந்தொட! ஊடல் இடைக்கொண்டு, எவரும் வியக்கும் ஏதமில் உயர் காதல் வாழ்வில் ஐந்துணர் அமுதம் உண்டு, ஒளி நிறை வளர் பிறையாய், நல் வாழ்வு நலன்கள் ஒங்கி ஒளவை வாழ்ந்த தமிழ் நாடாய், உங்கள் வாழ்வு வளம்பெற்றுச் சிறப்புறுக!

இளகிய பண்பும், இடர் களைந்து ஏற்றங்காண விழையும் புதுமையும், பிறர் துயர் அகற்றி நல் வாழ்வு நல்கும் நாட்டமுங்கொண்ட மனத்தவராய், அல்லல்

தென்றலின் ஆசி!

பல தந்து அழிவையுங் கொடுக்கும் அறியாமையை அகற்றி, ஆய்ந்துணரும் சிந்தனை படர்ந்த அறிவொளி புகுத்தி, வேதனை தரும் பேதத்தைக் களைந்தெறிந்து, முற்போக்குக் கருத்துகள் நிறைந்த சீர்திருத்தம் வற்றாத பயன் மிகு வன் பேச்சினராய், நிலத்தில் நன்றாய் உழைத்து நிறைந்த வெள்ளாமை காண்பது போல், கசடறக் கற்று பின் அதற்குத்தக நிற்பது போல், ஆராய்ச்சி செய்யும் விஞ்ஞானி அவன் நாட்டும் முடிவைக் கண்டுபிடித்தே தீருவது போல், நீங்கள் சிந்தித்த எண்ணங்களுக்கும் பேசிய பேச்சுக்களுக்கும் ஏற்ப உறுபயன் தரும் உயர் தனிச் செயல் பல ஆற்றப்பவராய் வாழ்க! வாழ்க! மண மக்களே, இன்ப வாழ்வில் என்றும் விளங்கும் புகழ் தோய்ந்து இரண்டு கண்ணும் போல் ஏற்றமுடன் வாழ்க!



The Leaf-Disease of Coconut-trees

By V. M. Mathai, IV U.C.

FROM time immemorial Malabar had been famous for its agricultural products, especially Coconut, Pepper, Ginger and Cardamom. These commodities attracted people from all parts of the Globe, and for a very long time Kerala was the meeting place of eastern and western cultures. Nature was bountiful to India so that even the celebrated Poet Milton referred India as the land of wealth. People spoke of the Coconut as the 'Kalpahaviruksha' of Kerala. But today the coconut of Malabar is in danger of extinction. It is seriously affected by a leaf-disease. This is a serious problem which calls for attention as the agricultural economy of Kerala depends largely on Coconut.

Recent researches in this matter proved the cause of the disease to be the growth of fungi on the leaves. But the common people think it to be caused by wind. However, by this disease the leaves are destroyed, and the number of coconuts obtained will decrease and at length it will cause the tree to die. The disease is spreading so fast that the remedies taken are found to be fruitless. The worst affected Taluqs in Travancore are Karunagappally and Kunnathoor.

There is a Research Farm at Kumarakam near Kottayam. But the work carried on there is beyond the means of ordinary cultivators. The trees which are worst affected are cut down, and new ones planted. In this case there is every reason to think that the remedy is the same as in the case 'Bunchy Top' a disease of the plantain. If the young trees are cared for very well, the farmer can expect some product after four years. And healthy trees can give Coconuts for more than a century, if the trees are cared for very well. But the destruction of coconut trees to remedy the disease is indeed a strange idea, since the loss is enormous, not as in the case of Plantain.

The fungal disease of trees can successfully be remedied by the use of salts. French scientists after long investigations found out that a mixture of copper sulphate and slaked lime would remedy the leaf disease of vine. When this was sprayed on vine leaves with pressure sprayers, it was found to be very effective. This preparation is known as "Bordeaux mixture." There is also another preparation which makes use of Sodium

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Carbonate, known as "Burgundy mixture" But the preparation of such mixtures is extremely difficult for the ordinary farmer. Recently the Imperial Chemical Industries Ltd., India has produced 'Perenox' which can be used for coconut trees in the place of Bordeaux or Burgundy mixture. A Drum of 70 lbs. costs only 130 rupees one quarter pound can be mixed with 10 gallons of water and can be sprayed on trees with pressure sprayer. The Indian Central Coconut Committee is intending to take up the spraying with Perenox in the worst affected Taluqs of Kunnathoor and Karunagapally. The Committee has received applications from various parts of the state.

But it will not be profitable for the cultivator if there are less than 1000 coconut trees to be sprayed. If there are 1000 trees, the charge for each tree is 5 as. It would be foolish for cultivators to wait for long to get assistance from the government. The Village Panchayat can be of very great use to the farmer in this case. And the Information Department should give the necessary guidance for the agriculturist, when it is needed.

Cultivators from their own experience have been making use of common salt and ash. It has been found to be somewhat effective, since the trees regain vigorous growth after three years.

As in the case of every disease in man, animal or plant preventive and remedial measures are used to stop it. I do not think that there is any preventive measure hitherto discovered for the Coconut disease. Yet if preventive measures are not taken it is likely the disease will spread into every nook and corner of Malabar. So let us hope that the Indian Central Coconut Committee will undertake research in this direction also.

It can be said without exaggeration that half the people of Kerala live by the cultivation of Coconut trees. Since the spread of the disease the loss sustained by the cultivator is indeed enormous. Under existing conditions, our ordinary cultivator can get 50-70 rupees from each tree. Even though coconuts can be got from partially affected trees, they are not in demand on the market. Now Pepper and Ginger are sold at enormously high prices; but these spices cannot replace the importance of coconut trees, because of the facility of its cultivation.



The Stolen Chain

By T. A. Vaidyanathan, I U.C.

RADHAKRISHNAN was well-known in Mambalam as a doctor. As soon as he passed his M.B.B.S. he began to practise and acquired a good name throughout Mambalam. He had been married to Susila who came from a very good family and resembled her husband in every respect.

Ponnuswamy came as a servant under them but later was treated as a member of the family. He served them faithfully for two years and he was often consulted by Radha. Now Susila gave birth to a daughter who was brought up very well being their first child. Ponnu developed a passionate affection for the child and he would often be seen playing with the child. When the child reached her third year she was able to utter words Ponnu began talking with her. Nobody could tell the subject matter of their conversation or guess what made them laugh so loudly during their conversation.

In the evening they would go out for a walk and then Ponnu would buy sweets and playthings for the child. Radha had often told him not to buy those things out of his money but Ponnu had no ears for those words as he was not blessed with a child himself and he loved the child more than anything in this world. One day the child accompanied Ponnu for a walk as usual. Someone was selling balloons of different kinds and the child's eyes fell on them. As soon as Ponnu saw this, he went to buy a balloon for the child. While he was buying the best balloon possible a man came near the child and snatched the chain from the child's neck and made off in the crowd. Ponnu gave the balloon to the child and returned home with the child, ignorant of the theft. Not so Susila. A mother's eyes could not fail to notice such a thing. As soon as they returned home Susila saw that the chain was missing and asked Ponnu about it. Ponnu was so much bewildered that he could not answer. After a while he told her with great difficulty that he did not know anything about it. Susila was quite sure that he would not have taken the chain but as she could not find any other solution she told her husband about the loss. Radha had never got so angry before especially with Ponnu. But that day he was so angry that he called Ponnu and asked if he had stolen the chain. His faithful servant did not at all expect such words from his master and was stricken dumb by them. With faltering words

he told his master all he had done that evening and added that he knew nothing about the disappearance of the chain. But Radha in his anger did not believe him and asked Ponnu to get out of his sight. So, Ponnu went out of the house taking a last look at the child. The child cried aloud seeing Ponnu going out of the house. But how could that change the mind of her father?

Ponnu now saw before him a world of darkness and misery. He did not know where to go and so walked wherever his legs led him. After sometime his face became bright as though something had entered his mind. He went to the Central Station and purchased a ticket to Calcutta.

That night Radha was lounging on a chair and reading a newspaper. He did not really read it but pretended to be reading it because he could not prevent himself from thinking of his faithful servant. Suddenly he got up from the chair and went in search of the child. She was standing on the road in front of the house watching the passers by, perhaps in search of Ponnu. Radha could not prevent the tears coming from his eyes. He wiped his eyes and taking his daughter went to a house where he hoped to find Ponnu. But it was locked. He asked the neighbours where he had gone. They told him that he had gone to the Central Station and that they did not know where he intended to go. Radha guessed that he must have gone by the Calcutta mail which departed at that time. So in this disappointment he turned to walk home. By this time it had begun to rain. As it was raining only slightly Radha thought he could go home safely. But before he reached he and his daughter were drenched to the skin.

On the next morning Radha found his daughter was suffering from fever. He was sitting near her bed when he heard these words coming from the street. "Newspaper sir, two annas sir. Read about the disaster to the Calcutta mail sir." He got a paper and found that the engine and some bogies had crashed.

Before night had fallen the fever rose high. Radha could not sleep throughout the night. He was sitting near the child telling her that Ponnu would come the next day. The child was repeatedly asking about Ponnu and was restless. Next day the child asked again when Ponnu would come and why he had not yet returned. Radha was not able to answer her and so asking her to lie down quietly went to buy the newspaper. In it he found the list of those who have died. Ponnu's name was on the list.

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On seeing this, tears rolled down his cheeks. He threw down the newspaper and went to the room where the child was lying. On seeing him the child asked her usual question. Radha was not able to prevent himself from telling the truth and so told her that he would never return again. At once the child wept aloud and would not be comforted by her father's words.

In the afternoon the child's soul passed away from this unhappy world leaving behind Radha alone.

Book Review

Common Errors in English: their cause, prevention, and cure. By F. G. French, Pp. 132. Oxford University Press, 1950.

It would be difficult to find a more useful book to put in the hands of Indian students battling with the English language. For Mr. French has not only expert knowledge but also experience of teaching foreigners especially in the East. He avoids technicalities of grammar and confines himself to the most practical and direct methods.

With his initial theory that mistakes are due not so much to 'vernacular' idioms as to fundamental and really common (if not universal) defects of thought and attention, we may not all agree. But all those who have had to do with English teaching in India will admit that neither mere grammar nor mere reading but a wise and interesting fusion of both is the only way to get rid of structural no less than pattern mistakes.

Now that English has no longer the attractions of the rulers' tongue, it is worth studying scientifically as a second language. But the reform must begin in the training colleges, for, as Mr. French reminds us:

The first faults are theirs that commit them;
The second are theirs that Permit them.

T. N. S.

The Sun and the Moon

By S. Ganesan, III Hons.

IN this article, I present to the reader a few facts relating to the sun and the moon. These facts are known for centuries, but they are given here in a concise form and in a simple language, so that even those who are not students of astronomy may find a delight in reading about them.

The Sun is the king of the solar system and all the other planets revolve round it in accordance with Kepler's laws. The Sun seems far larger and brighter than the Stars, but this is because we are comparatively near to the Sun, while the nearest Star—Proxima, in the constellation of *bentauri*—is at more than four light-years from the earth; (one light-year means ten billion kilometers). The distance of the sun from the earth is a little less than ninety-three million miles. A rocket projected towards the sun at a velocity not exceeding 3,600 feet per second would not reach the sun until four and a half years have elapsed. A huge explosion on the sun would not be heard on the earth until more than fourteen years after it had occurred, the velocity of sound through air being 1100 feet per second. The swiftest messenger from the sun is light and it takes more than eight minutes to reach the earth.

The diameter of the sun is about 866,000 miles or more than 109 times that of the earth. So, if the earth is placed at the centre of the sun, there would be room for the moon to circle round it, since the mean distance of the moon from the earth is only 238,900 miles. The sun outweighs fully 730 times the combined mass of all the planets which circle around it, so that when we regard the energy of its attraction, we still find it a worthy ruler of the planetary Scheme. Hence, it has also been calculated that an object weighing one ton on the earth would weigh 28 tons on the sun.

The inner surface of the sun is called the photo-sphere or the light-sphere, because it is this part which sends us light and heat. This inner part is much hotter than the outer part, called the chromosphere. When looked at through powerful telescopes, we see that its surface presents a mottled appearance like grains of rice. These grains are hundreds of miles in extent, the least covering a greater space than Mysore State. Now, the astronomers are of opinion, that these grain like objects are caused by the matter of the outer surface as it cools off continually, falling back into

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the still hotter interior and being replaced by gaseous matter arising from inside. By spectrum analysis, the fiery atmosphere of the sun, is found to contain glowing vapours of many metals and non-metals known on earth. Even though the sun is very hot, the earth receives only a two-thousand millionth part of the heat and it is yet sufficient to make life possible and comfortable on our tiny earth.

The existence of sun spots was known to the Chinese as early as the fourth century A.D.; but in the seventeenth century Galileo and Fabricius definitely made them known to the world. These spots enabled Scientists to know that the sun was revolving round itself and that in 27 days; but the time of rotation varies for different latitudes. These sun spots are of various shapes and sizes and they are not really dark but seem so as compared with the dazzling brilliancy of the surface of the sun. Some sun-spots are so big in size that they can hold all the planets in the solar system.

Outside the photosphere lies the chromosphere or colour sphere. It is so called because it is brilliantly scarlet, this colour being due to hydrogen gas which forms 81% and Helium 18% of the chromosphere. As a result of terrific storms bred by solar fires within the interior of the sun, huge fountains of fiery matter are flung upward from the interior of the sun to a height of thousands of miles beyond the chromosphere with a great velocity. These huge tongues of flame are called 'Solar prominences' or 'Solar flames.' "The interior of the sun is a huge power station, and the energy which is generated and let loose in the interior makes it terrifically hot, so that a vast stream of heat is driven out towards the surface, whence it pours out into space in the form of radiation. Even this is not enough. It is as though the surface could not get rid of energy, as rapidly as it arrives from inside, and hence creates an extra mechanism of fountains and cascades of flame to help it"—Sir James.

At the time of a total Solar eclipse, when the sun's disc is hidden by the moon, a white patch of light is seen surrounding the sun. This is due to scattered sun light and is called the 'corona.' Though the sun's candle power is calculated to be more than a thousand quadrillion candles (that is a 1 followed by 27 naughts), the brightness of corona is less than that of the full moon. When the sun-spots are maximum, the corona is circular and when the spots are minimum, the corona has an elliptical shape.

There is nothing special to say of partial eclipses of the sun. Total or annular eclipses are more advantageous to astronomers. Totality occurs

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for those within the eclipse track at the moment the moon's shadow rushes over that particular part of the earth. However, under most favourable conditions the duration of total darkness at any one place does not exceed eight minutes. The corona and the prominences that surround the sun are visible only at the time of a total eclipse and they are photographed. The spectrum analysis of corona and chromosphere is also done at the time of 'totality.' Further, a total eclipse is the only time to search for the existence of any planet very near the sun, because if it were to exist, it cannot be seen when the sun is shining brilliantly.

In relation to very distant stars, the sun is in constant movement. It is hastening with a speed of more than twelve miles per second in the direction of the constellation of Hercules. This constellation is more than 26 light-years distant from us. Hence we would not reach it in 26 years but only in 400,000 years. This constellation of Hercules is, so to speak the future home of our solar system. Therefore, we conclude here, that though the orbit of the earth is an ellipse with respect to the sun, it is actually a spiral relative to very distant stars.

* * * * *

Some astronomers are of opinion that the moon was flung out of the earth while in molten condition and that this space was filled up by the Pacific Ocean; but others think that the moon formed part of the sun and the encounter of the sun in space with a passing star was the origin of the moon and other planets.

The moon is the nearest celestial neighbour to the earth. Its mean distance from the earth is about 238,900 miles. Its diameter is about 2160 miles and is $\frac{1}{83}$ of the earth's mass. It goes round the earth in about 27 days with respect to distant stars and its path is an ellipse; because the moon has got less gravitational power, an object weighing 12 pounds on the earth would weigh only two pounds on the moon.

The moon is not a self-luminant object and its light is due entirely to the reflected sun light. Its light is very cool and its brightness is one-sixty-thousandth of the sun's brightness. Sometimes we can see that the brightness of the moon is the same as sun-illuminated clouds, since it is the light of the sun which illuminates both. The place on the moon just under the sun will be very hot, the temperature being about 101°C . The temperature decreases at distances from this point and the dark side of the moon is very cold. A day on the moon is nearly equal to 14 mean solar days and it will be very hot while the night of 14 days will be

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very cold. The heat of the sun on the moon cannot be preserved as it has no atmosphere similar to the earth's atmosphere.

The Moon, as we know has no atmosphere like ours or any sign of life, tree or flowers. Even water cannot be found on the moon. So all day-dreams of reaching the moon are of no value. Speech would be utterly useless as there is no air to convey it. When looked through telescopes many high mountain ranges and deep chasms are found on the surface of the moon. Therefore as the sun rises on the moon, the black shadows of lofty peaks fall to a great distance as they creep across the plain below. Similarly at sunset, the shadows fall in the opposite directions. The best time to begin observing the moon is when it is crescent shaped. Some astronomers think that the moon had many volcanoes when it was very hot, being flung forth from the sun; but, because it was much smaller than the earth, it has cooled very quickly and the volcanoes have become extinct and the craters of these volcanoes represent the deep chasms, are of opinion others that the craters are due to the bombardment of the moon by big massive meteors.

Just as we see the moon, a person on the moon can see the earth. When it is full moon for us, it will be a "new earth" for the lunarian and when it is new moon for us, it will be "full earth" for the man of the moon. When the moon is crescent-shaped, the dark parts of the moon receive part of the sun's light reflected by the earth, called earth-shine. Hence the dark parts of the moon will be faintly visible and appear to belong to the circle to which the crescent belongs. It will appear as though the crescent is embracing this portion and hence the phrase "the old moon in the arms of the new."

Unlike the solar-eclipse, sometimes a total lunar eclipse lasts more than two hours. During totality when the moon is entirely immersed in the shadow of the earth, its surface appears copper-coloured. This dull red copper glow is caused by the rays of light from the sun striking our atmosphere and being bent towards the earth's shadow, thus falling on the moon and making it visible.

The sun's influence on the moon bears to the earth's a proportion of 15 to 7. So, in particular at a total solar eclipse, the moon should be drawn towards the sun and leave the earth moonless. "The answer is simply that the sun attracts the earth as well as the moon, and with almost the same degree of force, his pull on earth sometimes slightly exceeding, at others falling short of, his pull on the moon according as the distance of the moon or the earth from it is greater at the moment. Thus

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the earth, in order to prevent the escape of its satellite, has not to overcome the sun's pull upon the moon, but only the excess of that pull over the pull the sun exerts upon the earth itself. This excess is proved to be always far less than the earth's own influence on the moon"—R. A. Proctor.

"In about fifty thousand million years, the earth and the moon will be revolving in complete unison and people on one hemisphere will never see the moon while those living on the other hemisphere will enjoy the benefit of perpetual moon-light. Later, the rotation of the earth would be showed down and the moon would be dragged down to within 12,000 miles of the earth resulting in a tragedy for the moon"—Mary Proctor. But, Sir J. Jeans goes a step further and says—"The moon would be shattered to fragments, which will form a system of tiny satellites revolving around the earth, in the same way as the particles of Saturn's rings revolve round Saturn."



அன்னை உரு எண்ணி*

By M. Sivaramakrishnan, II U.C.

ஆ! அவ் நின்னறுதிக் நின்னதே இளமையிற் சூரலே குறை, “அழாதே அன்புறும் [அழியாப் கொடுங்கால் கலையதும் அன்புடை ஈங்கெதிர் எவல் பன்னாள்முன் பொருந்திப் ஈன்றான் தன் பிரிதுயர்க் கற்பனை உயர்லோகக் நீ அவன்போற்	விதழ்கள் கேள்விப்பின் அவ்விதழ்கள்— பன்முறை இன்றேல் குழந்தாய் நயனந்தம் பெரும்பேறு உரிமைக் சீருடையவாம்] அன்னையை நோக்கினேனிலை எழும்பும் பிரிந்த போற்றுவல் எவலேபோல் கம்முகம் விடுதலைக்கு காட்சிகளில் காண்டும்	மணிமொழி புன்கணுற்ற நான் காண்புன் உளந்தேற்று இயம்புமவை அகற்றுநின் அருமறிவி ஆக்கும் கடுமிடர்க் இலங்கொளி அகநிறுத்துந் எனினுவந்தனம் எளியதோர் அன்னை தனைப் விருப்பம் இன்பமுடன் புத்துயி நூற்குமோர் உழன்று நீளிலாக்	அணிந்திடிலோ! தென்வாழ்வு. னகைநினதே, இன்களியே; செவ்வனமே, அச்சங்கள்!” னுண்மையும், எக்கலையும். கேடுகீக்கு வீசுதென்மேல். திருவுரு. விருந்தோய்! பாவினில் போற்றிடவாம். தொன்றலோ? ஆற்றுவல். ராக்குங்கால் பாவாமால். சுழல்வல்யான் கனவின் கண்.
என்னரும் அறிஞவையோ பேதையென் சுழலுமைந்தைச் ஓர்கால் கண்ணீருங் ஆ! அத்தாய் நீள்மணி வெற்றுடல் வளர்ப்பறைச் இறுதி	அன்னையே! என்கண் தொல்வாழ்வும் சுற்றிச் உணராமல் கான்றனையோ தன் இன்னகை யொலித்தது எந்திய சாளரத்து வணக்கம்	நின்னறுதிக் அரும்பிய புன்கண் சுழன்றதோ ஓர் முத்தம் காலுமேலாங் “ஆம்” என் நின்னுடற் வந்தேருங் வாடுமுகம் இயம்பி	கோள்பின் நீர்த்துளிகள்? உழன்று நின்னாவி? கொடுத்திருப்பாய். கான்மாவில்? றுரைத்திடும். புதைக்குநான், கண்டேன். நீட்டி நெடிதுயிர்த்தேன்.

* A translation of William Cowper's on the Receipt of My Mother's Picture.

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அஃதும் வாழ்த்தும் அமைதித் வார்த்தை என்னிடர்காண் விரைவின் உளம்பெரிது எக்கமே. நின்வரவு நினைவுகள் இக்கலக்க இளமையி வாழ்வின் குறைவுற	வணக்கமோ? ஆம் வணக்கமும் கரையதனி வணக்கமினி எவலர்கள் வருகுவனென விழைந்ததான் இக்காலும் நேர்த்து நெருநல் நாட்கள் லியல்துயர் வழிவழி வருந்தினு	அன்னை நீ வாழ்வில் னமையுமேல் வாயினின் எய்தார் வாய்மையின் உரித்தென ஏமாற்றம் நெடுநாட் கனவுகள் பற்பல முற்று ஒழுக்கிட முற்று	உறுமிடத்து ஒலிகளாம், நின்னுரு, நெழாதுகாண் துணுக்கம், மொழிந்தனர். உணர்ந்தேன். எய்தினனூல். கடந்தன. இன்றும். மிடைந்தன. மறைந்தது. ஓர்ந்தேன். மறந்திலேன்
அன்றுநம் புரந்தும் நாளும் பள்ளிக் வினாயாட்டுக் நீணல்லுடை அத்துணையி நம்முரிமை குதுங்கால் அன்னை நீ கடுவளி அகங்குழையு பாலனா என்சேக்கை பகலிலில் அருஞ்சுவை அருங்கரத்தா திருமுகத்திற் இனைய கடையருப் கனறெறிக்குங் இவையெலாம் இந்நாள்	வாழ்விடம் பிறர் மக்கட் தினமும் கொடுபோவன் தோர்கருவி நீனிமத்த லின்னோ யில்லமன்று உரிமை! அன்பொழுக பற்பல மன்னசெயல் னலமுற் யெல்லிதோறும் நீங்குமுன் ரொட்டியுந் னென்வதன நெளித்த பலவு பெற்றிரின் காலத்துங் நினைவிதழ்க்கண் வரையிலு	இன்றுநம்பேர் டரையிலென் பொழிவழைப்போன் பல்வழிசேர் கோச்சம் தலையணி தினைத்துணையுங் நாம் வாழ்ந்த எனினுந் ஆற்றியன கடந்தும் ஆயிர முன்னானைக் நண்ணுத அன்னை நீ திங்களிப் மெழிலுந் நறுமண மிவற்றின் காதலீர் காணன்புப் இனிது மின்னதே	தோந்தன்று வளர்ப்பறையில். “ராயின்” சாலையுதி. உடுத்திய நகையுட்டும். கேட்கிலேன். குருகுலம். திருப்பட அகநிறுத்தும் வாழ்வழி! முன்னுவேன் காண்பான் லெண்ணுவேன். உவந்தித்த பண்டமும், நெளவீச நன்னீரும், மேலதாம். வீழ்ச்சியும், புன்னகையும், நிலவுது காண்! நீர்மை.

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செயுள்போற்று	செய்கையில்	மகிழ்வு	மிக்குமால்.
எளியன	சின்னங்க	என்னினுமவை	மெய்ம்மைய.
இழந்தன	வீங்காம்;	இனியன	வாணுகில்.
உடையினி	னெய்படு	பன்னிறப்	பூக்கள்
ஊதா	கருநீலம்	வெண்மை	விரவிய.
ஊசுகொண்டு	புள்ளிகளா	ஊருவரை	காலத்து
நாணு	மகிழ்ச்சியின்	நனிபெரிது	நின்மலர்ச்சி.
புன்னகைபூத்	தென்தலைதொட்	டின்கொழி	பன்னுவாய்.
காலகதி	மாறியநாள்	காண்குமேல்	மற்றுமோர்கால்.
மகிழுமும்	போதவை	மறுமுறை	மானுமேல்,
விழைவொன்	நீர்க்குமேல்	விழைவன்கொல்	ஈங்கு?
தெளிந்தெனத்	தேர்தல்	எளிதன்றும்.	“அவ்வின்பம்”
நனிவேட்டு	நின்காட்சி	நசையற்	நெழுந்தனம்,
ஆ! இல்லை—	ஈங்குநாம்	வாழ்வென	ஓர்தற்கண்
உவப்பன	சிறுநாள்	வெள்ளமாங்கு	விழைவன.
விடுதலை	கெடுத்திங்கு	அடிமைக்கட்	டினாடைத்து
புரையுறுவ	புரிந்திடலான்	நன்றிகொன்ற	நீர்மைத்தாம்.
இங்கிலாந்து	நாட்டினின்	நியலுமோர்	நாவாய்போற்
(புயலெலாம்	போக்கி,	துயர்க்கடல்	எலாங்கடந்து)
விரையுறுகிரு	வீசமணம்,	காலநிலை	களியூட்டும்
திருத்துறை	பொருந்து	திவத்தே	உறைந்துளாய்.
நறுமண	மேயந்த	வசந்த	வளியவை
வலஞ்செய்	தலைத்தெழு	பொலங்கொடி	தாக்குங்கால்,
அழகுத்	திருவுரு	தெள்ளிதின்	வீழும்
அலைகடன்மே	லசைவின்	நமைதியி	னமர்ந்துளான்;

ஆற்றரும்	பெருவிரைவின்	நற்றுறை	நண்ணினை!
“ஆங்கோ	புயல்வரா;	ஆர்க்கும்	அலையிரா.”
விரும்பு	காதலரும்,	உருகெழுவாழ்	வாழ்மேல்
முன்னமே	நின்னருகே	உய்விடமாய்	நிலைநின்றார்.
அவ்வமைதி	நண்ணுத	வெண்ணில	தென்னுளம்.
இன்னுறையின்	செய்மைக்க	னெக்காலு	மிடுக்கனுற்று,
இரைத்தெழு	காற்றிர்ப்ப,	இரும்புயற்கண்	சிக்குற்று,
பாய் கிழிய,	இணைசிதறி,	வழிகாட்டியுந்	தொலைய,
நாடொழும்	ஒடுகில	நீரோட்டத்	தாக்குதலான்,
அருந்துறைக்	குறுவழியின்	பெருந்தொலைவிற	போக்கும்.
எனினு நீவிர்	இனிமையி	ஊறகிறீ	ரெனுமெண்ணம்!
அகமகிழ்ச்சி	அன்னதே;	என்னவந்	துற்றிடினும்.

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புவிபுரக்கு	புரவலர்	புவிபோற்று	பெருகருடி
வழித்தோன்ற	வென்றன்று	என்பெரும்	புகழ்நிலை
புத்தேளிர்	பொன்னுலகு	புக்குபெற்றோர்	தன்மகன்
என்பதிற்கு	என்னரும்	இசைநிலை	எழுந்திடமால்!
வணக்கம்	விளம்புதும்!—	வரையிலாப்	போதுகடிது
வழிவழி	விரைந்தும்,	செயவிழைந்தது	செய்தனமால்!
எண்ணப்	பெருக்குதவ,	வீண்போது	நண்ணுது,
குழவி வாழ்வு	மற்றுமோர்கால்	வாழ்ந்தெனத்	தோற்றுதும்!
மறுமலர்ச்சி	கொண்டது	பண்ணொன்	மகிழ்ச்சி.
தொடுத்த	மகிழ்ந்தன	மடுத்தியான்	கெடுத்திலேன்.
கற்பனை	கட்டிநிற்ப்	பொற்புறு	மிப்போதே
நிற்பெரு	நிழற்படம்	காண்மே!	மகிழ்தும்!
வெந்துயர்ச்	சின்னதையின்	நைந்துற	முந்துறும்,
போதுசெய்	தினினிற்	புனைவென்றி	ஈரிலொன்றும்.
மறைந்தனை நீ;	நிறைந்துள	நின் தேற்றுந்	திறனை!



"Mugging Up"

By A. Vincent, II U.C.

OFTEN as I search my friends' book-shelves, I recall to my mind, Lamb's 'rugged Veterans.' This does not mean that their books came from a 'Bangalore Mart' or from any other 'Evening Bazaar' book-stall. But it indicates how often my friends have used those books. Alas! these books are not books in the strict sense of the term. They are what are known to students as 'green books' and 'distilled books' and are very popular with those who mug up. These books are purchased with money which ought to have been spent upon something better.

Before attempting any impartial study of the question, we have to admit the fact that "Mugging Up" is playing an important part among "mark-seeking" students. Mugging up means the memorizing of endless answers of popular and probable questions for the mere sake of securing higher marks in the examination, with little or no attempt to understand the meaning. Of course, these so-called students, may obtain good marks in the examinations by their mere parrot-like reproduction of their explanatory "green books" or their summarised "distilled books." But, intelligent education is something more than this.

Intelligence is something qualitative which cannot be expressed in quantitative measures. Marks are not a scale to measure one's intelligence. Often, it is sad to relate, marks are taken to be the "direct-proof" of a student's intelligence.

Getting higher marks is not the sole aim of education. Education is something more than a "first class." Education does not mean answering probable questions, annotated by experienced hands; but is answering the questions by the diligence of reasoning. The only true education is self-education, for no outsider can act for the pupil. The utmost that others can do, is to stimulate the pupil, through emulation, ambition, fear and love, to exert and exercise his own faculties of body and soul. Education, in short, is not mugging up of notes but digging into our common-sense.

It is needless to say that so-called mugging up book worms, whose sole aim is to write the examinations not intelligently but mechanically, will be inefficient in their future career. India is not yet as well developed a country as are other countries of the world. It is just now in the

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process of formation. Students are the future generation of our nation. Hence, the future greatness of our India depends upon the originality and intelligence of the present student—population. It therefore follows that the system of studies must be such as to produce good and intelligent students. To be brief, it must develop the understanding and originality of the students and check the tendency to "mug up."



Milk for India's Millions

By P. J. Jose, Post Graduate

IT may sound paradoxical that in a country possessing about 24.3 per cent of the world's total cattle wealth there is not enough milk supply. Mr. Datar Singh, Cattle Utilization advisor to the Government of India, basing his calculations on the 1945 livestock census, estimates the total cattle population of the Indian Union at about 176,646,000. Yet, whereas in Denmark milk is daily being consumed at the rate of 40 oz. per head of population, in India the daily consumption of milk per head of population has been estimated to vary from 5 to 7 oz. When compared to the prescribed 20 oz. of milk considered to be the minimum daily consumption required for healthy growth Indian milk supply and consumption are woefully inadequate. The results of such 'poverty in the midst of plenty' are to be seen in such lamentable facts as the high rate of infant mortality and the poor physique of the average Indian.

The average Indian has come to regard milk as a luxury which he cannot afford to enjoy with his limited income; to the peasant the primary use of cattle is to carry on the farm labour which requires the draught cattle. The result has been the generally secondary consideration given to the production of milk and this neglect, coupled with the capital deficiency of the Indian farmers has been responsible for the low milk yielding capacity of the average Indian cow and the consequent shortage of milk in India. However, the urgent necessity of developing a highly efficient dairy industry is demonstrated by its capacity to solve the under-employment problem that is inherent in the agricultural economy of the country and the highly nutritive value of milk an increase in the supply of which is urgently called for to rectify our traditional under-nourishment.

In the light of the foregoing considerations we shall critically review the merits and drawbacks of a scheme of dairy improvement that is in an experimental stage. The scheme is none other than the so-called Grow-more-milk campaign whose worth is being tested through its implementation in class A states. The aim of the scheme is to produce more and better milk by increasing and improving our milk stock; the essence of it consists in granting interest free loans to potential dairy farmers, through co-operative societies and thereby to solve the problem of capital deficiency. The central government has allotted a sum of Rs. 3.5 crores for this purpose and the loans, usually Rs. 200, are to be issued by co-

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operative societies on the recommendations of its panchayat and the advice of the co-operative inspectors. For obtaining such a loan the applicant should be a member of the co-operative society holding a share value of not less than Rs. 21; moreover he will have to pledge the animal to the society and the pledge must be guaranteed by two sureties owning property worth at least twice the amount of the loan. The animal is kept by the individual under hygienic conditions but the milking is done in a common milking yard under the supervision of the co-operative dairy officer.

The loans are repaid in ten monthly instalments through the daily sale of milk to the society. The milk so collected is distributed either by individual societies or by a milk supply union. Out of the proceeds of the sale of milk the excess over the monthly instalment amount due to the society, is given back to the respective persons. Thus if a person, who has borrowed Rs. 200, is selling Rs. 60 worth of milk to the society per month, he can receive from the society at the end of every month Rs. 40 and when once he repays the full amount of the loan the animal becomes his own property.

The most outstanding feature of this new scheme is that it attempts to solve the age-old problem of lack of capital which is so essential for the successful working of any plan of development. It tries to subsidise co-operative effort in reconstructing rural India and as such deserves our admiration. Yet, as in all other government sponsored plans of development, in the Grow-more-milk programme also there is much scope for official interference and corruption which has, so to say, become the bane of free India; but as in this part of the country we have a good body of sincere officials there is hope of good results being achieved. However, the scheme represents a commendable combination of individual initiative, co-operative effort and government assistance and the large measure of success of the campaign during the last three years of its existence justifies its extension to all the nooks and corners of India.



वह लड़का

By V. S. Ouseph, I U.C.

मैं अपने दोस्तों के साथ तंजाऊर से लौट रहा था। थोड़ी देर तक हम गुम सुम बैठे थे तो दोस्तों को तमाशा सूझने लगा। एक ने प्रस्ताव पेश किया—“त्रिची पहुँचने तक हम क्यों मक्खी मारें। ज़रा मन बहलायें”। गाने का मुझे शौक न था। फिर भी दोस्तों के कहने पर इनकार नहीं किया। रेल गाड़ी धड़ धड़ाती हुई चली जा रही थी। उसके साथ साथ हम अपनी ऊबड़ खाबड़ आवाज़ में गाने लगे। हमारा गाना किसी को अच्छा लगता था वो और किसी को बुरा। किसी का मुँह देखने पर ऐसा मालूम पड़ता था वह भगवान से मिन्नत कर रहा है कि हे रहमदिल! इनका गाना जल्दी बन्द कर दीजिए। मगर हमारे लिए यह भी एक तमाशा था।

हम गाने में लीन थे कि एकाएक किसी को हमारे डिब्बे के दर्वाजे पर खट खटाते देखा। हम में से एक ने दर्वाजा खोल दिया तो करीब दस साल का एक लड़का हमें नज़र आया। वह था काला-कल्टा, निहायत बदसूरत। उसकी आँखों में चमक न थी। एक मैला कुचैला कपड़ा पहना था। गरीबी के कारण उसका पेट पीठ की हड्डियों से लगातार लड़ रहा था। उसे देखते ही हमारा गाना बन्द हो गया, गोया हम पर बिजली गिर पड़ी। गरीबों और भिखमंगों को हमने देखा था, मगर इस तरह का नहीं।

दरिद्रता की घोर निठुरता से निरंतर लड़कर जो हार गया था उस लड़के ने हमारे सम्मुख आकर कोई गाना गाने की कोशिश की। वह हाथ फैलाये खड़ा था। तभी मुझे श्री बाल कृष्ण शर्मा ‘नवीन’ की लिखी हुई ये लकीरें याद आयीं:—

“क्या देखा है तुमने नर को,
नर के आगे हाथ पसारे”।

रेल यात्रा के समय यह एक मामूली बात है कि भिखमंगे डिब्बों में घुस आते हैं, पहले गाना गाते हैं, फिर भीख माँगते हैं। जल्दी अगर कुछ मिलता है तो लेकर

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दूसरे डिब्बे में चले जाते हैं नहीं तो थोड़ी देर उधर ही ठहरकर यात्रियों से बार बार माँगते हैं और उन्हें दिक करके, दो एक पैसे माँग लेते हैं। बाकई उनका गाना गाना नहीं बल्कि याचना है और उनकी याचना भी तो याचना नहीं, किन्तु गूढ़ रूप से हम से यह बता रहे हैं कि जिस खुदा ने तुम्हारी सृष्टि की है उसी खुदा ने हमारी भी सृष्टि की है; जिस तरह तुम्हें जीने का हक है उसी तरह हमें भी है। करोड़पति और गरीब भिखमंगा, दोनों ईश्वर की सृष्टि हैं, दोनों इनसान हैं। दोनों में है आत्मा। एक सुख-लोलुप है, दूसरा अपने पेट की आग बुझाने के वास्ते गली-कूचों की खाक छाननेवाला है! दोनों में ज़मीन आसमान का फर्क है!!

हाँ, उस भोले लड़के ने गाने की कोशिश की। मगर आवाज़ बिलकुल न निकलती थी। महीनों की गरीबी ने उसका गला दबा दिया था। वह मौन खड़ा था। न मालूम हुआ कि वह क्या चाहता है। हम उसे देख रहे थे। कोई कुछ न बोला। एकाएक ग़ज़ खा कर मेरी गोद में वह गिर पड़ा। मेरे साफ़ सुथरे कपड़े गंदे हो गये। मुझे जुगुप्सा हुई। क्या करूँ! मेरे दोस्त भी दंग रह गये। लेकिन बात की बात में मेरा खयाल बदल गया। गाड़ी एक स्टेशन पर खड़ी हुई। मैं ने एक ‘क्रष’ मंगाकर उसे पिलाया। उसके मुँह पर ठंडा पानी छिड़का दिया। गाड़ी उस स्टेशन से छूट गयी।

दस मिनट के बाद वह होश में आ गया। अपने को एक शरीफ़ की गोद में पड़ा देखकर वह घबड़ा उठा। मैं ने उसे तशफ़्फ़ी देते हुए कहा:—“घबड़ा मत”।

ठिठकते हुए उसने मुझसे पूछा—“आप कौन हैं?”

“मैं एक यात्री हूँ। तेरा नाम क्या है?”

“मेरा नाम चन्द्र है”

“किस गाँव का रहनेवाला है?”

“जी, अब मैं किसी भी गाँव का रहनेवाला नहीं।”

“तेरे माँ-बाप जीवित हैं?”

वह लड़की

यह सवाल सुनते ही उसने एक गहरी सांस ली। उसकी आँखों में आँसू डब डबा आये। आँसू पोंछते हुए उसने मुझे कहा:—“नहीं साहब। मेरी सात साल की उमर में ही वे दोनों हैजे के शिकार हो गये। मैं उनका बड़ा बेटा हूँ। मेरी दो छोटी बहनें भी थीं। हम एक ज़मीन्दार की ज़मीन पर रहते थे। माँ-बाप के मरने पर हमारा पालन पोषण करनेवाला कोई न था। मैं अपने गाँव के अमीरों से भीख माँगता था और एक महीने तक अपनी छोटी बहनों को खिलाता पिलाता था। एक दिन शाम को जब मैं भीख लेकर अपनी झोंपड़ी वापस जा रहा था तब देखा कि दोनों बहनें रास्ते के किनारे बैठी हैं। मेरा कलेजा धडक उठा। मुझे देखते ही दोनों रुवासी होकर बोलीं:—“भैया! अमारी झोंपटी उतर नै। जर्मींदार ने आकर तोड़ दिया और अम से कहा कि कहीं चली जा। यहाँ कहीं न रहना”। मेरा जी सिहर उठा। मैं भी उनके साथ बहुत देर तक रोया। आखिर मैं ने इरादा किया कि और कहीं जाकर रहें। अगले दिन सबेरे हम उधर से निकल पडे। हाय! आप से कैसे कहूँ? दो महीने के बाद मेरी दोनों बहनें बुखार से पीड़ित हुई और स्वर्गवासी बन गयीं। सिर्फ मैं रज में अपनी ज़िन्दगी के दिन काट रहा हूँ। घूमता घामता हूँ। भीख माँगने से जो कुछ मिलता है तो उस पर गुज़र करता हूँ। कभी कभी कुछ भी खाये बिना सो जाता हूँ।

दरअसल यह उसकी जीवनी थी। यह राम-कहानी सुनकर मुझे उसपर हमदर्दी आ गयी। गाड़ी और एक स्टेशन पहुँची। वह लड़का उधर उतरने लगा। मैं ने उसे एक रुपया दे दिया और कहा—“इससे खा ले”। उसने मेरा शुक्रिया अदा किया और वहीं उतर गया। गाड़ी छूट गयी। पर मैं उसके ओझल होने तक उसी ओर देखता ही रह गया।

आज भी मेरी आँखों के सामने उसकी मूर्ति घूम रही है।



“All that glitters is not Gold”

By E. P. Jacob, III B.Sc.

IN Magazines and Journals we have rarely seen proverbs explained. Some consider them silly slogans. But to explain them I think, would be a real service to students. At present may I just begin by explaining the proverb “All that glitters is not Gold,” as far as my ability allows me to do so.

All of us know that gold is a glittering metal. Brass is also of the same colour and glitters like gold. But people do not value brass like gold. Two metals of the same colour and of the same physical appearance are valued differently! Why is this so? This is because gold is rare and its glittering is everlasting. Brass on the other hand is available in plenty and its polish will be spoilt easily. So people do not value this as gold. From this we can understand that the mere appearance of any thing does not show its real worth.

Now let us think a little deeper. This truth holds good in the case of humanity also. A person of handsome appearance and polished manners may have a bad character; a person of good character may not be so handsome and good-looking. But people often lose sight of this fact and are deceived by mere appearance. The most notorious robbers and pickpockets are always persons of handsome appearance and they speak to us most pleasingly. Thus we are deceived by them.

Even in society at large there are some “so called honest” members. But really they are rogues. How can we escape from being deceived? How can we distinguish the real colour of the people.

This is really a problem. For this, first of all we should not believe in any one only because of his pleasing outward appearance. We must try to find out his nature before giving him our confidence and keep an eye on his actions. Then we must seek the opinion of our friends, about him. Thus gradually we shall be able to know his real nature. One may deceive some others for all time and all others for some time, but one can never deceive all others for all time. Only after having tried all these experiments should we make one our friend.

Thus we must admire and respect persons of good character and be beware of those of bad characters. This may spoil the whole society. Beware of them.



Fr. Haas, S. J.

ON August 3rd 1950 the Catholic students of the College gathered in the Lawley Hall to greet Fr. Haas. Though entering his 82nd year it was not a retiring Professor they had come to greet. They had gathered to congratulate the still active Head of the Chemistry Department on the 60th anniversary of his entrance into the Society of Jesus.

Fr. Augustus Haas, who was born in France on September 27th 1869, entered the Society of Jesus on August 4th 1890. In little more than a month he was in India, arriving on September 15th the same year. After the usual Jesuit training he was ordained at Kurseong on October 4th 1903, returning to the South the following year. His training was complete and he took his Final Vows on February 2nd 1906.

It was on his return from Kurseong in 1904 that Fr. Haas was appointed to the College and was given Room No. 19 in the Fathers' Lodge—the very same room which he has occupied to this day. He was appointed to the Chemistry Department to the place vacated by his own brother, Fr. Alphonsus Haas, who had gone to Sattur where he died a few years later on February 15th 1911, a victim of Charity while attending his cholera stricken people.

With his appointment to the Chemistry department Fr. Haas entered on his life's work. He was present at the laying of the foundation stone of the Digby Hall on May 29th 1907. He watched its walls rising and equipped its two spacious laboratories which are so admired by visitors to the College. To bring the teaching of Chemistry up to modern standards he was sent by Rev. Fr. Froehly, then the Superior of the Mission, to Europe in 1925 to visit the great Universities of England and that of Paris. On his return he gave the benefit of his experience to the Madras University as a member of the Board of Studies. In the College he undertook the revision of a Text book which had been prepared by his brother and later he prepared his own Text book. The eminent Professors he trained, among them the head of the Chemistry Research Department of Loyola College, Rev. Fr. Lourdu Yadanapalli, and the splendid results of his students year after year, are mainly responsible for the ever increasing popularity of the Chemistry Department in the College.

As in past years Fr. Haas had watched the rising walls of the Digby Hall, so now Fr. Haas is seen daily inspecting the progress of the stately



Revd. Fr. A. Haas, S. J.

FR. HAAS, S.J.

building that is rising on the Northern side of the Digby Hall. Still looking into the future he hopes in the new buildings to provide for the steadily growing number of applicants to the Chemistry branch and to obtain from the University affiliation in B. Sc. Chemistry Honours.

The picture of Fr. Haas as the Head of the Chemistry Department is an incomplete one. To the Catholic students he has endeared himself especially as the Father of their souls. For well-nigh fifty years he has been the spiritual guide of countless students in all the divisions of the College. Every day he is on the College playgrounds to watch the games and encourage the players, always with a smile and a little joke to crack. Later in the evening, just as he has done for the past 40 years, he can be seen making his way to the divisions, there to give to each one a word of encouragement and advice. No wonder that many make him their guide in after life and continue to correspond with him. And they are sure that no letter written to him will remain unanswered.

Fr. Haas is still with us and it would be unfair to his modesty to write at length on the example of his life and on his fidelity to the Rules of his Order. Suffice it to say that the order and tidiness of his laboratories is but a reflection of the order and regularity of his religious life.

May Fr. Haas be with us for many a year to come, so that still more students may come to know him, whom so many generations have admired and loved.



Retirement of Prof. K. S. Mandalam Ayyar, M.A., L.T.

Prof. K. S. Mandalam Ayyar, M.A., L.T., our 'revered Guru', has just retired from the Physics Department of the College, with the supreme satisfaction of having fully discharged his official duty of imparting knowledge to hundreds of students who had come in contact with him during the last thirty-three years. It may be recalled that soon after taking his L.T. degree in 1918, his services were requisitioned by Rev. Fr. Bertram, S.J., for teaching physical science for the newly-started L.T. course in the College. He did his work with that thoroughness and enthusiasm so characteristic of him that he was, soon after, taken into the Physics Department of the College. Since then, along with Prof. P. E. Subrahmanya Ayyar under the kindly guidance of Rev. Fr. Honoré, S.J., the architect and father of the Physics Department of the College, he has contributed in no small measure to build up the reputation of the College. His classes were so interesting and instructive that he rightly earned the abiding gratitude and affection of his students.

No wonder, then, that when news of his impending retirement spread, the physics students of all classes in the college organised a grand fare-well function—"unique in all respects in the history of the College", as one of the old Rev. Fathers remarked. More than a thousand students including the members of the Physics Staff (who too are all his students) assembled in the Lawley Hall to visibly demonstrate their appreciation of his great qualities. The address presented to him in a fine silver casket along with a few articles of Souvenir read as follows:—

"RESPECTED AND DEAR SIR,

This day will go down as a red-letter day in the annals of the Physics Department of our College. We have gathered here with mingled feelings, of sorrow at the thought of your impending retirement from the educational activities of the college, and of genuine appreciation of the inestimable services rendered by you during your long and distinguished career.

Ever since the year 1912 when you came in as a student of the intermediate class, you have been associated with the activities of the college. We wish to recall that, after a brilliant academic course, you joined the College Staff in 1918 and throughout the long and continuous period of the thirty-three years that followed, you have, with remarkable



K. S. Mandalam Iyer, M.A., L.T.



RETIREMENT OF PROF. K. S. MANDALAM AYYAR

energy, contributed to the welfare and progress of this great institution. Nay, more. As a member of the Senate, the Academic Council, the Board of studies in physics, Honorary Reader and Examiner for several Universities, your ripe experience has been of inestimable value.

But, chiefly as a teacher, you have contributed most to the cause of Higher Education. It is difficult to keep a class interested in an intricate, mathematical explanation of a scientific proposition. But you have had the unique distinction captivating the attention of the students, not only by your lucid and impressive delivery, but also by your humorous remarks, interesting anecdotes and picturesque illustrations. The example of such a model teacher like you has been infectious and has served as an inspiring ideal to your younger colleagues on the staff.

This is not all. Every young man who has come into contact with you has felt that he is being loved with a real and fatherly affection. Of the hundreds of graduates directly shaped by you, there is none who has not had the happy experience of a personal interest, a genuine care, and a deep sympathy, so characteristic of your dignified and lovable personality.

For all this, Sir, and much more that we are unable to express in words we the students and staff of the Physics Department take this opportunity to pay you our homage with feelings of greatest respect and most sincere gratitude. We are confident that this college where you have spent the best years of your life will ever remain dear to you. We, on our part, assure you that it will be our earnest effort to maintain the high and noble standard you have set before us."

The speeches by representative members of the Staff and Students revealed their profound admiration for his fine qualities of head and heart. Rev. Father Rector explained how the Professor had been a real 'Guru'; and he assured him that the management deeply appreciated his work and wished him long and happy days in the years to come.

It is the fervent prayer of one and all that the All-merciful God grant our revered Professor perfect health and happiness in his retired life.

'A Pupil'



Portrait of Rev. Fr. C. Pruvot, S.J.

THE Hon'ble Dr. Rajan, Health Minister, Govt. of Madras, unveiled on 18-2-1951 at 4-30 p.m. in the Lawley Hall, the portrait of Rev. Fr. C. Pruvôt presented by the Fr. Pruvôt Memorial Committee. The Hon'ble Minister mentioned that he was one of the pupils of Fr. Pruvôt in the F.A. Class and had been an intimate and life-long friend. Dr. Rajan gave a fulsome tribute to Fr. Pruvôt's love for India and Indians, to his deep devotion to religion, to his tolerance, to his great attachment to friends and to his scholarship.

Sir A. L. Mudaliar, Vice-chancellor, Madras University in his message handsomely acknowledged Fr. Pruvôt's fifty years of activity, as Honorary Reader, Member, Academic Council, for several years Member, Board of Studies, and Chairman M.A. Board of Examiners, in the Madras University.

Dr. A. Narasinga Rao, M.A., D.Sc., President, Indian Mathematical Society stressed the great services rendered to education by St. Joseph's College, and by Father Pruvôt who was always remembered with love and reverence by the mathematicians whom he had trained.

Sri T. Totadri Iyengar, Secretary, Memorial Committee, read a report, mentioning that a Committee was formed consisting of the following old boys of Fr. Pruvôt, who were signatories to an appeal for funds.

1. Sri V. Raghavachariar (now Retd.) Prof. of Mathematics, Nagpur.
2. Sri N. Sundaram Iyer, Principal, Vivekananda College, Madras.
3. Sri G. V. Krishnasamy Iyengar, (now Retd.) Prof. of Mathematics, Chidambaram.
4. Sri G. R. Narayana Iyer (now Retd.) Principal, Maharaja's College, Ernakulam.
5. Major G. V. Pai, Chief Accountant, Port Trust, Madras.
6. Sri K. K. Raman, Director, Messrs. Seshasayee Bros., Mettur.
7. Sri L. N. Gopalasami, M.L.A., Secretary, Harijan Sevak Sangh, Tiruchi.

The appeal authorised funds being sent to Mr. Totadri Iyengar. About Rs. 3100/- has thus been collected, and less expenses the amount is to be handed over to Fr. Principal for endowing a scholarship of annual value not less than Rs. 120/- In addition Dr. A. Kandasami Pillay, Retd. Civil

PORTRAIT OF REV. FR. C. PRUVOT, S.J.

Assistant Surgeon, Madras, a former pupil, donated Rs. 1000/- for a gold medal in the name of Fr. Pruvôt. Students had collected about Rs. 175 for a lending library. Two cups already exist in the name of Fr. Pruvôt, one for Inter-hostel athletics and the other for Tennis singles.

Messages wishing success to the unveiling function were received from many old boys of Fr. Pruvôt, a few of whom are:

1. Sri R. Ramasamy Iyer, F.A. & C.A.O., M.S.M. Ry., Madras.
2. Sri S. Parthasarathi Dy. Inspector-General of Police, Mathurai.
3. Sri V. V. Chari, Commissioner of Income tax, Bombay.
4. Sri C. V. Subbarama Iyer, Principal, Science College, Trivandrum.
5. Dr. P. V. Abdurahiman, Govt. College of Technology, Coimbatore.
6. Sri A. M. Krishnamurthi, General Manager, U. P. Roadways, Gorakhpur.



Sodality Notes

THERE are now five Sodalities in this College as against three half a decade ago. The increase is due to the ever swelling number of Catholic students in our Hostel and Boarding.

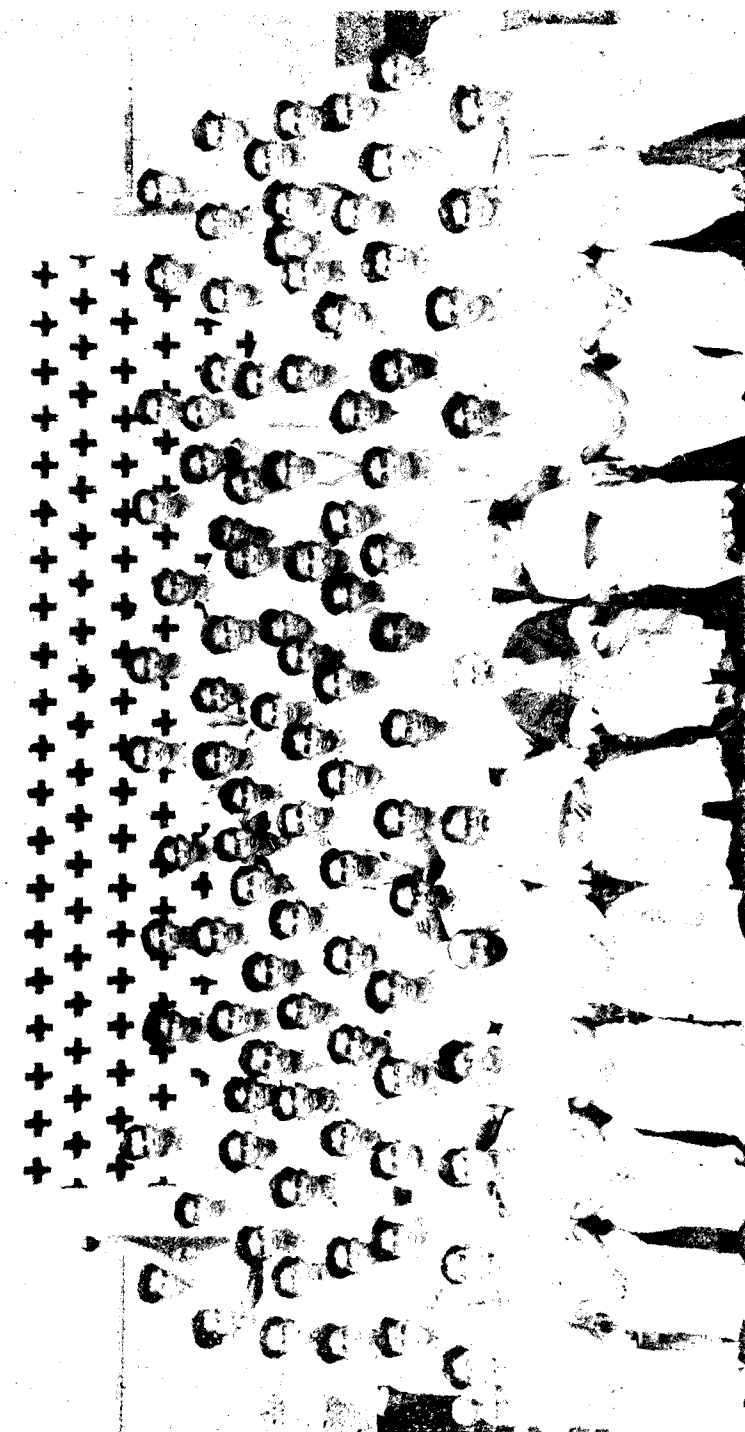
Sacred Heart Hostel

This year the members of the Sodality of the Sacred Heart Hostel number 105 and they began their activities early in the academic year with Rev. Fr. Froehly, S.J., as their director. Apart from weekly meetings, the activities of the Sodalities are varied and interesting. A section of the Sodalities pays regular visits on weekly holidays to console suffering humanity in the Government Hospital, along with their old yet energetic Director Fr. Froehly.

The various sections have been working with unprecedented success. The activities of the Academic Section began with a debate on the moral justification or otherwise of the use of the Atom or Hydrogen Bomb in Warfare, Fr. Peter Uralil, L.Ph. L.D. presiding. On 15th of August a Grand Rally of all the Sodalists of the College was held in the St. Xavier's Hall. Fr. Matthew Alumkkal and Prof. Thomas Srinivasan, M.A., L.T., spoke on the occasion. Three other ordinary meetings were held and subjects like "The Virginity and Greatness of Mary", "Religion the Opium of the People" were discussed. Mr. P. K. Thomas is in charge of this section. During all these meetings the presence of Fr. Froehly with his ever smiling face, has been a source of inspiration and enlightenment to all of us. The reading of Catholic literature has always been encouraged and we are greatly indebted to Fr. Warden for having provided for us a spacious and well furnished reading room where apart from newspapers a host of Catholic magazines both inland and foreign are available.

The Voluntary Catechism Section is very active. With Mr. Chinnappa-raj as their leader 20 members including the volunteers from the Boarding, are teaching Catechism to 200 children in four different centres in the suburbs of Trichy and their great work of imparting religious instruction to the rising generation, is greatly appreciated. Annual examinations and athletic competitions are held and to encourage the children prizes are awarded for proficiency in both.

The Liturgical Section under the leadership of Jesuraj Dasan, mainly undertakes the task of teaching the students how to serve Mass. At



SODALITY 1950-'51

SODALITY NOTES

present 40 members are serving Mass. Of these 26 are newly trained. The Guard of Honour affiliated to the Archconfraternity erected in the Visitation Convent of Roselands Walmer, Kent, England, has now a membership of 40.

Boarding

The marked increase in the number of Sodalists has necessitated the permanent slicing of the Boarding Sodality in two, the Junior Section with Fr. Thomas, S.J., and the Senior Section with Fr. Leguen, S.J., as Directors respectively. The Junior Section has a membership of 66 and the Senior Section has on its rolls 110 members. Of all the Sections the Voluntary Catechism Section has been most successful and they deserve our congratulations. The Elocution Section is also very active. Apart from ordinary meetings there was on Nov. 1, 1950 a Grand Rally in the Lawley Hall presided over by His Excellency Bishop Mendonça to celebrate the Solemn definition of the Assumption.

The Press Section undertakes the sale of pamphlets, rosaries, pictures, etc., and it is really a credit to the section that they were able to sell Rs. 252 worth of articles. The Publicity Section deserves hearty congratulations for its splendid works, especially on Nov. 1 when it successfully conducted the Marian Exhibition on a grand scale. The Liturgical Section has been teaching many students how to serve Mass.

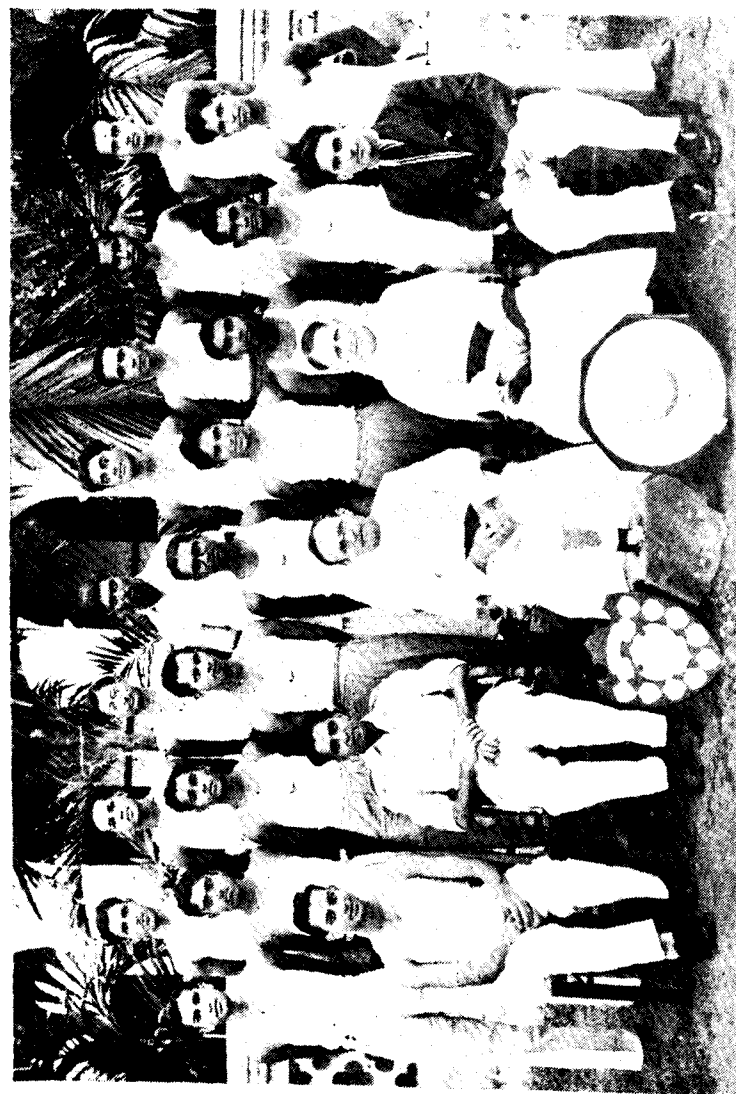
New Hostel Action Sodality

This year, with the increase of the Catholic Students in the Hostel, there was an increase in the number of Sodalists—The 38 members maintained the traditions of the Sodality. Several meetings were conducted and the Little Office of the Immaculate Conception was recited every Sunday. Among the subjects discussed were: "The difficult Sacrament," "The Catholic Press," "The Hydrogen Bomb." We are grateful to Rev. Fr. Fournier, our Spiritual Father, for his guidance and direction.

Semi-Boarding

There are 36 members of the Sodality under the direction of Rev. Fr. Mudiapper.

A joint effort made by the Sacred Heart Hostel Boarding, Semi-Boarding, and New Hostel, both Catholics and Non-Catholics, realised the substantial sum of Rs. 700 together with 6 bales of linen, for the support of the aged poor of Madras.



ATHLETIC TEAM 1950 51

Winners of the Inter-Collegiate Athletic Championship (Madura Division) and the T. D. A. A. Open Athletic Championship.

Social Service League

1950—'51

AS a result of the overburdening of our director with many other duties and due to a shrinkage in the number of our effective members the Social Service League was forced to adopt a limited sphere of work for the year under review. The current year has been one of stocktaking of our organisational defects and we hope to begin enthusiastic work early next year. However, the Social Service League has not been defunct even during the year under review as the following account will show.

Early in October 1950 we visited the Central Jail at Golden Rock, Trichy. On nearing the place we were impressed by the massive gates and the towering well-built walls and one could not but be wonderstruck at the ingenuity of those who manage to escape from these gigantic structures. The extremely cordial relations (at least outwardly) that prevailed in this Jail between the authorities and the criminals and the drive towards self-sufficiency are worth noting. Already they produce more than 10 per cent of their clothing requirements while they hope to extend cultivation to the vast tracts of uncultivated waste owned by the Jail. The total strength of the Jail comes to about 3000; the Jail Superintendent who took us round was very kind and answered all the many pertinent questions that were put to him by the inquisitive social workers.

Towards the end of October we were taken round the Gandhi Memorial Hospital by the Matron, visiting every corner from the kitchen to the operation tables.

On 18th November we were in the South Indian Railway Colony at Golden Rock enquiring and inspecting the living conditions of the workers. Houses ranging in rent from Rs. 125 to 0-8-0 are let to the employees according to their post. The colony with a total school-going population of 3929 has got two elementary schools, one High School and one middle school. There is a Hospital with 90 beds, a child welfare centre, one cinema theatre, marketing facilities, and 4 parks fitted with radios. Church, mosque, temple are all there and the Colony covering an area of 1.87 sq. miles, with its own police (called the Watch and Ward) and its own health department seems to be a world by itself.

Trichy Mills and their labour colony attracted our attention on 21st January. There we studied the working and living conditions of the 600 workers employed in the factory.

SOCIAL SERVICE LEAGUE

We paid a visit to Dalmiapuram cement factory and the labour colony attached to it on 30th January. On the whole 1500 people are employed in the factory which works for the 24 hours a day through a threefold shift system. The workers disclosed confidentially to some of us their grievances.

We must not forget to mention the demise of one of our most active members M. R. Srinivasan, IV B.Sc. from Clive's Hostel. Of a very delicate nature, and most unassuming in character, he was stimulated by a strong love for all the works the Social League undertook, especially in the night schools of the Adult Education Group. May his spirit pass on to us who have been the witnesses of his enthusiastic co-operation.

We held our valedictory meeting on the 6th March. Mr. Thomas Srinivasan, M.A., L.T. gave a spirited parting advice, and Rev. Fr. Fournier, S.J. who was in the chair distributed the diplomas to the outgoing members.



Fine Arts Exhibition

THE Fine Arts Exhibition was held during Pongal holidays (13-14 January 1951) It definitely proved to be an immense progress on last year's shy venture; and gives us legitimate grounds for expecting next year, contributions in larger number and of a yet higher standard.

During two days, the College Room 22, wonderfully transformed overnight (this itself was a piece of Fine Arts.) into an orderly, gracefully decorated and evenly-lit. show-room, saw a steady flow of sympathetic and appreciating visitors. Some of the exhibits were indeed of a very high standard of technique and of taste. This appreciation speaks well of the high degree of aesthetic sense in the majority of our boys, and the awakening of that dormant sense should be scored as a high mark in this year's college record.

Naturally enough, most of the items were mere reproductions. But nobody grudges that in budding artists; chiefly as no copyright was tampered with. Yet, in course of time, we hope to see our youngsters grow out of that tutelage and draw their inspiration from the vast and varied store of Nature and of Human Life, or from the limitless fields of their own inventive mind.

The Illustrated Magazines, ten in number, all hand-drawn, were a special source of interest to all the visitors, who flocked in number round each copy and in silent admiration turned over their pages full of sketches, paintings decorations and illuminated letters.

The Photo Department had some exhibits of a very high technique, but the collection of prints proved to be rather limited. Probably because not sufficient notice was given to the public.

The High School Authorities and contributors are to be thanked and congratulated here for their fine exhibits. Three first prizes go to them.

All beginners are advised to form their hand and to keep their training by one regular daily exercise. It is this constancy and perseverance that secures skill, develops taste and gets of that high level hobby what we all expect from any hobby; rest and enjoyment.

Here are the names of the prize winners :

I. Pencil-Ink-Painting

M. K. S. Mani (IV U.C.)	... Two 1st prizes; Two 2nd prizes.
Veerapan (I U.C.)	... Three 1st prizes.
J. V. Darma Dorai (III B.Sc.)	... One 1st prize; One 2nd prize.
T. Rajappa (High School)	... Two 1st prizes.
T. Joseph Kulandai (II U.C.)	... One 2nd prize.
K. J. George (IV U.C.)	... One 2nd prize.

II. Photos

T. A. Dorairajan (IV U.C.)	.. Two 1st prizes.
L. R. Narayanan (II U.C.)	... One 2nd prize; One 3rd prize.
P. Selvaraj (III U.C.)	... Two 2nd prizes.
K. J. Joseph (I U.C.)	... One 1st prize.
C. Nachiappan (II U.C.)	... One 2nd prize.

III. Illustrated Magazines

COLLEGE :

S. Narayanamurthi (III B.Sc.)	1st prize.
Veerappan (I U.C.)	2nd prize.

HIGH SCHOOL :

VI Form B	1st prize.
VI Form A	2nd prize.
V Form A	3rd prize.

IV. Cartoons

Ramanuja (IV U.C.)	1st prize.
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S. H. Hostel Chronicle

June 21: Hostel reopens Fr. G. P.'s Welcome Song:

Chorus { "Old boys, come straight
New ones, ye wait."

June 27: Mournful tidings of Fr. Carty's demise. A glory departed.

June 28: After Requiem Mass by Bishop Mendonça, we attend the funeral of the deceased.

June 29: Day of mourning. Condolence meeting in the Lawley Hall with Rev. Fr. Rector in the chair.

July 16: Corpus Christi Procession—as grand as ever.

July 18: C. S. U. General election. Candidates appear like mushrooms after a rain—a picture of spirited canvassing and promises made and broken like so many bubbles of water.

July 25: Feast day of Fr. G. P. He is presented with garlands and spiritual bouquets. To quote an eminent authority, "Unlike Bernard Shaw he (Fr. G. P.) does not deny 'Darsan' to his admirers. Boarders enjoy themselves by 'walking freely'; but for us, a feast in a very spiritual sense, because in the mess everything as usual."

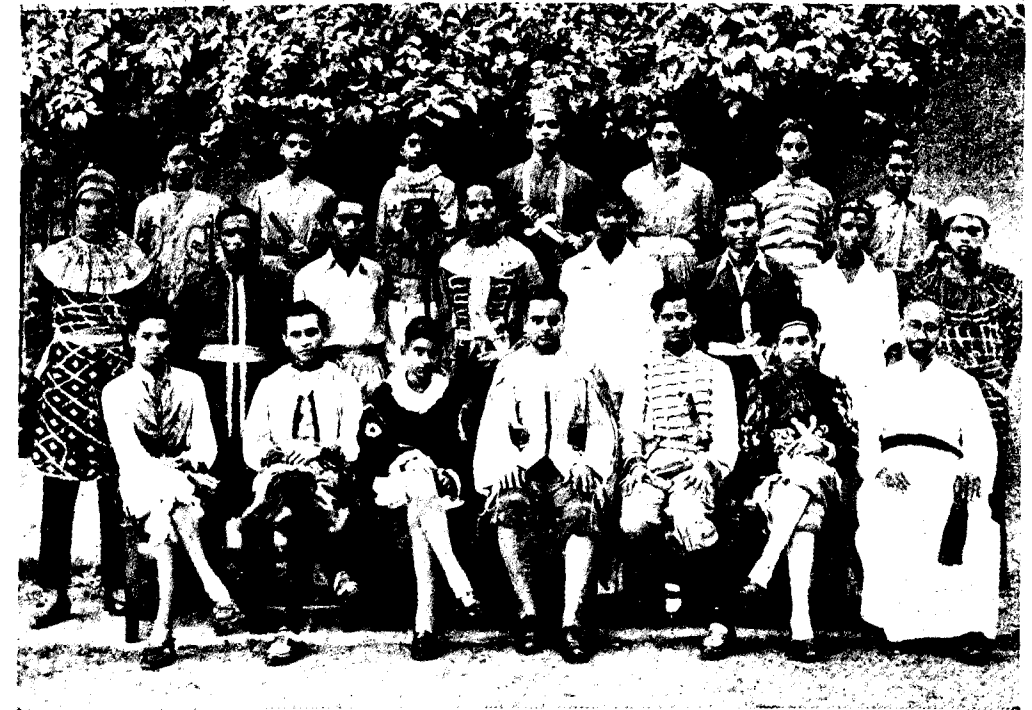
July 31: Feast of St. Ignatius. Matches, film show, garden party and what not. Social gathering in the evening with Mr. Antony Isar as guest of honour. Fr. Matthew Kallarakal addressed the gathering.

Scarcely did we finish our lunch (thank God that we did!) when big drops of rain began to fall. An eye witness report says, "Malayalam and Tamil songs attract rain. To remain or not to remain was the question." Needless to add there was an immediate evacuation of the field of action. A few empty refreshment ('pick-me-up') bottles were missing too.

Aug. 3: We greet Fr. Haas, the jubilarian.

Aug. 6: C. S. U. Meeting of delegates in the Lawley Hall, Fr. Leguer presiding on the occasion. In the evening Fr. Carty's portrait is unveiled in the Lawley Hall.

Aug. 11: We go rank and file to the Ramakrishna Theatre to witness 'Joan of Arc'—a picture for a year.



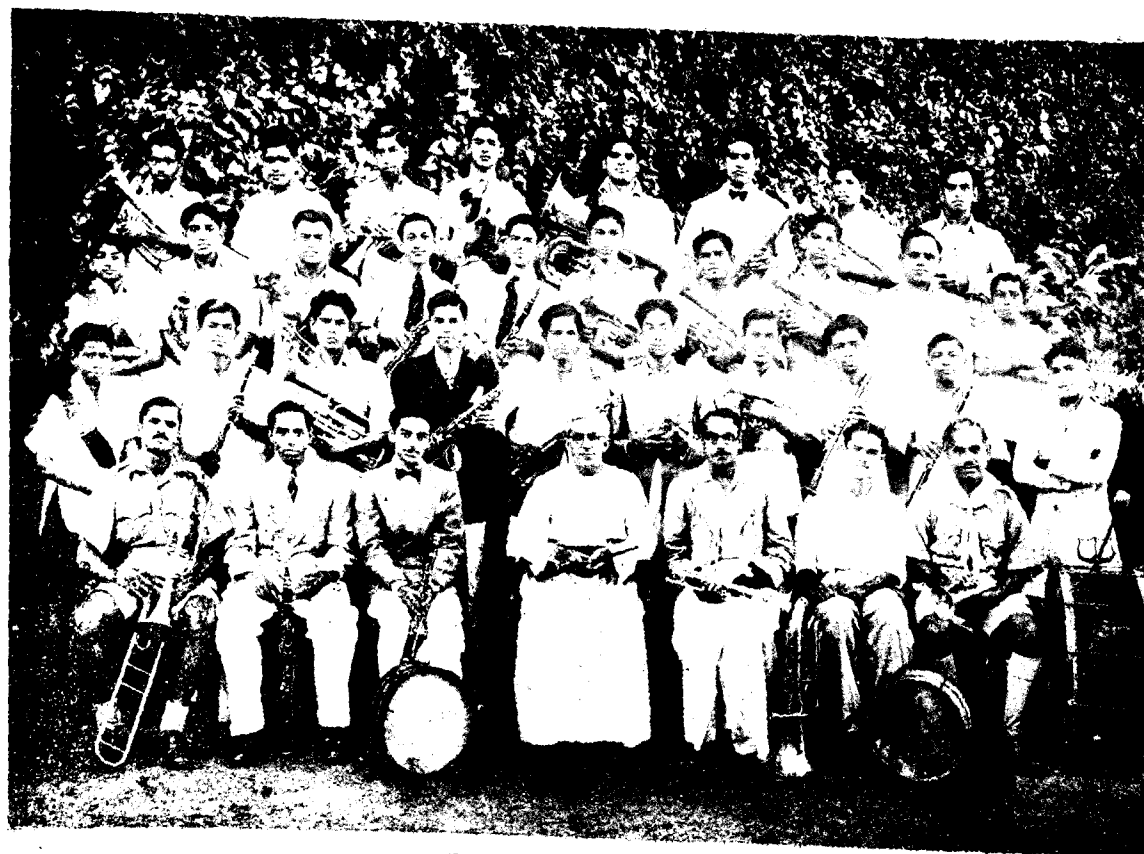
The Triumph of a Noble Cause



Ottamthallam



ALTAR SERVERS



COLLEGE BAND

S. H. HOSTEL CHRONICLE

Aug. 12-14: Silence reigns supreme over the S. H. Hostel. Days of the Retreat.

Aug. 15: The spell is broken with twofold rejoicing—Feast of the Assumption and Independence Day. After Mass we assemble in the Lawley Hall to thank Fr. Arulswamy, the preacher. After a short address Prof. T. Srinivasan hoists the Tricolour.

At 2-30 Grand Rally of all sodalists in the St. Xavier's Hall with Fr. Matthew Alungal and Prof. Srinivasan as speakers of the day. 'Desperate journey' of Errol Flynn is far from making us desperate.

Aug. 27: Candle-light procession—a colourful spectacle in the gathering dusk of the evening. Some returned their half-burnt candles.

Oct. 3: Back to the Hostel. G. P. greets us with his usual comments on the results of the examen.

Oct. 8: 'Tale of Two Cities' in the Lawley Hall. The grandeur of the story was submerged in the poor show accomplished by projectors working half-heartedly.

Oct. 18: Picnic day—great demand for bicycles. Those on the 'home list' miss a pleasant day's outing.

Oct. 19: 'Valley of the Sun'—feature film in the Lawley Hall. The Valley was there all right; only the sun was not shining.

Oct. 22: Mission Sunday—Our Lady of Fatima visits us once again on the silver screen of the Lawley Hall. Grand auction of kink-knacks in the St. Xavier's Hall after dinner.

Oct. 25: We caused a lull in the early morning traffic, while we marched in sixes and sevens, in our annual exodus to the Holy Redeemer's Church. We returned pell-mell.

Oct. 29: With due solemnity we celebrate 'Christ the King.'

Oct. 31: Marian Exhibition opened by Rev. Fr. Vice-Provincial. Entertainment in the Lawley Hall in honour of Bl. Virgin Mary. Our hostel music club 'A. V. M.' make their first debut in a maiden offering.

Nov. 1: Solemn definition of the Assumption of B. V. M. Rt. Rev. Dr. Mendonça presides over the Grand Rally of Sodalists in the Lawley Hall.

Nov. 3: Rector's Day. We greet Rev. Fr. Rector in the Lawley Hall.

S. H. HOSTEL CHRONICLE

Nov. 4: 'College Day' athletes are disappointed by the unexpected advent of heavy rains. There is many a slip between the cup and the lip, as they say. But for us at least, there was no slip between our cups of 'high tea' and lips housing dainties. We were glad to have Fr. Vice-Provincial with us still on this day and our tea party was graced by the presence of no less than five Rectors of the College. For besides our present Rector, Rev. Fr. Kalathil we had with us Rev. Fr. Pinto and Frs. Froehly, De Souza and Leguen; all former Rectors of the College.

Prize distribution in the evening was performed by Rev. Fr. Jerome D'Souza.

Nov. 12: Regional conference of A. I. C. U. F. presided over by Rt. Rev. Thomas Fernando. The double bass of the College Band mingled with the shrill voices of the Holy Cross.

Nov. 13: College Sports in the Mahe Grounds. Our champions win the Rapinat Trophy. They deserve our congrats as well as Fr. G. P.'s tin of sweets, apart from the numerous medals and cups that they got.

Jan. 3: The 3rd Term begins with the New Year. Fr. Vincent Miranda replaces Fr. Guy Bergeron as our Asst. Warden. We miss the latter's exuberant youthfulness bordering on 'thunder and lightning' in the unearthly hours of the morning.

Jan. 4: Selection Results announced: Survival of the fittest and elimination of the unfittest, the fates of those between (missing links?) being 'undecided.'

Jan. 6: Feast of the Epiphany. Fr. G. P. gives his New Year gift in the concrete form of a reading room.

Jan. 13: In the morning we go to see 'Dick Tracy vs. O'Men' in the Lawley Hall. After all the fearful boomerangs, nobody expected anybody to survive; but, in fact, the hero did!

In the evening Mr. Sundaram Pillai treats us with his Kathakalatsepa on St. Philomena.

Jan. 26: Republic Day. Prof. Lobo hoists the National Flag. "Spanish Main" in the Lawley Hall. At 2-30 Scouts Rally in the Mahe Grounds. The Madras Food Minister J. L. P. Roche Victoria took the salute of the N. C. C. march-past.

Jan. 28: Hostel Day. In the morning sportsmen look disconcerted when they see lepers and dhobies in their midst (in fancy dress, of course!)

S. H. HOSTEL CHRONICLE

In the music competition some spoke their song instead of singing. Tea party and social gathering in the evening presided over by Mr. M. Ratnaswamy. After the usual catalogue of welcome, toast, reply and distribution of prizes, the president rose to address the gathering.

The variety entertainment was exceedingly grand. If the III div. boys surpassed Lalitha-Padmini in their superb performance of the snake dance, the 'outlaws of the hostel' (I mean residents of Rooms 107, 108 and 110) matched Vdiay Sanker in their fine display of one of the ancient arts of Kerala, namely, Ottam Thullal.

Feb. 11: Our Lady's annual academy presided over by the august personage of Bishop Léonard, Madura.

Feb. 12: Our Lady of Lourdes. Car procession in the evening. The long procession of the inmates and parishioners wound its way round the heart of the illumined city. The decorated and illuminated car which carried the statue of Our Lady shed its resplendent colours along the streets of Trichy.



Clive's Calling

June 22nd: Clive's Hostel becomes the centre of attraction. Students rush to enlist themselves as the members of the most liked hostel in the South.

Seniors are already back to the hostel with added determination to make the best of their stay. Shaking of hands and exchange of greetings follow. Liveliness lacks as juniors are keeping aloof. The new environment has a psychological effect on them.

23rd: Juniors meet Fr. Warden and long for his care and affection. "Human instinct craves for recognition and love." Eccentricities of the gay youth are in exhibition.

27th: Gloom and sorrow pervade the hostel at the demise of Rev. Fr. Carty, S.J.,—the eminent economist, learned lecturer and philanthropist.

July 2nd: Proceeding along the track set up by tradition, office-bearers for the current year are chosen. Power is attractive, but responsibility can give headache.

The first quadrangle meeting takes place. Fr. Warden welcomes the adventurous new-comers and pronounces his maxims. Discipline is his ideal. Work is his watch word.

16th: Monotony is broken by the arrival of feast-day. New-comers are inebriated with delight and make the most of the occasion.

Aug. 11th: Homesick juniors jump with joy at the arrival of the 'Retreat Holidays.'

12th: We take our dinner on the bank of the river and everyone feels it a welcome change.

15th: We once again remind ourselves of the freedom that we won recently, renew our pledges and pray for the long life of every one of our leaders.

Oratorical contests are held on the occasion and many latent talents are discovered.

Sep. 11th: Examinations begin. Our students get ready to acquit themselves creditably as usual.



CENTENARY BASKET BALL TOURNAMENT 1950-51
FINALISTS

College (runners-up) V Old Boys (Winners)

The College Team were the Winners of the Inter-Collegiate Basket Ball Tournament (Madura Division)



CRICKET TEAM 1950-51
Winners of the Inter-Collegiate Cricket Tournament (Madura Division)

CLIVE'S CALLING

14th: Examinations over, we hurry back to our sweet homes.

October 3rd: The college reopens and once again happy voices begin to travel round the hostel.

12th: All of us are shocked to hear of the death of Mr. M. R. Srinivasan who was very dear to us. A condolence meeting is held and we pray for his soul.

15th: Scarcely have we recovered from the previous shock when we hear that one more of our dear friends Mr. K. N. Balakrishnan has passed away. Every face is pale with horror and dismay. A condolence meeting is held. We seek consolation from the fact that we have to resign ourselves calmly to the inevitable force of fate.

19th: The first feast of the term passes off, delighting the juniors and distressing the seniors.

Nov. 9th: We celebrate Deepavali with a grand feast.

Dec. 11th: The college closes for the Christmas vacation. Except a few who choose to remain here during the vacation, all others go home to get refreshed to perform their duties next term.

Jan. 3rd: The college reopens after Christmas and we begin the New Year with the kind blessings of Fr. Warden.

28th: We celebrate the anniversary of the birth of our Republic with happiness and enthusiasm.

Feb. 11th: The most eventful day of the year arrives. Right from the time when the feeble beams of light slowly begin to conquer darkness, till the time when darkness takes its due revenge, we see and enjoy and make others rejoice, the fruits of our whole hearted and active co-operation. All our talents—from oratory to drama-acting—are exhibited and the day proves to be most interesting, graced by the presence of Mr. P. Mahadevan, Principal, Madurai College.

When we look back, nothing but thrill and satisfaction fill us.



New Hostel Notes

June, 21st 1950: Life flows into the newly-painted blocks of our hostel after a solemn silence of three long months. Our warden, Rev. Fr. Siqueira, is literally at the gates to welcome his "boys"—old and new. Br. Sub-Warden, the good Samaritan, is in the back-ground ready to launch forth on his arduous tasks of the year. This year Rev. Fr. Ceyrac has had to leave us. Rev. Fr. Fournier who has taken his place keeps our Catholic brethren in sound spiritual health. We are however glad that Rev. Fr. Ceyrac has not quite given up his post in the Basketball ground, though he is not quite so regular as before.

26th: Evening. Long queues outside Fr. Warden's room. Parents, guardians and students. Delighted faces and disappointed ones. The hostel is full. They open the first year classes to-morrow.

29th: An unexpected holiday without the mirth of one. New Hostel joins in the wide-spread mourning over the sad demise of the distinguished Rev. Fr. Carty. The Catholics feel it a personal loss. They will miss the able editor of the "King's Rally."

July 1st: The first meeting of our family. Extending a warm welcome to his old "boys," the father of the family initiates his new boys into the ways of the family. Indeed it is gratifying to note that the latter, not waiting for this formality, have already 'sneaked into' the family and are quite snug too.

12th: Our Champions defeat Clive's both in the Basketball and the volley-ball friendly matches. Well begun is certainly half done.

16th: The first gala feast of the year. The young ones are very pleased in particular. In the evening, the solemn Corpus Christi Procession.

Aug. 11th: The Catholic students go into Retreat. The number of "home-sickers" (or home-seekers?) is probably the least this year.

15th: Independence day. Mr. Albert Lobo hoists the National Flag. Follows the feast as grand as ever. In the evening, Errol Flynn attracts one and all to the Lawley Hall.

16th: At last, the country-wide scarcity of rice affects our Home of Plenty too, but only temporarily and not too painfully either. But it

NEW HOSTEL NOTES

helps to show that though we are away from the din and bustle of outside life, we form no isolated Island in the sea of scarcity.

23rd: The Westerners—of course from the near West—celebrate the Onam festival with a variety entertainment and tea-party (with dishes of non-rationed articles). Dr. K. Madhavamenon, D.M.O., presides.

Sep. 8th: Even on the eve of the examinations we have a Basketball match between the non-vegetarian and the Malabar "messers." Thanks to the energetic interest of Fr. Warden, even exams. cannot make us dull Jacks with all work and no play.

14th: Home-ward bound with the added prospect of four more holidays.

Oct. 3rd: Back in the hostel, fresh for a further term's work.

7th: Fr. Pruvôt's Cup Tournament begins. In the Basketball match with Sacred Heart Hostel, we score a really brilliant victory (58-18). Captains of the various teams go about breaking the night silence as little as possible and enrolling players for our Home Tournaments.

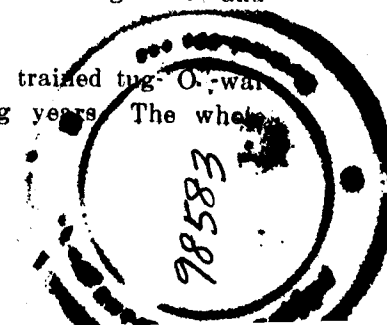
11th: Our champions defeat Clive's in Basketball on their own grounds, breaking a long tradition.

13th: The day-scholars fail to turn up for the match. Are they afraid? In Badminton, our team has defeated all the other three teams.

19th: The first feast of the second term. At night, a venturesome thief somehow sneaks into the third block and tries his luck (or ill-luck!). Caught red-handed at 1-30 A.M. by some of our amateur C.I.D.'s operating with almost professional skill and reticence, he is handed over to the police. Many of us hear of it only late next morning.

31st: During the entire month, a number of colourful matches have been in full swing. Our athletes have been energetically training for the college sports to come and Vasudevan, Marathon runner, comes out second in the cross-country race. We have our own pits for long and high jumps and for vaulting ambition. Notices of matches flood all the notice-boards and overflowing occupy some of the surrounding doors and windows too!

Nov. 2nd: An important event, our scientifically trained tug-of-war team defeats the Sacred Heart eight after five long years. The whole family rejoices at this only-too-deserved triumph.



NEW HOSTEL NOTES

4th: College Day. Clearly the "intelligentia" of our college have all migrated to our hostel. Of the about forty academic prizes, we bag a wholesome eighteen, the rest being distributed among the other two hostels and the day-scholars.

9th: Crackers usher in Deepavali day as also a lavish feast. "Yearling" in the Lawley Hall completes the happy festival of the day.

11th: Indications are that our hostel is going to score an all-round success. All our preliminary September students come out successful. Their success they owe to Fr. Warden for all the infinite pains he has been taking to coach them up.

13th: Sports day. Needless to say, our hostel plays a very prominent part. James Selvaraj gets a second prize in Long Jump and Nanjappan in Pole-Vault. Our special congratulations go to Vasudevan who snatches away the second prize in all the races. Our tug-o'-war team in excellent training, comes out with flying colours in the exciting final. For the first time Fr. Pruvôt's cup is awarded to our hostel, since we score the maximum points in all the games.

A further happy news to hand: our Basket-ball star S. Ratnapandian, the famous under-basket, has been selected to represent the University. Our very warm congratulations.

14th: A grand tea-party in the Assembly hall given to our sportsmen by Fr. Warden. Fr. Fournier too puts in his appearance. Fr. Warden and the General Captain speak on the occasion.

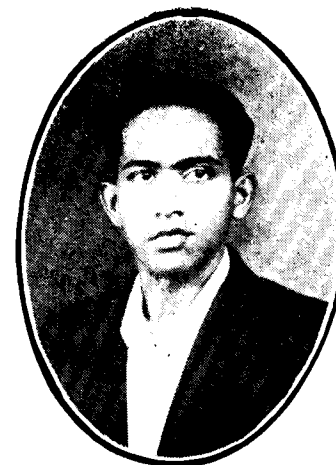
18th: Inter-Collegiate Sports. Our hostel greatly distinguishes itself, our hero of the day being Vasudevan. Nanjappan 'jumps' fourth in the pole-vault.

19th: "Atomic Physics" in the Lawley Hall is much more than an entertainment.

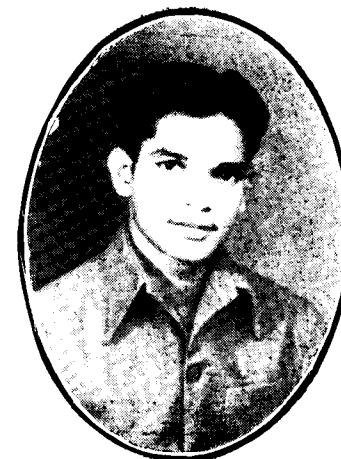
22nd: The cold weather is definitely in with its attendant colds and coughs. Doctor—er—Brother Sub-Warden has a flourishing practice.

Dec. 1st: The second issue of "New Hostel Writes" is out. Both this issue and the last bear ample testimony to the prowess of the budding authors and poets and play-wrights in our midst.

11th: Towards home for a happy Christmas.



P. C. Martin (Foot-ball)



M. Govindan (Foot-ball)

UNIVERSITY

GAMES



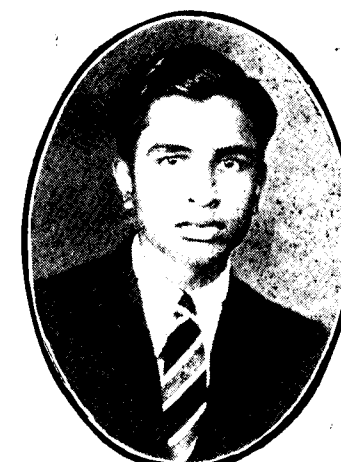
Ivan Jacob (Sports)

SPORTS



E. Cooper (Sports)

PLAYERS



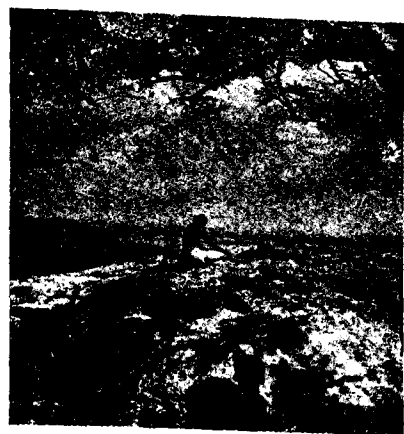
S. Ratnapandian (Basket Ball)



S. Thillainayagam



S. Thillainayagam



By T. A. Doairajan

RURAL LIFE



S. Thillainayagam



S. Thillainayagam

NEW HOSTEL NOTES

Jan. 3rd 1951: Life starts afresh for the New Year. Home tournaments in all games get started and are to keep us happily employed for a full fortnight.

12th: Music competition in the Assembly Hall. We are treated to a variety of music, ranging from cine to carnatic, English to Hindi, and symbolizing the various tastes and cultures all in perfect harmony in our hostel. Krishnamurthi gets the first prize and Antoine the second.

13th: Pongal day. A fitting feast. Of course, the sugar cane is not left out.

20th: Quite an event in our hostel-life. Two Sisters of the Poor are on a visit here. With characteristic generosity our hostel rises to the occasion. The Poor Sisters return richer by Rs. 232-12-0 and a lorry-load of cloths and shoes.

22nd: Our Annual Sports briskly begin and carry on for five days.

26th: At last, the longed for Hostel Day is come. Rev. Fr. Adisayam, after a very elegant speech, hoists the National Flag. Follows a round of rejoicing with sports and feast.

But the high-lights of the day's celebrations belong to the evening. Mr. H. Ananthanarayanan, I.C.S., an Old Boy both of St. Joseph's and St. Xavier's Palamkottah is the President and Guest of Honour. After a well-got-up tea-party, the variety entertainment rolls on rapidly with high "tempo." The President is all praise for our hostel. In the course of his speech often punctuated by instances of his high sense of humour, the learned Sessions Judge makes two very significant remarks. Since they have no children of their own, said Mr. Ananthanarayanan, the Jesuit Fathers can afford to take care of 400 children; and since they are strict with themselves, they can be strict with others too. Mr. Ananthanarayanan also blesses New Hostel which is building up a lofty tradition. A Judge's praise is seldom easily given, but when bestowed we know it must be deserved.

Feb. 15th: Picnic Day! Our hostel migrates to Great Anicut. A gay and sunny day in vivid contrast to the clouds and rains of last year. A happy day, made happier by a company of many of our teachers, climaxes in an island supper, with gramophone music loudspeaker over the sand.

18th: Our Assembly Hall which became a Chapel last December for the Catholic staff retreat in the scene of a tea-party and meeting of Old Boys.

NEW HOSTEL NOTES

And now we come to the most prominent feature of new Hostel life—our family meetings. Their value and importance in the manner in which they fashion our individual and collective life are too great to be chronicled in chronological order. In these gatherings, Fr. Warden has explained to us how New Hostel expects every one to do his duty. He has handed out very precious and practical advice which cannot be found in books for self and collective discipline and dignity. He has taught us the way to work, the way to play, and the way to win. Life in our hostel should be a full blossom unmarred by the canker of communalism or separatism. We have often been surprised by the psychologist in him who could speak of and solve a number of our personal problems, the very nature of which we could not have otherwise grasped. His ideal is that the very fact of being a member of this great family should symbolize Honour and Truth. Honesty and hard work. And we can proudly declare that we have never consciously disappointed him.



College Societies

1950-'51



The Literary and Debating Society

On 2nd July, Mr. Lorenzo Bantistā of the Philippines inaugurated the activities of our society, this year, with a very interesting and frank discussion of the subject "India and the Philippines." He gave a clear picture of the complicated far-eastern situation, and it proved a valuable introduction to our understanding of the developments in Korea, later. Rev. Fr. T. N. Siqueira, S.J., presided.

We celebrated the U.N.O. Day with a meeting in the Lawley Hall, and Mr. T. Srinivasan, M.A., gave a very instructive talk on the U.N.O.

On 10th January 1951, the Hon'ble Mr. Hari Krishna Mahtab addressed the students in the Lawley Hall, packed to its full. The speaker found himself at home in the midst of the students of Trichinopoly, and let himself go on Indian Industries.

On 18th January 1951 Rev. Fr. J. Adisayam, S.J., gave a learned talk on Human Rights, and got the audience interested incidentally in the Fundamental Rights Clauses of our Constitution.

We had a very impressive celebration of the Republic Day, at 8-43 A.M. in the College Quadrangle. Rev. Fr. L. M. Balam, S.J., hoisted the National Flag. Mr. T. Totadri Iyengar, M.A., gave the address. The N.C.C. marched past and the College Band played the March.

We had, in addition, four debates and four speech competitions. The subjects debated were:

1. Examinations are no test of real merit: motion carried 50 to 40.
2. In view of the recent developments in Korea, maintenance of peace through the U.N.O. is become impossible—motion carried 53 to 40.
3. The Indian National Congress will not survive a general election—motion lost 60 to 80.
4. The foreign policy of the government of India is in the best interests of our country and of world peace—motion carried 273 to 237, about a hundred remaining neutral.

COLLEGE SOCIETIES

The extraordinarily large attendance in this last debate on 19th Feb. 1951, the last of our functions this year, must be attributed mainly to the reputation of the debators who participated—Messrs J. Chelliah, M.A., P. Prabhakaran, B.Sc. (Hons.) R. Srinivasan, S. Varadan, A. Irudaya Raj, M.A., Albert Lobo, M.A., Clement D'Cruz, and M. C. Mathew, and of the Observer Rev. Fr. B. J. Coyle, S.J.

That our activities have been very successful this year is born out by the creditable victories we had in open in oratorial competitions. R. Srinivasan, IV Hons. and S. Varadan, V Hons. secured the first and second places in the Rotary Club Competitions, and won the Shield for the College. A. P. Subramaniam, IV B.Com. got the Sastri Gold Medal in the Oratorical Contest at Kumbakonam. We congratulate the winners of these laurels.

P. V. Pavitran, V Hons.

S. Varadan, V Hons.

K. M. Mathew, IV Hons.

R. Srinivasan, IV Hons.

Secretaries.



Mathematics Association

The activities of the Association commenced with a business meeting on 4 July 1950 for the election of Secretaries. Shri. V. K. Balakrishnan, IV Hons., and Shri. K. Arumugam, IV U.C., were elected from the Honours and the B.A. constituencies respectively.

The inaugural address was delivered by Dr. R. Ananthakrishnan, M.A., D.Sc., Asst. Director of the Solar Observatory, Kodaikanal on 17 July on "Solar Physics" illustrating his talk with epidiascopic projections.

Under the Madras University Honorary Readership Lecture Scheme, Shri. T. Totadri Iyengar, M.A., delivered a series of four lectures on "Mathematics and Group Theory" on 28 July, 29 July, 1 August and 2 August.

On 10 August, Mr. P. J. George, IV Hons., gave a lecture on "Analysis Situs." Shri. R. Ramakrishna Shenoy, B.A., took the chair.

Under the chairmanship of Shri. A. Rangan, V Hons., an ordinary meeting was held on 24 August when Shri. S. Venkataraman, V Hons., gave expression to some fundamental ideas about the special theory of Relativity.

COLLEGE SOCIETIES

An extraordinary meeting was held on 13 October under the presidency of Shri. T. Totadri Iyengar, M.A., to mourn the sad demise of Dr. S. S. Pillai, in an aircrash near Cairo, on his way to Princeton University. The following official resolution was passed unanimously: "This meeting of the members of the Mathematics Association places on record its deep sense of regret on the tragic demise of Dr. S. S. Pillai, the distinguished mathematician of international repute, and conveys its profound sense of sympathy to the members of the bereaved family." As a mark of respect, the meeting adjourned for five minutes. Thereafter Shri. R. Gopalaswamy, V Hons., delivered a lucid lecture on "The theory of Numbers" while Shri. S. Sitaraman, V Hons., presided.

On 26 October, Shri. S. Gopalakrishnan, IV Hons., gave an interesting lecture on "Mathematics in Everyday Life." Shri. M. Ramayya, B.A., occupied the chair.

On 2 November, Shri. S. Sitaraman, V Hons., spoke on "Non-Euclidian Geometry" with Shri. R. Krishnaswamy, V Hons., in the chair.

An extraordinary meeting was held on 7 November when Dr. A. Narasinga Rao, M.A., D.Sc., President of the Indian Mathematical Society gave an interesting lecture on "Mathematics and Games." Shri. T. Totadri Iyengar, M.A., presided.

On 16 November, Mr. P. J. George, IV Hons., spoke on "Trends in Modern Pure Mathematics," when Mr. P. K. Thomas, IV B.Sc., took the chair.

On 11 January, Shri. K. S. Sundaram, B.A., delivered a brilliant lecture on "Stars and Atoms." Shri. R. Gopalaswamy, V Hons., presided.

On 20 February, Shri. T. P. Srinivasan, IV Hons., gave a short lecture on "The Theory of Equations" under the chairmanship of Shri. T. S. Kannan, IV Hons.

The results of our annual contests are as follows: in the problem's paper, Shri. R. Gopalaswamy, V Hons., gets the first prize while the intermediate special prize goes to Shri. V. Aravamudham, I U.C. and Shri. S. Ramamoorthy, I U.C. In the elocution contest Shri. T. P. Srinivasan, IV Hons., and Shri. V. G. Viswanathan, IV Hons., get the first and second prizes respectively.

V. K. Balakrishnan, IV Hons.

K. Arumugam, IV U.C.

Secretaries,

COLLEGE SOCIETIES

The Physical Society

SENIOR SECTION

At a business meeting held on 8th July 1950 for the election of the secretaries, Mr. K. V. Balakrishnan was returned unopposed from the Honours while from the B.Sc. Class Mr. P. N. Ramachandra Rao was elected by a vast majority.

The Inaugural Address was delivered on 15th July 1950 by Sri. Ramiah, B.E., M.I.E., on "The value of applied Science in Engineering." Rev. Fr. J. B. Rajam presided over the meeting which was largely attended by students and members of the staff.

The first ordinary meeting was held on 28-7-50 when Mr. G. N. Venkataraman, V B.Sc. (Hons.) delivered a lecture on "The method of Science." The meeting was presided over by Mr. K. Ganesan, V B.Sc. (Hons.)

On 8th August 1950, Mr. B. Anantha Shenoy, IV B.Sc. gave a lively talk on "The prospects of science" with Mr. G. Subramanian in the chair. "X-rays" formed the subject of an interesting lecture by Mr. Ambalavanan, IV B.Sc. on 19-8-50. Mr. N. Sankarasubramanian, IV B.Sc. was in the chair.

The first extraordinary meeting was held on 30th August, when Mr. V. Krishnan, M.A., S.R.E., gave a talk on "Refrigeration" illustrated with epidiascopic projections. Rev. Fr. J. B. Rajam presided.

Another ordinary meeting was conducted on 21-10-50 when Mr. T. Ranganathan, IV B.Sc. delivered a lecture on "The Cyclotron" with Mr. S. Venkatasubramanian of the same class presiding.

On 26th October, a talk was given by Mr. R. Ananthapadmanabhan, V B.Sc. (Hons.) on "The Special Theory of Relativity." Mr. S. Madhu, V B.Sc. (Hons.) presided.

The sixth ordinary meeting was held on 2nd November when Mr. G. N. Venkataraman, V B.Sc. (Hons.) spoke on "Cosmic rays." Mr. D. Ramachandran, V B.Sc. (Hons.) presided. This was followed by another meeting on 16th November when Mr. Madhu, V B.Sc. (Hons.) gave an account of "Cosmic ray showers" with Mr. T. A. Subramanian of the same class in the chair.

"Positrons" was the subject of a lecture delivered by Mr. Sankaranarayanan, V B.Sc. (Hons.) on 23rd November. Mr. Suryanarayanan, V B.Sc. (Hons.) presided over the meeting.

COLLEGE SOCIETIES

The second extraordinary meeting was held on 9th January, 1951 when Rev. Fr. Rajam, who had just then returned from Bangalore gave a very interesting account of "The All India Science Congress" illustrated with epidiascopic projections.

Another extraordinary meeting was held on 29th January 1951, when Mr. K. Ananthapadmanaban, B.Sc. (Hons.) delivered a very instructive lecture on "Under our feet." On 10th February, 1951, Mr. P. Prabakaran, M.A., gave a very interesting talk on "The Concept of Ether."

Two educational excursions were arranged this year under the auspices of the Society. On 8th and 22nd November 1950, we visited the Radio Station at Tiruverumbur. On 21st February, we visited the Railway workshops at Golden Rock under the leadership of Sri. K. Ananthapadmanaban B.Sc. (Hons.) and Sri. N. Ananthakrishnan, B.A. (Hons.)

"Solar Energy", "Artificial transmutation" and "Artificial lighting" were the subjects proposed for the B.Sc. (Hons.), B.Sc. (Pass) and Intermediate classes respectively in the essay competition held in February 1951.

The following are the Prize-winners.

B. Sc. (Hons.)	I Prize:	Mr. L. S. Narayanan, IV B.Sc. (Hons.)
	II Prize:	{ Mr. Y. Muthusamy, IV B.Sc. (Hons.) Mr. T. G. Narayanasamy, IV B.Sc. (Hons.)
B. Sc. (Pass)	I Prize:	Mr. P. N. Ramachandra Rao, IV B.Sc.
	II Prize:	Mr. G. Thyagarajan, IV B.Sc.
Intermediate	I Prize:	Mr. S. Ramamoorthy, II U.C.
	II Prize:	{ Mr. R. Raghavan, II U.C. Mr. M. J. M. Thalanany, II U.C.

The Valedictory address of the Society was delivered on 27th February by Rev. Fr. Ferroli, S.J. of St. Joseph's College, Bangalore, on "Earthquakes." The meeting was presided over by Rev. Fr. J. Kalathil, S.J., Rector, who also unveiled the portrait of Professor K. S. Mandalam Iyer, M.A., L.T., on the occasion.

K. V. Balakrishnan,
P. N. Ramachandra Rao,
Secretaries.



The Chemistry Association

I am very happy to place before you the report of the activities of the Chemistry Association for the academic year 1950-51. Our activities

COLLEGE SOCIETIES

began with the election of the secretaries: Mr. R. Govinda Rajan, P. Mahadevan and V. X. Jacob from the IV B.Sc. and Mr. S. Nagaswamy from the III B.Sc.

The inaugural address was delivered on the 1st August 1950 by Mr. G. Subramaniam, B.Sc. supdg. chemist Messrs. Lever Bros. (Ind.) Ltd. Bombay, one of our distinguished old members who also happened to be an ex-secretary of our Association, on "Soap making." Mr. A. C. Joseph, M.A., presided. The lecture was highly interesting and instructive.

On 10-8-50 we had an extraordinary meeting. Rev. Fr. K. Sebastian, S.J., spoke on "the problem of colours." The lecturer gave a full account of the perception and causes of colour and the close connection between colour and chemical constitution.

The Association passed two resolutions expressing its deep sense of sorrow at the untimely demise of two of its members, M/s. M. R. Srinivasan, IV B.Sc. and K. N. Balakrishnan, III B.Sc. and conveyed to the bereaved families its heartfelt condolences.

At an ordinary meeting held on 13-10-50 with Mr. V. V. Sebastian, IV B.Sc. in the chair. Mr. V. Ramachandran, IV B.Sc. gave a very interesting and useful lecture on "Electricity in Chemical Industry."

"Our education tour" was the topic of the lectures delivered by M/s. P. S. Narayanaswamy and K. Kurian of III B.Sc. on 22-1-51 presided over by Mr. C. K. Ramakrishnan, M.A. The lecturers and the president described their interesting and useful experiences and knowledge gained during an educational tour to Alwaye and other places.

On 24-1-51 Mr. S. Balasubrahmanian, IV B.Sc. presiding Mr. S. Krishnasubrahmanian, IV B.Sc. delivered a fine and detailed lecture on "Mineral Substances in the metabolism of man."

An ordinary meeting of our association was held with Mr. N. Krishnamurthy, IV B.Sc. in the chair on 5-2-1951. Mr. N. Subrahmanian, IV B.Sc. talked on "Fluoro carbons." It was a very interesting lecture on these compounds developed recently.

An extraordinary meeting was held on the 6th February 1951 with Mr. C. K. Ramakrishnan, M.A., in the chair. Mr. G. V. Ramaswamy, B.Sc. Plant Supdt. and Works Manager, Messrs. M.C.I.C. Ltd., Pudur, addressed the gathering on "Oils and fats with special reference to hydrogenation. The lecturer being a specialist in oils and fats gave a lot of useful and interesting information about oil fats and the hardening of oils.

COLLEGE SOCIETIES

Mr. K. R. Meenakshisundaram, IV B.Sc. presiding, an ordinary meeting was held on 9-2-51. Mr. V. Ramachandran, IV B.Sc. gave an interesting lecture on "Plastics." With characteristic skill, the lecturer explained clearly every aspect about these versatile substances.

The Chemistry Association can naturally and justly be proud of having arranged for and carried out successfully some important educational visits and tours.

Led by Mr. P. V. Mani, B.Sc. the members visited the Vanaspathi plant of M/s. M.C.I.C., Pudur on 10-10-50. The Chemists who are old members of the Association, and the engineer received us warmly, took us round and explained every detail of the process.

On 1-11-50 led by Mr. C. K. Ramakrishnan, M.A., a large number of our members visited the Dalmia Cement Factory at Dalmiapuram. The Chemist there who is one of our old members, received us gladly and took us round the factory showing and explaining to us every detail about the dry and the wet process of making cement.

During the X'mas holidays a large number of our members under the leadership of Mr. C. K. Ramakrishnan, M.A., visited the various factories in and near Alwaye on the West Coast. We visited the Indian Aluminium Co. at Alupuram where we saw the extraction of Aluminium metal from bauxite available in and processed at Muri in Behar in our country.

We next visited the Standard Pottery Works where tiles, stone-ware pipes and porcelain ware of many types are being made from ordinary clay, quartz, feldspar and other minerals. We may particularly mention that quartz and feldspar used in the factory are exported from Manapparai and gypsom from Ariyalur near our town.

We spent a whole day in visiting the F. A. C. T. Alwaye. We saw the production of producer gas from wood H_2 from steam and iron, the synthesis of ammonia from N_2 and H_2 , and manufacture of calcium superphosphate and the manufacture of ammonium sulphate from NH_3 and gypsom the latter being obtained from Ariyalur.

We also visited the Ogale glass factory, where different varieties of glassware are manufactured from sand obtained from nearby place, Pallipuram.

Our visit to the only existing Rayon Factory in India viz. The Travancore Rayons Ltd., Perumbavoor, where we saw the production of transparent paper and rayon or artificial silk yarn from wood cellulose by the "Viscose" process will be ever cherished by every member of the

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COLLEGE SOCIETIES

party. We also visited the Tata Oil Mills Co. Ltd. at Ernakulam where we saw the manufacture of soap cocogem, vanaspathi etc.

In all these places we had particularly visited the chemical laboratories, the nerve centres of modern industries and the patient and hard working chemists attached to these factories.

Special mention must be made of the fact that in most of these factories we were received with outstretched arms and benignant smiles and were taken round the various sections with great zeal and enthusiasm by the chemist and plant superintendent who happened to be in most cases, old members of the Association. But for the yeoman help of these gentleman our visits would not have been the grand success they were. We take this opportunity to acknowledge our indebtedness and gratitude to these numerous old members.

The valedictory address of the Association was delivered by an old member of the Association who had recently returned to India after his technological studies in U.S.A. as an overseas scholar, Mr. R. Jayaraman, M.Sc., S.M. (M.I.T.) A.I. Ch.E. (Jr.) He gave an excellent account of the "Technological Education in the U.S.A." Our vice-president, Mr. A. C. Joseph presided.

As usual the Association conducted essay competitions.

The subjects were for degree classes: Coal tar and its products
for inter " : Oils and fats.

The Prize Winners are:—

- | | |
|--------------------|------------------------------------|
| For Degree classes | 1. V. Ramachandran, IV B.Sc. |
| | 2. S. Krishnasubramanian, IV B.Sc. |
| For Inter. classes | 1. N. Ramasubramanian, II U.C. |
| | 2. P. V. Thiagarajan, II U.C. |

This is what we have done in the year under review. The secretaries wish to record their sincere and heartfelt thanks to the members of the Association for their cooperation. Their thanks are specially due to the president, the vice-president and the members of the Chemistry staff for having infused in them spirit and enthusiasm and goaded them on to do sincere work.

R. Govindarajan,	V. X. Jacob,
P. Mahadevan,	S. Nagasamy,
	Secretaries.

COLLEGE SOCIETIES

The Botany Association

At the Business meeting held on 14-7-50, Sri Alphy Joseph of the IV U.C. and Sri Ranga Rajan of the I U.C. were elected secretaries.

The Inaugural Address was given by Sri W. H. Lazarus, M.A., L.T., on 18-7-50. The subject of the address was "Camouflage." He explained how animals escaped from their enemies by mimicry and protective colourations.

On 20-10-50 Sri Selvaratnam of the IV U.C. spoke on "The Evolution of the Dicots." He pointed out the various evolutionary tendencies seen in this group.

Sri K. J. Isaac of the IV U.C. discussed the different theories about the Ascent of Sap at the meeting held on 23-11-50.

Our Demonstrator Sri N. F. Chacko delivered a lecture on 2-12-50 taking as his subject "A Stride in Plant Evolution." He traced the development of Pteridophytes from the Lower Algae.

At the meeting held on 22-1-51, Sri T. M. Mathew of the IV U.C. gave an interesting talk on "Cannibal and Carnivorous Plant."

Srimathi Jaya Marie, M.A., L.T., of Holy Cross College addressed the members on "Penicillin." This meeting was held on 27-1-51. We are very thankful to her for her great kindness.

On 1-2-51 Sri M. M. Mathew of the IV U.C. spoke on "Parthenocarp" showing the need of such a phenomenon in some plants.

At the Oratorical Contest judged by Captain T. V. Krishnan and Rev. Fr. L. M. Balam, S.J., the following were awarded the annual prizes of the Association.

B.A. & B.Sc. Classes	I Prize	M. K. Subramaniam
	II "	V. C. Mathew Roy
Intermediate Classes	I Prize	M. J. M. Thalanany
	II "	S. Jambu

Sri P. Venkataramany, M.A., I.F.S., the District Forest Officer, Trichy, gave a Valedictory Address on 2-3-51. Speaking on the subject "Indian Forests" he explained, with a wealth of examples, the services rendered by forests to Madras State. He concluded his very interesting address with a review of the prospects open to our Botany students in the Forest Department. A cordial vote of thanks was proposed by Sri Alphy Joseph.

Alphy Joseph, IV U.C.
Ranga Rajan, I U.C.
Secretaries.

The History and Economics Association

The great loss sustained by the College at the very beginning of the year by the sudden demise of Rev. Fr. P. Carty, S.J. was shared in a special way by the History and Economics Association whose president he had been ever since its inception. Consequently the Association began functioning rather late this year under the inspiring direction of our new president Rev. Fr. S. Mudiapper, S.J.

At the inaugural meeting, held on 10th August 1950, we put on record our deep sense of sorrow by passing a condolence resolution moved to that effect by P. J. Jose. In the course of his address on "Fundamental Rights" Rev. Fr. Adhisayam S.J., speaking from the chair, said that fundamental rights were those rights springing from the very nature of man and he emphasized the necessity of safeguarding them.

On 22nd August we discussed the proposition "The Planning Commission as at present constituted, is a superfluity which we can do very well without." Our vice-president Mr. M. Arokiaswamy, M.A. presided. P. V. Pavithran, V (Hons.) moving the resolution, maintained that private enterprise had not been given its chance while E. X. Joseph, IV (Hons.) opposing the resolution pointed out that without planning we could only go the China way. The mover and the opposer were supported by K. Pichumanil, V (Hons.) and Joshua John, IV (Hons.) respectively. A number of supplementary speakers participated in the debate. The motion was put to vote and declared lost.

The Association met on 2nd September to listen to a lecture on "Russia in world affairs" by Mr. M. Natarajan B.A. (Hons.)

The proposition, "The drift towards the welfare state is dangerous," moved by Clement S. D'Cruz, V (Hons.) was the subject of discussion on 23rd October when S. Pushparaj, B.A. supported the proposition while R. G. Dias, V (Hons.) supported by T.V. Govindarajan, V (Hons.) opposed the motion. Mr. A. Hirudayaswamy, M.A., B.L. occupied the chair. The motion was carried by a very narrow majority.

We celebrated the United Nations Day under the combined auspices of the History and Economics Association and the Literary and Debating Society on 24th October at meeting presided over by Rev. Fr. T. N. Siqueira, S.J., Prof. Thomas Srinivasan, M.A., L.T., gave an instructive talk on the occasion.

At an extra-ordinary meeting held on 22nd January Prof. Thotadiri Iyengar, M.A., of the National College spoke on: "The problem of power in the modern world."

Mr. M. Natarajan, B.A. (Hons.) gave an illuminating talk on "Asian Nationalism" on 3rd February.

"Full Employment" was the subject of another learned discourse by Mr. M. Arokiasamy, M.A. at a meeting on 10th February.

Mr. A. Hirudayaswamy, M.A., B.L., speaking on "Economic Shibboleths" on 19th February, exhorted the students to be free from the baneful influence of mere economic shibboleths and to work for the betterment of humanity with a constructive and reasonable programme.

The valedictory meeting on 2nd March was presided over by Mr. Albert Lobo, M.A., B.L., L.T., Mr. K. R. Avadhani, B.A., B.L., gave a lecture on: "The World at Crossroads."

V. Vaidyanathan,
P. J. Jose,
Secretaries.



Sanskrita Samajam

The activities for the year began with the election of Messrs V. Srinivasan, IV U.C. and K. Narayanan, II U.C. as Secretaries.

The inaugural address was delivered on the 7th August, 1950, by Mr. M. K. Venkatarama Iyer, M.A., Professor of philosophy, National College, Tiruchi, under the chairmanship of Rev. Fr. Balam, S.J. Talking on "Allegories and anecdotes in the Upanishads", the learned professor characterised the Upanishads as the ripest fruits of wisdom of the ancient sages and with profuse examples drawn from the Upanishads, he showed how the allegories and episodes were used there in plenty to illustrate and clarify the abstract thoughts which would otherwise have been difficult to grasp. Rev. Fr. Balam, S.J. in his concluding remarks exhorted the audience to develop the spirit of enquiry and research which formed the chief traits of the Upanishads.

On the 22nd August '50 G. Santanam, IV U.C. gave a talk on "Kalidasa's masterpiece," the Sakuntala. Mr. A. Subramanya Iyer, M.A. presided. The success with which Kalidasa has achieved the blending of inanimate nature with human nature and of love with moral perfection, was the central theme of the talk.

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At another ordinary meeting held on the 11th October, N. Ramaswamy II U.C. speaking in Sanskrit, expounded the beauties of the Dramas of Bhasa, stressing on the realistic nature of his characters Mr. S. Kalyanaraman, II U.C. was in the chair.

The most well attended extra-ordinary meeting of the year came off on 21-10-50, when the renowned poet-Laureate to the Government of Madras, Mahamahopadhyaya Sri K. S. Krishnamurti Sastrigal gave a brilliant discourse on "Art of Kalidasa." Mr. V. Gopala Iyengar, M.A. presided over the meeting. Himself a poet, the speaker brought out very lucidly the perfection of Kalidasa's poetry from all angles of view, the aesthetic, the realistic and the ethical. The lecture was listened to with profound admiration by the vast gathering which included many distinguished guests from among the public of the city.

Delightful things never come single; for this was followed by another equally enjoyable function on 23-10-'50, when Mr. N. Ragunatha Iyer, Assistant Editor "The Hindu", entertained the audience, assembled in large numbers in the Lawley Hall on "Valmiki's Irony" with a scholarly analysis of the great epic, the lecturer showed how Valmiki resorts to irony arising out of situations more often than verbal irony and how Valmiki's irony elevates without leaving a string and ennobles without humiliating. Rev. Fr. Rector, who kindly adorned the chair on the occasion, reflected the opinion of the House, when he complimented the speaker on his scholarly approach to the great epic.

V. Aravamudhan, Junior Inter, spoke on "Kumarasambhavam" on 15-11-50 with Mr. K. Kalyanasundaram, Senior B. A. in the chair. The speaker established the claims of Kumarasambhava as a Mahakavya and cited instances of the poet's great skill in the description of nature from the work under study.

On 21-11-'50 S. Kalyanaraman, II U.C. delivered a speech on "Chanakya" with Mr. V. Gopala Iyengar, M.A., in the chair. Dwelling on the genius and personality of Chanakya, he said that Chanakya's was the most distinguished name in the history of Indian political strategy and contrasted him with his mighty rival Rakshasa.

At the next ordinary meeting held under chairmanship of Mr. Subramanya Iyer M.A. on 24-1-50 K. A. Chidambaram, III U. C. dealt with the teachings of the Bagavatgita with ample quotations.

On 10-2-'51 K. Kalyanasundaram, IV U.C. gave a lecture on "Aswagisha." He dealt at length with the beauties of the Budda Charita and other works

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of the author and pleaded for a fuller study of this rather obscure poet, who has deeply influenced Kalidasa. Mr. P. K. Satyanarayana Rao, IV U.C. presided.

The valedictory address was delivered by Mr. Thomas Srinivasan, M.A., L.T., on 22-2-'51. Speaking on "Sanskrit and Indian Culture" with a scholarly approach, all his own, the speaker said that the Indian Culture as revealed in the sanskrit literature is distinguished for its varied and comprehensive nature. Referring to Sankara, among philosophers and Kalidasa among poets, as representing peak of Indian intellect and culture, the lecturer expressed his view that a proper study of sanskrit was necessary for the correct understanding of Indian Culture. Mr. V. Gopala Iyengar, M.A. who presided, paid a tribute to the speaker's analysis of the fundamentals of culture as represented in Sanskrit Literature.

The usual annual competition was held on 7-2-'51. There was a Sanskrit Essay Competition, open to the B.A. Classes and a general Knowledge Test in Sanskrit for the Intermediate Classes. The following are the winners of the competition.

Essay Competition—

I Prize: K. Kalyanasundaram, IV U.C.

II Prize: K. A. Chidambaram, III U.C.

General Knowledge Text—

I Prize: R. Subrahmanyam, I U.C.

II Prize: K. Narayanaswamy, II U.C.

R. V. Srinivasan,
K. Narayanan,
Secretaries.



தமிழ்ப் பேரவை

பேரவைச் செயலாளர் தேர்வு திரு. ரம்போலா மாஸ்கரேனஸ் அவர்கள் தலைமையில் 14-7-50-ல் நடைபெற்றது. திருவாளர்கள் து. சி. சிவானந்தம், ரா. செல்வரத்தினம், அ. அந்தோணிசாமி செயலாளர்களாகத் தேர்ந்தெடுக்கப்பட்டனர்.

பேரவையின் தொடக்க விழா 27-7-50-ல் நம் கல்லூரிப் பொருளாதாரப் பேராசிரியர் சங். T. T. அதிசயம் சுவாமிகள் தலைமையில் லாஸி மன்றத்தில்

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கொண்டாடப்பட்டது. காரைக்குடி திரு. ராய. சொக்கலிங்கம் அவர்கள் 'வள்ளுவரும் கார்தியும்' என்பது பொருளாகப் பேசினார்கள்.

19—8—50-ல் பேரவை மன்றத்தில் சொற்போர் நடைபெற்றது. ஐந் தாவது ஆனார்ஸ் மாணவர் திரு. G. N. மாதவன் தலைமையில் "தமிழ் நாட்டில் ஆங்கிலத்தில், கல்வி அளித்தல் தகுதி உடையதல்ல, நலம் பயப்பதுமாகாது" என்ற தீர்மானம் விவாதிக்கப்பட்டது. தீர்மானத்தை ஆதரித்து திருவாளர்கள் T. P. S. பழநிசாமி, குழந்தைராஜ் பேசினார்கள். திருவாளர்கள் தீர்த்தாரப் பன், பத்தினாதன் எதிர்த்துப்பேசினார்கள். ஐந்து வாக்குகள் அதிகம் பெற்றுத் தீர்மானம் நிறைவேறியது.

தேலம் கல்லூரித் தலைவரும் தமிழ்ப் பெரும் பற்றாளருமான திரு. இராம சாமி கவுண்டர் அவர்கள் மறைவு குறித்து 22—8—50ல் கூடிய இரங்கற் கூட்டத்தில் அனுதாபம் தெரிவிக்கப்பட்டது.

29—8—50-ல் 'பிறநாட்டுத் தொடர்பால் நம் நாட்டிற்கு ஏற்பட்ட நன்மையைவிடத் தீமையே அதிகம்' என்பதைத் திருவாளர்கள் வி. முகம்மது மீரான், ச. க. ஜேம்ஸ் ஆதரித்துப்பேச, திருவாளர்கள் பெப்பின், சோமு கிருஷ்ணன் எதிர்த்துப்பேசினார்கள். தீர்மானம் தோல்வியுற்றது. கூட்டத்திற் குத் திரு. வி. ம. சம்மனசு அவர்கள் தலைமை வகித்தார்கள்.

தமிழ்ப் பேரறிஞர் மறைமலை அடிகள் மறைவு குறித்து 4—10—50-ல் பேரவை மன்றத்தில் திரு. T. ஐயன்பெருமாள் கோனார் அவர்கள் தலைமையில் ஓர் இரங்கற் கூட்டம் நடைபெற்றது. திருவாளர் வி. மரிய அந்தோணி அவர்கள் மறைமலை அடிகள் நாட்டிற்கும் மொழிக்கும் செய்த பெரும் தொண்டினை எடுத்துரைத்தார்கள். T. P. S. பழநிசாமி மாணவர் உலகுக்கு அடிகளார் மறைவு பெரிய இழப்பு என்பதனைப் புலப்படுத்தினார்.

14—10—50-ல் லாலி மன்றத்தில் 'பாரதி விழா' வெகு சிறப்புடன் கொண்டாடப்பட்டது. திரு. ந. பிச்சமூர்த்தி அவர்கள் தலைமை தாங்க பாரதி யாரின் புதல்வி திருமதி தங்கம்மாள் பாரதி விழாச் சொற்பொழி வாற்றினார்கள். பாரதியாரின் பேத்தி திருமதி லலிதா பாரதி இன்னிசை கலந்த விரிவுரையாற்றி னார்கள். பாப்பா விஜயபாரதி, பாரதியார் பாடல்களை உருக்கமாகப் பாடினர்.

21—10—50-ல் சங். ஞானப்பிரகாசம் சுவாமிகள் தலைமையில் 'வேற்று மொழிச் சொற்கள் தமிழ் மொழியில் கலத்தல் நலம் பயப்பதாகாது' என்பதைப் பொருளாகக்கொண்டு ஒரு சொற்போர் நடைபெற்றது. திருவாளர்கள் தி. வே. தீர்த்தாரப்பன், தே. பே. ச. பழநிசாமி தீர்மானத்தை ஒட்டியும், திருவாளர்கள்

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சுப்பிரமணியன், பத்தினாதன் வெட்டியும் பேசினார்கள். தீர்மானம் தோல்வி யுற்றது.

11—11—50-ல் நடைபெற்ற சிறப்புக் கூட்டத்தில் தஞ்சை ஜில்லா நல இலாக்காத் தலைவர் திரு. கலைமணி பாஸ்காத் தொண்டைமான் அவர்கள் 'கலைவளம்' என்னும் பொருள்பற்றிக் கவின் உறப் பேசினார்கள்.

16—11—50-ல் "சமுதாய நலனுக்கு அரசியல் சட்டதிட்டங்கள் இன்றி யமையாதவை" என்பது பொருளாக ஒரு சொற்போர் நடைபெற்றது. தீர்மா னத்தை ஒட்டி திருவாளர்கள் மீனாட்சிசுந்தரம், குமாரசுவாமியும் தீர்மானத்தை வெட்டி திருவாளர்கள் கந்தசாமி, பழநிசாமியும் பேசினார்கள். தீர்மானத்துக்கு சாதகமாகவும் பாதகமாகவும் சம எண்ணிக்கையுள்ள வாக்குகளே கிடைத்தன. தலைமை வகித்த ஐந்தாம் ஆனார்ஸ் மாணவர் திரு. ம. அரங்கசாமி தீர்மானத்தை ஆதரித்தே தன் கருத்தினைத் தெரிவித்தார்.

12—1—51-ல் லாலி மன்றத்தில் 'வள்ளுவர் விழா' வெகு விமரிசை யாகக் கொண்டாடப்பட்டது. நகரப் பங்கீட்டு அதிகாரி திரு. பூர்ணகுமார் அவர்கள் தலைமை வகித்தார். திரு. வி. முனிசாமி அவர்கள் விழாச் சொற் பொழிவாற்றினார்கள்.

22—2—51-ல் தமிழ்ப் பெரும் புலவர் 'வீரமாமுனிவர் விழா' லாலி மன்றத்தில் கொண்டாடப்பட்டது. 'தமிழர் நாடு' ஆசிரியர் திரு. கி. ஆ. பெ. விசுவநாதம் அவர்கள் தலைமையில் சங். ஞானப்பிரகாசம் அவர்களும், திரு. த. கு. சுப்பிரமணியனும் முனிவர் தமிழ் மொழிக்குச் செய்த செயற்கரிய செயல்களைப்பற்றி விரிவுரை நிகழ்த்தினார்கள்.

பேரவையின் ஆண்டு நிறைவு விழா 1—2—51-ல் நடைப்பெற்றது. ஜில்லா நீதிபதி உயர் திரு. அனந்தராமன், I.C.S. தலைமை தாங்கினர். உயர் திரு. திருவாசகம் கே. எம். பாலசுப்பிரமணியம் அவர்கள் 'தமிழர் நாகரிகம்' என்ற பொருள்பற்றி இனிய சொற்பெருக்காற்றினர்.

பேரவையின் சார்பில் நிகழ்ந்த வாக்குவன்மைப் போட்டிகளில் பி. ஏ. வகுப் பில் முதலாவதாக திரு. பத்தினாதனும், இரண்டாவதாக திரு. மீனாட்சிசுந்தரனும் இண்டர் வகுப்பில் முதலாவதாக திரு. இராமசாமியும் இரண்டாவதாக திரு. சிவராமகிருஷ்ணனும் பரிசு பெற்றனர். பேரவையின் கூட்டங்களில் இசைபாடி இசைவிருந்து அளிக்கும் திரு. அந்துவான் கும்பகோணம் சுவாமிநாத அய்யர் பேச்சுப் போட்டியில் பரிசு பெற்றதை மகிழ்ச்சியுடன் குறிப்பிடுகின்றோம். போட்டிகளில் நடுவர்களாக இருந்து உதவிய 'சிவாஜி' பத்திரிக்கையின் ஸ்தாப கர் திருவாளர் T. சிவஞானம், வழக்கறிஞர் ஜமால் மொய்தீன், விரிவுரையாளர்

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திரு. ஆசீர்வாதம், 'தொண்டு' பத்திரிக்கை ஆசிரியர் திரு. வீராசாமி, விரிவுரை யாளர் திரு. சின்னதுரை ஆகியோருக்கும் பேரவை சிறப்புடன் நடைபெறு வதற்கு உதவிய ஆசிரியப் பெருமக்களுக்கும் எங்கள் நன்றி உரியதாகுக.

து. சி. சிவானந்தம்,
ரா. செல்வரத்தினம்,
அ. அந்தோணிசாமி.



The Malayala Samajam

A business meeting was held on July 20th 1950, and V. M. Mathai, IV U.C. and K. J. Samuel, IV U.C. were elected secretaries.

At the inaugural meeting held on 5th August, Mr. P. M. Mathai, B.A., spoke on the "Need of Improving the status of Malayalam Literature." Mr. K. V. Mathai, B.O.L. presided.

On 21st August, under the presidentship of Rev. Fr. Peter Uralil, L.P.H., L.D., N. M. Mathai, III B. Sc. supported by M. Thomas, III B. A. moved that "The division of India on linguistic basis is necessary." The opposition was led by P. J. Joseph, IV B.Sc. and M. C. Mathew, IV Hons. supported him. The proposition was lost by a large majority.

On 1st September, P. C. James, III Hons. and O. V. Luka asserted that "The rule of the Congress Party is an utter failure." N. U. Varkey, III U.C. and M. M. Matthai, I U.C., took up the challenge and argued against the proposition. The proposition was defeated by a large majority. Mr. P. T. Chacko, V Hons. presided.

"It is better not to have control of food and textiles in India" was the resolution moved on October 14th by M. Thomas, III B.A. Matthew Roy supported him. It was opposed by V. M. Matthai, IV U.C. and A. K. Paul, II U.C. The resolution was carried. Clement D'Cruz presided.

On 10th November under the chairmanship of T. P. Ulahannan, B.A. Antony Joseph Elenjical, IV Hons. and C. A. John, III Hons. moved the proposition that "The Foreign Policy of Pandit Nehru is not conducive to the good of the country." E. X. Joseph, IV Hons. supported by K. J. Samuel, IV U.C. led the opposition. The Proposition was carried by a large majority.

On 20th January 1951 M. K. Ulahanan, IV U.C. spoke on the aim of arts. James Kurian, IV Hons. presided.

COLLEGE SOCIETIES

On February 5th Augustine Paul Kurias supported by V. V. Paul, III B.Sc. moved the proposition that "The Progress of India depends upon industrialisation, on Western lines." The proposition was carried even though it was strongly opposed by N. J. Devasia, III Hons. and T. K. Kuruvilla, I U.C. K. M. Matthew, IV Hons. presided.

O. V. Luka, III U.C. and V. M. Mathai, IV U.C. were elected to represent our College in the Inter-Collegiate debate held at Palghat.

In the extempore speech competition, O. V. Luka, III U. C. and P. C. James, III Hons. came out first and second, and Kurian George and K. George James, I U.C. respectively as first and second in declamation.

The valedictory address was delivered by Sarasa Gayaka Vavi Putherkavu Mathen Tharakan, M.A., Professor of Malayalam, St. John's College, Palamkottah on 24th February. Mr. P. T. Chacko, M.A. presided.

V. M. Mathai, IV U.C.

K. J. Samuel, IV U.C.

Secretaries.



The Hindi Samaj

The activities of this one year old Samaj started with the election of Oommen Aroujo, III U.C. and Joseph Matthew, II U.C. as joint secretaries.

The inaugural address was given on the 1st of August 1950 by Sri. Narayanan. Sahithya Ratna, lecturer of Hindi Prachara Sabha, Tiruchirapalli. He spoke on the subject "What should be the National Language of India?" Janab Abdul Gaffer Mahe, Mundhi Fazil, Urdu lecturer. National College, Tiruchirapalli, presided.

An ordinary meeting was held on Tuesday the 29th August. Cuthbert Pinto, III U.C. presided. Iqbal Ali, III U.C. talked on the subject "The Three years of our Independence." E. H. Valsan, II U.C. and V. S. Ouseph, I U.C. made supplementary speeches.

On 12th October K. M. Joseph presided over an ordinary meeting. Ram Subramanyam, II U.C. Sankara Subramanyam, II U.C. and C.P. Kurian, I U.C. spoke on the subject, 'The Use and Abuse of War.'

On 20th November an interesting debate took place under the guidance of E. H. Valsan, II U.C. M. J. Dominic moved the proposition "Co-education is necessary in Colleges," V. S. Ouseph, I U.C. opposed it.

COLLEGE SOCIETIES

Mr. T. S. Ramakrishnan, B.A., B.O.L., National College, Tiruchirapalli, spoke on the subject "Socialism in India," Mr. S. Gopalan, B.A., B.O.L. of our College took the chair. This extra-ordinary meeting took place on 18th January 1951.

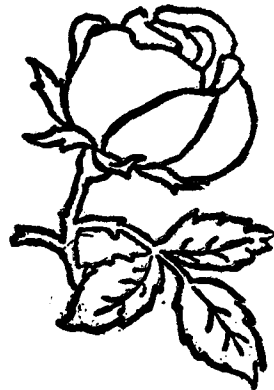
Mr. H. U. V. Chellappa, IV Hons. of our College delivered a speech on "Students' Life" on the 5th of February.

On the 21st of February, IV B.Com. III U.C. and Intermediate classes had Extempore speech competition while III B.Com. had declamation. The following students won the prizes.

IV B.Com. A. P. Subramanyam
III B.Com. K. Venkataraman
III U.C. Cuthbert Pinto
II U.C. N. Ramasubramanyam
I U.C. V. S. Ouseph

The valedictory address was given on 27th Feb. by Mr. D. P. Mathur, M.Sc., Financial Adviser and Chief Account Officer, South Indian Railway.

Oommen Aroujo,
Joseph Matthew,
Secretaries.



Sports and Games

1950 — '51

IN presenting the Annual Report of our activities during this academic year, we have to record with pleasure that we have maintained a high standard of performance in the field of Sports and Games. At the T.D.A.A., we have won the Open Athletic Shield for the fourth year in succession, when our Star Athlete Ivan Jacob set up four New Records. In the University Inter Collegiate Tournaments, we won the Divisional Championship in Basketball, and Cricket. The Popli Shield for Athletic Sports has been won by us for the fourth year in succession. These achievements have been crowned by the excellent performance of our Athletic Champion Ivan Jacob who represented the Madras University at the Inter University Sports at Allahabad and at the Olympics Sports Meet at Madras.

Our College Annual Sports Meet was held on 13th November 1950. Rev. Fr H. Pinto, S.J., Vice-Provincial, Madura Mission presided and gave away the prizes. Very keen competition was witnessed among the Athletes.

Athletics—The much coveted Rapinat Trophy was once again annexed by the Sacred Heart Hostel and Boarding. There was a close contest for the Individual Championship between Ivan Jacob and Edward Cooper. The former won the Trophy by virtue of his allround performance. The Tug-o'-war the most spectacular event of the day was won by the New Hostel Team.

At the District Sports Meet held in September annexed the Open Athletic Championship with a comfortable margin. Ivan Jacob narrowly missed the individual championship but he had the rare privilege of setting up four new records. We did still better at the Inter Collegiate Divisional Sports Meet held at Trichy. Our Athletes piled up a huge total of 92 points, well ahead of the next best team by 44 points. The Divisional Championship and the Popli Shield was again won by us for the fourth year in succession. Edward Cooper won the Individual Championship with 16 points while Ivan Jacob, R. Rodrigues and Vasudevan contributed greatly to our success. Seven of our Athletes represented the Madura Division at the Inter Divisional Sports Meet held at Madras, and our men contributed largely to the success of our Division by finishing a close second to the Metropolitans. Six of our Athletes were selected to represent Madras University at the Inter University Meet held at Allahabad.

SPORTS & GAMES

But only Ivan Jacob and Edward Cooper were able to participate in the Sports Meet. Ivan Jacob returned with flying colours securing the 1st place in 400 metres Race. His excellent performance at the Madras Olympics shows that a brighter future awaits our young Athlete, who will certainly bring greater glory to his Alma Mater.

Cricket—From the point of view of achievements in Games, the place of honour goes to Cricket this year. Our Cricket Team consisting mostly of last year's players with the addition of a few promising batsmen, and under the able captaincy of A. Balaguru and Ramamoorthy, shaped into a well-balanced team early in the year.

After a series of practice matches played against several local teams in Trichy, the team felt confident to undertake a tour to Kumbakonam and Annamalai, during the Michaelmas holidays. Our matches with the Govt. College, Kumbakonam and the Annamalai University team gave us valuable experience which stood us well in the Inter Collegiate matches which soon followed. In the Inter Collegiate Cricket Tournament we defeated the National College, Trichy, and the Govt. College, Kumbakonam, each by an innings, in the preliminary rounds. In the semi-finals against Raja's College, Pudukottah our batsmen, Balaguru and S. Srinivasan scored 48 and 41 runs towards the total of 177 in the first innings while Daniel bagged 8 wickets for just 30 runs. The Raja's College could score only 58 runs in the 1st innings and 54 for four in the second, thus conceding the victory to us. The finals against the American College, Madura proved more decisive. We won the Divisional laurels by defeating our opponents by an innings and 146 runs. A. Varadhan, T. M. Govindaraj and Renganathan batted well while Daniel once again proved a deadly bowler. We are the divisional winners in Cricket for the sixth year in succession. It is gratifying to note that the traditions of our Cricket Club has been well kept up by the earnest efforts of our young cricketers.

Our success could not be pursued further as the Inter Divisional Fixtures are found to be too close to the Examinations.

Football—We commenced our activities with a series of practice matches.

The probabilities and possibilities of the team played a number of selection matches. The final team consisting of 2 University players Martin and Govindan, re-inforced by a few promising freshers, appeared to be in excellent form. They proved then worth in a series of practice matches with several local teams and raised very high hopes of retaining the honours secured by their predecessors—the University Champions. But it is still a mystery as to how such a team had an unexpected reverse in



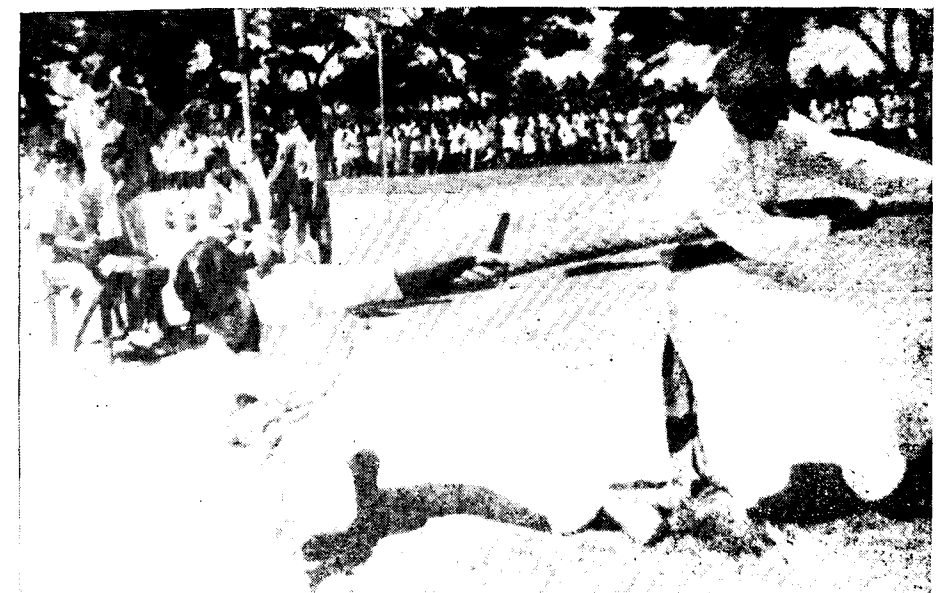
Victory Stand

By Selvaraj



Pentland Shield

By Selvaraj



A. Winner

By K. Muthu Ramakrishnan



Independence Day

By V. Sankaranarayanan



Rector's Day

SPORTS & GAMES

the Inter Collegiate Tournament at the hands of a team which had been defeated outright by us in practice matches. It may be recalled that a similar slip two years ago was followed by the University Championship the next year. We hope history will repeat itself. We shall confidently look forward, and certainly work up to it.

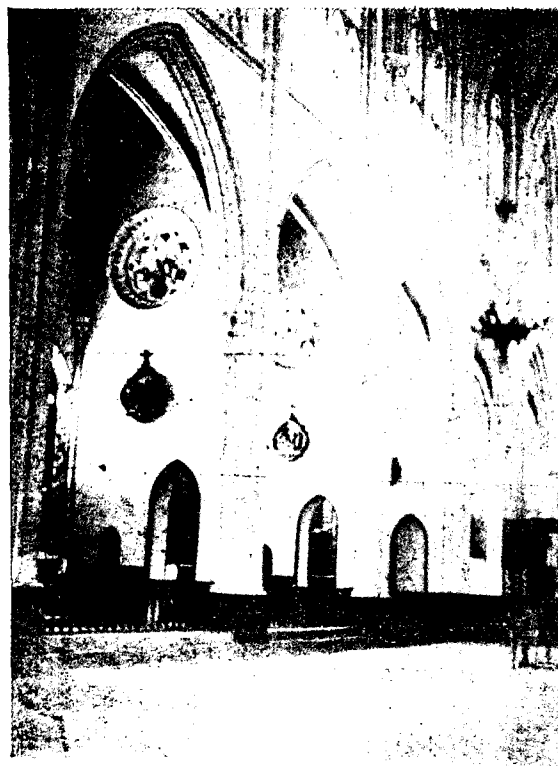
Special mention must be made of the excellent performance of our Vice Captain, Abdul Rahiman, and the fine leadership of our Captain Rangaswamy who has maintained strict discipline and still continued to be most popular.

Hockey—Although we lost the services of several outstanding players, who passed out last year, the gap was filled up by a chosen few from among a large number of new comers. The team availed itself of every possible chance and played a series of practice matches with the local teams. The team gained much experience and in the 1st Inter Collegiate Match against Govt. College, Kumbakonam we beat them by a dozen goals. In the semi-finals we defeated Dr. A. C. College, Karaikudi at Pudukottah and met American College, Madura for the finals. The match ended in a goalless draw during 1st day and was replayed the next evening. It was still a draw and our team had to return to Trichy after their three days stay at Madura. The team was surprised to hear that our opponents were declared the winners, of the Tournament due to our absence on the field for the replay on the 3rd day.—Although we lost the Pentland Shield this year we have not lost the spirit of sports.

We are happy to record the fine performance of our forwards R. Rodrigues, and Ralph Atkinson and of our strong backs, Roy Jayson, and D'Costa.

Basketball—Basketball continues to be the most popular game in our College particularly in the Hostels. Though the departure of our Veteran Captain Nachimuthu left a wide gap, we are happy to record that Veerappan in his place has successfully held the reins.

Our team had its first official 'test' at the Centenary Basketball Tournament held early in August. The first match against Annamalai University team gave us a decisive win. At the finals we had to meet our own elders, the Old Boys of our College—We put up our excellent fight and conceded to them the Trophy at the last moment of a very exciting game, by a lead of one point. With the confidence thus gained we ventured to take part in the Loyola College Tournaments but we are sorry to record that we were defeated by the Y.M.C.A. College, Madras.

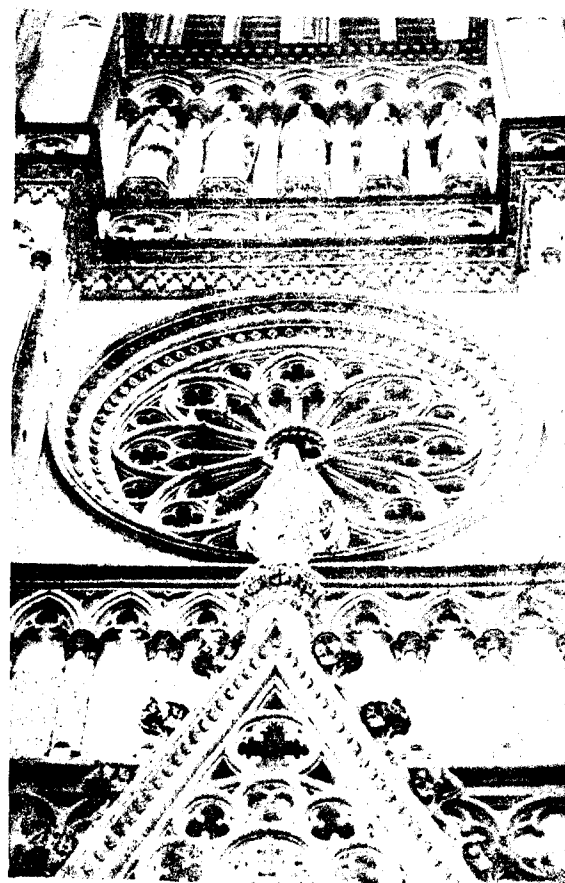


Gothic Arches

by T. A. Dorairajan



By S. Thillainayagam



Church Façade

by L. R. Narayanan

COLLEGE CHURCH



By A. Somasundaram

SPORTS & GAMES

At the University Inter Divisional semi-finals we defeated the winners of the Madras Division—the Law College team, with a difference of 17 points. At the finals however we had bad luck and lost the match to S. H. College, Thevara. We are happy to record that Ratna Pandian of our team was selected to represent the Madras University in the Inter University Basketball Tournament—It is reported that he did remarkably well inspite of the very limited opportunity offered to him.

Badminton—In the Open Knockout Tournament held in January more than thirty teams participated. Keen contest prevailed throughout the Tournament. Soundara Pandian and Jayabalan won the finals.

Tennis—Under the able captaincy of P. V. Pavitrán, the Tennis Club began to function from the very beginning of the year. As usual we had a good rush of students desirous of enrolling themselves as members of the club. We are glad to note that their enthusiasm and keen spirit continued throughout the year. At the beginning of the III Term 3 new courts were ready near the New Hostels, and the members very gladly moved in to the new premises. In the Inter-Collegiate Tournaments Pavitrán and Varadhan represented the College. In the 1st match against Govt. College, Kumbakonam we had an easy win. The semi-finals against Dr. A. C. College, Karaikudi was also won in two straight sets. We met American College, Madura in the Divisional Finals. The indisposition of our Captain

A Knock out Tournament was conducted in the III Term in Singles and Doubles, in which all the members of the club for Tennis Singles was won by — — — while the Sanjeevi Cup for Doubles was annexed by — and in conclusion we are happy to express our sincere thanks to the President, Rev. Fr. Hague, S.J., for his personal guidance and generous encouragement in all our sporting activities. We are highly grateful to Rev. Fr. Rector for his very kind patronage and for his valuable guidance. We thank him also for providing us with the new Tennis courts amidst excellent surroundings. We are very much indebted to Rev. Fr. Principal for the personal interest he takes in Sports and Games. We are confident that for our success we owe not a little to the encouragement of the Wardens of the several Hostels, and the good spirit that prevailed between the captains and the players. We hope that our young sportsmen will retain the reputation which their elders have so magnificently built up and keep the sporting banner of St. Joseph's flying in the years to come.

1. Football	{ Winners —Young Challengers Capt.	Abdul Rahiman	II U.C.
	{ Runners-up —Jolly Sevens	T. K. Ramalingam	III U.C.
2. Hockey	{ Winners —Hindustan Air Craft	Ronald Jason	I U.C.
	{ Runners-up —B.Sc. Team	Duncan Pears	IV B.Sc.
3. Basket-ball	{ Winners —Honours Team	P. R. Veerappan	IV Hons.
	{ Runners-up —Achilles	Ratna Pandian	IV U.C.
4. Volley-ball	{ Winners —Honours Team	T.V. Govindarajan	V Hons.
	{ Runners-up —Pin Point	S. Godarangan	IV B.Sc.
5. Badminton	Winners —D. G. L.	{ P. Soundara Pandian	} II U.C.
		M. Jeyabalan	
	Runners-up —Style Stroke	{ A. Kalyana Sundaram	}
		N. K. Palanichami	
6. Tennis (Singles)	Winner —A. Varadhan, V Hons.		
	Runner-up —B. Natarajan, III U.C.		
„ (Doubles)	Winners —A. Varadhan and N. Krishnamoorthy		
	Runners-up —B. Natarajan and Rajasekaran		

Winners of Rolling Cups

1. The Rev. Fr. Pruvot's Cup (for Inter-Hostel Tmts.) won by S. H. Hostel & Boarding.
2. The Rev. Fr. Rapinat Trophy (for Athletic Sports) won by the New Hostels.
3. The Meenakshisundaram Cup (Individual Championship) awarded to Ivan Jacob.
4. Sri P. R. Thevar Cup (Winner in 1500 Metres Race) „ R. V. Arokiaswamy.

SPORTS & GAMES

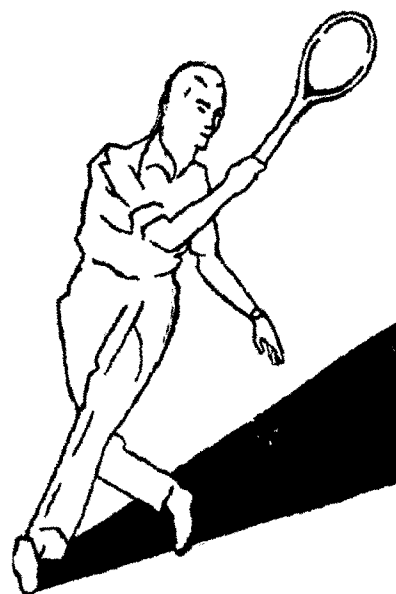
Office-Bearers in Games and Sports 1950-'51

Football	M. Rangaswamy	(Captain)	Abdul Rahiman	(Vice)
Hockey	Ralph Atkinson	"	Edward Cooper	
Cricket	A. Balaguru	"	R. Ramamoorthy	
Athletics	R. Rodrigues	"	Ivan Jacob	"
Basket-ball	P. R. Veerappan	"	K. V. Mathai	"
Volley-ball	S. Godarangan	"	K. M. Marimuthu	"
Badminton	A. Kalyanasundaram	"	P. Mahadevan	"
Tennis	P. V. Pavitrana	"	Nazir Ali	"

General Captain: A. Varadhan, V Hons.

The College Crest was awarded to the following who were outstanding in Sports or Games during the current year:—

1. M. Rangasamy, V Hons.
2. R. Rodrigues, V Hons.
3. A. Balaguru, IV U.C.
4. S. Ratanadandian, IV U.C.
5. Ivan Jacob, II U.C.



Exchanges 1950-'51

ST. ALBERT'S COLLEGE ANNUAL, ERNAKULAM.
 ALAGAPPA CHETTIAR COLLEGE MAGAZINE, KARAIKUDI.
 THE ALOYSIAN, GALLE.
 ALTECH, JOURNAL OF THE ALAGAPPA CHETTIAR COLLEGE OF TECHNOLOGY, GUINDY.
 ST. ALOYSIUS' COLLEGE ANNUAL, MANGALORE.
 ST. ALOYSIUS' COLLEGE HIGH SCHOOL ANNUAL, MANGALORE.
 AMERICAN COLLEGE MAGAZINE, MADURA.
 ANDHRA CHRISTIAN COLLEGE MAGAZINE, GUNTUR.
 ANNAMALAINAGAR MISCELLANY.
 ST. BENEDICT'S COLLEGE MAGAZINE, COLOMBO.
 BESANT THEOSOPHICAL COLLEGE MAGAZINE, MADANAPALLE.
 BISHOP HEBER SCHOOL MAGAZINE, TRICHINOPOLY.
 BLUE AND WHITE, ST. JOSEPH'S, COLOMBO.
 BLUE AND WHITE MAGAZINE, ST. JOSEPH'S BANGALORE.
 CARMELA, ST. AGNES' COLLEGE, MANGALORE.
 CARITAS, ST. JOSEPH'S SEMINARY, ALWAYE.
 COIMBATORE GOVT. COLLEGE MAGAZINE.
 ENGINEERING COLLEGE MAGAZINE, MADRAS.
 EXCELSIOR. ST. BERCHMANS' COLLEGE, CHANGANACHERRY.
 FACT, ALWAYE.
 FINDLAY HIGH SCHOOL MAGAZINE, MANNARGUDY.
 GOVERNMENT ARTS COLLEGE MAGAZINE, ANANTAPUR.
 GOVERNMENT ARTS COLLEGE MAGAZINE, MADRAS.
 GOVERNMENT BRENNEN COLLEGE MAGAZINE, TELlicherry.
 GOVERNMENT COLLEGE MAGAZINE, AJMER.
 GOVERNMENT COLLEGE MISCELLANY, MANGALORE.
 HINDU COLLEGE MAGAZINE, MASULIPATNAM.
 HOLY CROSS COLLEGE MAGAZINE, TRICHY.
 JAFFNA COLLEGE MISCELLANY, JAFFNA.
 ST. JOHN'S ANNUAL, PALAMCOTTAH.
 ST. JOSEPH'S EUROPEAN SCHOOL ANNUAL, BANGALORE.
 ST. JOSEPH'S INDIAN HIGH SCHOOL ANNUAL, BANGALORE.
 JOURNAL OF THE OSMANIA UNIVERSITY, HYDERABAD (DECCAN).
 KERALA VARMA COLLEGE MISCELLANY, TRICHUR.
 KUMBakonam COLLEGE MAGAZINE.
 LADY WILLINGDON COLLEGE MAGAZINE, MADRAS.
 LAW COLLEGE MAGAZINE, MADRAS.
 LITTLE FLOWER SCHOOL ANNUAL, SALEM.
 LOYOLA COLLEGE ANNUAL, MADRAS.
 MADRAS CHRISTIAN COLLEGE MAGAZINE, TAMBARAM.
 MADRAS FOREST COLLEGE MAGAZINE, COIMBATORE.
 MADRAS MEDICAL COLLEGE MAGAZINE.
 MADRAS VETERINARY COLLEGE, MADRAS.
 MADURA COLLEGE MAGAZINE.

EXCHANGES

MAHARAJAH'S COLLEGE MAGAZINE, ERNAKULAM.
 M. D. T. HINDU COLLEGE MAGAZINE, TINNEVELLY.
 METKEM, METTUR CHEMICALS.
 MUNGRET ANNUAL, MUNGRET COLLEGE, LIMERICK, IRELAND.
 THE MODERN STUDENT, 146, BOW BAZAR, CALCUTTA.
 NORTH POINT ANNUAL, DARJEELING.
 PACHAIYAPPA'S COLLEGE MAGAZINE, MADRAS.
 PRESIDENCY COLLEGE MAGAZINE, MADRAS.
 PUDUKOTTAH COLLEGE MAGAZINE.
 THE RAVENSHAVIAN, CUTTACK.
 SALEM COLLEGE MAGAZINE.
 SACRED HEART COLLEGE ANNUAL, THEVARA.
 SANATANA DHARMA COLLEGE MAGAZINE, ALLEPPEY.
 SCOTTISH CHURCH COLLEGE MAGAZINE, CALCUTTA.
 SENTHIKUMARA NADAR COLLEGE, VIRUDHUNAGAR.
 SIR C. R. REDDY COLLEGE MAGAZINE, ELURU.
 SOPHIA COLLEGE MAGAZINE, BOMBAY.
 STANLEY MEDICAL COLLEGE MAGAZINE, MADRAS.
 STONYHURST MAGAZINE, BLACKBURN.
 ST. PHILOMENA'S COLLEGE ANNUAL, MYSORE.
 ST. STANISLAUS H. S. MAGAZINE, BANDRA.
 TECH. MAG. SIR ARTHUR HOPE ENGINEERING COLLEGE, COIMBATORE.
 ST. TERESA'S COLLEGE MAGAZINE, ERNAKULAM.
 ST. THOMAS COLLEGE MAGAZINE, TRICHUR.
 THE UNION CHRISTIAN COLLEGE MAGAZINE, ALWAYE
 UNIVERSITY COLLEGE MAGAZINE, TRIVANDRUM.
 UNITAS, St. JOSEPH'S SEMINARY, KANKANADY, MANGALORE.
 VICTORIA COLLEGE MAGAZINE, PALGHAT.
 VIVEKANANDA COLLEGE MAGAZINE, MYLAPORE.
 VOORHEES COLLEGE MAGAZINE, VELLORE.
 St. XAVIER'S COLLEGE MAGAZINE, BOMBAY.
 St. XAVIER'S COLLEGE MAGAZINE, CALCUTTA.
 St. XAVIER'S COLLEGE MAGAZINE, PALAMCOTTAH.
 ZAMORIN'S COLLEGE MAGAZINE, CALICUT.
 மொத்த விஷயப் பூங்கொத்து, R. C. TRAINING SCHOOL, TRICHINOPOLY.



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