



Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

MUNSHI NAGAR, ANDHERI BOMBAY 400 058

SARJANIKA



VOL. VIII

JUNE 1973

BHAVAN'S PRAYER

ॐ पूर्णमदः पूर्णमिदं पूर्णत्पूर्णमदस्यते ।
पूर्णस्य पूर्णमादाय पूर्णमेवावशिष्यते ॥

हरिः ॐ

ईशावास्यमिदं सर्वं धत्तेकञ्च जगत्यां जगत् ।
तेन त्यक्तेम भुञ्जीथाः मा मृशः कस्यस्विदुभयम् ॥

यं ब्रह्मवरुणेन्द्ररुद्रमहन्स्त्वस्ति दिव्येस्तवैः
वेदैः साङ्गपदकसोपनिषदेर्गायन्ति यं सामगाः ।
ध्यातावस्थिततद्गतेन मनसा पश्यन्ति यं योगिनो
यत्पान्ते न विदुः सुरामुराणा देवाय तसौ नमः ॥

मूकं करोति आवातं पङ्क्तुं लङ्घयते गिरिम् ।
पङ्क्तुया तमहं वन्दे परमानन्दमाश्रयम् ॥

या कुन्दिन्दुतुभारहारधवला, या शुभ्रवस्त्रावृता
या वीणावन्दनदण्डमण्डितकरा, याश्चेतपद्यासना ।
या ब्रह्माञ्जुनशंकर प्रभृतिभिर्देवैः सदा वन्दिता
ता मां पातु सरस्वती भगवती त्रिशंखजाड्यापहा ॥

नमोऽस्तु ते व्यास विशालबुद्धे फुल्लारविद्यायतपव्रतेज ।
धेत त्वया भारततैलपूर्णः प्रज्ज्वलितो ज्ञानमयप्रदीपः ॥

व्यासाय त्रिशङ्कषाय व्यासरूपाय त्रिशङ्खे ।
नमो वै ब्रह्मनिधये ब्रह्मिण्याय नमो नमः ॥

ॐ सह नावतु । सह नां नृजतु । सह धीयं करवावहे ।
तेजस्विताश्चोत्पतु । मा विद्विषावहे ॥

ॐ शान्तिः शान्तिः शान्तिः ॥



BHARATIYA VIDYA BHAVAN

Sardar Patel College Of Engineering

ANDHERI, BOMBAY-400058



अमृतं तु विद्या

SARJANUKA



VOL. VIII

JUNE 1973

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Bhavan's Faith

Let me set forth the Bhavan's faith for the benefit of new students and members, for it is necessary that they should understand it clearly and imbibe its spirit.

The Bhavan stands for the reintegration of Indian culture.

In a world falling to pieces under the impact of an amoral technological avalanche, it tries to hold fast to the fundamental values for which our culture stands—RITA, SATYA, YAGNYA and TAPAS.

FAITH in God Who informs the Cosmic Order;

TRUTH which is accord between mind, word and deed;

DEDICATION which offers all movements of life as an offering to God;

SUBLIMATION which purifies the body and mind and transmutates instincts, passions and emotions into things of beauty.

This, regardless of forms and doctrines, is Dharma, the three-fold aspect of which are SATYA AM, SHIVA AM, SUNDARA AM—Truth, Love and Beauty.

For these values our forefathers lived and died. So did Sri Ramakrishna Paramahansa, Swami Dayananda, Swami Vivekananda, Gandhiji and Sri Aurobindo, among the moderns.

They are embedded in our national outlook.

We command the respect of the world because of them.

We can look forward to the future with confidence only because they have the vitality which gives the power to validate their validity even in this fear-and-avarice-ridden age of ours.

We, the Bhavan's family, whether it is the smaller one or the larger one, must make every effort in restoring an awareness of these values in personal and collective life.

K. M. M. M.



Our Founder, President of Bharatiya Vidya Bhavan
Late DR. K. M. MUNSHI



SMUNSHIS

Bharatiya Vidya Bhavan
Bombay-400 072

March 26, 1973

Message

I am glad that the Sardar Patel College of Engineering is shortly going to publish the 1973 issue of its Magazine 'Samanikal'. In a short span of time of its existence the College has secured a place in the forefront of Engineering Education. May it acquire greater fame and grow from strength to strength in coming years.

Lalavati Munshi

President

★ ★ ★ ★ ★



SMT. LILAVATI MUNSHI
President Bharatiya Vidya Bhavan



SHRI GIRDHARILAL MEHTA
Our Vice-President



SHRI JAISUKHLAL BHATHI
Our Vice President



SRI S. RAMAKRISHNAN
Executive Secretary

OUR PRINCIPAL
Justice of Peace



Principal S. N. Dighe

Editorial

This year our College reopened for academic year 1972-73 on 20th June 72. The students and members of staff have participated in every activity with enthusiasm and faith. Under Principal S. S. Diche's leadership all of them have fully shared the responsibility and enjoyed the working in different fields of activities.

Achievements

This year has enrolled, this year, the maximum number of students for the post-graduate degree courses, since the inception of the post-graduate teaching in this college. All the departments have participated in the post-graduate teaching programme. And we all hope that our college will progressively transform in to a post-graduate teaching cum research Institute in Engineering.

Our students Shri S. P. Lokhandwala and Shri P. B. Kadakia have actively participated in 'Leadership Training Programme' on 19th August 1972, sponsored by Union of Free Enterprise Bombay 1, and in Seminar on 'How to bring out a New Magazine,' on 6th January 1973, sponsored by Bombay College of Journalism - Bombay 20.

Our students Shri D.M. Chandvadkar, Shri R.S.R. Bhel, Shri G.G. Vaidya, Shri S.P. Lokhandwala, Shri S.M. Kulkarni and Shri A.B. Nadkarni participated and won the prizes in Shroji Memorial Elocution Competition held on 5th September 1972. Shri A. V. Rao entered in to essay competition organised by Nand Samai and won the Second Prize. These students have brought laurels to the college. They deserve congratulations.

Sports

In intercollegiate tournaments our boys showed the lightning game in Kabbadi; patient and intelligent game in Kho-Kho. Our boys reached up to the third round in Kho-Kho and they hope to clear the hurdle, for trophy, next year. Our boys, particularly Shri S. M. Lanjekar and Shri R. B. Nabar deserve pat on the back for outstanding performance.

Prof. S.G. Bhatt - Bobby Fisher - of S.P.C.E. has won the Professor K.M. Kulkarni Chess Championship Trophy for University Teachers. He deserves our congratulations.

Extra-Curricular Activities

The staff club activity has gained momentum and brought more co-ordination and harmony. And quite a few times humorous comments by our Principal punctured the nutty problems to solution with innocent ease. The photographic society, under the guidance of Dr. J. G. Shah with amateur professor photographer Shri Narayanan and secretary Shri Prabhu has entered into the second year. The student members of the society have the feeling of satisfaction of knowing some tricks, tips and clicks of this ever dominating and all pervading art of photography. The Cine Club activity under Prof. M.M. Ranade and Shri M.M. Shah has earned the bumper crop even in these present days of scarcity. The choice of the screening gave all the different moods, valour, love, romance, pathos, of life during the winter evenings. In educational tours Prof. P. P. Vaidya and Shri G. K. Vaidya projected on the student's mind the practical approach to, from the day-to-day problems to the national projects.

The scientists, Mr. Minax Dasabhai, Mr. V.K. Kopali and Mr. G. Joseph of Tata Institute of Fundamental Research Bombay delivered the lectures on Computer, Radioastronomy, and Artificial Satellite respectively. The students and staff together have enjoyed the stimulating and informative lectures. They have resolved to make it a habit to arrange such lectures regularly in future.

Publications

Dr. S. S. Maneik published one paper in Journal of Institution of Engineers (India) on R C Push Pull Oscillator. Prof. S. G. Goyal completed a project on design and development of potentiostat. The book 'Atomic Physics, by Prof. V. R. Dniphode and Prof. L. L. Bhavad's book 'Matrix Operations on the Computer' are in the press. They deserve the rightful congratulations for their devotion to the study.

Hostel

The new hostel block is almost completed. It commands the impressive look to the students residence, and will bring next year a few more classmates and sportsmen friends to the old hostelites. This year a long awaited addition to the hostel is 'Telephone' which fulfills the need to connect and connect to the many. The hostel has passed from adolescence to maturity and serenity, so the co-operative students mess is running successfully. The flag hoisting on hostel, on national festivals, was the additional land mark this year.

Wall paper

The wall paper has brought the creation, recreation, humour and information to the students body. The feminine touch, delicacy and sensitivity has silently and potentially influenced the students mind. Miss L. E. Thilamoni deserves the rightful credit for it.

Our staff

Shri Y. A. Rayani joined our college as Associate lecturer in Electrical Engineering Department. Shri R.J. Mody, Shri P.V. Nair and Shri V.K. Shah have joined as Associate Lecturers in Mechanical Engineering Department. We all welcome them to participate in our team work.

A few of our young staff members, Shri K. Ramaswamy, Shri S. K. Dharla, Shri S.K. Chari, Shri V.K. Shah, Shri R.J. Mody and Shri M. Anantharaman have left the college seeking better prospects. We all wish them good luck and bright career. Shri H. K. Dandekar retires to live peaceful life.

For his contributions to Engineering Education and Social Service Principal S. S. Dighe is appointed as 'Justice of Peace'. He has already handled the critical situations calmly, intelligently, impartially and pragmatically. Under his leadership the college is moving with speed towards the finer and the higher achievements in Engineering Education.

Smt. Lalavati Munshi, -our respected Mumukshu- President, Bharatiya Vidya Bhavan addressed the staff members and gave the guidelines of development of the campus and this college. The college owes her personally and as President her keen interest in the progress of Engineering Education and this college in particular.

With all these feathers in cap the student and the staff body have a queer feeling that the flame of spirit and lamp of wisdom -our Bapaji- has gone forever leaving behind us with Bhuvan's Faith.

Acknowledgements

Many thanks are due to all our staff members and students for their interest in 'Sankalpa' and to all those who have contributed articles in it. Sincere thanks are due to Shri L. K. Warriar and Shri B. M. Gandhi and other office staff for their help in magazine work. Sincere thanks are due to Shri C. A. Choksey, Physics Dept. for proof reading of the Gujarathi section; and to Shri D. G. Patil, Physics Dept. for his willing help at every stage of preparation of the manuscript.

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Principal's Report

The College crossed the 10th mile-stone on 20th June 1972. For on that date in the year 1962 the College started the 3 year Degree Course in Civil, Mechanical and Electrical Engineering and admitted students in the First Year Engineering.

In this journal it has been the practice to place on record a report of the activities of the College during the previous year. Since we have completed 10 years I may be permitted to give a comprehensive report of the past 10 years.

The development of the College can be divided into 3 phases viz. (1) the starting of 3 years course for the Degree in Civil, Mechanical and Electrical Engineering in 1962 with an annual intake of 120 students (2) the introduction of additional intake of 60 more students in the year 1965 and (3) the change over from 3 to 4 year degree course in 1967.

The cost of the project estimated for the first two phases was Rs. 28,65,280 - for Building and Rs. 25,13,000 - for equipment out of which 50% was to be met by Centre and the other 50% was to be shared by State Govt. and/or Institution. For the

third phase, which is being implemented, the total estimated cost of Rs. 6,57,100 - for Building and Rs. 5,16,500 - for equipment will be shared by Central and State Govts. respectively, of which Rs. 6,51,906 - for Building and Rs. 4,30,683 - for equipment have already been spent. Besides the College Building and the equipment grants the Govt. of India has been good enough to grant interest free loans for the construction of Hostels for accommodating students and the necessary staff. We have received a loan of Rs. 6,96,400 - during the first two phases and for the third phase development the government have sanctioned a loan of Rs. 6,85,000 -. The grant amount for the first two phases has been fully utilised and the additional hostel is now under construction.

The retrospect on the ten years of this college indicates that we have marched ahead all the time and with the all pervading influence of Bharatiya Vidya Bhavan we have indeed a very bright future.

The following tables give an idea of the progress of the College.

TABLE 1
Statement of Students who have taken their degree from this College from 1965 to 1972.

Discipline	1965	1966	1967	1968	1969	1970	1971	1972	Total
Civil	18	17	46	50	47	30	41	48	300
Mechanical	30	37	84	79	51	62	80	71	494
Electrical	8	26	70	70	41	50	84	76	425
								Total	1,219

A good number of the engineers who have passed out of this College are now well placed in life and some of them have gone abroad and have distinguished themselves. The past students association is being built with their co-operation and is assured of their patronage in future.

TABLE 2
Results of April 1972 & October 1972 (Sem. II, IV, VI, VII along with I, III, V & VII)

Class	No. of App.	Class			Total	Remarks
		I	II	III		
B.E.	174	3	94	2	98	49 out of the 76 who failed cleared in October 1972.
B.E. (M)	41	1	17	4	22	10 out of 19 -do-
B.E. (C)	66	12	20	1	33	remaining 3 cleared in October.
B.E. (E)	83	3	60	3	66	10 out of 27 -do-
B.E. (M)	57	3	25	2	30	17 out of 27 -do-
B.E. (C)	81	15	50	...	65	16 out of 16 -do-
B.E. (E)	80	6	45	...	51	20 out of 29 -do-
B.E. (M)	48	21	24	1	46	remaining 3 -do-
B.E. (C)	24	52	16	...	68	3 out of 4 cleared in Oct. one in First Class two in Second Class.
B.E. (E)	80	24	48	...	72	4 out of 8 -do- 3 in Second Class.

The following is the progress during the year, of students who have registered for M. E.

Passed in Part 'A'

S. P. Ayer (2) V. V. Jun (3) P. E. Khambatta

Passed in Part 'B'

P. M. Jain and (2) R. M. Joshi.

Passed in Part 'A' and 'B'

San. A. S. Parekh.

The following are the Prizes awarded to the students of this college for the year 1972-73.

Best all-round students of the year

Shared by :

1. Shri D. S. Sanghvi - B. E. (M)
2. Shri N. R. Vira - B. E. (M)

Kalpuri's Medals :

Gold Medals :

1. San. U. J. Badkar - B. E. (C) : For securing First Rank in the college & First Class in B. E. (C) examination held in April 1972.
2. San. S. K. Idnani - B. E. (M) : For securing First Rank in the College and First Class distinction in B. E. (M) examination held in April 1972.
3. San. K. R. Ganesh - B. E. (E) : For securing First Rank in the College and First Class in the B. E. (E) examination held in April 1972.

- Notes :**
1. Shri S. K. Idnani - B. E. (M) received "G. R. Tongankar Prize" and the "Merwanji Panday Scholarship of the University of Bombay for securing the highest number of marks amongst the students who passed B. E. (Mechanical) examination in the first attempt at the University.
 2. Shri Shrikant S. Avabharat of B. E. Class has been awarded the Late Rao Sahab Vishwanath Naran Mandlik Prize for 1972 of the University of Bombay.

Silver Medals :

1. Shri H.M. Khambhadi - B. E. (C) : For securing Second Rank in the college and First Class in B. E. (C) examination held in April 1972.
2. Shri S. V. Gogate - B. E. (M) : For securing Second Rank and First Class with distinction in B. E. (M) examination held in April 1972.
3. Shri H. P. Daniwala - B. E. (E) : For securing Second Rank and First Class in B. E. (E) examination held in April 1972.

Shri Pruthvish Narayandas Killawalla Prizes :

1. Shri V. C. Gandhi - E. E. (2nd Cl.) : For securing highest marks in the first attempt amongst the students of this college joined in S.E. (E) class in 1972-73 - Rs. 100/-
2. Shri S. P. Parekh - S. E. (1st Cl.) : For securing highest marks in the first attempt amongst the students of this college and joined in T. E. (E) Class in 1972-73 - Rs. 100/-
3. Shri Haiderah M. Mukhi - T. E. (E) (First Cl.) : For securing highest marks in the first attempt amongst the students of this college and joined in B. E. (E) class in 1972-73 - Rs. 100/-
4. Shri K. R. Ganeshan - B. E. (E) (1st Cl.) : For securing highest marks in the first attempt amongst the students of this college in the University examination held in April 1972 - Rs. 100/-

Shripadrao Dubhashi Prize :

1. Shri S. S. Naik - T. E. (C) : For standing first in T. E. (C) class securing highest marks in Building Design & Drawing at T. E. (C) examination held in April 1972 - Rs. 75/-

Shri Yogesh Ashar Scholarship :

1. Shri V. C. Gandhi of S. E. (E) class has been awarded Shri Yogesh Ashar Scholarship of Rs. 250/-.

Lokramdas Raheja Trust Scholarships :

Lokramdas Raheja Trust Scholarships of Rs. 250 - each, have been awarded to :

1. Shri S. S. Angal - B. E. (M)
2. Shri G. B. Nevarkar T. E. (E)

Nirlon Synthetic Fibres & Chemicals Ltd Scholarship :

1. Shri V. A. Dongde of E. E. Class has been awarded Nirlon Synthetic fibres & Chemicals Ltd. Scholarship.

W. S. G. Foundation (India) Scholarships of Rs. 300/- Each :

W. S. G. Foundation (India) scholarships; of Rs. 300/- each, have been awarded to :

1. Shri. Vivek S. Thette

2. Shri. Avadhat D. Joshi

Merit Prizes Medals :

B. E.	I	Miss Vishalakshi G.
	II	" Chiplunkar Medha V.
S. E. C.	I	Shri Lalaji Nitin S.
	II	" Neemuchwala I. T.
S. E. M.	I	" Sadekar Gajanan K.
	II	" Kallianpur Vinod V.
S. E. E.	I	" Gandhi Vijay C.
	II	" Shah Chandresh H.
T. E. C.	I	" Gafa Pravinkumar T.
	II	" Dawre R. B.
T. E. M.	I	" Patkar A. B.
	II	" Paralkar P. M.
T. E. F.	I	" Parekh S. P.
	II	" Kinariwala V. N.
B. E. C.	I	" Naik S. S.
	II	" Kasabwala J. B.
B. E. M.	I	" Sanghavi D. S.
	II	" Vira N. R.
B. E. B.	I	" Mukhi Haiderali M.
	II	" Chandhary R. H.

General Secretary of the Gynikhana

Shri M. R. Hemmady

Joint Secretaries

(1) Shri M. R. Hemmady - T.E. (C)

(2) Shri D. M. Chandavadkar - B.E. (M)

(3) Shri L. A. Prabhu, - S.E. (M)

With the introduction of Semester system from October 1971, the students got very little time for extra-curricular activities. Examinations are held every six months by the University of Bombay i.e. in October and April. Students are therefore busy all the time during the major portion of the Summer vacation. Inspite of this, many of our students have taken part in competitions, debates, dramatics and sports activities and some of them have won distinctions.

A big number of scholarships are awarded by both the Central as well as State Govts. Many of our students have been able to get these scholarships. A statement of the number of students who obtained these scholarships during 1972-73 is given below:

Scholarships awarded for the year 1972-1973

Sr. No.	Name of the Scholarships	No. of students awarded
1.	National Merit (Renewal)	6
2.	(a) National Loan (Fresh)	2
	(b) National Loan (Renewal)	17
3.	Post-Matric SC/ST (Fresh & Renewal)	7
4.	Primary & Secondary Teachers' Children's Merit Sch. (Renewal)	2
5.	Economically Backward class Free Studentships	29
6.	(a) Open Merit (Fresh)	15
	(b) Open Merit (Renewal)	5
7.	Primary School Teachers' Children Scholarship	17
8.	Freeship to Backward Class student	1
9.	National Merit (Mysore Govt.)	1
10.	National Loan (Govt. of Goa)	1
11.	National Merit (Govt. of Gujarat)	1
12.	Freedom Fighter's Scholarship	1
13.	Financial Aid Fund from the University	15
14.	Financial Aid from the Poor Boys Fund of the College	16
	TOTAL	136

This year the students staying in the Hostel tried a new experiment with tremendous success. In order to improve the quality of food stuff they started the hostel mess on a co-operative basis managing the day to day working and accounting through elected mess secretaries. They were able to have therefore the satisfaction of getting wholesome food at a very economical cost. In addition, the students' participation in

such a management had a very healthy effect on the around hostel working.

The usual gay and enjoyable feature of the College Annual Social was conspicuously absent this year because in reply to the call given by the Chief Minister and also the Vice-Chancellor, the students with one voice decided to contribute the amount that would have been spent on the festivities to the draught relief fund.

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First Prize (Technical)

THE FOURTH STATE OF MATTER

BALAKRISHNAN R. S.I. (TECHNICAL)

EVERY school boy knows that there are three states of matter - solid, liquid and gas. Now we are about to plunge into the discovery of the fourth state of matter - Plasma which may drastically advance the concepts in science, technology and industry. It is believed that it constitutes 99.999% of all matter. The stars and most of interstellar space is constituted of this fourth state of matter.

What is Plasma?

What is plasma, and how is it created? Plasma, in general, is an electrically ionized gas at a very high temperature in a plasma state and is a conglomeration of free electrons and positive ions moving around at very high speeds, in an aggregate that is electrically neutral. A gaseous plasma can be created by excitation of the molecules or atoms of a gas with heat or electricity to ionize it. Gases in fluorescent tubes, neon signs, carbon arc are all plasmas.

Interest in plasma has increased immensely in the past decade because of its wide applications in science and industry and because of the fact that a thermonuclear plasma is probably the ultimate energy resource. Hence once we succeed in harnessing it, the problem of energy would have virtually disappeared.

Plasma for Power

Our modern civilisation depends primarily on power and the conventional power sources - the fossils - coal and oil - are fast running out and in a century there will be no coal left in the mines. But

there is a vast amount of energy lying dormant in the atom. It could be a future source of power by the proper release and control of this nuclear energy. The energy is released by 'fission' - i.e. disintegration of heavy atoms (uranium 235) or by fusion - i.e. fusing together nuclei of light atoms (deuterium and tritium). Power from fission has been obtained in many countries, as in our own; but again the supply of fissionable material is not unlimited and the disposal of radioactive waste is a big problem. This is overcome in a fusion reactor using deuterium and tritium, the former being obtainable in vast quantities from all oceans.

For fusion reaction to occur vast amount of energy must be supplied to overcome repulsion between the like charged deuterium and tritium and the temperature of fusion is very, very high. Here is where plasma comes into play. At fusion temperature, matter is in plasma state. Hence the greatest problem has been to contain this hot plasma to effect a self contained controlled fusion reaction, which can be done only in a very strong magnetic field. Scientists all over the world are battling to tame this plasma. Plasma has been contained in magnetic bottles or by magnetic mirrors. Bottles of various types have been devised but none has been completely leakproof, though the time of confinement is only in the order of seconds. The best of the devices so far has been the Russian Tokamak-3 toroidal machine which is capable of confining hot plasma for only a fiftieth of a second at a temperature of ten million degrees. It would be a big day for the world when fusion reactors become a reality.

Plasma also plays a distinct role in the direct conversion of heat into electricity which is effected in what is known as a magnetohydrodynamic (MHD) generator. The basis of this direct conversion is that

a gas when heated to very high temperature such as 3000°K it is converted to plasma. If it is then driven under pressure through a magnetic field acting on it at right angles to the flow, an e.m.f. is generated at right angles to the flow and the field and power is drawn by suitable insertion of electrodes. A schematic diagram of such a generator is shown in Fig. 1. This is a bit similar to the conventional d.c. generator, plasma replacing the solid conductor. The efficiency of such a generator is quite high, since, in a conventional generator heat is first converted to mechanical power and then to electricity, but in a MHD generator the intermediate step is dispensed with. But these generators are still much under research.

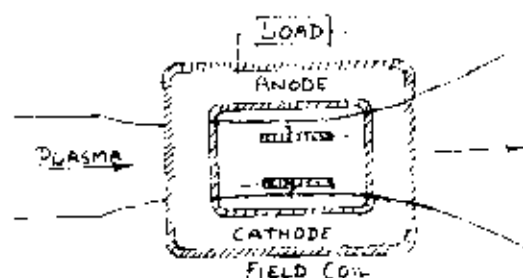


FIG. 1

Other applications

Plasma, however, has other very wide applications in science and industry. Plasma is used in electric arc furnaces when inert argon gas flowing at a temperature of 1500°C in plasmic state increases arc length from the usual 1 cm to 15 cm, without decreasing current. This increases the efficiency of operation.

A plasma jet from a plasma torch can produce temperatures from 6000 to 20,000°C. Such a torch was developed by the B.A.R.C. at Bombay. A plasma spray gun has been effectively used in metal spraying. In such a gun, argon, nitrogen, helium or hydrogen or a mixture of any of these gases is heated to very high temperatures by electric arc discharge from tungsten cathode. The gas ionizes and comes out of the nozzle of gun as a plasma spray. The material to be deposited is introduced into the spray in powdered form, when it melts and strikes the surface to be coated at very high velocities and ensures a good adhering coating. A remarkable aspect of this is, that when the plasma is at a temperature of 20,000°C, the work piece is maintained at as low a temperature as 90°C, which thereby prevents distortion of work piece, unlike as in conventional arc furnaces. Moreover even as thin a coating as 1/200th of an inch can be obtained by plasma spray.

Plasma, it has been suggested, could be used for instant vapourisation of garbage to alleviate pollution, and as a fuel for propelling spaceships for interplanetary flights. Plasma can be used for cutting steel in an exceptionally short time, for welding special materials like ceramic tubes for spacecraft, for coating turbine blades and valves, for spraying on to form windings of superconducting magnets and even for growing crystals of emerald, sapphire and ruby.

References

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- S. K. Ghaswala, Times of India weekly Plasma J. Basu Science To-day, April 1966.

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Second Prize (Technical)

LASER WEAPONS

—How close are we?

RAJAN M. BADLE
T. E. (Elect.)

FOR a decade the U.S. military scientists have sought a laser heat weapon. The prospect of a weapon projecting its destructive force over great distances at speed of light and with little diminution in power was attractive to the defence planners.

Lasers work by pumping atoms or molecules to a high energy state which decay to a lower state by lasing giving off laser light. Most lasers are pumped with light or electrical energy.

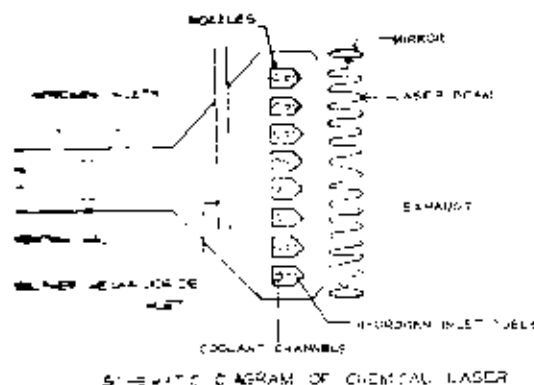
The 'gas dynamic' laser uses heat, to pump the atoms, by using burners similar to rocket engines. The heated gases (N_2 , CO_2) expand tremendously, and exhaust through nozzles at supersonic speeds. In the process the gases suddenly expand and cool. Through a complex process, the ratio of CO_2 molecules at high energy state w.r.t. those at low energy level increases bringing about the so called "Population Inversion" needed for laser action. Lasing takes place as excited gas as light beam bounces back and forth between the mirrors.

In the 'electroacrodynamic' lasers, the gases are heated by electrodes instead of burners. The atoms in 'Chemical' lasers are pumped to high energy state by chemical reaction. In a particular chemical laser shown in the figure.

Jets of Nitrogen are introduced at left and heated by electric arc. Due to sudden heating it is forced to right where it is mixed with sulphur hexafluoride. At extreme right the gases are expanded through small nozzles and hydrogen is injected in the stream which then forms Hydrogen fluoride by chemical action. A beam of infra-red energy is created as these excited molecules lase between the two mirrors. Chemical lasers are very attractive to weapon designers because they require little or no electrical power and produce huge amounts of energy in proportion to their size and weight.

A successful laser weapon would have to generate incredible energy to destroy a target. CO_2 lasers have now been built that can produce a continuous 60 KW beam. Gas dynamic lasers now in operation achieve output powers of hundreds of kilowatts which may be sufficient for some weapons applications. Though chemical lasers at present are not as powerful as gas dynamic lasers, due to their other characteristics, they make an ideal weapons candidate.

Before gas dynamic and chemical lasers were invented, possibility of a laser weapon was thin for two reasons. (1) To get enough energy in beam, an enormous electrical power supply would be necessary.



(2) Cooling of a laser itself was a tough problem. But these two new lasers need very little electrical energy (as the energy for lasing comes from burners or chemical reaction) and the exhaust gases at high velocity tend to carry off the heat.

Most of the ideas about lasers have revolved around the old myth of "death ray". Although the modern lasers could kill a man at a great distance, the current weapons like rifles and grenades would be cheaper and easier to operate.

The military scientists want lasers for use where their instant reaction time and 'speed of light' delivery are important e.g. laser offers a possible solution to toughest problem in ballistic missiles defence: that of sorting real warheads from decoys. The coherent output of lasers travels at 186000 miles per second like any other electromagnetic wave, which is faster than any weapon today. (Also it is the maximum speed that a mass can achieve.)

If lasers could disable an attacking missile warhead, the defence could have time, 3-seconds, even minutes to study the threat, make it's decisions: It could even hold fire until the warhead and decoys entered the earth's atmosphere. The lighter decoys would burn up and then laser beam with a speed of light could impale the real target.

A laser beam could be used for radar tracking, like microwave energy, with greater accuracy due to its shorter wavelength. At low energy output the laser beam could be used as a radar tracker, when it had had the missile located, it could simply increase the power and zap the target. This could altogether eliminate usual laborious and time-consuming calculations of target trajectories and intercept positions. Finally the laser radiation would force intense heat into a very small target volume. But it won't atomise the target as the nuclear warhead of an antimissile missile does and hence there would be no danger of nuclear fallout.

The lasers could be used in marine warfare by using them against air-launched cruise missiles and torpedoes. These deadly missiles can be fired by small enemy patrol boats over a very long range. These missiles hold to water surface and hide themselves until it is too late for the victim. But the laser beams can be swung by motion of the mirrors only. The designers are therefore busy building inertialess laser defense weapons that have instantaneous coverage in every direction. The combination of self tracking and instantaneous weapon slewing would be the real solution to the problem.

There are a few scientists who believe in that laser beams exceeding certain energy density would produce ballooning effect in the atmosphere, causing a sharp electrical breakdown similar to the lightning.

The new high powered lasers have debunked the old notion that it may never be possible to build enough power in a weapon unit small enough to be practical. According to Pentagon, in one laser test, the pyroceram nosecone of a standard tactical missile fractured into countless pieces within 1 square centimetre of its surface was pierced by a laser of 1 KW for only a second.

Historically every weapon has produced a counterweapon and Laser thermal weapons would not be an exception. The reflective surfaces fitted on an aircraft would be obvious but not necessary or practical answer as it would have to compromise with aerodynamic qualities of the plane. Tank surfaces could be made reflective, they would quickly be dusted, ruining reflective qualities.

However, the Soviet Union is working on the artificially generated plasmas and vapours to cover their missiles as a measure against the American laser weapons. There seems to be no end to the Arms

Nuclear Rockets ::

R. M. GUPTA

T. E. [Elect.]

SPACE science is developing very rapidly. man has already landed on moon for number of times. Our next destinations will be mars, venus and so many other planets. At present the possible source of energy for the rockets of space is chemical means. For very large space trips, this source of energy is not sufficient. Sooner we will have to replace chemical energy sources by nuclear power—solar powered, mass annihilation or nuclear powered rockets. We will discuss here about nuclear powered rockets.

Before going to nuclear rocket details we will go for some rocket fundamentals. A large thrust is necessary for the rocket to leave the earth. It can be obtained either by expelling large amount of propellant or by expelling small amount at high velocity. It is preferable to have rockets of low propellant consumption. A measure of propellant consumption is given by thrust obtained per unit amount of propellant used per second.

$I_{sp} = \frac{T}{\dot{W}}$ quantity I_{sp} is called specific impulse. It has dimensions of time since thrust in kg. is divided by consumption in kg/sec.

Effective exhaust velocity is given by $V_{eff} = I_{sp} g_0$. Power expended in rocket exhaust is kinetic energy per second of jet.

$$P_e = \frac{\dot{W} V_{eff}^2}{2 g_0}$$

P_e = power in

kg/sec and effective power given

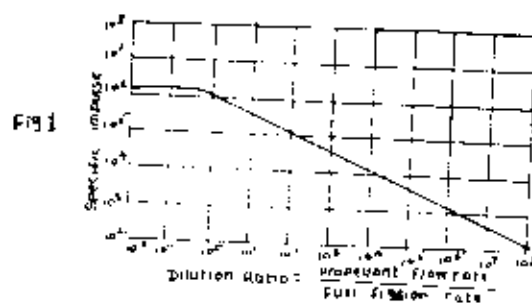
$$P_e = \frac{\dot{W} V_{eff}^2}{2 g_0} = \frac{T V_{eff}}{2} = \frac{g_0 I_{sp} T}{2}$$

Now we will consider nuclear rockets. In these rockets the heat released by nuclear reactions is given to the propellant and from

which thrust can be obtained. We know that conversion of mass to energy is governed by Einstein's famous equation $E = mc^2$ where c is velocity of light in metre/sec. The energy released by complete conversion of 1 kg. of mass is 17 billion times the energy release per kg. of smokeless powder. Only part of this energy is released in nuclear reactions. In fission reactions large nuclei such as U^{235} is split apart by neutrons. In the process other neutrons are released which in turn split other. In fission reactions from 0.072 to 0.12% of mass converted into energy from which with perfect efficiency specific impulse from 1.16 to 1.50 million seconds can be obtained. The fission products contain radioactive particles which should be shielded which becomes another problem. The most obvious way to use nuclear energy in rockets is to put small reactor in the rocket chamber and use it to heat a propellant, which is called solid core nuclear rocket. To obtain high exhaust velocity in thermal rocket, the gas must be heated to high temperature hence nuclear reactor must be hotter than propellant. But very extreme high temperatures would melt reactor. Thus material consideration limit the temperature which can be achieved. The most logical propellant to use is hydrogen—the lightest known substance which when heated to 2760°C gives specific impulse of about 1000 seconds. For this impulse we can get 2.22 million metre-kg. as kinetic energy of exhaust per kg. of propellant. The material limitations are so severe that less than one millionth of fission energy release per kg. possible can be placed in exhaust jet. These restrictions could be removed if the temperatures could be achieved and if nuclear fuel were in liquid or gaseous states. If the rocket were to operate on nothing but fissioning fuel the

internal temperature would be '38' million degree C. but we can not contain such temperatures. If the propellant is passed through the nuclear reactor it will dilute the reaction. The dilution ratio is defined as amount of propellant used per amount of fuel burned.

The theoretical impulse due to nuclear energy release is shown in following figure.



Liquid core rockets have been tested in which mass of liquid fission fuel is held against the outside of rocket chamber by centrifugal force obtained by spinning the chamber. The propellant would be bubbled through this fluid and out through the nozzle.

The gaseous fission nuclear rockets have also been considered by scientists. In this type critical mass (minimum mass required for fission-reaction) can be made quite low by use of suitably large amount of reflector and moderator. The gaseous core rockets become heavy and only achieve high thrust per weight ratios at high thrust level. Now we will see how heat can be transferred from reactor to propellant. There have been suggested four types to do this. Firstly diffusion of propellant through gaseous fuels so that heating process may take place by direct conduction and convection. But after that propellant must be separated from fuel and fuel must be retained on the board. Hydrogen is assumed as propellant. The separation by magnetic field or centrifugal force in form of vortex can be obtained,

but weight of magnetic equipment and stability of vortex becomes another problem.

Another ways of doing separation operate on different principle. The propellant can be heated by radiation from fission plasma.

In co-axial flow reactor central slow moving stream of fission fuel heats annular fast moving stream of hydrogen, with separation obtained by velocity differential, but this type is not so efficient. In another scheme fission plasma is contained in quartz bottle. The bottle can be heated to reasonable temperature while heating the propellant to high temperature by radiation. It is like feeling warmth of sun's radiation through a window in winter when window glass itself is cold to touch. This system is very efficient. In the figure some systems are shown in figures 2, 3, 4 and 5.

If propellant were transparent the radiation would go through and heat the opposite wall. The power output of radiating 'black' body is given by Stefan-Boltz-

$$\text{mann law } E = 4.97 \left[\frac{T}{100} \right]^4$$

E is energy radiated, T is absolute temperature.

Black body receives all radiation at any wavelength. At higher temperature more energy is radiated at short wavelength. It is difficult to find all energy spectrum over black body. The given example is good approximation for energy calculations.

At 2200°C, above equation gives 2160 KW/m². At 16667°C, 4650 MW/m². At 111,200°C it gives radiation of 8600000 megawatts/m². It can be seen that once temperature restrictions of solid core are removed the large amount of heat can be transferred by radiation alone. Uptill now we have seen nuclear thermal rockets, now we will see nuclear electric rockets.

The experiments have been performed on electrical rockets, these are found to be

equipment and other problem.

operation operate propellant can fusion plasma.

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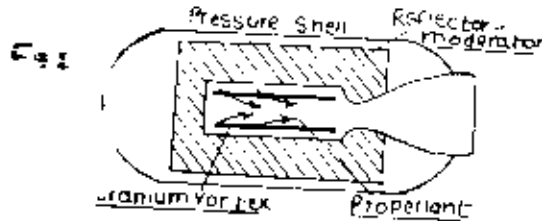
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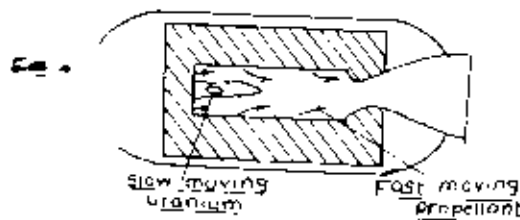
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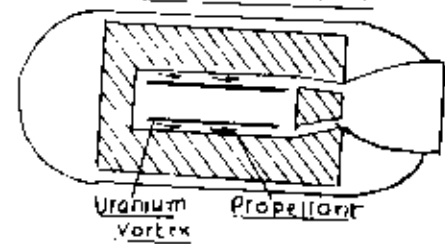


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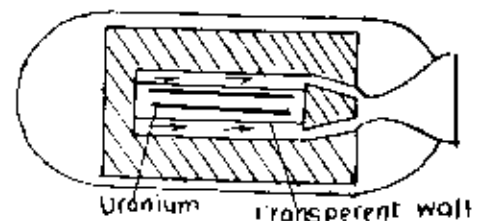
RADIANT VORTEX

Fig. 3



TRANSPARENT WINDOW

Fig. 5



accelerated. In these rockets exhaust is accelerated by electrical means and high velocity can be achieved without going for high temperatures.

There are 3 types of these rockets. Electrothermal engines consist of an electrical heater heating the propellant. In resisto-jet engines, hot tungsten plates heat the propellant passed over them. In arc-jet a electrical discharge is passed thro' the propellant heating it to the higher temperatures than that can be attained by normal heating from solid surfaces. Using tungsten as propellant resisto-jet can produce specific impulse of 1100 second and arc-jet can produce specific impulse of 500 to 2000 seconds. Electrothermal engines are a means of circumventing the temperature problem but a way of producing higher temperatures.

Another type of engines known as electrodynamic or magnetodynamic (MHD) engines. Higher specific impulse can be obtained. In this case a gas is ionized by at

moderately high temperatures, then accelerated by magnetic fields specific impulse upto 11000 second can be obtained.

Electrostatic or ion engines use electrostatic fields to accelerate charged particles with no assist from fluid flow forces such as in MHD engines. These engines have been tested for specific impulse of 10000 seconds and should be extendable to higher specific impulse.

Figures 6, 7, 8 shows typical engines in all 3 categories.

RESISTO-JET

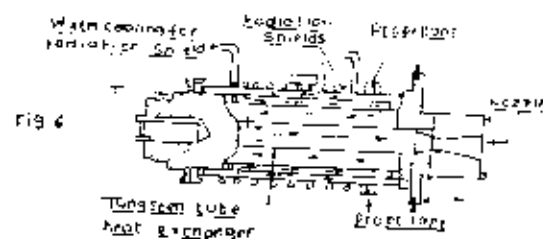


Fig. 6

Napier's Bone

Marathe R. G.
I. E. (Elect.)

NOWadays we come across computers in big industrial complexes, financial institutions. Day by day computers having more and more capacity of operations are coming up. But in old days for different calculations various methods were used one of these methods is "Napier's Bones" named after famous mathematician John Napier. John Napier, an inventor of System of logarithm lived in Queen Elizabeth era.

Napier's bones are a kind of quick multiplying device and were so called because they consists of 11 short vertical rods on which numbers are engraved.

We can make ourselves also the simplified version of it out of 20 cm. square piece of cardboard.

The piece of cardboard is divided in 11 vertical strips by vertical parallel lines. Each vertical line is doubled so that it can help us to separate the vertical strips. The board is divided horizontally so that there are nine squares in each vertical strip. Before cutting the piece in vertical lines each square in a row is rolled across bottom left to top right dividing each square in right angled triangle. Numbers are written on the board as shown in Fig. 1.

We will see that reading from top to bottom in each column gives first nine multiples of figure at top column except in left hand column which exist merely to help to get bearings. So this left hand column is called index strip.

When strips have been separated you are ready to do any multiplication sum.

1	2	3	4	5	6	7	8	9	0
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
0	0	0	0	0	0	0	0	0	0

Fig. 1

Let us suppose we want to multiply 4738 by 3508. For this set out the strip headed 4, 7, 3 and 8 and beside them index strip.

1	4	7	3	8
2	8	14	10	16
3	12	21	17	24
4	16	28	24	32
5	20	35	31	40
6	24	42	38	48
7	28	49	45	56
8	32	56	52	64
9	36	63	59	72
0	0	0	0	0

2589000

37004

16027004

in 3508 so you put zeros in units, tens, and hundred of columns next add diagonally and put the number to their respective place.

$$\text{i.e. } 9 + 2 = 11 \rightarrow 1 + 1 \text{ (carry)} = 2 \\ 2 + 2 = 4, 1 + 0 = 1$$

2. In First summation 14214000 number is actually $4738 + 3000$.

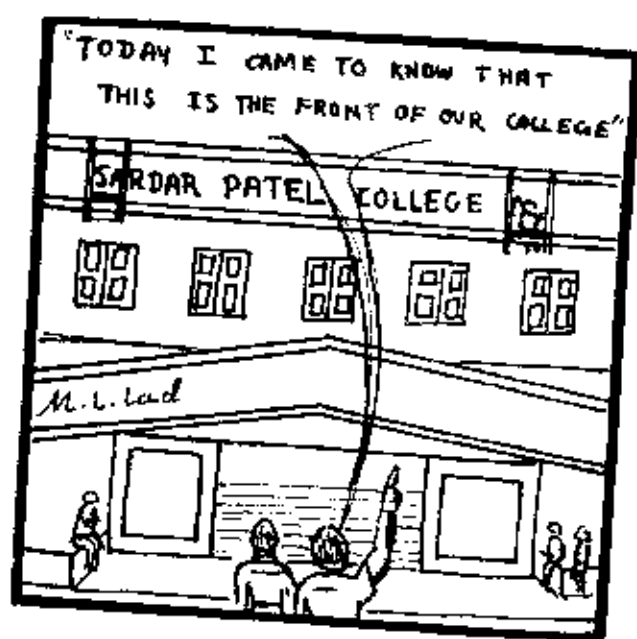
Similar process for number 5 in 3508. This 5 is at hundred place so two zeroes are necessary.

$$\text{Finally adding we get.} \\ 4738 + 3508 = 16630904$$

Similarly any calculations of multiplication can be done.

Of course Napier's way of adding diagonally is just a clever way of taking the carrying figure from one column to next. Napier himself used four sided rods instead of flat one which allowed him to include the same digit four times in a single sum. Thus he could multiply 6666 by 3333 which we could not have done with our simplified model.

Out of such ingenious further developments were possible and we have nowadays at our help the Giant Computer having capacity of 100,000 operations per second.



POLLUTION

SHAH YOGESH B.
T. E. (Elect.)

The population is not the isolated problem in the world. The environmental pollution is also one of the most dangerous problem created by man. The critical balance of the nature is being disturbed by advance technology and modernisation. The environment is no longer remains in natural position. The air is being polluted and waters are no longer pure.

All the living organism are within the air, water and air. Both water and air is the basic essential things for us.

What factors cause pollution in air? Population is one of the reasons and continuously increasing at the rate of 2.3% per year, and it will double itself in about 40 years. This increasing population gives rise to more and more CO₂, which accelerate pollution.

Industries contribute the major factors to pollution, more and more CO₂ and carbon dioxide with other oxides and condensation particles putting out in to the air. In the dense area of cities, the automobiles and dense population, increase the percentage of carbondioxide and carbon monoxide. This gas affect the nervous system of man. If concentration increases, it affects the man. In the world Tokyo is the most polluted city. In certain area of the city if a man works on traffic, he has to use an oxygen after certain hours of working. The large industries in Tokyo produce coal dust particles making an smog and became so dense that Mount Fuji is visible few days in a year.

The people may resist to pollutant to a certain extent, but it has a limit. It was first time on smog alert days, called killer smog. These smogs are very harmful to hu-

man beings, it effects the nervous system, create lungs cancer and shortens life span.

The smokes of industries not only contain carbondioxide and monoxide it also contain sulphur dioxide, which is harmful to living plant and consequently putting more poisonous material in to atmosphere. And one can imagine the impact of increasing industries at faster rate. After few decades the time will come that man will have to carry oxygen cylinder, if necessary steps are not taken. The automobile vehicles consume very large amount of oxygen, reducing the percentage of oxygen in the dense city. In addition to that more and more population will be urbanised, and cities are becoming more and more dense.

The water is another basic essential thing for human beings. Today big cities like Bombay, Tokyo, New York, etc. faces shortage of drinking water. Why? One can reason out due to increase in population but the major factor that contribute this problem is due to industries waste products which contains organic compound, organic mercury compound etc. release in lakes and rivers resulting in poisoning lakes and rivers. The rivers carries their waste to ocean, which is harmful to marine life organism. The mercury compound being the most poisonous in all. If the mercury concentration increasing faster, it may pass in to human through fish. The fish on examination found to contain certain amount of mercury compound and these fishes are unsafe to eat. In lake St. Clair of Canada, where the concentration of mercury became so dangerously high that the fishing is banned from it.

Among the industries, the paper industries and textile mills contribute major factor to it. Especially papers mills let

out waste products containing more mercury compound. The Pulp Mill of New York release wastes in to Hudson river and they converted her into sewage. New York now faces shortage of drinking water. In certain part of U.S.A. the waters are being sold in bottle ensuring purity.

Similarly hundreds of industries along the bank of Hooghly release thousands of tons waste chemicals into Hooghly, turn her in to sewage. Some toxic and oily chemical kill fishes and reduced the growth of fish. Now fish catch has been lower in the Hooghly and Ganga in recent years, still the drinking problem is not yet solved.

The final remedy they found to release wastes directly into ocean. The effect of this in sea is that the oily chemicals and poisonous mercury compound release in it harmful to fish. The oily compounds causes

gills of fish to stick so closely that fish will be unable to breathe and reduce the growth of fish. The thousands of tons of oil let out by ships also contribute this problem. Marine lives and fish die in oil-covered water. Due to this so many fish industries were effected. And food problem is increasing day by day in the world.

This way we are realising thousands of tones of mercury into sea every year. The sea is also becoming poisonous day by day. ducts release into sea. And still nuclear and million of other chemical waste products are under sea hanging over the world.

There are some remedy for anti pollution, the wastes can be chemically treated to free from serious pollutant, but all these measures are found to be costly. Industrialised society want to keep their rate of production economical so that this problem they left hanging on....!!

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Religion is kind of life and experience and not mere belief.

★ ★ ★

Geothermal Power Generation

G. V. YUGANDHAR
Lecturer In Mech. Engg.

NATURE has provided man with different kinds of sources of power and one of them is the Geothermal Power which is gaining importance in recent years. The steam obtained from hot springs, commonly known as Geysers, is utilized in a steam turbine to generate power. The term 'Geyser' is derived from 'Geyser', the Icelandic word meaning spouter or gusher for the most spectacular member of a group of hot springs situated in a broad valley north-west of Hekla, Iceland.

In our country, also such hot springs are known in the Konkan coast and Himalayas. Our Government is presently thinking of supplementing our power production by exploiting them.

The steam produced from these hot springs can be utilized for power production (depending upon economics), or distillation (as is being done in Iceland), or for heating purposes in process industries.

Though the total energy from these "geothermal fields" (even after their full development) would be only a fraction of the total energy requirements of our world, nevertheless it is an important source because it is "freely" available. Moreover, the environmentalists strongly favour this because it does not pollute the atmosphere.

The thermal energy of these hot springs is usually attributed to volcanism. But in some cases where recent volcanism has not occurred they are attributed to chemical weathering of rocks which produces heat, such as Kaolinitization of feldspar, deep sea vents which are hot because rock temperature increases with depth, and heat generated by movement and rock crushing along recently active faults.

An explanation given to the periodic spouting of the hot springs by Thorkalsson is as follows: The waters of hot springs are charged with dissolved gases. Well below the surface they begin to be liberated as bubbles and being in contact with hot water they necessarily become saturated with water vapour. When the water is near its boiling point the proportion of water vapour in the ascending bubbles becomes very large and some of the resulting hot foam overflows at the surface. This so relieves the pressure on the heated water in depth that it violently flashes into a vast volume of foam and spray spouting in cases to heights of hundreds of feet.

The first Geothermal plant was built in Italy in 1904 at Lardervello, the present capacity of which is 400 MW. Only since about twenty years, Geothermal energy is being exploited for power production in countries like U.S.A., New Zealand, Japan, Mexico, U.S.S.R. and Iceland. In Iceland geothermal steam is mostly being utilized for heating purposes since abundant supply of power is provided by its hydro-electric plants.

For power production, wells are drilled at convenient positions, steam is tapped, and through large pipe lines sent to the turbine for expansion. The various factors to be considered for the feasibility of using this steam for power production are:

1. Pressure and temperature of steam:

The pressure of the steam should be sufficiently high (usually more than 4 atmospheres). Otherwise the size of the pipelines and turbine will be very large and it may not be economically feasible. Also it is desirable that the steam is either in the

saturated or superheated condition to avoid turbine blade erosion.

2. *Non-condensable gases:* The percentage of non-condensable gases like methane, hydrogen, nitrogen, hydrogen sulphide, etc. should be as low as possible.

3. *Rock particles:* The amount of rock particles present in the steam should be as low as possible, since filters and separators should be provided to remove them. Usually centrifugal separators are used.

4. *Quantity of steam:* The geothermal wells should be capable of supplying the required quantity of steam to the thermal plant over a period of time which is not less than the life of the plant.

5. *Cost of production:* The ultimate unit cost of production of the Geothermal plant should be comparable to the unit cost of production of other kinds of plants.

Usually a less expensive direct contact type of condenser is used in these plants because Geothermal steam need not be condensed separately and returned to a boiler. Usually steam jet gas ejectors are employed to provide the necessary vacuum in the condenser. No make up water is required for the cooling tower evaporation because the steam condensate provides more than the requirement of cooling tower. A part of condensate should be left out, which may be utilized for any heating purpose.

Ordinary carbon steel may be used for the steam lines, but stainless steel is necessary for the condensate lines. Centrifugal separators are usually installed at the outlet of each well to remove rock particles from the steam lines. Turbine materials and design are essentially conventional except for special attention to erosion shields and shaft seals, which are usually made of stainless steel.

When a barometric direct contact jet condenser is used, because of atmospheric differences between day and night, better turbine vacuum is obtained at night when

the cooling water is more effective. If the rated generator load were carried during the day, the generator could be overloaded at night unless a unit were provided with a load limiting device. The device senses the generator load and maintains it at a present level.

Regarding the electrical design of a Geothermal power plant, hydrogen sulphide present in the steam is corrosive to bare copper, particularly in damp conditions. Such conditions are particularly troublesome to relays, motor control equipment, excitation gear and switchgear, and this equipment should be located in a clean room, and should be kept under positive pressure. Another precaution is to eliminate the copper commutators of a motor driven exciter by using a static-type excitation system.

Presently research is being conducted on a new type of Geothermal power source, in which nuclear explosives are used to fracture large quantities of underground hot rock. Heat would be extracted from the fractured region by pumping water to it and creating steam that would be used to drive a turbine-generator. The condensed steam from the power plant is sent back to the fractured region. Protection of the power plants against the ground motion produced by the explosions and the nuclear radiator hazard are the important problems associated with such a plant.

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Gyrosyn Compass System employed in Aerospace Vehicles.

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(Lecturer in Electrical Engineering).

A magnetised needle has been always associated with things to go with "direction" and hence has been directly pointed to the word compass. But such a system is highly vulnerable to various errors and therefore cannot be faithfully depended upon in an aerospace vehicle, like Boeing 747 in flight. Here a highly intricate and sophisticated system is required to find the direction of flight.

The gyrosyn compass system possesses all such qualities. The gyrosyn compass system consists of a gyro rotor driven by a 115 volts, 400 Hertz, 3-phase induction motor (Figure 1). The gyro rotor shaft is horizontal and the plane of gyro rotation

is vertical. This gyro is termed as the heading gyro. A change in the heading of the aircraft introduces a movement of gyro-rotor relative to its stator, due to precession. The heading synchro rotor is attached to the gimbal ring of the heading gyro. Its stator is fixed to the aircraft's frame. The stator is electrically connected to the repeater indicator. The two rotors are excited by 115 volts, 400 Hertz supply. The function of the heading synchro is thus to generate a voltage vector which will drive the indicator, duplicating the azimuth dial in the compass control. The gyro assembly is kept in proper level by system of liquid level control switch and a torque motor.

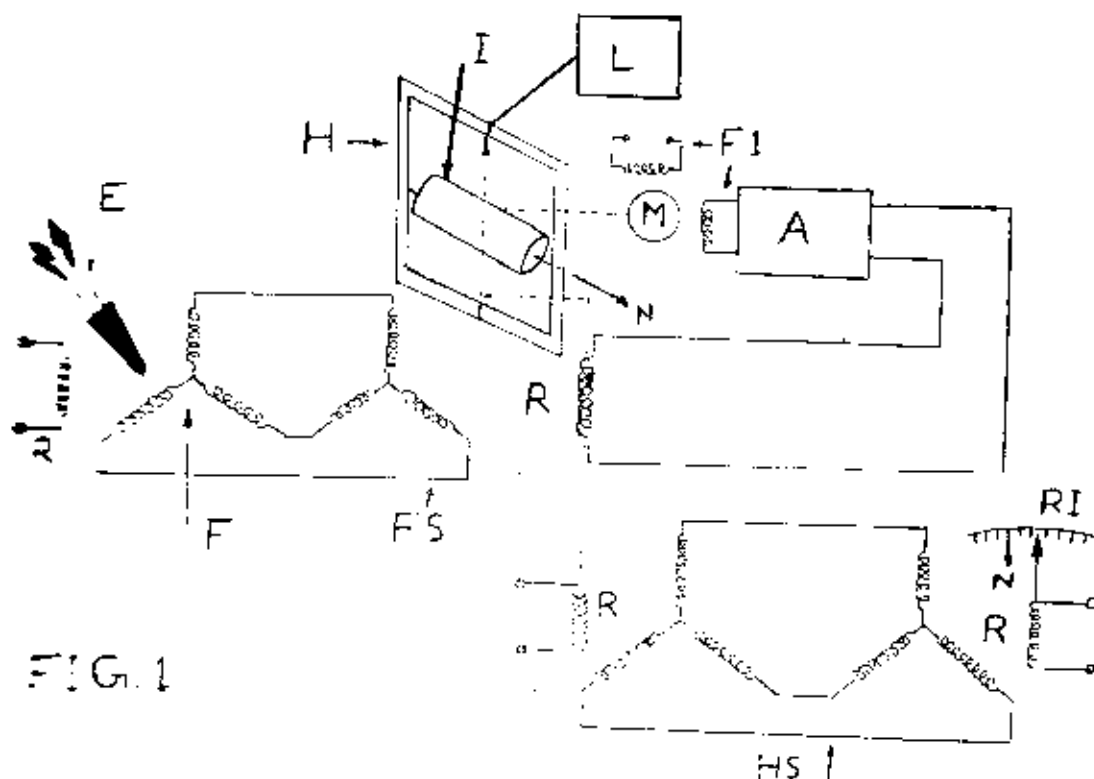


FIG. 1

The flux valve located remotely from the compass control unit is connected by three wires to the stator of the flux valve synchro, incorporated in the control unit. The flux valve consists of a three legged yoke with primary and star connected secondary windings. The primary winding is fed with 400 Hertz supply. This system is made pendulous by a universal joint so as to keep it horizontal, irrespective of aircraft position. The system is enclosed in a fluid-packed chamber with provision for magnetic error correction. When the core saturates, the earth's magnetic field is excluded. Hence depending upon the orientation of the yoke which is a function of the aircraft heading,

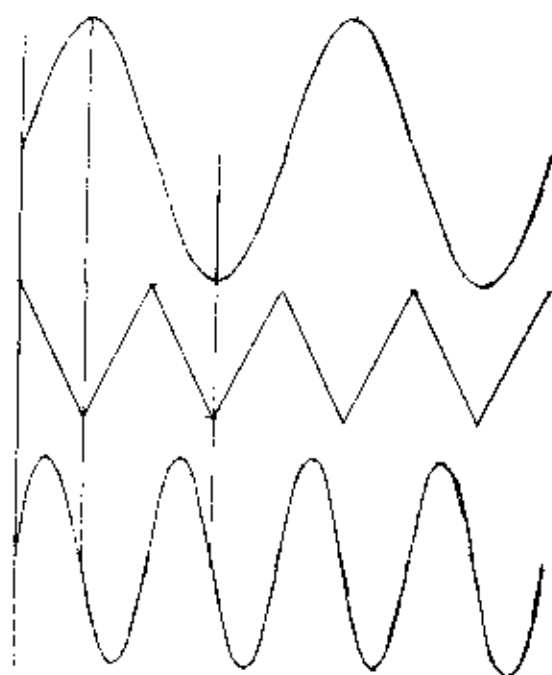


Figure 2
Top Waveform - 400 Hertz Voltage
Middle Waveform - Flux
Bottom Waveform - 800 Hertz

a voltage at 800 Hertz is induced in the secondary winding. (Figure 2). This voltage will be amplified in a servo amplifier which drives the slaving torque motor, realigning the main gyro to the earth's field.

The rotor of the flux valve synchro is attached to the vertical shaft under the main synchro which restores the synchronisations with the flux valve. The heading synchro is mounted in the compass control unit. The rotor is also connected to the vertical shaft of the main gyro. When the precession occurs, the rotor moves and being fed by 400 hertz supply it introduces a voltage in the stator which is transmitted to the stator of the repeater indicator. The rotor of this unit aligns to its stator field which drives indicator needle.

The dial of the repeater devices is calibrated in North and other directions.

Details of diagrams for Gyrosyn Compass System.

Figure 1.

- E = Earth's Magnetic Field.
- I = Induction Motor.
- F = Flux-Valve.
- R = Rotors.
- M = Slaving Torque Motor.
- Fl = Field of Motor M.
- H = Heading Gyro System
- HS = Heading Synchro
- FS = Flux-Valve Synchro.
- A = Servo Amplifier.
- L = Level control switch and Torque Motor.
- N = North Direction.
- RI = Repeater Indicator.

BIOLOGICAL CONTROL SYSTEMS

P. K. Viswanathan M.E.

ALL living systems comprise a complex of interacting processes and components. When they exhibit satisfactory performance, it is as a result of internal control mechanism, which in turn depend on adequate internal communication channels. Stability is one particular feature which is usually considered necessary for satisfactory performance but the dynamic nature of the system's components often make it difficult to achieve. Negative feedback is the necessary technique by which long-term stability in complex systems can be achieved but its presence is not a sufficient condition for stability.

Autonomous and neuromuscular control systems within man and other animals usually comprise several organs have neural or hormonal effector and feedback channels and have as their function the regulation of a certain variable of the internal body or its environment. Some examples are:

- 1. Body temperature.
- 2. Cardiac output.
- 3. Water and electrolyte balance.
- 4. Respiration.
- 5. Blood chemistry, Sugar level, red and white cells etc.
- 6. Audition.
- 7. Control of posture and locomotion.
- 8. Tracking and stabilization.
- 9. Pupillary reflex system.

In autonomous biological systems many of the physiological processes to be controlled can also be satisfactorily modelled by differential equations.

A major feature of autonomous control systems is that although they seem to have rather simple overall performance requirements (const. body temp etc.) the control to ϕ may involve neural paths with a large

number of parallel neurons. This multi-path and statistical method of communication clearly defies detailed analysis but since the output requirement of the channel is simple and probably analog in quantity (heat-production is muscle etc.) one can reasonably expect that a simple modeling may suffice for overall systems analysis.

THE PUPIL-CONTROL SYSTEM

A typical biological control system, the reflex regulation of pupil area by the iris, is examined in this section. The eye represents the largest sensory or data-gathering instrument for many classes of animals. It must have excellent dynamic response in order to transmit or perhaps resolve, the rapid changes which occur both spatially and temporally. The perception and processing of visual information partially occur in the retinal cells and their associated second and third order neurons. The third-order neurons particularly are considered part of the brain and their "computing system" is difficult to understand, although great progress is being made.

EYE POSITIONING

Eye ball must be positioned in its orbits for any given target position, and three antagonistic pairs of muscles work in co-ordinated fashion to achieve this. When a target is moving, the eye must track, which is the classic function of Servomechanism such as an automatic gun aiming device.

In binocular vision, target-tracking at varying distance requires also that the eye movements be slightly different in order that the visual axis of each eye maybe on target. This feature is called "Vergence" (convergence and divergence).

Focusing: The corneal lens complex constitutes an effective but optically complicated convex lens and focuses the

image of a perceived object upon the retina. "Accommodation" is the process of changing the lens power until the image is in focus, when the object is at varying distances and in mammals is achieved by the action of convexity of the lens. In most bony fishes, accommodation is achieved by moving the lens with respect to the retina, which of course is the method engineers have found easiest to provide in their equivalent focusing systems for the camera.

Pupil-control System: This iris provides an opening for the passage of light called the "pupil", while the iris itself contains black pigment which effectively occludes all passage of light elsewhere. There are two antagonistic muscles in the iris for variation of pupil area, the radial dilator muscle and the sphincter muscle. The sphincter muscle is more developed and is apparently the most significant effector in providing the basis of an autonomous, reflex, closed loop system for control of pupil diameter.

One major function of the pupil control system is to help produce clear images for close work by excluding the lens periphery where optical aberrations are the greatest and by increasing the depth of focus. It is interesting to note that the control systems for convergence, accommodation, and pupil constriction must all work to produce clear images for near vision. Another major function of the pupil-control system seems to be that regulating the illumination reaching the retina.

Dynamic Response: A dynamic system can be characterized usefully by its response to certain stylized inputs of which, the most commonly used are:

1. The transient inputs of impulse and step for which the outputs are the impulse response and the step response, resply.
2. The sinusoidal input which produces the steady state freq. response.

Fig. shows the four different pupil responses typically obtained when "pulse" and

"step" inputs of light intensity are used of both "light" and "dark" that is, the eye is subjected to either brief or sustained increases and decreases in light intensity from some retinally adopted medium intensity level.

These responses are obtained with the eye bathed by the light intensity source and since the response is completed within several seconds the retinal-adaptation plays no characteristic part. A pupillometer is used to monitor the pupil diameter or area continuously. This instrument, irradiates unperceived infrared light, utilizing the fact that the pupil and iris reflectances are different, to obtain an electric voltage measure of the pupil size.

The four illustrated responses present a challenging proposition to the model making analyst, for they clearly cannot be produced by a linear system, in which the reversal of input polarity merely reverses the polarity of the response without affecting its pattern. However, the pupil responds to both light and dark pulses with a rapid contraction followed by a slower dilation back to the original area. This response is complete within about 2 seconds during which the adaptation of retinal sensitivity can be ignored.

The emerging picture is that this control system provides rapid compensatory pupil-area changes against changes of light intensity in this action a faster (and overshooting) response occurs to increasing intensity change than to decreasing ones, which may perhaps be viewed teleologically as a desired protective device. In addition, retinal adaptation, again with more rapid change to light increase, than decrease, adjusts the retinal sensitivity to achieve regulation over a longer subsequent interval of the order of minutes.

AUTOMATIC APPARATUS CONTROL IN CAMERAS

An Engineering Analog of the Pupil systems.

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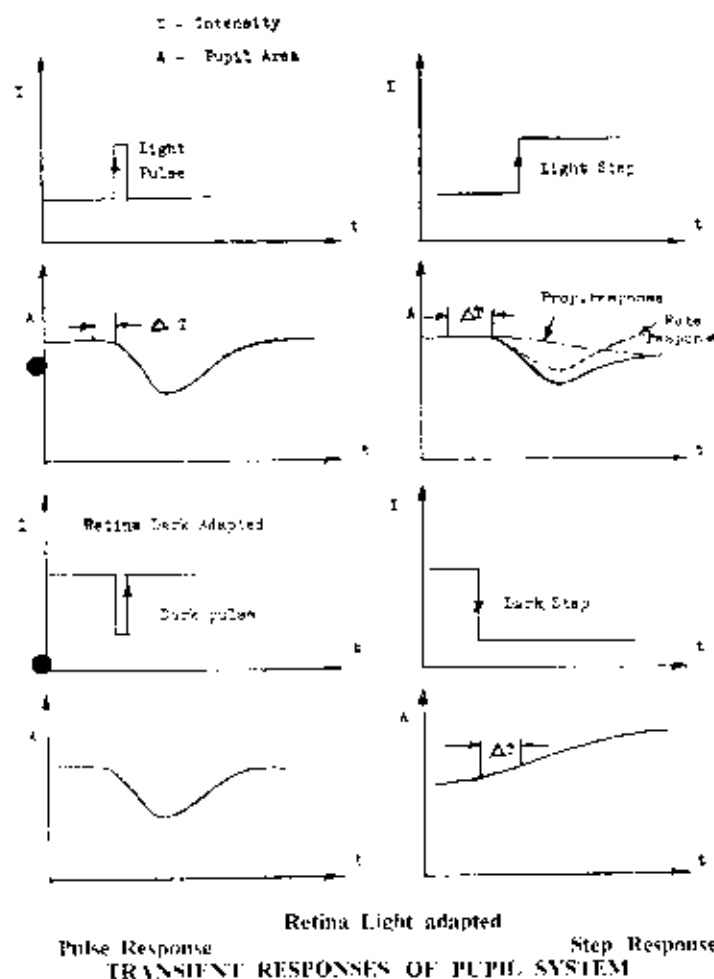
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CONTROL

the Pupil

In recent years cameras have become
with automatic control of aperture
The film is the photo sensitive equi-
of the retina, for which the system
the incident light (or the time-inte-
flux in this case). The camera sys-
differs in detailed function because tak-
a picture is a one shot affair, and it is
most easily if the correct expo-
time can be calculated in advance. In
there are further degrees of free-
in the system, since both film speed
and exposure time are arbitrarily under the
of the camera operator. The result-
information flow diagram for some
systems differs from that for the

pupil system in that there is no negative
feed back to close the loop; that the system
is openloop. The light intensity is conve-
niently measured by a photosensitive light
meter, but if it is behind the aperture which
is normally closed, then no useful measure-
ment is available until the split second of
exposure. Instead, therefore, the light
meter is positioned so as to measure inten-
sity continuously and to adjust the actuator
and linkage for correct aperture area,
subject to the reference input settings of
film speed and exposure time; this con-
figuration is often designated "feed-
forward".



AERATED LAGOONS

"Treatment of Domestic and Industrial Wastes in Aerated Lagoons."

Prof. D. D. DESAI,

M.E.P.H. (Bombay)

M.I.E. (India)

LAGOONING affords an economical method of waste treatment where large land areas are available and it is particularly appropriate for seasonally operated plants. It can be said that an aerated lagoon is biologically a long period activated sludge plant. It is not at all related directly to the oxidation pond. Principal objections to lagooning are odours in the surrounding area and the large capacity requirements dictated by the comparatively low rate of oxidation under anaerobic conditions. These objections may be overcome by the installation of diffused or mechanical aeration systems in the lagoon. It is the purpose of this paper to discuss the application of the principles of aeration and oxidation to the design of lagoons.

The oxidation of organic matter under aerobic conditions in lagoons is analogous to the natural purification process occurring in rivers.

One should not confuse the term "Aerated Lagoons" with the other identical terms like "Sewage Lagoons," "Oxidation Ponds," "Stabilization Ponds," etc. In case of "Aerated Lagoons" the biological oxidation of organic matters is helped by supplying air through the lagoons by means of mechanical aeration systems, thus preventing the oxidation ponds, or sewage lagoons or say stabilization ponds to turn anaerobic.

Pilot plant investigation :

The laboratory work in the development of the aerobic stabilization process for de-

inking waste was conducted by Mr. Russell of National Research Council, U.S.A., Hamilton paper company in a project sponsored by the Kalamazoo River Improvement Company.

He prepared an acclimatised seed by four-day aeration of a mixture containing 20% effluent from the activated sludge process and 80% settled de-inking waste. At the end of the aeration period the mixture was settled and the supernatant added to clarified de-inking waste at a seed to feed rate of one to four.

Two sets were run simultaneously over a 4-day period. One was aerated sufficiently to maintain aerobic conditions and BOD analysis performed at 24-hours intervals. The second batch was treated in a similar manner except that one quarter of the volume was removed after sampling at the end of each 24-hours period and an equal amount of raw waste was added. The results were then plotted as shown in Fig. No. 1. It was observed that the efficiency of BOD removal increases proportionately with the increase of the aeration period

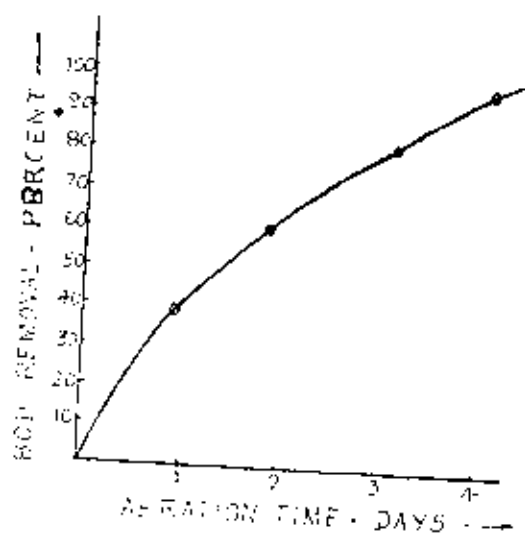


FIG. 1. LABORATORY AEROBIC STABILIZATION

Mr. Russell
U.S.A., at
project spon-
Improvement

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containing
sludge pro-
waste. At
the mixture
added to
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and sufficiently
and BOD
intervals,
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pling at the
and an equal
added. The
shown in Fig.
the efficiency
proportionately
period.

In another investigation at Hamilton, Nitrogen and Phosphorous were uniformly mixed at a BOD N ratio of 20:1 and BOD P ratio of P:1 for the influent BOD concentrations of 360 P.P.M. Nitrogen and Phosphorous helped in increasing the rate of biological decomposition.

It was investigated that a turbine aerator can increase the rate of oxygen transfer. A turbine aerator employed in an oxidation pond can transfer 3 to 4 lbs. of oxygen per

In an experimental work an oxidation pond was constructed [Ref. Plate No. II] of size 4.77 acres in an aerial extent and 4 ft. deep. In summer, the pond developed anaerobic condition and emitted obnoxious gases. The aerobic condition was then maintained by the regular addition of sodium nitrate. This was continued till the zone decreased and the algae population changed from blue green to green algae.

Such an oxidation pond required large land areas. Hence in order to economise an aerated lagoon as shown in Fig. No. 2 was adopted.

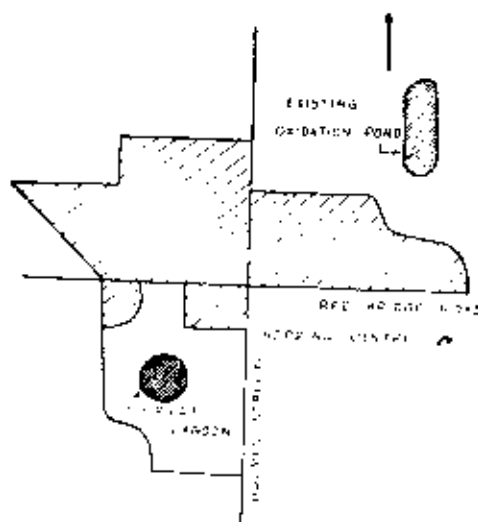


FIG. 2 LOCATION MAP OF REF. HOUSE AND LAGOON IN KANSAS CITY.
NOT SHOWING EXISTING OXIDATION POND
P.L.E. AERATED LAGOON.
[DRAWN NOT TO SCALE]

It was a circular lagoon having 81 ft. diameter at the surface and 65 ft. at the bottom, viz. 4 ft. below the surface, giving a holding capacity of 121000 gallons. The side slopes were coated with fibreglass matting coated with asphalt to prevent erosion. The plant was equipped with a 3 HP turbine aerator, having a variable speed drive to permit the operation through a range of speeds. The raw domestic sewage was directly introduced under the turbine aerator to insure maximum mixing of the raw sewage with the aeration tank contents. The effluent was proposed to be discharged in a river. A 76% BOD reduction over a 24 hr. period was observed.

The practical difficulty of the plant was that in extremely cold seasons ice overloaded the aerator and strained the drive belts. The slippage of the drive belts caused the aerator to slow down and reduced oxygen transfer and the mixing of the raw sewage.

Microscopic Examinations

It was observed that algae was absent in the mixed liquor all the time. The bacteria formed typical activated sludge floc. Initially Flagellated Protozoa predominated but they soon gave way to the free swimming ciliated protozoa. As the temperature decreased the number of free swimming ciliated protozoa also decreased. Very little protozoa activity existed below 48 °F. At 32°F all protozoan activity ceased.

One Prof. Eckenfelder and another Prof. O'Connor of the Manhattan College, New York, presented the theory of Aerated Lagoons in a nut shell. Accordingly, under limiting conditions, the rate of biological oxidation of waste matter can be expressed by a first-order reaction,

$$\frac{dL}{dt} = kL \quad \text{i.e. the rate of}$$

oxidation is proportional to the concentration of organic matter present at the time.

In large aerated lagoons there is usually sufficient turbulence to create a condition of uniform concentration. That means, the concentration of BOD in the effluent is substantially equal to the concentration of BOD in the lagoon itself. Oxygen may be supplied by the atmosphere, extra oxygen requirements are satisfied by mechanical or diffused aeration systems. A portion of the BOD removed in the lagoon results in the synthesis of microbial sludge. A significant portion of these solids may settle to the bottom, and in addition, solids present in the influent may also settle.

The velocity gradient is induced by the fluid motion in the surface layers of lagoon. This motion may be generated by diffused or mechanical aeration equipments. The velocity gradient in aerated lagoons varies from 0.1 to 4.0 ft. per second and is of the order as those found in natural streams. The oxygen absorption by diffused aeration is dependent device, the air-flow rate and the characteristics of the waste waters. Also the biological oxidation and the rate of oxygen transfer are depending on temperature

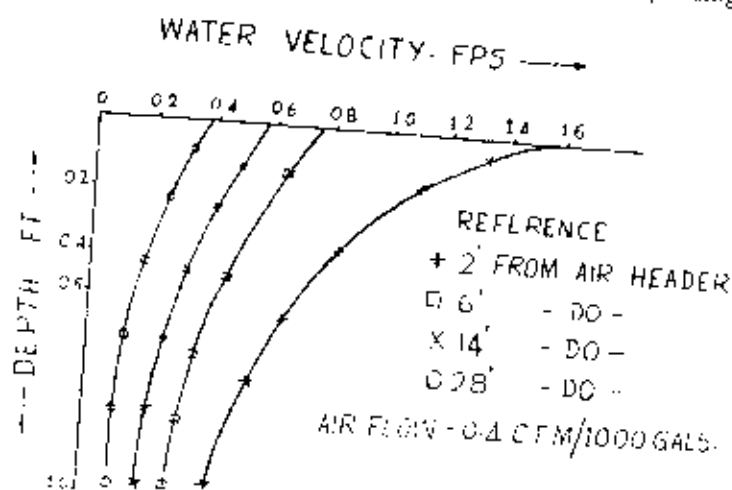


FIG 3 "TYPICAL VERTICAL VELOCITY PROFILES"

The velocity gradients are measured from velocity measurements made with a standard currentmeter at various depths and distances from the air headers. The Fig. No. 3 indicates this phenomenon. It can be observed that the velocities in the upper 6" are only significant in evaluating the velocity gradient at the surface. The Fig. No. 4 indicates the typical plan and profiles of an aerated lagoon treating canners and paper-mill wastes. It also shows the positions of the aeration units.

In case of oxidation ponds algae can provide oxygen only during day light hours, while the micro-organisms require oxygen

for 24 hrs. a day. So that sufficient oxygen must be stored during the day light hours to last through the night. In essence the algae are like a mechanical aerator run only 12 to 16 hrs. a day. Hence, for treating more waste in the same oxidation units artificial aeration becomes a must and when such a means is adopted an oxidation pond is called an aerated lagoon. It is investigated from actual plant studies that aerated lagoons require more oxygen in summer period and lesser in winter seasons, obviously, because higher temperatures give rise to microbial growth exerting more oxygen demand. Hence to satisfy this extra demand

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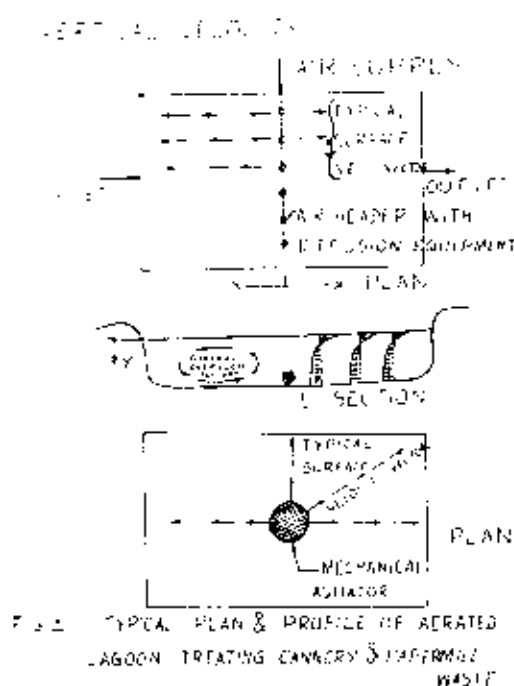


FIG. 2. TYPICAL PLAN & PROFILE OF AERATED LAGOON TREATING CANNEY & PAPERMILL WASTE

air must be supplied artificially. Use of circulating lagoons showed better performance, while treating paper mill wastes.

Advantages of Aerated Lagoons:-

(1) It is possible to achieve continuous oxygen transfer by a turbine aerator. This helps in treating more of sewage and industrial wastes. With a 5 HP aerator an aerated lagoon can handle 600 lbs. of BOD day, with safety.

(2) An aerated lagoon does not require complex maintenance, though periodic lubrication of the aerator motor is a must for efficient working.

(3) It can be used to reduce the load on an oxidation pond or where land is expensive and operational control must be a minimum.

(4) An aerated lagoon does not need operational control from a biological standpoint.

(5) BOD removals of upto 80% have been obtained on canney and paper-mill

wastes treated in an aerated lagoon.

It can be emphasised that the sewage and industrial wastes can be treated at lower costs in an aerated lagoon instead an oxidation pond. "Aerated lagoons" is an advanced treatment method adopted in the west for handling waste waters. The only operational difficulty in case of aerated lagoons is the weed growth in the vicinity of the lagoons that can result in a permanent mosquito nuisance. The mosquitoes can spread diseases like Malaria, Filaria, Elephantiasis, etc. Hence, in order to protect the health of the neighbouring community, the weed growth should be checked by using weedkillers available in the market in powder form. The weedkillers may be spread over the ground in proportion of 1 lb. per 100 sq. ft. to check the extensive weed growth, and to prevent the further growth.

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THE GREAT ESCAPE

ARUN V. RAO, T. E. (Mech.)

"But, didn't you find anybody guarding the place?" the man asked with a curious look.

"No. You can call it my luck." I replied making myself comfortable on the only chair around. Then my eyes searched around for something and then as if he sensed it he turned around and said, "Oh! you seem to be very hungry. I will find something for you." He went inside the darkness behind the door. Just I was about to call him, he came with a piece of bread and a glass of water. I felt even more hungry when I saw that piece of bread.

"I am sorry but I could find only this much," I didn't waste time to answer him. When I finished drinking the water, I felt healthy and happy, satisfied with myself and with the world. He was the second kind-hearted man I had met in the last six hours. People in these villages are quite different from their counterparts in other parts of the country. They never suspect a stranger. They want someone to pass time with them. I could see curiosity written all over his face. He expected me to tell him the whole story and I didn't hesitate.

"Well, it all started when I was shaving this morning in my cell when I saw the camp commandant in the mirror. I turned around and wished him morning. He gave me a naughty smile and quipped, "Planning to escape yeh? You won't get past this cell gate. I have tightened the security." I knew he hadn't. It was by force of habit he used to say these words to any of us whom he found healthy and fit every morning.

Thumping my cell door he added, "But, don't give up. A soldier always tries to run away when he is a prisoner and besides we

always find you, before you succeed. Any way start digging right now," and he roared with laughter. Well I had to laugh not that I appreciated his sense of humour but to think that I had already achieved half the success in my plan. I had determined to get out from the main gate, a thing which they didn't expect from a prisoner. This was certainly dangerous than the traditional cell-digging but I had prepared myself well for it.

It was about six in the evening. Slowly I was creeping along the eastern wall. Just when I reached near the main gate I saw the guard getting up from his chair. He looked to his wrist-watch, stroked the back of his trouser with his hands and started towards the rest room. A scene which I was making myself familiar with, for the last twenty days. This was the greatest moment for me and I had planned well for it. The guard used to meet the second shift guard and everyday after exchanging a few words they used to part. All this took one full minute and in that much time a man could change the whole world if he wished.

The wall was a very low one and with glass pieces on top. It was not certainly a good one to keep war prisoners inside the camp. Immediately I put my left foot on the projecting hinge of the gate and stretching myself to full height, placed my left palm on some place between the glass-pieces. Then I heard footsteps coming towards me. I jumped over the wall, the thud of the fall disturbing the silence and somehow I felt that the new guard had heard it. Just to make sure, I crept near the gate and stood there literally breathless waiting for something to happen. I could hear nothing except my heart beats which

INTERNAL:

and hit me faster with that fall. Nothing happened for a long time.

Then it happened. Suddenly I felt the gate swinging a little inwards. I was waiting for it and I knew he was going to fire at the sides of the gate but I couldn't hear the noise of the pistol shots now. Certainly not after I had breathed a little fresh air. I wanted more of it. His aim was quick but my right fist was quicker. The gun went sprawling in the dust and my left hand gripped it. I dragged him outside and before he could regain his balance, I brought down my right fist at the right spot on his neck.

I forced my hunky in his open wide mouth and tied his hands behind with his belt. I knew it would take about an hour and a quarter for him to regain his senses and make others find him and that was ample time for me and I needed every second of it. I picked up his gun, put it in my trouser pocket, closed the gate slowly and started walking madly down the dusty road. It was already getting dark and I wanted to reach the border before they could realise that the occupant of the cell 34 was missing. It was now or never. And then I met an old man coming towards me. Abruptly I stopped and before I could say anything the man gave a surprising look and said, "Just run for about two more hours, on the first left turn you will find the safest place. There's only one post there. But, it could be dangerous son." I was simply astonished. The man didn't wait any more and was walking towards the camp.

Was he a regular messenger. No. Then why did he tell me all this? I just stopped the train of thoughts and started running again. For a long time I could see nothing and then when I saw the faint outlines of a roof against clear light blue sky, I realised that the man had told me just plain truth.

Suddenly I thought I heard some vehicle moving behind me. I stopped and listened. I could hear nothing but my heart beats and heavy breathing. Again I heard it and this time I was sure it was a jeep. My hand went inside the trouser pocket. It was nearly a month since last my fingers pressed a trigger. I started running just to make the distance lesser. I knew the jeep was getting closer and closer I could feel its head-lights searching for me. I spun around, dropped on the ground behind a big stone, my fingers tightly gripping the trigger. The jeep had stopped, there were two men in it. I aimed at the two front tyres. The bursts broke the silence. Bullets started flying in my direction. Immediately I aimed at the two head-lights. A bullet whizzed past my right arm. I remained silent for five long minutes and the bullets stopped. Then I saw lightening up of a matchstick and cigarettes in their mouth. It was a regular petrol and not the people from the camp and probably they thought their opponent dead, for I saw the two red cigarette ends going away from me.

It was only when I could see no more of the cigarette ends in the darkness I got up and started crawling like a child towards the fence. I felt the barbed wire going into my back skin tearing my shirt. A pain shot through my whole body. But soon I forgot it. I was free.

The man was sitting wide awake with sweat beads all over his forehead. He stirred and then got up, came towards me and said, "Well. Let's see that wound." I turned around and lifting the shirt off my back he asked, "who was that old man? Do you remember seeing him earlier?"

"Oh! That I think, will be a mystery for me for years to come. But one thing is sure, he knew the price of being caught very well himself and wanted me to succeed."

"BRADMAN" - *The Cricket King*

Compiled By

Chapnerkar Jaychandra B. F.E.-I

SIR DONALD BRADMAN, in his farewell speech at the Savoy Hotel at the end of the Australian Tour 1949, definitely stated that his career in First-class cricket was finished. On returning to Australia, however, he agreed to play in three Testimonial matches--his own at Melbourne, the Oldfield-Kippax match at Sydney and A. J. Richardson's Testimonial at Adelaide. It is then possible to put on record the most amazing set of figures ever provided by a cricketer during a career of 20 seasons.

In 12 out of 16 Australian seasons Bradman scored over 1,000 runs, his 1,690 in 1928-29 being a record aggregate for an Australian season. In each of his four English tours he scored over 2,000 runs, his 2,960 in 1930 being the highest aggregate by a visiting cricketer in England, the motherland of cricket. In nine of his 20 seasons he averaged over 100 runs an innings, and in six others his average exceeded 80 runs.

Bradman played in 229 matches out of which 139 in Australia and 90 in England. On two occasions he did not bat owing to injury, his average aggregate per match for the other 227 matches being 123.64. No other batsman has ever approached this record over so long a period.

On October 1, 1948, Bradman had appeared in the eleven series of Test-Matches--eight versus England, and one each against South Africa, India and West Indies. In six he scored over 600 runs and in four fewer than 500 runs. The only series in

which he was on the losing side were 1928-29 (his second season), and 1932-33 when England's fast attack (famous body-line cricket tour of England 1932-33) reduced his run getting to a rate approaching the normal. It is probable that even the hardly-used bowlers of 1948 were sorry that he did not obtain the four runs at the Oval which would have enabled him to retire with an aggregate of 7,000 runs and an average of 100.

Bradman played against 35 sides and averaged over 100 runs an innings against 15 of them: Worcestershire 201.75, South Africa 201.50, Essex 187, India 178.75, Hampshire 168, Leicestershire 165.50, Tasmania 150, Queensland 140.80, miscellaneous (England) 140, Surrey 139.83, South Africans (exclusive of Tests) 128, Western Australia 121.83, Kent 118.33, Somerset 112, Victoria 109.63, New South Wales 100.54. Against 13 others sides he averaged over 50.

In Test Matches Bradman was dismissed by 29 bowlers, Variety (Eight times), A. V. Bedser (Six times), Bowes, Tate and Larwood (five each) being most successful. Bowes bowled him four times; Bedser got his wicket in four successive Test innings in 1948; in 1946-47, N. W. D. Yardley dismissed him three times in successive innings without assistance from the field. Only one bowler Lala Amarnath induced him to hit his wicket.

As a scorer of hundreds Bradman has a unique record. He is the only overseas

King"

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21.75, South
India 178.75,
145.50, Tas-
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122.83, South
28, Western
33, Somerset
South Wales
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e and Lar-
successful.
Bedser got
innings in
Yardley dis-
ave innings
Only one
him to hit

man has a
overseas

player who has completed one hundred
Tests' 117 in 229 matches and 37 of
his hundreds exceeded 200 runs. Of his
innings 34 per cent were hundreds, and
more than half passed the 50 mark.

Bradman has set up and broken so many
records that it is impossible in limited space
to include all. But the following may be
selected.

FIRST CLASS CRICKET

1. Highest innings—452 not out Vs. Queensland (1929-30).
2. Most innings over 300 runs—Six.
3. 1,000 runs before the end of May—Twice.
4. Six hundreds in consecutive innings—1938-39 (equalling C. B. Fry's record).
5. Two innings over 300 in a season—1935-36 (equalling W. G. Grace's record).
6. Highest average (995.70) for an aggregate of 5,000 runs.

TEST CRICKET

1. Most runs in a series 1930 (974).
2. Most hundreds (29).
3. Most double hundreds (12).
4. Four hundreds in a series (three times).
5. Three double hundreds in a series (1930).
6. A hundred in each of eight consecutive Test Matches (Vs. England in 1936-37, 1938, 1946-47).
7. Highest Test average (69.94).
8. 300 runs in a day (Vs. England at Leeds, 1930).
9. Record partnership for the 2nd, 4th and 5th wickets in a test cricket.
10. In four series of Tests Bradman had aggregates exceeding 700 runs.

Bradman scored a hundred in his first innings in first class cricket in England, and in his first innings for New South Wales and South Australia. In each of his last three innings in England he scored a Hundred.

"CAREER AT A GLANCE"

■ Australia :

Season	Innings	Not out	Runs	Highest Innings	100's	50's	Over 200	Average
1927-28	10	1	416	134*	2	1	—	46.22
1928-29	24	6	1,690	340*	7	5	1	94.88
1929-30	16	2	1,586	452*	5	4	2	113.28
1930-31	18	—	1,422	253	5	4	2	79.00
1931-32	13	1	1,403	299*	7	—	2	116.93
1932-33	21	2	1,171	238	3	7	1	61.62
1933-34	11	5	1,192	253	5	4	2	122.44
1934-35	OWING TO ILLNESS DID NOT PLAY.							
1935-36	9	—	1,133	369	4	—	3	130.33
1936-37	19	1	1,552	270	6	2	3	86.10
1937-38	15	2	1,437	246	7	5	1	89.81
1938-39	7	1	919	225	6	—	1	153.16
1939-40	15	0	1,435	251	5	4	3	122.91
1940-41	4	—	18	12	—	—	—	4.50
1941-42	3	1	237	112	1	2	—	116.00
1942-43	24	1	1,032	234	4	4	1	79.38
1943-44	12	2	1,296	201	8	—	1	129.60
1944-45	4	—	216	123	1	1	—	54.00
	218	25	18,230	452*	70	45	25	94.45

In England :

1930	36	6	2,960	334	10	5	6	98.66
1934	27	3	2,020	304	7	6	3	84.16
1938	26	5	2,429	278	13	5	3	115.66
1948	31	4	2,428	187	11	8	—	89.92
	120	18	9,837	734	41	24	12	96.44
TOTAL	338	43	28,067	452*	117	69	37	95.14

*Not out.

Bowling —30 wickets coverage 39.73
Fielding —99 catches 1 stumped.

TEST CRICKET

Season & Opponents	Test	Inns.	Not out	Runs	Highest Inns.	100's	50's	0's	Average
1928-29 (Vs. E.)	4	8	1	468	123	2	2	—	66.86
1930 (Vs. E.)	5	7	—	974	334	4	—	—	139.14
1930-31 (Vs. W.I.)	5	6	—	447	223	2	—	1	74.50
†1931-32 (Vs. S.A.)	5	5	1	806	299*	4	—	—	201.50
1932-33 (Vs. E.)	4	8	1	396	103*	1	3	1	56.57
1934 (Vs. E.)	5	8	—	758	304	2	1	—	94.75
1936-37 (Vs. E.)	5	9	—	810	270	3	1	2	90.00
†1938 (Vs. E.)	5	6	2	434	144*	3	1	—	108.50
1946-47 (Vs. E.)	5	8	1	680	254	2	3	1	97.14
1947-48 (Vs. India)	5	6	2	715	201	4	1	—	178.75
1949 (Vs. E.)	5	9	2	508	173*	2	1	2	72.57
TOTAL	52	80	10	6,996	334	29	13	7	99.94

*Bradman fielded in the fifth Test of the series but did not bat owing to injury.

SUMMARY

Seasons & Opponents	Test	Inns.	Not out	Runs	Highest Innings	100's	50's	0's	Average
Vs. England	37	63	7	5,028	334	19	12	6	89.78
Vs. South Africa	5	5	1	806	299*	4	—	—	201.50
Vs. West Indies	5	6	—	447	223	2	—	1	74.50
Vs. India	5	6	2	715	201	4	1	—	178.75
TOTAL	52	80	10	6,996	334	29	13	7	99.94

*Not out.

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First Class B.E. (Mech.)



A. B. Kulkarni
First Class B.E. (Elect.)



R. B. Kamburkar
First Class B.E. (Civil)

98.66
84.16
115.66
89.92
96.44
95.14

2's	Average
—	66.86
—	139.14
1	74.50
—	201.50
1	56.57
—	94.75
2	90.00
—	108.50
1	97.14
—	178.75
2	72.57
+	99.94

Average
89.78
201.50
74.50
178.75
—
99.94

Director of Publicity Government of Maharashtra

(Tel 54137)

If you were born an 'only child', you'd better skip this.

Some wise old bird once said that an only child is a shining example of what not to be. I couldn't agree more.

A few blocks away lives a couple with one of these little monsters in tow. He has the absurd name Bunty, and there isn't a soul in the neighbourhood who wouldn't push him under a bus if the opportunity presented itself and nobody found out.

He has scant respect for persons and property, his favourite pastime being throwing stones at both. He is perpetually grimy and has a vocabulary to match. His face is always twisted into a sneering grin which widens with sadistic ecstasy when he is busy bullying the smaller kids he can lay his fists on.

Bunty is the kind of kid whose presents should never have met: His father is a nervous, shrinking guy who wouldn't say boo to a butterfly. His mother is a vain, varnished vixen who dotes on her savage son and would fight the whole world to save him from a well deserved kick on the farts.

I'm pretty sure that if Bunty robbed a bank and knifed a couple of cashiers in the process, his idiot mother would beam with pride.

As a result, Bunty thinks he has the whole world right there next to the marbles and chiclets in his pocket. Wanton destruction is his hobby. If they flung him into a demolition squad, this guy would demolish the squad.

There is nothing that escapes his hit and run activities. Window-panes, fences, flower-pots, street lights, parked cars, bicycles, lamp-posts and pillar boxes. One of these days someone's going to catch him in the act and knock him silly.

BUNTY

NAVROZ M. HAVEWALA

F.P.I

He also has the annoying habit of running along the pavements, whooping and steaming. You'd think Big Chief Sitting Bull was on the warpath again. Why the devil can't he use the parks? A couple of neighbours tried complaining to his mother. They almost got their eyes scratched out for their trouble.

Old men avoid Bunty like the Plague because he sticks out his tongue at them, makes a rude remark and then runs like hell. Ayahs pushing prams gallop wildly away from him to save their bawling charges from bodily harm. They know Bunty is quite capable of throwing a baby on the ground to see if it bounces. I guess he could make Dennis the Menace look like a choir-boy in the middle of a High Mass.

I scouted around a little and got the facts of his home life. Jeeze, his room bears evidence of his vandalism. In his indefatigable quest for mischief, Bunty has smashed everything from phonograph records to jade vases.

Only last Sunday, their fifteenth cook of this year walked out on them. Why? Bunty had aimed a dish of Chocolate Pudding at his right eye and scored a bull. According to reports, his mother laughed so helplessly that neighbours had to rush in and give her a slug of brandy.

The only child, if he has indulgent parents, can grow up to be a public enemy. There should be a law making it a punishable offence to have only one child.

MYSTERY OF NUMBERS

J. G. PANJI

It is difficult to imagine a world devoid of NUMBERS. The numbers contribute in a long way to the understanding of things around us, just as alphabets are the characters of any language. The numbers can be said to be the means of development of mathematics and other related sciences. It is no exaggeration to say that all activities in our life are related in a way with the numbers which have a special occultic and materialistic significance. The study of the numbers in its occultic significance or to be more precise, Kabala of Numbers is a science by itself. It has its own principles, which when thoroughly studied, reveal that numbers are not mere figures but are symbols which guide the affairs of one's life.

To understand the significance of numbers, it is to be realised that God's creation in nature follows a divine law based on configuration of the atoms. This configuration follows a definite geometrical form or shape for each and every element. The entire Cosmos is the manifestation of the Divine Intelligence. It has been found from ancient evers and godmen, that the law of divine expression from the creation of the universe down to the most trivial occurrence in the cycle of evolution can be studied by NUMEROLOGY, a science of numbers.

In this brief article, an attempt is made to reveal some of the basic significance of numbers in relation to the individual personality, nature, likes and dislikes. This system of Numbers works as follows.

Kabala of Numbers is also based on the letters (alphabets) and it acts through nine orders. These nine orders are designated by nine numbers: 1, 2, 3, 4, 5, 6, 7, 8, and 9 and each of these numbers signify a planet and a house (sign position) in the astrological map. It is also found that each number signifies a colour, a rare stone, metal and a set of natural and induced vibrations. Based on the above characters,

the general qualities can be worked out. The entire scheme of the Kabala of Numbers is summarised and given in the following table:

How to use the table,

Say, date of birth: February 18, 1938
 Step No. 1: 18+2=1938
 No. 2: Year 1938
 No. 3: Month 2
 No. 4: Date 18

add 1938

Now reduce to 1+9+3+8 = 21

Reduce to single unit: 2+1 = 3

No. 5 which is the final unit is the Key Number

It can be found that from the table, the general characteristics of No. 5 which should dominate in the life of the person born on February 18, 1938.

In the same way, you can reduce your name to numerological way by the following method:

Example:

RAMESH PATHAK

SEE UNDER COLUMN 2 for individual letters of your name

this will give for the aforesaid name as under in numbers:

R A M E S H P A T H A K
 2, 1, 4, 1, 6, 8 8, 1, 4, 8, 1, 2

Now add all numbers one by one. This will result in a sum of 46 which gives in turn a sum equal to 10. When this is further reduced to single digit, the number obtained is 1. This number 1 is your personality number.

N.B.: Numbers bearing 10, 11, 12, 13 and 22 are full numbers by themselves. It has a special meaning and hence it is not included in the table for the purpose of this article.

VIBRATIONS

Nos	Planet	Letter	Sound	Colour	Stone	Metal	Receptive	Attracts	Repulsive	Neutral	Qualities
1.	SUN	A, E, Y, I, Hong	C	Golden, Orange, and red shades	Diamond	Gold	1-9	4-8	6-7	2-3-5	Architect, Individuality, Affirmation, Ignorance, Dignity.
2.	MOON	H, K, R, PP, G (hard), Q (soft), Q, N	F	Silver White, Green, all shades	Moon Stone	Silver	2-8	7-9	5-	1-3-4-6	Cool, Imaginative, Psychic, Sympathetic, Contrary, Vacillations, Doubt, Emotion, Attraction, Relation, Sensation.
3.	JUPITER	J, G (soft), Sh, L	H	Purple, Olive, Mauve	Carnelem	Tin	3-7	5, 6-9	4-8	1-2	Cheerful, Deceptive, Intellectual, Capacity, Expansion, Success, Proud Jokes, Optimist, Extravagant.
4.	HERSCHEL	D, J, M	C	Violet Blue, Steel Grey	Onyx	Gold	4-6	1-8	3-5	2-5-9	Practical, Intelligence, Realisation, Possession, Greed, Moody, Forceful, Energy, Vitality, Observation.
5.	MERCURY	N	L	Grey and white	Jasper, Zircon	Quick Silver	5-5	3-9	2-4	1-6-7-8	Fortunate, Optimistic, Reason, Confidence, Utility, Perception, Discriminate, Nervous, Gambling, Inquisitive.
6.	VENUS	U, W, V, W, S	A	Pale Blue, Pink	Opal, Emerald, Amethyst	Copper	6-4	3-9	1-8	2-5-7	Magnetic, Understanding, Gentle, Materialistic, Peaceful, Optimist, Sympathy, Purity, Unfortunate Troubles.
7.	NEPTUNE	Z, O (hard)	F	Green of all shades, Yellow, White	Peridot, Jasper	Silver	7-3	2-6	1-9	4-3-8	Purpose, Philosophy, Wisdom, Equilibrium, Reverses.
8.	SATURN	P, Ph, F, H, Ch	D	Dark Grey, Blue & Indigo	Turquoise	Lead	8-2	1-4	3-6	5-7-9	Organising, Special Knowledge, Conservative, Contemplation, Decay, Foul, Foolish Reputation, Discretion, Tamidity.
9.	MARS	Th, T, z	G	Brown, Crimson Red	Topaz	Steel	9-1	2-3-6	7	4-5-8	Sentimental, Music, Resolute, Anger, Penetration, Zeal, Intensity, Deception, Trials, Tarnish, Bigotry.

Don't be like me!

G. V. YUGANDHAR,
LECTURER, MICH. DEPT.

"HELLO, Namasthe", wished somebody from behind.

I was standing in the queue to catch a bus to Chembur, where I wanted to spend my weekend. It was about 10 o'clock in the morning. The sun had just started scorching the heads of the people. Everybody standing in the queue was profusely sweating because of waiting in the open for quite some time. Though the waiting was a bit painful, I was not getting bored because my eyes were glued to a young, pretty college girl standing in the queue a few paces ahead. I was reluctant to look back because there were many people standing behind me and somebody may be wishing some other person. Also I didn't want to take my eyes off the pretty thing ahead of me, draped in a rather revealing, multi-colored dress. (Excuse me, I am a bachelor). I was wondering as to where from these college girls of Bombay get money to purchase all sorts of funny (if not fancy) dresses.

"Hello, Namasthe", again wished somebody from behind. This time I had to reluctantly turn my head back. Yes, it was meant for me only. A gentleman, whom I could not recognise immediately, standing about two yards behind me in the same queue was greeting me. I could not recollect as to who he is and where we met, but his face looked quite familiar to me. Many a people are put in such embarrassing situa-

tions in day to day life, in which one just cannot recollect who the other person is. At the same time it would be a little offending to ask one directly as to who he is. So trying to conceal my embarrassment, I forced a feeble smile on to my face, at the same time wishing, "Namasthe".

I did not want to start conversation with him for my ignorance may be exposed, though he looked as if he wanted to talk something. Fortunately a bus arrived just at that time, and the queue started moving. So I turned back and moved towards the bus. The queue was very long and so there were many people ahead of me even after that bus was full (including the beauty). Whenever I see these long queues in Bombay I remember a story, which goes like this:

In the good olden days of Ramayana, after Rama had killed Ravana, the monkeys, which helped Rama to win the battle, also came along with Rama to Ayodhya. The so-called civilized people of Ayodhya started teasing these monkeys by pulling their tails, throwing stones at them, etc. Then all these monkeys went to Lord Hanuman and complained. Hanuman went to Rama and told him about the same. Then Rama replied, "Look, Hanuman. In this yuga I am not going to give any punishment to them. But all these people who are teasing your brethren will be punished in Kaliyuga.

They will become citizens of Bombay and they will be put to various sufferings like standing in long queues at bus stops and ration shops, travelling in local trains, water cuts, power cuts, air pollution, etc.")

Coming back to our present story, soon after the bus left, most of the people standing in the queue became a bit restless and I was sure that some of them must have asked the bus conductor for not allowing standing passengers. The beauty ahead of me got bored, came out of the queue, engaged a taxi and disappeared like a bullet.

So with nothing else to look at, I started thinking as to who could be the gentleman who wished me. I turned my head very carefully to look at his face once again. He was reading some magazine. His face seemed to be very familiar to me but I could not recollect him. So I started analyzing as to who he could be. He may be around twenty-seven and dressed rather gentlemanly.

So far sure, he is not a student of mine. He could be class-mate of mine in some school or college. I studied in as many as five schools (Don't mistake me to be mischievous in boyhood) and four colleges. So he could have been a colleague of mine in one of these institutions and obviously it is difficult to remember. Or could he be a friend of my innumerable friends in Bombay? It is quite possible that some friend of mine might have introduced me to him sometime. Or could he be our sub-postmaster or my bank cashier or some distant relative of mine? No. All my thinking and analyzing proved to be vain.

Then to my rescue a bus arrived and I boarded it. The gentleman, who wished me, also got into bus and put me in a more embarrassing position by sitting beside me. Soon the conductor came to us to issue tickets. The gentleman sitting beside me

asked me as to where I was going to. When I answered, he told that he too was going to Chembur, purchased two tickets and gave me one, after my protest against his paying the money for the tickets proved vain. Since he has paid for my bus fare too, he should be very, very familiar to me! So I started again thinking seriously to recollect him.

After all my efforts failed, I slowly asked him, "Though it may be a little offending, let me tell you frankly that I don't remember your name or as to where we met. All the time I am breaking my head to recollect". He started laughing rather loudly and said, "I am also working in S.P.C.F. in civil department, of course". Then he started laughing again. And so did I, without caring the staring public.

★ ★ ★

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I COUNTED ON MY BLESSINGS

VASANT DAVE, T. E. ELECT.

UNTIL I failed in F.E., mine was a First Class academic record. Informing the parents about the debacle wasn't easy. Writing that letter, I wept. Deep inside, I felt I was forsaking their confidence in me.

At that time of despair I got a friendly advice from Romero D'Souza, one of our own students who had just graduated. "Let's count on our blessings, Dave," he said. "Believe me, they're far more than our failures. Let's not ponder over the past. There are so many things to be done for a better future."

Maybe, it was high philosophy, a hobby of D'Souza we had so often ridiculed. But it proved a life-buoy for my sinking spirits.

I went on a casual visit to home after the October exams and returned to Bombay in search of a job. I had decided not to ask my father for money. He had retired a year ago and there was no steady income for the family.

The University Employment Bureau could not help. F.E. was no qualification for a technical job; for a clerical one, I lacked the greatest asset, typing.

Lured to one of those commercial employment agencies, I paid a small fee, agreed to give them twenty-five per cent of my first salary, and presented myself at the address they gave me.

It was a little known firm manufacturing pockets which are used in cabinet tiling system. One Mr. C ———, a man with greying hair down the edges and sparkling eyes behind premature wrinkles, told me I would get ten per cent of my sales.

An amateur salesman often tumbles into comical situations. I did too.

Mr. C ——— had just given me that morning's lesson. "Approach your customer from *his* point of view, like what *he* will gain by purchasing your product. To whatever you say, make him feel, 'Yes, the boy's right!' Sell him an idea. He'll want to buy your goods."

I started. In one office I came face to face with a bald man who possessed the physique of a prize-winning brat at a baby-contest.

"Sir, as the manager of this company ———"

"I'm *not* a manager!" came a thundering report from behind the table. I shivered inside my pants. Shattered was my confidence in making him say those all-important 'yes'es.

"Sir, whoever-you-are," I blurted, "wouldn't you like ———"

"I'm *not* a mere manager!" he cut in again, looking more hostile than a Naga hostile. "I am the *Director* of this firm. You don't know the man you are addressing. That's the first thing a salesman should learn. Moreover, you are rude ———"

"Excuse me, Sir. I didn't mean to ———"

"Enough! Will you leave my office at once? I don't waste time over people like *you*"

Dear Reader, were you in my shoes, what would you have done before stepping out of that office? Shot him with a toy gun?

Well, I did that ——— in the dream I had that night.

In spite of my having convinced some promising parties, my seniors seemed too slow at following up and closing the deal. Then I met Walter Noronha, now in B.F. Civil, who came along with me, had a good look at all these characters and passed the judgment, "Man, that's a bogus company you're working for. They'll contact your customers only after you've left. The employment agencies and the addresses they supply are all — ! They're making a job of exploiting the jobless. Why don't you do something paying, like Market Research?"

So with his help, I did just that. A research agency was about to launch a "prospective dealers' survey" for Coca Cola. They urgently needed young men to comb Bombay and its suburbs to collect some essential data. The work was exhausting, yet here I was getting Rs. 15/- per day flat for almost similar slogging I had done without any commission as a salesman.

The hundred rupees I earned that week boosted my morale like anything. What did it was more a sense of achievement than the cash.

Another survey followed — — the distribution of concession-coupons of a new product by Swastik Oil Mills. This time we visited residential areas ranging from the newest colonies in Mulund to the B.D.D. Chawls of Worli.

About that time, Bombay was getting ready for the General Elections. At some places we were interrogated by irritated toughs who thought we were canvassing for their rivals.

It was also then that an elderly Parsi couple was murdered in a Dhobi Talao flat. Its impact on grandmas throughout Bombay was so great that when we knocked at their

doors, they screamed and asked us to vanish before they called the police!

In the meantime, a friend from my Elphinstone days, Dhiman Mehta had fixed me up with a family in Walkeshwar. I was to tutor their teenage son who had miserably failed in the terminals.

The boy, I noticed, was intelligent — — only a little more playful for his age. His father was a successful businessman who spent his evenings attending social-welfare functions and parties. Obviously, he had no time to devote to his son's studies. On the other hand, the mother was too anxious about the boy's career, as all mothers are.

I listened sympathetically to the boy's problems. I started with geometry, the subject he imagined was the toughest. Once he had realised that it was not so complicated after all, I gradually took up lesser frightening subjects. Though at times I lost my temper because he persisted in delaying his homework, generally we remained more on 'tekler and younger brother' terms than 'the teacher and the taught'.

My gamble paid off. It was quite a confident young man I saw going to give his annuals.

When I went to bid farewell, I could discern tears in his mum's eyes. For her, I had done the impossible. Yet all the time I was aware that the boy had it in himself. I had only given him the guidance he needed, in a way he liked.

Perhaps, as far as Engineering is concerned, all I did was pointless. Nevertheless, the thought of standing up to the Challenge in my own capacity gave me tremendous satisfaction.

Never shall I regret it.

“WHAT IS LIFE”

By

Chapnerkar Jaychandra B. F.E. I

Life is a challenge meet it;	Life is a song sing it;
Life is a struggle accept it;	Life is an opportunity utilise it;
Life is an adventure dare it;	Life is a dream realise it;
Life is a sorrow overcome it;	Life is a journey complete it;
Life is a tragedy face it;	Life is Love enjoy it;
Life is a duty perform it;	Life is a bliss take it;
Life is a mystery unfold it;	Life is a beauty praise it;
Life is a game play it;	Life is a promise fulfil it.



College Girls 'Acute shortage'

College Secretaries 'The persons who keep the minutes and waste the hours'

College Library 'A place where the dead live'

College Hostel (New one exempted) 'Still in one piece'

- Chapnerkar Jayachandra B., F.E. (I)

BLOOD DONATION

I LOOK like a person who badly needs a blood transfusion. That's why I stayed away from the college whenever they invited those Glucose giving vampires from the blood bank. Knowing well my friends - young men who talk of 'service to humanity' as if they were Mother Theresa - I feared that they would carry me bodily to the donation hall. And once in front of those comely medico girls, few boys would feel like creating a scene—the least of all, me.

"We've seen shrimps weaker than you donating blood", said my friends one day last year. "Dave, you're not a man. You are a mouse."

I objected of course. When you don't possess a tail and when you hate cheese and when you don't run away from cats, you are pretty sure you are anything but a mouse. But they refused to see reason.

So the next time the blood-bank people came, I went up and lay down smilingly like Bhagat Singh going to the gallows. To my surprise, I discovered that there was very little pain only when the needle pricked. Then there was nothing till the bottle was almost full when a mild shocking sensation started tickling my palm. Before I could figure out how much voltage that could be compared to, I was sipping coffee. To crown it were the highly appreciative glances—or so I imagined—I received from our girls.

Our college has maintained a lousy record where blood donation is concerned. Shall we show them this year that we engineers are *men* fully aware of our social responsibility and not just mice moving around with slide-rules under their arms?

—Vasant Dave

[One of the 25 articles under the title 'Gossip' contributed to the Wall Paper.]



WHY STUDY?

By

Chapnerkar Jaychandra B. F.E. I.

The more we study, the more we know.

The more we know, the more we forget.

The more we forget, the less we know.

The less we know, the less we forget.

The less we forget, the more we know.

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कैफियत

प्रेमक-प्रकाश म. परळकर
(तृतीय वर्ष आंत्रिकि)

आज माझा गन्कार आहे. माझा म्हणजे मी-
अविनाश महेंद्र गायकवाड. का हा उचकलात
मे ? नाही म्हणजे मला अणुचर्चा वाटत नाही. त्याची
संवाय झालीय मला. मी अणुचर्चा. मी हॅरिजन म्हणून
मुद्दाला अणुचर्चा वाटत ना ? सहाजिकच आहे. पण
काय हो. आम्ही अस कोणत पण केवळ मि आम्ही
गिर नये. मंड ह्रीऊ नये. मृमच्या बरोबरीने वाग नये,
मृम्यामृम्ये मानमरातव मिळव नये ? का जन्मलाय
आम्ही आमच्या शिरावर पातळ अंज घेतल आहे ?
आता माझा व्रथा ना. मी गेल्या करी M.Sc. वा विद्या-
पिठान प्रथम कमाकारने उत्तीर्ण जणू त्याच वर्षी
आमच्या कनिजला वक्तृत्व स्पर्धेत अंज वक्षिण
मिळवून दिली. माझी गेल्याच पौर्णि कानिजमदील
उत्कृष्ट विद्यार्थी म्हणून निवड झाली. म्हणून तर
आज माझा गन्कार आहे. मी अणुचर्चा अनुन्ही
मला एवड जिखण घेता आता. हा बहुमान मिळवता
आता. देवान तुमच्यात व माझ्यात काय फरक
ठेवला आहे ? काही नाही. तरीही माझ नांव
ऐकून तुम्ही दचकलात !

तुम्ही आमच्या अभिभावकादेवान व अध्यापक
भाषण ऐका. त्याच बरोबर माझी कथा आणि चर्चा-
मुळा ऐका. मी अणुचर्चा म्हणून नियमित माझी क्रूर
थट्टा केवी आहे. अनुन्ही करीत आहे. मला आज हे
सब कुणातानरी नागितल्याशिवाय राहवत नाही.
खूप काही सोनल, पचकल, पण सर्व मनात ठेवत-

गाडवून ! मनुज शरीरवरच्या जिवभा लक्ष
जका नाही पण मनावरच्या जखमा तो महज लपव
जरती. हा. मी माझ्या मनावरच्या जखमा लपवल्या.
त्या कोणत्याही गुडे उपरचा केव्या नाहीत, कुणाचा
आवर फुंकर मागायची मंत्री शिवा नाही मजी
तुम्ही मी कधी कुणाचा मागितली नाहीत. मनातला
भवान कुटून राहिला. सर्व काही महज केव पणतु
आज त्याचा रफाट होऊ पाहत आहे.

तुम्ही ऐकत आहात ना ? ने पला समोर. पहिल्या
गणेंद्र चोपाचे डोळे गाड्याकडे रोखून पहात आहेत.
माझा भाऊ. माझी बहिनी. माझी हाणारी पत्नी
दमवी आणि ती ? ती अनुन्धरा. प्रत्येकाच्या डोळ्यात
वेगवेगळे भाव आहेत. त्या मवनीत मी आपला
वाटतोय. आपला झावामा वाटतोय. आपला राहावामा
वाटतोय. कायमचा ! त्यांची हृदये भरून आली आहेत
म्हणून त्यांचे फक्त डोळेच बोलताहेत. तो पाहा
गंधामय बगवेला माझा भाऊ. त्याच्या डोळ्यात
मुद्दाला काही भाव दिमताहेत काय ? नाही ना ?
त्याने डोळे मुद्दाला निधिकार दिमतीत पण त्याच
मज प्रफुल्लित आहे. ने आनंदाने काळोकाळ भाग्ये
आहे. त्याने खूप मोसल हो. माझ्यामाठी. त्याने शुन्यगून
आमन कुटुंब उभ केत. मी जन्मली आणि वाजत-
पणत आई गेली. त्याचा धमका घेऊन तीन महिन्यांनी
बडितानी तिला माथ दिली. आणि नेहण्यामून
माझा आदा हेत माझे आईवडील. माझा जन्म आई-

बहिर्जाच्या मृच्छूला कारणीभूत झाला म्हणून त्याने
अर्थी माझा निरस्कार केला नाही. स्वतः मातवी
पावंत विकून शिक्षण नोंदून दिले. तका तका त्या नांवाच्या
केल्या. रक्तान पाणी केले. आणि मला वाढवले.
माझी शिक्षण पूर्ण केले. माझ्या आजवरच्या यशाचा
नोब मानकरी आहे मला तो कधी दोन वार्ड शब्द
बोलला नाही. तेव्हा डेमेदीच्या दिवसात त्याने खुप्या
खेळल्या. भाड्यामाटी, फक्त माट्यामाटी ववाच्या
बनिनाच्या वर्षी त्याने खल केले. ताळ्याला एत
लाठ ओढरल्यावर. त्याच्या वाजना बसली आहे तो
नी माझी बहिनी. बहिनी कमली ? माझी आईच नी.
प्रत्येक स्त्रीला आपला मांडाशीर हा माणसासारखा
आणि नहान दोर मुलासारखा काढतो हेच खर !
निने मला आईची माथा दिली. दांत बणावू
दुःखाचा डोंगर कोमटला होता भाड्यावर. नेव्हा
बहिनीच्याच गदरात स्फुटून स्फुटून रडलो मी. निनेच
माझ्या हृदयावरच्या जखमेवर फुकर घातली. प्रथमच
मी माझ दुःख दुःखाला सांगितले. दुःखाचा डोंगर ?
हो दुःखाचा डोंगरच तो ? माझ्या पल्ल्या व जेवढ्या
प्रेमाच्या डावान मी भरणेच फसलो होतो. हो मी
प्रेम केले होते. अनुराधा नांवाच्या एका ब्राह्मण
मुलीवर. ममाज्याच्या दुष्टीगुत एका हरिजन
मुलाने ब्राह्मण मुलीवर प्रेम करण एक थाप होत.
एक अश्वथ गांठ होती ह्याची मला जाणीवच नव्हती.
का अगती ? मी अगत कोणता सुट्टा केला
होता की ज्यामुळे त्या विप्राप मुलीच्या प्रेमाच्या
हाकेला मी ओर देऊ नये ? कोप्यातल्या मुलीवर
बसलेली नी मुनरी पाहिलीच ? नीच नी अनुराधा.
निने डोळे बघा कसे पाणावले आहेत. गतरमुलीच्या
आठवणींनी निच मने स्फुटून असले. आपण चुकलो
फसलो आणि फगवलो गेलो आहोत ह्याची जाणीव
निने होती असले. निचे डोळे माझ्याकडे धमकावता
करताहेत; पण मी तिच्या केव्हाच धमा केले नाही आहे.

जे काही घडले त्याला ही जबाबदार नाही.
जबाबदार आहे तो निचा दाप. दो माझा माईकलमॉर
उभा राहून भरण करीत आहे आजच्या नभा-
रमाचा तो श्रम आहे आणि त्याच्या हरने माझा

मत्कार आहे. मला हा मत्कार नको होता. ह्या नीच
माणसाकडून तरी नको होता पण प्रिन्सिपाल माहेबांनी
आग्रह केला. कोवळ्या गन्तारी अगुदान मित्राच
म्हणून तरी ह्या मंत्रालाच धोनावण हाट होत अशी
मन्येकडून मरणा आज्ञा होती. मरणाचा नाशलाज
झाला. त्यांच्या शब्दाला मान देऊन त्या मत्काराला
तव्हे तर एक कटु अनुभव घ्यायला मी मिष्ट झालो.
जो माझ जीवन उध्वस्त करायला निघाला होता
त्याच्या हस्ते माझा मत्कार व्हावा तो ? बघा तो
काय तारे तोडनीय ने. त्याचा एक एक शब्द तज
लोवईमाराखा भाड्या कोनात शिरले आहे—

“—अविनाश गायकवाड ह्यांनी हा मान मिळवून
जगाला दाखवून दिले आहे की अस्पृश्य अन्यायी
मी भुमचपापेक्षा कमी नाही. अस्पृश्यता पाळाथवे
दिवस आता गेले. आज सर्वांना समान हक्क प्राप्त
झाले आहेत. आज आपण ब्राह्मण हरिजन विवाह
संबंध भडवून आपण जगाला दाखवून दिले पाहिजे
की आम्ही जातिभेद मानीत नाही. आम्ही कवन माणून
हीन एक जात मानतो—”

हामडून टाका त्याची जीम ! नीच हरामखोर ! !
स्वतःच्या मुलीच लग्न का नाही लावून दिले एका
हरिजनाशी ? अनुराधाने जेव्हा अमच्या लग्नाची
गांठ काढली तेव्हा मी हरिजन ह्या एकाच कारणावरून
लग्नाला तकार देणारा हाच तो तराधम ना ? माझ
नांव काय ? मी शिकलो काय ? ह्याची चौकशी
गुढा न करता लग्नाला तकार देणारा हाच तो डोंगी.
ह्याला काय माहित ज्ञान आज तो मत्कार करतो आहे
तान तो अनुराधेला धिक्कर ? स्वतःच्या समाज
सुधारक म्हणवतो. व्यामपिडावरून भावण होतलो,
सोतांना उाईल करतो. खतः माझे कृतिगुण्य. चार
उपदेशापेक्षा एक कृति धोष्ट असते हे त्याला काण
सांगणार ?

अरे, समारंभ संपला ? नी बघा अनुराधा इथेच
येत आहे. तुम्ही इथेच थांबा हा, Excuse me.

“अनु, कजी आहम मू ? खूप दिवसांनी पाहूनोय
तुला.”

"अवि, क्षमा कर मला. मी तुला नकार दिला, तुझ्यावर फक्त प्रेम केवळ भग्न करू शकले नाही. प्रेमाची परिणती नव्यानय होऊ शकते हे मला कळत होते पण...."

"अस बोलू नकोस अनु. खर प्रेम अमानील अगत. मी तुला केव्हाच क्षमा केली आहे. अखेर तूसा गुन्हा काय? तू शरीराने तशीच मनाने पण दुनळी आहेस. तू आईच्या मायेची बंधने दोडू जकली नाहीस किंवा तुझ्या चडिवांचा धरक लाबावू शकली नाहीस. तू मला धोका दिला नाहीस तर तुझ्या मनात तुला धोका दिला आहे."

"अवि, तुला एक विचार? पूर्वीच मजक विमरुत माझ्याशी लग्न करशील? मी केव्हाही तुझ्याबरोबर वायला तयार आहे. मला माझी बूक सुधारायची आहे. नाही म्हणू नकोस अवि."

"नाही अनु. नाही. शक्य नाही ते. It is too late now. मला क्षमा कर अनु. माझे लग्न ठरल्या ती पाहिलीच बहिनीच्या बाजूला उभी आहे ती मुलगी. ती मार्सेट हंगारी पत्नी आहे. इमयंती निच नांव. तिच्या कल्पनाचा चक्काचूर करू शकत नाही मी अनु. जे मी भोगलय ते मिला भोगू देणार नाही मी. खूप मालम आहे ती. निनही माझ्यामाझ्या कल्पना केल्या असतील. अनु. एम ने डोळे, मी तुला कोणत्याही गोष्टीबद्दल नाही म्हणत नाही पण आज नाही म्हणताना वेदना होताहेत मला अनु. तुला आठवते अनु. B.Sc. ला अम्माना मॅडरिंग मध्ये मला उद्देशून तू दोन गणी म्हणली होतीस. 'हृदयी जागा तू अनुराग प्रितीला या देशात का?' आणि 'जीवनात ही घडी अगोच राहू दे'. अनु मी तुला भाव्या हृदयान केव्हाच जागा दिली होती आणि भविषी जीवनाची सुखस्थाने रंगविली होती. पण अनु.... हे सर्व विमरुत जा आता. विमरुत जा आणि मला क्षमा कर....."

खुजे आम्ही

विजय भगवते
बी. ई. (मेकॅनिकल)

(मुक्तछंद)

पुण्याचा प्रवास

चालू असतो आनंदात

प्रत्येक जण भशगुल असतो

आपल्या आपल्याच नादात

कुणी खेळतो जुगार

तर कुणी ओढतो सिपार

काम हो एवढोशो सुखं

गाडीपुरतोच मर्यादित

गाडी आपली घाबत असते

खंडाळपाच्या घाटातून

निसर्गाचा फाफटपसारा

घेऊन दोन्ही अंगाना

निसर्ग सौंदर्याची करीत उधळण

पर्वतराजो स्वागत करतात हसून

सूर्याची उन्ह अंगावर झेलत

दऱ्या पहात असतात हसत

माडांच्या पानांमधून

सूर्य डोकावतो अधून मधून

आमच्या अंगावर

उत्साह बरसवून

उत्साहाचा एवढा शिडकावा

मनात निर्माण करतो ओलावा

...पण आम्ही क्षूट

असतो आमच्याच

आनंदात धूट

निसर्गाकडे मात्र

डोळे उघडून पहाण्यास

नसतो आम्ही पात्र

किती खूजे आम्ही

फुकट मिळतं तरीही

स्विकारत नाही काही

आपण पैशामार्गे लागून

बुडबुड घेतो क्षूद्रांकडून

रेशमी बंध

दिपक पागधरे

T. E. (Civil)

विजय तमा मनाचा तिलेंप. पण तोंडाचा फटकळ !
दीर्घपण्डित मंथून वर्गाच्या बाहेर पडतापडताच
त्याने मना मुताबते "काय हो महाराज ? So disa-
ppointed ? अरे एका दिवसाचा विरह महान न
सावा तर मग Unfortunately प्रेमभंग झालाच
तर....." "Shut up"—मी काहीतरी रागातच
त्याला मध्येन तोडले.

"Be Frank. अरे मी संमत केलेली तुम्ही"
तो निर्वर्जपणे हंसून म्हणाला "अरे हे काययत्न.
बोड दो वार ! आजच माझा पॅकिट मनी आला.
बोला काय खाणार ? विकस-पुलाव ? आम्बेड-
आईस्क्रीम....."

"नाही ! No Thanks मला आज अरे वाटून
नही. आणखीन आता मला नायबरीत वसायचे
अगत्यामुळे पुढे हो तु. मी आजोच मागवून." ही बाप
त्याला पचेल की नाही याचा विचार न करता मी
दुभया बाजूला वळून बापू लागलो. त्याबरोबर तो
तोंडातल्या तोंडात काहीतरी पुसपुसत कंठीतल्या दिगेने
निघून गेला. मी जवळून असतल्या हांमिथकडे मोर्बा
वळविता. पायाच्या गर्तीपेक्षा मनातील विचार अधिक
वेगाने दोडून होते. वास्तविक प्रभा आज वर्गात न
दिमल्यामुळे मी अस्वस्थ झालो होतो. आणि ही
माझी अस्वस्थता विरगमाळच्या मिस्कील मित्राच्या
नक्षान आली नसली तरच नवल ! विवाराच्या धुंदीत
हान्तेनगणी कधी आलो ते वळलेच नाही. किल्ल्याने
कमचा वरवाजा उघडला अत दरवाजात आतून कडी
लावून वेडिंगवर अंग झाकून दिले. छताकडे पाहता
पंढरा मी माझ्याच मनाचे निष्प्रेषण करण्याचा प्रयत्न
कहा लागलो.....

एका विन्दुहत्यावर्ती मर्बध पोतीचे तबक विणाचे
तसे माझे विचार विचमभर एकाच व्यक्तिमोवती
विणले जातात. अभ्यास, खेळ वर्ग गोष्टीमध्ये गुंतलेले
माझे मन निवतण्या भिळताच प्रभाच्या विचारांनी

गमन घेते. भोवताली चाललेल्या गोष्टीकडे मी
अगदी त्रकस्थपणे पाहतो. धुनक हावनालीचे गण
मारखे कान वर करणारे भासे मन आताशा
एकप्रकारच्या मंत्रीन असते. सर्वच म्हणतात की मी
गंभीर विचाराचा आहे म्हणत. पण ह्या माभीयांचे
कारण त्यानी कष्टेन तर !

प्रेम ! प्रीति !!

फक्त दोन-च शब्द ! पण त्यात किती सामर्थ्य
आहे महानुभूतीची आंम आहे. आत्मिक ओढ आहे
हे एखाद्यास अनुभवानेच उभतु शकित. केवळ
श्रेयस्विच तृप्ति म्हणजे काय प्रेम ? उद्यम वामतेचा
अधिक उपशम म्हणजे काय प्रेम ? प्रेम निराळे,
वामता निराळी. प्रीतिपोटी वामता असली तरी
वामतेच्या पोटी प्रेम कधीच अनु शकत नाही. मानवी
मतावर अमर्षात गता गात्रविणारी 'प्रेम' ही एक
अमूर्त शक्ति आहे. त्या शक्तिमुळेच वगवण भटकणारे
दोन जीव रेशमी धाग्याने घट्ट बांधले जाऊन.

प्रभा ! प्रभा ! प्रभा !!!

निच्या केवळ स्मृतिनेही हृदयाने गोड असतुनीचे
तसे उडवत. गताच्या गात्रगत भावनांच्या नाटा
उफळून येताने तळतले निच्या अधुर महाराजाच्या
स्मृतिफुलाची माळ नाकार होऊ लागते.....

"प्रभा"—मी.

मी काहीएक न चालता माझ्याबरोबरच बापू
लागत.

"रागावलीय ?"

"....."—वृत्त कौपाचा एक कटाक्ष.

चाळत चालत अम्ही नेहमीच्या वागेतल्या पारि-
जालकच्या झाडाजवळ येऊन वसतो. भोवताली
विचुरलेल्या फुलांनीच काही फुले पेऊन मी निच्या
वेणीत वामण्याचा प्रयत्न करताच मी माझा हात
झिडकारते. काहीतरी आज विसरले असल्याची
मला जाणीव होते. बराच वेळ मी गप्पच राहते !

मला त्या शांततेचा त्राण असल्या होतो. मी तिचे मुंबकमल नळहातावर घेऊन तिचा धोवती करण्याचा प्रयत्न करतो.

"आज मी मरुन आहे. खालना कळी खोला" - मी.

मी उज्जर खाली झुकवून 'मुरंगदून तुदक, तुदक' स्वगत म्हणते. "तु माझ्याशी वाचू नकोस... हे नष्टक..." कथाबिन् भावनाकल्लोझामुळे तिचे शब्द फुटून नगावे. मी तिका हात प्रेमभंगाने उखीत तिने धोलावे म्हणून तिची मनधरणी करू लागलो. ती कातर स्वगत म्हणते "तु असा आहंम हे मला अगोदर माहीन असते नष्ट... तर I would have refused to be loved..."

मला तिच्या ह्या कोडबोल धोलण्याने काहीच उलगडा होत नाही. थोड्या वेळाने भवनाचेच ओमरुल्यावर मी उलगडा करून. "माझी मैत्रिण जीना मावेंत मागत होती ती काळ तू एका अनोळखी मुली बरोबर होसत. खिडळत..."

"ही तुजी मैत्रिण मला पहायला कुठे अडमडायला गेली होती?" मी तिचा मध्येच विचारले.

"मी तिच्या भावाबरोबर खरेदीला गेली होती अन् एका हॉटेलात 'त्या' मुलीबरोबर तू गप्पा मारीत बसलेला तिने प्रत्यक्ष पाहिले."

मी एक मुदकेचा निःश्रवण टाकतो. मनावरचे दडपण कमी होते. पण लगेच त्या घटनेचा उलगडा न करता तिचा गप्पन जागृत करण्याच्या दुर्दैवाने मी गप्पच राहतो. मी मुद्दापून गंभीर चेहरा करून स्वगत बगतो. गाढ्या अवांग्याचा अनुकूल अर्थ घेऊन मी तोंड फिरवून जळपळत उगीच जवळचे गवन उचकटीत राहते मी गानातच्या शानानं हंसत तिचा नकळत तिची हानचाल नजरेन मांडविता. प्रणयाच्या वेनील्यान मन्मथाचे काटे प्रमत्तात काय? तिच्या नि माझ्या आजपर्यंतच्या माध्या 'मैत्रीन' तिने स्वत्वाची भविता भरल्यांना प्रथमच मला माधोत्कार होतो.

तिच्या स्वस्थान मोठ्या काळजात कातकाकातच होते. ती पाठमांरी खाली मान घालून उगीच वेणीशी चाळी करीत राहते. ज्या व्यक्तीवर अंतःकरणाची प्रीति असते अशी व्यक्ति आपल्या धोलण्याने दुखावली म्हणजे आपल्या धोलण्याच्या मुक्ततेचदून कितीही खाली अगदी तमी त्याच्या परिणामाबद्दल खेद झाल्याचाचून राहत नाही. हा चंगलदार अमला पाहिले. पण 'प्रीति' म्हणजेच नमस्कार तसेच काय? तिच्या पापण्यांच्या कडा ओलसर झाल्याचा मला भासला. आता कोणत्याही क्षणी तिच्या डोळ्यातून अश्रु येतील म्हणून मी अस्वस्थ होतो तिचा मी जवळ ध्यायला प्रयत्न करता. शब्दपेक्षा एका अधिक बोलका असेल, पण त्याचा काही माणसाच्या काळजात हात घालता येत नाही. ते काम अधूनतच माघन आगावे. मी तिची हनुवटीवर कपून तिचा हसकण्याचा प्रयत्न करतो. ती तज्जब गाथ नेत्रांनी माझ्याकडे पाहू लागते. तिच्या भावनांचा अधिक वेडेमारा होऊ नये म्हणून मी एका दम्यात 'या' घटनेचा उलगडा करतो "अग ती मुलगी तुमरी निमरी कुणी नसत काळज गावाहून आलेली माझी भास 'बहीण' आहे." अन् ती हसकण मला राखी पाठवत अगल्यामुळे उगाच संशय नको मनात.

"खरच, माझी गपय?" तिचे भमाधान होईना.

"तुमरी अगय. क्षाने भमाधान?" - मी.

मी मुदकन हंसते. तिच्या गानावर फुललेल्या गुंभावाचे रंग नग्राहरीत मी तिचा गाथगुच्छा घेत म्हणतो "दत्तका मय्यत वना ल्हंहे काही." मी भावनातली पारिजातकाची फुले अंजळीत घेऊन हंगू लागते तिची मुडीत. प्रमाण-बद्ध, बोधेमुद जरीस्थिति, काळेभोर लावसडक केस, धनुष्याकृति भुवया, टपारे डोळे, मकरचंदी गान झाकडे मी वेडाबल्यागत पाहत राहतो. तिचा हा लटका राग अग त्या रागाची समजून काढण्याला मी केलेला प्रयत्न हा त्रयस्थपणे पाहता पोरखेळ असेल. पण त्या पोरकट खेळांनी मायेची जाळी धिणली जाऊन वणवण भटकणारे दांत जीव त्यान

गुंतून राहून नाहीन का? माझे मन निच्याकडे पाहून अमलता निच्या शास्त्रमौदर्याची अज भावनिक मौदर्याची तुला करू लागले. स्मितहास्यापाणून ते नेत्रपल्लवी, ओष्ठपल्लवी, मानेच्या डोलदार गुंफारा-पर्यंत तिचे भावनिक मौदर्य मला ठायी, ठायी प्रतिबिंबित होत अमलेने दिमने. निच्या मौदर्याकडे एकटक पाहून राहण्याच्या मोह मला आवरला येत नाही. मी तिचे मुखकमन ओजळीत घेऊन निच्याकडे निमग्न नजरेने पाहून राहतो. ती माझ्या डोळ्यात खोल पाहू लागले. किती निरागम, निरागम, निरपेक्ष, दृष्टि! अंततः स्नेहाचे धागे व हृदयाची अजून त्या दृष्टीत मला दिसू लागले मी भावविषय होऊन निच्या अगाऊवर ओठ टेकवता व डोळे मिटतो... निच्या प्रीतीच्या रेशमी बंधान मी अधिकच जखडला जातो.

थाडू! थाडू!! थाडू!!' ह्मच्या दरवाजावर कांणीतरी जोरजोराने थापा मारीत होते. मी मोहनिव्रेतून जाग यावी त्याप्रमाणे खडबडून जागा

होतो. दाराची वडी काडून बाहेर पाहतो तर विजय मिस्कीलपणे हसत उभा! Oh! God Good gracious! मी किती वेळ दरवाजा ठोठावून शंख करतोय. अहो! महाराजा दिवास्वयं काय पाहूदाय? रिंगम कधीच संपली अन् 'काका'नी पीरीयडला कधीच मुक्काम केला (काका हे आगच्या प्रोफेसराचा वर्गातील खट्याळ मुलांनी ठेवलेले टोपण नांव. त्यांचे मुळ नांव काशिनाथ कानविंदे). मी बही घेऊन भाडकनू कमबाहेर पडलो. विजयला, तो पीरीयड बंग करायला अन्-यामुळे त्याच्याकडे मी किल्ली दिली. मलाच्या पीरीयडला गैरहजर अन्णारी प्रभा आता नक्कीच हजर, असेल ह्या विचाराने पावले जांरावे पटू लागली. बघात प्रवेश करून एका बेचकर, जाऊन बसलो. मने नम्रपणेने लेक्चर ऐकण्यात दंग झाली होती. मी आशाळभूतपणे मुलींच्या नाकापडे नजर वळविली. एण... एण प्रभा ह्याहि नागला गैरहजर होती. निराग झालेले मन सटकून मी प्रोफेसराचे लेक्चर ऐकू लागलो.

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स्मितरेषा

अरुण रामचंद्र म्हात्रे
(एम. ई. मिझिन)

एखादी तरी नाजूक स्मितरेषा
उमटू दे तुझ्या गोऱ्या गाली
गंधोर भुवयांचे बाण ताणू दे
नयनांचे शर हृदयांत रुतू दे
स्मितरेषेतून तुझ्या भावनांची
घालावी एकच रांगोळी
अंतर्दामी फुलणाऱ्या रंगांची
त्यावर असू दे रांगोटी
स्मितरेषेवर तुझ्या दृष्टी
माझी सदीवित असू दे
तुझी माझी मैत्री फक्त
स्मितरेषेपुरतोच नसू दे

वाट

अरुण रामचंद्र म्हात्रे
(एम. ई. मिझिन)

अन्त्याच बवं वाट पाहिली तुझी
तरीही वाट पाहण्याची वाट संपेना
आता मला चालवेना निरामोपायी
वाट पाहण्याची वाट कधी संपेल
तुला माझा दुरावा कधी सरेल
कधी मऊ हात हातात पडेल
मात पावलांवर जीवन स्वर्ग गाढेल
हे सारे होईस्तब वाट तुझी पाहीन
विरहाच्या उन्हात जालत राहीन
तू मात्र लवकर घेऊन मला ने
मृत्यु मला नेह्याआधी, तुझी
माझी निरागा होण्याआधी

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रामचंद्र गणपत पाटील

(आफीम)

सुर्व आपल्या किरणरूपी सोनेरी हावने पृथ्वीला आपल्या भिटीत घेत होता. वारा दागोन्हा विरह अगळ होऊन की काय त्याने पृथ्वीला गड आनंदाने देण्यासाठी आपले किरणरूपी सोनेरी बाळू पृथ्वीच्या संबंध गरीबावर पनरुधिर्यास गुरूदाद केले होते. पृथ्वीने आणि भूपांचे आनंदाने ते मौलत पाहून खट्याळ गावचे आडांच्या पातातून हळूच उतरवून आल्या अनेक निरक्षरपणाच्या रुपाने अक्षय करीत होती. पण पृथ्वी... दवकपी घासाने उफळलेली होती. त्याजली होती. अशा या रमणीय मराठी ५ हा. पांवारचे रोजीन जेनाचीच विहिरीतून पाणी सोपत होते वाजूनान आनंदगाय वसने होते.

मळ्यानीन पथबंदीन मी जीव वाचविण्यासाठी. मदनीसाठी ओरडत त्यांच्या रंगाने धावत होते. एक वेळ मला माणसानाठी माझ्यामागे जागला होता. माझे ओरडणे ऐकून बैलाच्या अर्धविण्यासाठी माझ्या दिशेने आनंदगाव गीरामागचे धावत. त्यांनी जवळ येऊन बैलाची केमत पकडली पण वेळ त्यांना आधरला नाही. बैलाने आम्हा दोघांनाही धडक मारली. मी मला सावरण्याचा प्रयत्न केला पण मी अनिश्चय भावनेने होते. मी खाली पडताना चिकाली फोडली व वेश्म झाले.

मी शुद्धीवर आले त्यावेळी जवळपास वेल नव्हता. बांजडीयवा घरात बांजडीवर मी पडले होते. वादना आनंदगाव उभे होते. त्याची नजर माझ्या वेहावरून फिरत होती. मला संकोचण्यासारखे जाले. परंतु त्यांनी स्वताला सावरले. दुसरीकडे पाहून ते म्हणाले. "कार दुखापत तर झाली नाही ना" त्यांच्या बागीन एक आम्हांचे गंधुर्ष, वेगळी गोडी मला जाणवली. त्याच्या प्रश्नाचे उत्तर मला शब्दांनी देता आले नाही. कुजवतेने माझ्या डोळ्यात अंध दाटले. त्यांनी माझे

सावरून केले आणि म्हणाले. "तुम्ही शांत जाणा. काही घाबरा नका. मी थोड्याच वेळाने गाडी घेऊन येता व तुम्हाला माझ्या घरी नेऊन माही आपणांनी व्यवस्था करून." एवढे बोलून ते गाहेर निघून गेले.

मला त्याच्या प्रत्येक वृत्तीचे आणि बोलण्याचे अर्थाने वाटत होते कारण त्याच्यान एकप्रकारचा नवजन्म आणि सरोनपणे जेनक्यात असाय असलेला सुशिक्षनपणा मला जाणवता होता. मी चिन्तार करीत असतानाच ते गाडी घेऊन आले. त्यांनी मी उठण्याचा प्रयत्न करू लागले. परंतु मला उठता येईना. मी कंथितवाण्या नजरने त्यांच्याकडे पाहिले. नवे त्यांनी नवा उतरून गाडीत उबले. त्यावेळी त्यांचा स्पर्श मला गोंद वाटला. मी गोंद जाहिराने आणि लाजले. पण त्यान वेळी त्यांनी "Sorry" असे म्हटले. त्याचा नेहवा ओशाळण्यासारखा झाला. मला आश्चर्य वाटले की हा खेडपळ जेनकरी एखाद्या मराठाप्रमाणे इंग्लिश बोलता. पण मी काहीच बोलले नाही. गाडी भगवेताने पळत होती. माझ्या कुपण्यांना मला विभर पडला.

गाडी वाड्यागमोर उभी राहिली. आनंदगावांनी गाडीचे बेल मोडले आणि आपल्या आडला हाक मागली. झालेली सर्व हकीगत गिला मागितली. त्याच्या आईने मला धरत घरात नेले. बाईचा वेळाने आनंदगाव घरात आले. त्याच्या आईने मला एका खोर्तान नेऊन पलंगवर ओंपावले. खोर्तीनीन नीट-नेटकेपणा पाहून मी चकित झाले. माझी भवती झाली की हा कोणी मामान्य जेनकरी नसावा त्यांच्या आईने मला पलंगावर निजविने आणि नी निघून गेली.

आनंदगावांचे पुढील शब्द माझ्या कानी आले "या मामने आगाहेव. आज इकडे कंभे काय वेगे सांगे?"

मी पलंगावरून उठून हळूच दाराच्या फटीतून बाहेर पाहू लागले. एक चाळीशी उलटलेला पण नीटनीटके कपडे केलेला माणूस मला दिसला. आनंदराव व ते समोरामभोर बसले होते.

"आज कामे काय येणे केलेत मामलेदारसाहेब ?" आनंदराव म्हणाले. त्यावर मामलेदार म्हणाले, "पाटील, मी खाम तुमची भेट घेण्यासाठी आलो आहे. माझे तुमच्याकडे म्हत्वाचे काम आहे.

आनंदराव म्हणाले, "Oh I say !

"परजाच्या दिवशी आमचे कलेक्टर तुमची शेती पाहण्यासाठी येणार आहेत. तेव्हा मला तुमची नशी परवानगी हवीच. तरी " मामलेदार म्हणाले.

द्वार लावून पाटील म्हणाले, "मी परवानगी देऊ शकत नाही, कारण ज्या लाखांनी माझ्या पितंजीनः मान दिला नाही. त्यांना माझे पिक पाहण्याचा मुळीच अधिकार नाही. मी माझ्या पिकाचे प्रयत्न भाडलेले नाही. मामलेदारसाहेब !

'जीज पाटील' फक्त माझ्यासाठी एवढे करा. माझ्या भ्रतीचा प्रश्न आहे. मी त्यावेळी तुम्हाला एक मामली जेतकरी गमजली होती. तुमची योग्यता त्यावेळी मला कळली नाही. पण तुमच्यापारखे . . .

"हे पाहा ! तुम्ही काही एक बोलू नका . . ." इति आनंदराव पाटील.

मामलेदार ज्ञानच वितरणा करू लागले तेव्हा आनंदराव म्हणाले, "ठीक आहे तर ! तुम्ही या ! " मामलेदार त्यांचे आभार मानून गाऊ लागले पण तेवढ्याच त्यांच्या आईने चहा आणला आणि मामलेदार नको-नको म्हणत अगताता आग्रहाने त्यांना जेदा दिला. परत एकदा आभार मानून मामलेदार निघून गेले.

मी तर चकितच आहे एक मामलेदार येता-गयावया करतो-आणि हे पाटील त्याला अक्षर्याः झिडकारतात. भय काहीच कळेलना. एवढ्याच आनंदरावाची आई बाहेर आली. "आनंद त्या पाहणीला जेवणार की नाही ते वितार म्हणजे मला स्वयंपाक करता येईल." असे म्हणून ती चहाचे कप घेऊन आत

गेली. आनंदराव माझ्याकडे पाहला उठले नशी मी पलंगावर जाऊन गुपचूप पडून राहिले.

दारावर टक्-टक् आवाज आला. थोड्या वेळाने दरवाजा उघडून आनंदराव आत आले. नशी मी उठून बसले आणि म्हणाले, "काही काम आहे का ?" तसे ते म्हणाले, "निशेष काम नाही. तुम्ही जेवणार का म्हणून विचारण्याला आलो होतो." मी म्हणाले, "थोडा वेळ इथे बसता ?" आनंदराव खुर्चीवर बसत म्हणाले, "हो ! बरी आठवण आली तुमचे नाव-नाव मागलं ?" "माझे नाव गुमन. मी परछे येथे राहते" मी म्हणाले. आनंदराव म्हणाले, "तुम्ही जात होत कुठे ?" मी म्हणाले, "मी डॉक्टर असून व्हिजीटला निघाले होते. मला एक प्रश्न विचारायचा आहे. तुमची परवानगी असेल तर . . ."

"हो ! हो ! अवश्य विचारा. योग्य वाटल्यान मी त्याचे उत्तर देईन." आनंदराव म्हणाले. "तुमच्याकडे तृतीच जी व्यक्ति देऊन गेली ती कांणी भामान्य नव्हती हे खान. पण तुम्ही तिचा भयदी खूबाल एकादा बाहुलीप्रमाणे वेळविलेला. माझ्यामते जेतकरी म्हणजे भाड्यापुरे शेतीच. पण तुमच्या योग्यावरून कटने मी तुम्ही एखाद्या मुजिभिताना नाजवाल. हे स्पष्ट तुम्हाला कामे काय जमले ते मागू शकत का ?"

"अगले प्रश्न विचारून तुम्ही या गरीब जेत-कन्याला लाजवू नका." पाटील विनम्रपणे म्हणाले.

"परंतु तुमच्या या घरावरून आणि येथील व्यवस्थे-वरून . . ." मी शीत काडली.

तसे ते नवमिगत करून म्हणाले, "मी बकील आहे दोन वर्षे मी बकिनी गेली. भय त्या व्यक्तीचाच रमेत. गन्याचे खाटे व खोद्याचे खरे गुरावे करणे माझ्या स्वभावाला पटेना. त्यात दोष त्यागाधिकांचा किवा बकिनाचा नाही तर परिस्थितीचा आहे. त्या परिस्थितीमध्ये गूढमरण्यास माझे मन नकार नव्हते. मला गन्याने त्यामाने बाकायचे होते. त्यावेळी काही तारणान्वय मी या माझ्या गावी आलो. शेतीवर खूप भरवलो. माझ्या मानकीच्या शेतीची पाहणी करणे वेळी मला भय आला, 'हे किमान पुता ! तुला

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खऱ्या व्याचारे राहायचे आहे ना ? मग ऊठ. एवढी अकष्ट घेवी आहे. त्यामध्ये काम कर. घाम गाळ आणि तुझ्या या धर्तरीमोतीची सेवा कर.

मी अर्देल. हे विचार मागितले. आईने मला आनंदाने संभाषित केली. माझ्या लहान भावाला तुला अनिग्रह आनंद झाला. जेनी बराचदावा माझा निष्कण पक्का झाला.

जेनीमाठी मला अधिक पैसांनी आवश्यकता होती. भाषणेदारानेच नहीने नगार्द मिळत असे. परंतु त्या ठिकाणी नव्हतेले प्रकार पाहून मला अनिग्रह दुःख जाले. याच मातमधराने माझा अंतःकरण केली होती. माझ्या हिमनीन मी ही जेनी पिकविथी. या जेनीवर भरकार काय म्हणून अधिकार गाजवीन ? अंतःकरण सर्वत्र अधिकारी अंतःकरण प्रदान अंतःकरण मी म्हणत नाही. पण माही अधिकार्याय हे प्रदान पाहून मला अनिग्रह दुःख होते आणि किळस येतो. पण या अंतःकरणे जेतक्यानी-विकार्यानी वहाणी तुमच्यानारुपण थोर व्यक्तीने ऐकनी पातळ माझे नमोधान आहे.

हे सर्व नवीन ऐकून मला आश्चर्य वाटले आणि मी महत्त्व भिनीवर पाहिले. त्याचा फोटो पाहून माझी जंका दूर झाली. वकील आणि जेतकरी या दोघामध्ये मी दृढता करू लागले. पण ज्याच्याजकड एव भाषणेदार एव्याया अंतःकरणारुपण थांबता करत, तो जेतकारी मातुनी नही. तो कामाने कनिष्ठ अंतःकरण पण कोभीने पकड आहे. हे भाषणमाने तु अंतःकरण तुझ्या सर्व पृथाना का अंतःकरण देत नाहीस ? हो ? पण ती अंतःकरण कशी अंतःकरण ? जेतक्यावर एकत्र होऊन येतच, अंतःकरण नाहीच. पण मला वाटते मकीनी जेतक्यावर वतण्याना प्रयत्न का करू नये ? तरच आपला देश समृद्ध होईल.

आनंदरात्रीचा निरोप घेताना मला फार दुःख जाले. हृदय हरक्यापारुपे मला वाटले. त्याच्या पाहण्याकराने माझे अंतःकरण भरून गेले. ती नेत्रांनी मूर्ति पाहून मला जेतक्यावर अट्टेना. जेव अंतःकरणाने मी त्यांना आणि त्यांच्या आईचा निरोप घेतला.

रात्री थोडे जेवणे आणि कांदवर. एवून माझ्या विचारान मला जाले. दिवसभराच्या आठवणींनी मी मोहळून गेले. पण मला वाटे त्यांचा ना पत्रिके हे ना अभाविनीन कसा मिळणार ? पण विचाराने कृपण घालणे मला अवस्थ जाले. त्या आठवणींनी माझ्या मनाचा वडिलमारा आला. गुरुमरुप्याभाषणे होऊ लागले. मला जाणवले की, त्याचा अंतःकरण लक्ष्यशिक्षण मागते किवा काईट निघतच होणार नाही मी माझ्या प्रेमाचा रफाट घेऊन आणायचे टुमबिने नगातून काय उपाय होईल ते होईल. हे विचार मी आई-वडिलांना मागितले तर ती माझ्या दुच्छेविषय आणत नाहीत याची मला धावी होती. पण अंतःकरण प्रदान मी त्यांना मागू ? एक हुरहुर मनाचा मागणी वाटू लागली जेतकी मनाणी निष्कण नतन जोपले. काहीही होवा मकाळी सर्व वृत्तांत वडिलमारा नगायक.

माझी निर्माण वयवहार आरंभून मी स्वयंभाषण प्रयत्न जाले. नेहा मकील नहा पीत होते. गमोरात आई वमनी होती. मी वडिलांजोगरी वमने आणि चहाला नम जाली घेऊन आईकडे त पाहता वडिलांचा म्हणाने, "वादा तुमच्या काही मांगायचे आहे."

वादा वमने व म्हणाले, "मांगा वडिलरीणवाई." मी म्हणाले, "आत वला."

मी व नवीन माझ्या खोलीत आलो. माझे विचार मी पीतपीत त्यांना समजावून मागितले ते प्रथम माझ्याकडे अवस्थ होऊन पाहूनच राहिले व मन हरगत म्हणाले, "मी आजच त्यांच्याकडे जातो." मला रूप आनंद झाला. मनल्या मागणी हुरहुर लागून राहिली. पुढे काय होईल ?

वादा आनंदरात्रीकडे गेले आणि मी माझ्या विचाराने दग होऊन त्याच्या येण्याकडे होजे लागून राहिले. धुपारी जेतक्याची वेळ जाली तशी आईने जेतक्याला हाक मारली. जेतक्याला वमन पण जेतक्यावर मनत्र लागले. कसे तरी दोन घाम खाले आणि उठून खोलीत घेऊन विचार करू लागले. आनंदरात्री शिक्षणेने आहेत म्हणून त्यांच्याविषयी माझ्या मनाने प्रेम निर्माण जाले नव्हते, तर त्यांच्यातील महत्त्वपणा,

माणुसची आणि कोटाळपणा पाहून माझे मन त्याच्याकडे ओढले असा होतो. विचार करून करता किती वेळ गेला आहे मला भावय राहिले नाही. मी म्हणू घड्याळात पोहोचले आणि तेवढ्यांचा इकडे. नव्यापाळले मला वाजले होते. मी उठले. बोट घळत चला घेतल आणि मला समोरूनसाठी माझी वाट जाणते.

दारावरील वेळ वाटली आणि माझा वाळजत धावत जाणला. दार माझ्या मुजकरीने उघडले. वाटत आता आहे होणे मी त्याच्या चेहऱ्याकडे पाहिले आणि त्याच्या नेहावारील मिस्किने हास्य पाहून काय समजताने ते मनानी वाजत मी माझ्या खांद्यात पडले. वायाली मला वृक्षाला द्यावा माझ्या पण मी मला पाहू शकले नाही. थोड्या वेळाने आई नसिलान देण्याने मी धन्यावाला कात कायत तेथेच थांबली नव मध्ये देवा वंटे देण्या आहे असे वाटले.

आई वायाला विचारिले होती, "पोताला त्या कामाचे काय झाले." "आपल्या मुमनेचे नजीक मंटे वलवने" आहे. मुलगा माझा एक आहे. विणेश म्हणजे जेवकरी आहे. "काय ! पण जेवकऱ्याचरोबर मुमनेचे लग्न करणार आहात नुम्ही ? मला नाही वाई हे आवडायने." आई नाराजीने म्हणाली.

"अग ऐक नरी पुढे ! मुलगा मग्या जेवकरी नाही. तो म्हा बरीय आहे. पण त्याच ध्येय फार उच्च आहे म्हणून तो ऐसी बऱ्याय. मला तर पसंत आहे." धावाली आईला निज्जर केले. आई काहीच बोलली नाही. आईलाही वयाचा विचार पडला अनावार. मग मी समाधानाने पानंगावर पडून डोळे मिटून विचार पडून धुव लागे.

खरोखरच का मला या भाग्यमानेच्या मुमुवाची सेवा करायला मिळेल ? खरेच मी एवढी भाग्यवान आहे का ? माझ्या भावी जीवनाची सुरवे स्वप्ने मला पडू लागली. मला जे हवे होते ते मला आज मिळाले होते, माझ्या मनःप्रमाणे झाले होते. आनंदराव पाटलांची सेवा करायला मिळेल यातून मी माझे भाग्य माझा मोंगपणा आहे असे मी समजले. आणि जन्मोजन्मी त्याचरील सेवा करणाऱ्याची मर्त मला मिळी अशी मी परमेश्वराजवळ प्रार्थना करत.

खरेच जेवकरी जीवनाला वाहून घेतलेल्या धावतीकडे पाहण्याची दृष्टि आजकालच्या मृगिक्षित मूलोमध्ये वाव आहे कोणता अडक. पण मला भाव प्रथम वाटत होते की आपण चारल्या घरेराज आणि पाडनेरा मृगिक्षित नव्यापरीय वन करणे. परंतु आपल्या ऐज्याची इमानेपुत्राने सेवा करणारे भारत-भूमी मध्ये घाम गाळून कष्टाने मोने पिचवून बहजनांना मान्याला घाम देतात तेच खरे थोडे. त्यांना का दूर ठेवावे. ते जरी कमी प्रमाणि काम करील अगल तरी मान्यरीजीवनात त्यांचे स्थान उच्च आहे. त्यांना आपल्यानध्ये दिनऋत घेतले पाहिजे. त्यांचा विश्वास संघर्षात केला पाहिजे. भारत आपला भारत देश सुखी, सधन आणि समृद्ध होईल असे मला वाटते. आणि म्हणूनच हा मान्यमणी हिरा-पुत्र जेवकरी माझा थोडा मानक गाळे मंटे भावय मासावले आहे. त्याची सेवा करणे म्हणजे पदोपाने भारतमानिची सेवा करणे असेच नाही का ?

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कोण ?

—राजीव गुप्ते
(टी. ई. एमसी.)

विचार करतो मनी
कुणो निर्मिलो दुनिया
अन केली तयामधे
'इलेक्ट्रॉन' ची किमया
'क्ष' सैल दुरून
तळपे सूर्य गगनात
'अॅटॉमिक रिअॅक्टर' कुणो
सुरु केला तयात ?

वाटते जावे दूर
'ऑबिट' मध्ये शिरून
प्रकाश वेगे जाणारे
'स्पेस शीप' घेऊन

मानिकेसहित सूर्य
जातो 'इन्क्लीटी' मध्ये
कधी पोचेल तो
त्याच्या 'हर्ब्युलिस' कडे

★

मी कोण ?

प्रा. वि. रा. डोडफोडे

मी कोण ?

वर म्हणजे, या प्रश्नाची उत्तरे, स्थलकालपरखे निरतिराली आहेत. अन् अमरान.

अज्ञानपणी आईजीईनांचा पुरुषाना एक अग्रव्याने लाडका मृत्या. संतर अमर्या. तनक्या शाळेचा अन संतर त्याच संदर्भे. चायविलेक्या कल्पितता माजी विद्यापी. पुढे महाराष्ट्रातील नामवंत विद्यार्थ्याचा उच्च पदवीधर. विवाहापूर्वी जहाण्याव कुली खानदानी अर्थात सराठ्यांचा अमक्या गांधीजीन वतनदार, इनामदार अथवा पाटील. संतर भाग्यानीन महान शिक्षण संस्थेने चालविलेल्या महाविद्यालयान प्राध्यापक अन् विभागप्रमुख. भारत-नाक युद्धाच्या वेळी ठामून भांगणारा भारतीय. अन् नहा पोहे शाळ्यासंतर वाडविवादान. पटवत्त देण्यातच भूषण मानणारा हिन्दू.

वरील सर्व अवस्थाने मकारण ज्योतीकरण देना देने, दिले जाते व आल्यान पटवेली. पण शेवटचा मुद्दा 'मी हिन्दू आहे' काम 'का ?' म्हणून विचारता बहनेक अवाक् होतात. काही वेळ मास्त नेणारी उगरे देतात तर काही सराईत उगरे अमरान. 'हानच्या कंकणाच्या आरम्भा कणाचा ?'

मी पुष्कळांना प्रश्न केला 'तु स्वतः मी हिन्दू असे कोणत्या कारणास्तव म्हणत घेतोस. अन् प्रत्येक वेळी मी अन् रामोरचा दान्ही गांधीजान पडतो होतो.

वरंच मला हिन्दू का म्हणावचं. . . .

माझ्या पांचवीचा गांधीदेवीची पुजा केली होती. वाराच्या दिवशी तांच ठेवले होते व जप मंगल प्रसंगी होमहवनानंतर गजपदी घातली होती म्हणून. का, मरणोत्तर पार्थीव शरीरास अग्नि देऊन विडवानादि क्रिया उरकण्या जाणार आहेत म्हणून. . . .

तद्दानपणापासून कमरेस करदोस बांधावा

लावतो पुढे कधीही उत्तम होणार. तनानाही काय दावादे लागले होते म्हणून मी हिन्दू ?

का जाळणालेत जाण्याअगोदर यज्ञोपवीत म्हणून पुढावा दौरा गळ्यात अडक्याचा लागला होता. त्याचाम जालेत जातान मास्तीचा तंडा गळ्यात घातला होता व तन्नात आसल्या सानने गुलाम-गिरीची वेडी म्हणून मगलसून 'आ' नावाखाली काळी पोर आणल्या पानीच्या गळ्यात बांधता म्हणत ? का मन्गविस्त्र आलेत जावे त्याग्याच्या पहिल्या दिवशी गळ्याला तमसोदर करून 'श्री गणेशाय नमः' वाडला होता म्हणून. का तदंतंत प्रतीकर्षी तमस्य दिवशी मरुस्वर्गी वाडून पाटीपुजा पार्थीव त्यानी होनी व गुणधर्मांमन 'मास्त'ना दक्षणा देऊन त्यान गुणजन मचाधून वंदन कराय लागले होते म्हणून. का. . . याका वतपा काडण्यासाठी प्रति वर्षी त्याच गुणजांना सोने म्हणून आपट्याची पाने देऊन त्याच्या ब्रदव्यात मकरमंकांनीच्या दिवशी त्याच्याकडून निळगुळ उगटले होते म्हणून.

का जाळकरी अवस्थेत खाकी चडी वाडून वावरतो होतो. गुळीच्या व्याख्यानास हजार शत्रिवा होता. अन् अजुनी कोणत्यानील दंडक्याच्या वर अगलेल्या स्वतंत्र्यविराच्या तमचिरीन आमच्याकडे होत घातला जती म्हणून.

का गृहीपाडव्यान पुरणपोळी खातो. दिवाळीन लाडकरण्या. नागांचगीम उखडलेच्या घड्या व दिडे. वेदुर पोल्ल्यान कड्याळी रामनवमीस गाधी विचरी. अन् भंक्षानीच्या भंगीय राजरीची धाकरी व मिश्र भजी खातो म्हणून.

का मास्तीजन्म सूर्योदयाने वेळी माजत करतो तर दत्तजन्म सूर्यास्तास साजरा करतो. कृष्णजन्म मध्यरात्री तर रामजन्म भर दुपारी

साजरा करतो. अन् गहिनेल्या नेहनीस कोटी देवांची नसा न वाळणटा. स्वयंस्मयान्न मातृ भान्त्रेप्रमाणे. तिथीप्रमाणे अन् वाराप्रमाणे तीन वेळा साजरा करतो म्हणून.

वा जेजुरी पाकीच्या खुंडीप्राम नेल्यावर भंडारा म्हणून हळद लावता. रत्नागिरी ज्यातीवाम गेल्यावर गुलाम लावतो. पंढरपुरी विडीलाचे दर्जन घेतल्यावर वस्त्रा म्हणून कोळशाची सुंगंधी पुड लावता, अण्ड-चिन्त्यकान गेल्यावर अण्डभक्ष्या नांवाच्याची शेंदूर लावता. अन् तुळजापूर, कोल्हापूरी आदींच्या देवळात अंगारा म्हणून राख लावता अन् घरीही घेऊन येतो म्हणून.

का मगळी सूर्यनमस्कार घालतो. संध्या-मनालांतर देवप्रेक्ष्यावर देखाव्यात ठेवलेल्या गाथा, भारवत, दामवोध, आनेवणी आदि पोथ्या कधीही वाचल्या नसताही आहेत म्हणून 'मिलान' ऐकता ऐकता त्यांची पुढा करतो. अन् दिवनागणीस गमाचे श्लोक आणि शुभ-करीती आमच्या घरी म्हणजे जाणे म्हणून....

ताही. मूर्तीत नाही-

यातील कांयही एका अथवा सर्व कारणांमध मी हिन्दू नाही. मना मान्य आहे की हिन्दू धर्मात खण लढी आहेत. धर्मसंछाया कल्पना आहेत. मण आहेत. समारंभ आहेत. या सर्व गोष्टींनी धर्माम एत सोनेरी त्रिकुट निर्माण झाली आहे. एक प्रव्य. ज्ञानद्वार आवरण निर्माण जाले आहे. पण त्यामुळेच त्यांचा गाभा, बीज, मूळ मन्त्र आकून गेले आहे.

हिन्दू धर्म खूपच व्यापक आहे. ते एक अनुभव प्रधान जीवनक्रमाचे मन्त्र आहे. त्यात प्रतिभा स्फूर्तीस वृद्धिपेक्षा जास्त महत्त्व आहे. स्वमनागृहीत ज्ञान हे अनुभवनिष्ठ ज्ञानापूर्व शोध मानले आहे. बाह्य प्रणिप्दनापेक्षा आंतर्यामिक अनुभव श्रेष्ठ ठरला आहे. या सर्वांची अनुभूति ही विज्वनापेक्षा शब्देवर अवलंबून आहे. तशी ज्याची श्रद्धा तशी त्याची प्रचीति हा मुगाय्याच्या अनुभवाने मिळ जायला निदांत आहे. अन् त्याचा गाभा, मूळ बीज म्हणजे..

शरीर अन् आत्मा यांचा वेगळेपणा, पुनर्जन्माची कल्पना अन् जन्ममरणाच्या फेऱ्यातून सुटण्याची इच्छा.....

ही मार्ग स्वभावधर्म व पुरुषप्रकृति यांप्रमाणे भिन्न आहे. हठयोग, ज्ञानयोग कर्मयोग अन् भक्तियोग-ज्याता पहिल तीन मार्गे दुष्कर वाटवान त्याता व जाणत्यानेषत्यासहित सामान्य जनताही आच-रण्यास सोप्या असा भक्तिमार्ग आहे. त्यात एकमेव ईश्वराची भक्ति ही साधना आहे. तसे पाहिले तर ईश्वराची कल्पनाच असम्भ आहे. ज्ञानी व वृद्धिमान निराकार ईश्वराची कल्पना त्याच्या विभूतीतून समजावून घेऊ घेतलात.

सूर्यानीस नेत्र, चंद्राची शिवालता, काभकंधा-जिना पुरुषाची शक्ति, यज्ञस्त्री माणसाचे तीनशास्त्र, मनाच्या डिझाणनी चरता तसेच बुद्धि, ज्ञान, अंगमांड, अम, मन्त्र, ज्ञान, भुव, दृष्ट, ओहना, ममता, मुष्टि, तप, ज्ञान यज्ञ अन् निरनिराळे भाव इत्यादि ईश्वराच्या एकाच अंशाने निर्माण जाले आहेत.

निराकार ईश्वराची कल्पना सामान्यजनांस कडीपच. म्हणूनच की काय माकार ईश्वराची कल्पना संममरवरापातून इच्छतच्या पापाणापर्यंत भवे प्रकारात बसविली गेली. त्या मनीसमध्ये पाहिल जणांने गुण हे भजनाय्याच्या प्रकृतीश्रमांने प्रभावित होऊन गेले. अन् सामान्य जनधारिता माकार सर्वांचे भक्ति कळत रज, तम गुणानून नास्तिक ह्रीश्वराचा मार्ग मोकळा झाला. मास्तिककण्यातून ज्ञानधर्मात झाल्यावर ज्ञानधीपाच्या यांगाने भोक्तापचचा जगाच्या मिथ्यत्वाची प्रचीति घेऊ लगली व त्यातून स्थितप्रज्ञाची निर्मिती जाली.

स्थितप्रज्ञी माणसाम कृपितुन्य जीवतनून स्थितज्ञानप्राप्ति होते. परीर आत्म्याचा भेद तो याच अवस्थेत जाणू शकतो. एवढेच नव्हे तर तो त्याता एकमेवातून दूर करू शकतो. दूर ठेवू शकतो. याच अवस्थेत मयाधीमुखाची प्रचीति येते.

अन् मनुष्य देवपण प्राप्त करून घेऊ शकतो. पायरी पायरीने-स समीपता. समानता. स्वरूपता अन् एक-रूपता. यात मार्गाने नारायणाचे नगधे जाणे. मुक्ताचे मुक्तावा जाणे. ज्ञानेशाची माळली जाली.

दरीपण.... मार्ग समजला म्हणजे भागीतून होना येतेच असे नाही. पण मार्गे तरी समजला. त्याच्या अंती असलेला मोक्षाचा देवा उघडला हे तरी जित्ती मांडे भाव्य आहे. यातही आनंद मानणारा अन् फलांची अपेक्षा न धरला अविरत मार्गक्रमण करणारा-तो हिन्दू.

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निवडुंगाचे मनोगत

—विजय मगवते
बी. ई. (मेकॅनिकल)

एके दिवशी मी अमाच भेटवून चाललो असता कीटन एक मांडव दिगला. महज म्हणून वर पाहिल तर निहिल होत 'फुलझाडीचे प्रदर्शन' झटकन तिकीट काढून आत गेलो. एके ठिकाणी फार भर्ती दिसली म्हणून आत डोक्यावर तर गुलाबाची फूल होती. माझ नज त्याच्या मनोरम्याच कुडीकडे गेल. तेथे होत एक निवडुंगाच झाड. एकट, एकाचो ! विचार ! म्हणत होत—

अरेरे ! काय हे जीवन
कांटे कांटेच का चहूकडे ?
देवा, नकोत हे कांटे मला
आणि नकोत इतरांच्या तुच्छ नजरा
माझ्यामुळेच मानवीजीवन
कांटेरी व्हाय ना ?
घेऊन जा ना ? या कांटेच्या
हिरवेपणाचा माझ्यातील
मानवाला काहीच उपयोग असेना

अंतरी चांगुलपण असुनही
बाहेर मात्र कांटेरी कुंपण
खरोखर जग बाह्यकांतीवरच चालतंय ना !

समोरच्या गुलाबाचो मजा
लोक येऊन करितो ममजा
कुणी हात फिरवितात प्रेपळ
कुणी सुगंधासाठी येतो निर्मल
कुणी चुनकारी हाताने
तर कुणी चुंबताना अधराने

कारण, आहेत जर कांटे त्याजला
प्रसन्नकारी रूप असे त्याला
मीही देवा जगतोय एका आशेवर
येईल एखादी कलिका माझ्यावर
परंतु निराश करतोस तू मला
फक्त कांटे आणि कांटेच देतोस मला

तरीही मला माहीत आहे
मानवजीवन वाळवंट आहे.
मायेच्या तहानेन माणूस वेडा होतो
तेव्हा माझ्या हिरवेपणाकडे वघून
सुखाच्या शोधात माझ्याकडे येतो
पण त्याचा काही उपयोग नसतो
माणे वळून गुलाबाकडे पहातो
कारण गुलाब कोमेजलेला असतो
खरोखर सौंदर्य सुखातच खुलून दिसतं.

*

(उत्तेजनार्थ पारितोषिक)

“छन्द”

आर. डी. समेळ
(बी. ई. मेक.)

मंद मंद हा निशोगंध
शोधीत येई मज,
करण्या धुंद
नच काळे मज कोठूनी
येत असे हा गंध
इथे नसे कुणी जवळी
परी वात असे हा येथ
तुझ्या प्रतीचा छंद
मज ओढीत नेई तेथ !

“गूढ”

प्राज्ञताच्या बहरावर
ठेवले आहेत दोन गुलाब
सुगंध त्यांचा दरवळे
दूरवरच्या रानावनात ॥
चकावलेला एक भ्रमर,
धावत येई सुसंद;
भानरहित होऊनी;
विसावला कांटेरी मुहुपात ॥

“धुंद”

धावत होती एक सरीता
ताहण्याच्या कंफात
कापत सगळे बांध
निघाली पुढे पुढे आज
दुखून दिसला सागर
उफाळे प्रेमाचा दर्या
सागराचे जल शिरे
खोल खोल आंत

*

सूर !

अजय त्रि. सज्जल

सकाळच्या त्या शांत समयी तार कोणी छेडिली ?
त्या सूर्याच्या वेदनांनी झोप भाजी जळायली
उठनी बसली कसाबसा मी, देखून बाजूच्या खांबाला
पदपथावरी पाय पसरिले, पुढिल सूर ऐकण्याला
काहि क्षण ऐकून कळले; माझे मलाच, अत मी हसलो
केवढा भोळा मी ! माझ्या सुरांनाच मी फसलो
आठवले गतवेभव मजला माझ्या त्या गायकिचे
वेडावली त्या सुरांनी, भान राहिले ना मज
प्रेक्षक होती आज मी माझाच, काय माझे माग्य हे !
काय ईश्वरी लिला हो अहा ! जेव्हा मी गत होतो,
मम सूर्याच्या घुंदित म्हाऊनी जेव्हा मी जगत होतो
एकही गाणे ऐकले नाही मी माझे, तेव्हा त्या जगतात
कारण माझेच सूर उमटत होते तेव्हा साऱ्या आसमंतात
प्रेक्षक बनण्याची संधी आजवर कधी मिळाली नाही
कानांनी ऐकिले ते सूर, झोळ्यात आनंद राहिला नाही
काय जीवाची धूळधाण उडाली मधल्या काळामध्ये
बायको अत मुले तर गेलीच, सूरही गेले वाऱ्यामध्ये
केवढा तो हादरा ! मम जीवाला सहन झाला नाही
एवढा वणवण फिरलो, पण जीवनाचा सूर उमगलाच नाही
काळोख्या मम जीवनात कधी तरी अशी पहाट येईल
वाढलेही नव्हते मम जीवाला हा मुद्दिन उजाडेल
केवडा तो आनंद मायकाचा ! तोच त्याचा प्रेक्षक आहे
जीवन संगीत जे दिले देवाने खरोबरी अगाध आहे ।



विरह

आर. ए. जाधव

स्टोअर कोपर

मास जाहला आज एक तो सोडुनि मजला तू गेली
जखम अजुनि ओलीच तशी ती खपली नाही ग धरली ॥ १ ॥
तुझ्याविना जरी मी राहनी मम माथे तुझ्याकडे
दुःख मनोचे कुणा सांगू ग, एकांतात मोच रडे ॥ २ ॥
क्षणाक्षणांला आठवतो तुम्हा तो मधुर असा सहवास
रात्र होतांच मजला नित्य होतसे तुम्हाच भास ॥ ३ ॥
तुझीच मति मम देव्हारी आणि स्मृति दिन रात
तुच असशी नि राहशी निरंतर या 'राजू'च्या हृदयात ॥ ४ ॥

प्रेमाची 'टेस्ट'

✱

प्रकाश म. परळकर

तु. व. यांत्रिकी

प्रेमाच्या 'टेस्ट' मध्ये का झालिस 'फ्रॅक्चर' तू ?
का नाही पाहिलास माझ्या हृदयाचा 'एक्स-रे' तू ? ॥४०॥

प्रेमाच्या गुलकंदाचा नाहि पाहिला ग 'पी एच' मी,
नाहि पाहिली तुझ्या प्रेमाची ग 'डेन्सिटी' मी,
सहगूनच का सखे व्हावे तुझे प्रेम 'इव्हॅपोरेट' ?
प्रेमाच्या 'टेस्ट' मध्ये का झालिस 'फ्रॅक्चर' तू ?
का नाही पाहिलास माझ्या हृदयाचा 'एक्स-रे' तू ? ॥४१॥

वापरली 'डॉशम टेस्ट' परि नाही बघलिस तू,
वापरली 'इरेक्ट टेस्ट' परि नाही झालीस 'ब्रेक' तू,
नाही वापरली तुझ्यासाठी ग मी 'फटिंग टेस्ट' (कारण तेवढा वेळच नव्हता),
मग प्रेमाच्या 'टेस्ट' मध्ये का झालिस 'फ्रॅक्चर' तू ?
का नाही पाहिलास माझ्या हृदयाचा 'एक्स-रे' तू ? ॥४२॥

डोळ्यांत तुझ्या पाहतांना विसरली 'कंडुस' तुझे,
धुंद सहवासात तुझ्या झालो मी 'डबली एक्सायटेड',
मग 'टने' करून 'व्हेनॉसिटी' का लाविलास प्रेमाला तू 'ब्रेक' ?
प्रेमाच्या 'टेस्ट' मध्ये का झालिस 'फ्रॅक्चर' तू ?
का नाही पाहिलास माझ्या हृदयाचा 'एक्स-रे' तू ? ॥४३॥

✱

दोन कळ्या

-आर.ए. जाधव
स्टोअर कोपर

प्रीत - प्रभा

दिपक पागधरे

आनंदाचे भरते येई पहाता त्या कलिकेस
सागराचे दर्शन होना होई जसा त्या सरितेस ॥ १ ॥
वसंत ऋतु बहरतो नित्य मम हृदयात
रोमशिम जलधारा स्वतः जमीन आवणत ॥ २ ॥
विज चमकताच उजळुनि जाई निळे हें गगन
भावि तोंवि आहे पहाता त्याचि मुखनयन ॥ ३ ॥
वन्दन करितो नतमस्तक होऊनि त्या गणरायास आज
रीते न होवो कधी मुख ह्या बालिकेचे
हेन नित्य भागणे मागतो हा "राज" ॥ ४ ॥

मी जाणून आहे तुझे हे बहाणे
चाहूल कानी येता तू वाहेर येणे ।
मी जाणून आहे तुझे हे बहाणे
नकळत गाली गुलाब फुलविणे ।
मी जाणून आहे तुझे हे बहाणे
नजरा मिडता नयन झुकविणे ।
मी जाणून आहे तुझे हे बहाणे
मुग्ध प्रीतिचे मनी गुणगुणणे ।
मी जाणून आहे तुझे हे बहाणे
विरह अंतरीचा आसवांनी शमविणे ।
मी जाणून आहे तुझे हे बहाणे
प्रीत 'प्रभे'ची मला जाण देणे ।

✱

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हिन्दी

“रिट्टेन बाय....”



अरुण वि. राव, तृतीय वर्ष (मेकेनिकल)

एक अविकारात्मक अवस्था अपने अधिपत्य में। जब प्रकाश वातुनी रहा होगा। जब हमने रंग कागजी बाले सुन सुन कर ऊब रहे हैं। यह सब तरीका है निकाला—इन्हीं बालों में। अभिमानवादी अवस्था के अमाने का तथा जो बर्षों न हो। जब कभी ही थोड़े ‘फैजनेशन’ के होते हैं। हममें ने कई लेक्चरर की शोन्वित करने के लिए एक हमने की कलम आजमाने के आजकल हमने देखा है कि नीमशा स्वरित कुछ लिखता है, और ही, अपना नाम अन्त में लिखता है।

जब की प्रगाँव से हमने जो कुछ लिखा: उसे सम्भव कर दिया वस फिर क्या था, लोग अपना लिखने थोड़ा पहले होगे, क्योंकि आज भी जहाँ जहाँ थोड़े कुछ लिखता है वहाँ भी है। अपना लिखने में थोड़े आनन्द नहीं आता? बहुत कम लोग उसके लफट हो पाते हैं। मैं समझ रहा हूँ कि आप में से कहीं की के अन्तिम पक्ष या कनक स्वयं के लफटावने लिखें गेँ और लफटावने में। मे अने प्रयोग प्रवेश करने ही पहले हम मोटीय बोर्ड को लफट में छान भारने है कि कहीं मेरा नाम की केलिने ये ऑफिस बाले भी बले जाचाक है। किसीको ‘नोटिस’ में नहीं आने जब तक कि नहीं भरना या इसी तरह के कुछ पैसों के में नहीं आ जाता। लेकिन हम विश्वासी भी नहीं। उदाहरणार्थ मेरे एक मित्र ने अपनी बड़ी मांगमसज के पञ्चात् किसी शिक्षक को छोड़ दी। दूसरे ने मोजेदारी में खुद के नोटिस आने की अच्छी तरकीब ढूँढी अपनी नोटबुक खोला है, पूँ जोकर ‘नोटबुक’ की नोटिस दे दे। निम्ने ने स्वयं की कीम की अपनी की आग बचाकर नोटिस थोड़े पर हम सभी तरकीबों का लक्ष्य एक ही था बोर्ड के उस कॉन के पीछे अपना नाम

देखना, लिखना ‘मोटीय’ अधारे में। इन लफटों को आपने एक लफटा नक नोटिस बोर्ड के लफट लिख प्रदर्शित मुझ में देखा होगा।

दूसरा लफटा तरीका वह है जो हम हर वर्ष हम नाम लिखे हैं, कागज पर कलम फिरने ही ‘लिखक’ बन जाते हैं। “जो अभी कोई नहीं लिखता वह ‘फैजनेशन मेरेजिन’ में छान जाता है”— ऐसे मेरे एक मित्र के विचार हैं। कुछ हद तक यह ठीक भी है। लेकिन जो कलित्र परिवार से छाना है हमने ने अधि-राज भाग आउरेनी की ‘आन स्ट्राण्डर्ड’ पुस्तकों में आपको क्या लिखने की पूर्ण सम्भावना है। फर्क सिर्फ आपा का ही सकता है, जैसे विदेशी पत्रिकाओं में थोड़े ‘अदुपण सम्मथा’ का लेख, ‘मेनेजर’ का ‘मोटिव’ और प्रोपेस को ‘थ्रीआ और प्रवर्डी’ में बदलकर आकरेक हंग से लिखा जा सकता है। अभी कुछ दिन पहले मैंने अपनी एक गहमाड़ी को रूखी की दूकान पर एक बड़ी पुरानी पुस्तक के लिए भाव-जीव बनने देखा। मैं उसमें कुछ पूछना हमने पहले ही वह पान लिखारकर बोला—“अरे वार ‘मेरेजिन’ के लिए ‘आदिकल’ लिखना है।” कुछ लोग, जो कुछ भी नहीं लिख पाते, वे ‘आनमथा’ लिखते हैं। कम से कम एक बार अपना नाम छान देखकर जिन्दगी की एक बड़ी लम्पता पूरी हो जाती है। माँगम देख कर छाता खरीदने वाले भी बहल होत हैं। थोड़ा दिल्ली में पहली गेंद क्या लुहर गटे, कमिज के ‘वर्निपेपर’ से लेकर ‘न्यूजपेपर’ तक क्रिकेट पर लोग लिखने लगे। ऐसे समय में आप कुछ भी क्यों न लिखें अवश्य छपना है और पढ़ा जाता है।

उन सभी नामवाजिपर, कर्मजनों, लिखक बनने के जोक दयादि के पीछे एक मात्र दृष्टा व्यक्ति के मन में हो होती है वह है छाने हुए अक्षरों में देखना —“रिट्टेन बाय....” खेर मैं भी इस मगथ इसी लेख को पढ़ रहा हूँ। इस पत्रिका का कोई भी लेख, और पढ़ रहे हों, उसे लिखने वाला भी अवश्य अपने स्थान पर चौथी या पाँचवीं बार उसे पढ़ रहा होगा खाम कर पहली पंक्ति यानी—रिट्टेन बाय—अपना नाम!

(उत्तेजनार्थ पारितोषिक)

जिदगी : -दिलीप मांडलीया-राजा
एस्. ई. (सिन्हील)

जिदगी को क्या कहें, पहली या सबाब ?
कोई कहे सफर इसे, कोई इतफाक ॥
कंटकों के कबिले में ही,
खीलते हैं कोमल कुसुम,
सुख दुःख की क्षणिक भाया में,
इन्सान हुआ है गुम ।
जिदगी से जो डरे उसका, नहीं कोई हिसाब ॥
किसको खबर है, कब, करनी है,
चलने की तैयारी,
छोड़ के सब कुछ चल बिये, जब
यमराजा की आई सवारी ।
आये कहां से, कहां है जाना ? (इसका)
नहीं कोई जवाब ॥

“शेर” : महेशकुमार एस. दोशी
बी. ई. इलेक्ट्रिकल

शरम वे करते हैं, जिन्हें शरम आती है
शरम हमें क्यों वो तो हमसे शरमाती है ॥
छिपी छिपी उड़ रही है, वास्तान यहाँ प्यार की
कहीं पथरों में सो रही है, कली एक अनार की ॥
मत छोड़ो कच्ची कली को, बनकर गुलाब होगी
खेजूर की नीक बनकर लाखों की जान लेगी ॥
दिलों के रिस्ते बहुत ही अजीब होते हैं
जो दूर हैं वोही अकार करीब होते हैं ॥
उत्तर लेते हैं जो चौक दिल में कांटों की,
चमन के फल उन्ही को नशोब होते हैं ॥
जब उमड़ा बरिया उरफत का हर चार तरफ आबादी है,
हर रात नई एक शाही है, हररोज मुबारक बाही है ।
एक आई, दूसरी आई, तीसरी आई,
लेकिन रुकी नहीं 'बस' भी कैसे है
आती है लेकिन रुकती नहीं ॥

आवारा ॥ वनू इकबाल

एक टूटी हुई नैया हूँ मैं
तुम हो सागर का दूर किनारा
सोप सा प्यासा जीवन मेरा
तुम सावन आने का इशारा
तुम से है आकाश की रौनक
और मैं, एक टूटा तारा
मन में आस रही मिलने की
मिल न सके हम तुम दोबारा
भले भूलाना यह सोचकर तुम
मिला था राह में एक आवारा ॥

फिर भी मुझे जीना है

वनू इकबाल

न आरज है कोई, न कोई तमन्ना है ।
ए जिन्दगी तुझ में, मुझे कुछ नहीं लेना है ।
आये थे बहुत सोचकर, कुछ कर दिखाएँगे ।
लाले पडे है जान के, मुश्किल यहाँ जीना है ।
हमदम है न कोई, और कोई नहीं दोस्त ।
न दोस्ती करनी है, न दुश्मन मुझे बनना है ।
शिकवाह नहीं किसीसे, किसीसे गिला नहीं ।
खुद नय्या इबो खुदी अब साहिल से क्या लेना है ।
ए दिल तू ही बना, कहे तो मैं क्या करूँ ।
जीना नहीं चाहता मैं, फिर भी मुझे जीना है ।

वायश ! : अजय म. देसाई
तृतीय वर्ष (यांत्रिकी)

बार बार हम देखते हैं,
घटी घटना की घटमाला ।
मृग, प्हाश, निमोन, डेर, शिपार चाल
रूप अनेक कार्य एक
शीरी-करजाव, इशामसीह, सोचेदीश,
कृष्ण-गांधी सब हुए शिकार ।
साधु-संत-पंडित, चाणक्य रचित,
कलुशीत समाज, हे आम-तीर ।
हो बंग-देश, इमरारत, मिथ,
या विएट-नाम,
हाल यही है वृथमान ।
वायश वाणी कर्कश !
बाह्यमन कलुशीत करे,
अंतरमन प्रफुल्लित,
'अजय' निर्माण अथ,
नई दृष्टि अपनावे !

“शिकायत”

बि. टी. देसाई

आज था महफिल में हसन भी और इस्क भी
मगर यूँ मिले कि मुलाकात हो न सकी ।
अधर काँपे मगर बात हो न सकी
हर नजर एक नई दास्ताँ कह गई
उनकी शिकवा है कि बात हो न सकी ।
नहीं जानते कुछ कि जाना कहां है
चले जा रहे हैं मगर हम जाने वाले ।
मेरे दिल की बेतायियाँ भी लिए जा
दबे पाँच मुँह फेरकर जाने वाले ।
मुहब्बत में हम तो जिये हैं, जियेंगे,
वह होगा कोई और भर जाने वाले !

ગુજરાતી

"માનવ હક્કની જાળવણી માટે યુનોની કામગીરી"

માર્કે એમ. આર. શી. ઈ. (મિડ.)

વેના અનેક રૂપ છે. તે હોદ્દાએ પોતની જમ
ન સે છે, તે હોદ્દાએ જાણકની જમ રિમર
તક તે નવાકાની જમ મવકા છે, તે કાર્યવાર
જમ બિલબિલાર લે છે, એટલું જ નહીં પરંતુ
સોધન અવસ્થામાં સંસ્કાર તરફ નુત્તર
તેનું અર્થક નુત્તર છે. આનું જ અર્થક
નુત્તર પુરવીના પડોનું પર કુદરત સર્જન
કા છે. ત. ૧૯૪૪માં શરૂ થયું. જે નારકને
વિશ્વપુલ્ક" એનું નામ આપવામાં આવ્યું. આ
(વિશ્વપુલ્કમાં) પુરુષ, સ્ત્રી, અમેરિકા,
વર્ગે જાણ બિલ સંસ્કારા અને એથી એ
તરીકે ઓળખાયું. જમનમાં અનેક પુરવી
જમનના બધા બેલ પુલ્કમાં સંસ્કારા
આ પાલેલા જ બતાવ લેને નેથી તે તરીકે
વિશ્વપુલ્ક" તરીકે જાહેર થયું.

પુલ્કનું મુખ્ય કાર્ય માનવની અર્થ સ્વાર્થની
સંસ્કરમાં કનું છે કે "અર્થ સ્વાર્થ વર્તન."
પુલ્ક પાંચ વસ્તુ નુત્તર નોટલે કે ઈ. સ.
પુલ્ક થયું. પરંતુ પરિણામ શું આવ્યું ?
એ જ કે માનવીની સ્વાર્થથી જાણનાને
માનવીનું જુન. માનવીના જ જાણે જાણની
માનવીની જાણે સડવા જાણી, જાણા જાણે
જન્યા. ન જાણે કાણ તેનું દ્રશ્ય પુરવી પર
જાણી વધી ને મોંઘવારીએ તે માણ મુત્તી.

વિશ્વપુલ્કનું આનું અર્થક પરિણામ જાણે
મુલ્કીય માણસે બેગા થવા અને ફરીથી
આનું અર્થક પુલ્ક ન થાય એ માટે અમુક
વડા અને એક સંસ્થાની રચના કરવામાં આવી
અમ "લીગ ઓફ નેશન્સ" રાખવામાં આવ્યું.
આ સંસ્થામાંથી જમની અને રાજાને જાકાન
આવ્યા. પરિણામે સંસ્થાના પાયામાં જ
ન રહી શકી. પાયા મજબૂત ન હોય તે
કેટલાં વર્ષો સમય સુધી ટકી શકે ?

આ રીમારના પાયાને બનાવનારોએ જ
પાયાને સોડનારો ધ્યાન કર્યો. માનવીની સ્વાર્થનીનર
ફરી સોના સ્વાર્થથી. એક બીજાને દેશ પચાથી તેના
પર વચોર જમવાનું એવી જાણનાથી પ્રેરણ
વિશ્વના અગ્રગણ્ય દેશોએ નાના દેશો પર આક્રમન
કનું. એક કવિએ જાણ જ કનું છે કે,

"લીલીને ફેલ બીજને ધુરાવ આપે છે
તોપક જાણે બીજને કાલ આપે છે
ફેલ છે સ્વાર્થથી માનવ આ વિશ્વમાં કે
જે જીવન કલે જવા પરજને જાણ આપે છે."

શી. પી. આ આક્રમણો બીજ વિશ્વપુલ્કમાં પરિ-
ણામાં રવા. આમ ૧૯૩૯માં બીજું વિશ્વપુલ્ક શરૂ
થયું. અંતર યુધ્ધ ન જોડેલ વિનાશક શસ્ત્રો દુનિયાએ
જાણ. આ વિશ્વપુલ્ક પાનું પાંચ વસ્તુ સુધી જાણ્યું.
પરિણામ શું ? પરિણામ કોણે કોણે માન, વાળે
કાકે અર્થક અને નિરાધાર જાણા. દરિદ્રતાનું એનું
દ્રશ્ય મળ્યું કે તરી આખે બનારના દિલમાં કપારી
આવી જાય. આ પાંચ વસ્તુમાં "૧૯૪૨માં ઓગ-
સ્ટની તરી" તરીખને એ જાણે દિવસ પાનું આવ્યો
કે જે દિવસે જાણના દિલોમાં અને નાગસાકી
નામના જે શહેર પર અંતરે પાનાને સમજેલ તરીકે
જાણના અમેરિકાએ એકમ જામ્ન ફેંક્યા. આ માણ-
પ્રવચે સોના દિવસમાં પુલ્ક માટે નરુત જાણી દીધી.
પુલ્કે કરેલી જાણનાપદોથી સી કોઈ જાણી જાય.
"લીગ ઓફ નેશન્સ" સંસ્થા બંધ થયે, પાનું જાણ-
ના બધા જાણ સુવેલજાણીથી પને એ જાણના તે
કાયમ રહી. આથી "સંયુક્ત રાષ્ટ્રસંઘ" જાણવા યુનો
(યુનાઈટેડ નેશન્સ ઓર્ગાનિઝેશન U. N. O.) નામની
એક સંસ્થા સ્થાપવામાં આવી. વિશ્વજાણ માટે કાય
કરવા સ્વેચ્છાએ બેગા થયેલા રાષ્ટ્રોની એક આ સંસ્થા છે.
જેના ૫૧ રાષ્ટ્રો સભ્ય હતા.

આ સંયુક્ત રાષ્ટ્ર સંસ્થાએ વિશ્વના સમસ્ત
માનવીઓના હક્કોનું એક હક્કપત્રક રહી કાણું અને

૧૮૪૮ની ૧૪મી ડિસેમ્બરે સંયુક્ત રાષ્ટ્રની આમાન્ય સભાએ આ લક્ષ્યપત્રક પર મંજૂરીની મહાર મારી. આ લક્ષ્યપત્રકમાં એકંદરે ત્રીસ કલમે છે. એમાંથી મુખ્ય કલમે આ પ્રમાણે છે:-

(૧) બધા માનવીઓ વચ્ચેની જ સ્વતંત્ર છે અને દરજ્જાની તથા અધિકારની દ્રષ્ટિએ સમાન છે. કારણે તેમને સમાજસંવિત અને સંવિદ્યાત્મા પ્રાપ્ત છે અને તેઓએ એકબીજા તરફ જાનુઆરથી વર્તવું જોઈએ.

(૨) દરેક માનવીને જાનિ, વર્ણ, લિંગ, ભાષા, ધર્મ, રાજકીય માન્યતા, રાષ્ટ્રીય કે સામાજિક ઉત્પત્તિ, મિલ્કત, વચ્ચે કે બીજા કોઈ દરજ્જાના ભદ્રભાવ સિવાય આ લક્ષ્યપત્રકમાં દર્શાવેલા અથવા લક્ષ્ય આગવવાનો અધિકાર છે.

(૩) દરેક માનવીને જીવન, સ્વતંત્રતા અને શારીરિક સલામતીનો પૂરેપૂરો અધિકાર છે.

(૪) કોઈપણ માનવીને મુશામીમાં રાખી શકાય નહીં. મુશામી અને મુશામતો વેપાર સર્વપ્રકાર નિષિદ્ધ છે.

(૫) કોઈ પણ માનવી પત્ની પાનકી, અમાનુષી કે માનખંડ કરે એવું વર્તન અથવા શિક્ષા કરી શકાય નહીં.

(૬) દરેક માનવીને દરેક સ્વર્ણ કાપડા સમક્ષ માનવી તરીકે માન્ય સમવાનો અધિકાર છે.

(૭) મુખ્ય ઉમરના દરેક સ્ત્રી પુરુષને જાનિ, ધર્મ કે નાશકિલ્તવતા બેદખાવ વગર મુક્તપત્રે જન્મ કરવાનો અધિકાર છે.

(૮) દરેક માનવીને વિચાર, આત્મનિર્ણય અને ધર્મની સ્વતંત્રતાનો અધિકાર છે. તેને પોતાના ધર્મ કે માન્યતા ભદ્રવવાનો સ્વતંત્રતાનો લક્ષ છે. તેમજ પોતાના ધર્મ અને માન્યતા જોડમાં દર્શાવવાનો અને પાળવાનો સ્વતંત્રતાનો અધિકાર છે.

(૯) દરેક માનવીને કાન કરવાનો, કામની પસંદગી કરવાનો અને કરાની વાલખી અને અનુકૂળ કરના તેમ જ ખેડારી અંગે યોગ્ય સલામતીનો અધિકાર છે. અને કોઈ પણ જાતના બેદખાવ સિવાય સમાન કામ અને સમાન મહેનતાણાનો અધિકાર છે.

ઉપર જણાવેલ માવનલક્ષ્યોની જાળવાણી માટે યુનેસ્કો કામગીરીનું આવકોટન કરીએ.

સંયુક્ત રાષ્ટ્રસંસ્થા સમક્ષ પહેલી ફરિયાદ કોરોડી - ઈરાનની આવી. ૧૮૪૮માં ઈરાને ફરિયાદ કરી કે અમારા ઉનારનો પ્રાન્નમાં (આરસપ્રાન્નમાં) બીન્ટું વિશ્વવૃદ્ધ પૂરું થયા છતાં રશિયન સૈન્યે લજ્જા ન્યા છે અને તેમાં ન્યા પોતાની સરકાર કીધી કરી છે. આ બંધુ કરાનની વિરુદ્ધ લખું અને ઉપર દર્શાવેલ માનવલક્ષ્યો પર “કોરોડી” ચલાવવા બરાબર લખું. રશિયાએ આ પ્રશ્ન સલામતી સમિતીની કાર્યવાહી પર મુકવાનો જ વિરોધ કર્યો. વિરોધ કીડી ગયા રશિયાએ તેને માન્ય ન રાખ્યું. પરંતુ રાષ્ટ્રસંસ્થાના મહા મંત્રીને અર્થવાચ રજૂ કરવાનો પરવાનગી આપવામાં આવી. વખતે જ્યાં રશિયાનું સૈન્ય પાછું પડી ગયું અને ઈરાને ફરિયાદ પાછી ખેંચી લીધી. આગ આ કાર્યનાં થોડાંયે અંશે રાષ્ટ્રસંસ્થાને પ્રાપ્તતા મળી.

પેલેસ્ટાઈન કેટલાકે વખતથી આરંભા અને યહુદીઓનું સમૂહાત્મક બન્યું છે. આરંભા કાર કે કે અમે પેલેસ્ટાઈનને મુક્તિ આપવાના પ્રિન્સીપલોનું સંવેનાશ કરીને જ ઝંખીયું. મહાસમિતિએ પેલેસ્ટાઈનના આગલા પાટી; એક આરબ રાજ્ય, એક યહુદી રાજ્ય અને વેલ્ફેરેસનું સ્વતંત્ર શાસન સમવાનો ભલામાજુ કરી. પરંતુ ૧૯૪૮માં તથા યહુદી રાજ્ય ઈઝરાયેલની સ્થાપના થતા ન્યા યહુદ સ્ત્રી નીકળ્યું. સલામતી સમિતિએ સંધિપર નોમ્યું. કેટલાયે મંડિતાની વાતચાટ પછી ઈઝરાયેલ અને આરબ રાજ્યો વચ્ચે શસ્ત્રવિરમના કરાર થયા. પરંતુ આ કરાર છેલ્લા ચાર પાંચ વર્ષથી ફરીથી તૂટી પડ્યો છે અને આરબ-ઈઝરાયેલ વચ્ચે કુલ માણુ જ છે. એક તખક્કો તે એવો આવી ગયો કે વિશ્વના માનવીઓ વિચારમાં પડી ગયા કે શું “બીન્ટું વિશ્વવૃદ્ધ” પણ લખામાં શરૂ થઈ જશે. યુનેસ્કો કરે પણ શું? અમેરિકા અને રશિયાનો લાગે બની મંથેચ યુનેસ્કો કોને કપાતા ને શબ્દો કહી શકે? અને આ સૌને યુદ્ધ સંક્રામાં સરજા અને?

૧૯૫૫માં ઉનાર કોરિયાએ દક્ષિણ કોરિયા પર હુમલા કર્યો અને એ સૌને તેમના પર વિલગ મેળસો. દક્ષિણ કોરિયા પર પોતાનું વર્ચસ્વ જમાવવાનો બદ-દરોહો લગે. આ એક આક્રમણ લખું જે કરાનની વિરુદ્ધ છે. યુનાની સલામતી સમિતિએ ઉનાર કોરિયાના સૈન્યને

જાવવાની અને યુદ્ધ થવું કરવાની આશા
પરોઠું નાશુ કરી. એટલે નવામતી સમિતિએ
કેળે, "આક્રમણકારને મારી લેવાવામાં રીએ
લેવાને ગઠડ કરી" એમ જવાબુ કરી.
સમિતિના કસરને માત્ર આપી અમુક
જાના લશ્કર મોકલ્યા. પરિણામ કોઈ નમય
નહોતું. પછી ત્યાં (પરવડમાં) શસ્ત્રચલામ થયે.
યુનાને માનવતાના હક્કની કક્ષા માટે જરૂરી,
અને હિમ્મતજુ પગલું ચીંતું.

મેઢી કોલકો સંયુક્ત રાષ્ટ્રસંસ્થા સમગ્ર
મહાસંસ્થાની પછી થઈ. પરવડમાં સ્વ-
કે તરત જ ન્યાના લશ્કરે જાગેલા ક્યો અને
નકલમાં ભરિજ્યમે કોંગ્રામાં લશ્કર મોકલ્યું.
તેના પ્રમુખ અને વડા પ્રધાને રાષ્ટ્રસંસ્થાને
રૂં વિનંતી કરી. રાષ્ટ્રસંસ્થાની મદદથી ત્યાંનું
પરવડ અટકી ગયું. રાષ્ટ્રસંસ્થા નરહથી કોંગ્રાને
અંતરમાં આધિક મદદ મળી છે. સંયુક્ત
તે હવે તે કોંગ્રા આજે ધિન્ન બિન્ન થઈ

સંયુક્ત રાષ્ટ્રસંસ્થાએ આવી કમજોરી
કેલોલકાર તે યુનેવારો સામે કંઈ પણ
કેળી નહીં છે. લંબરી અને કિનારુ આફ્રો-
માં એમ અનેક છે. સવામતી સમિતિ
કેલે આજળા લાગાર જતી છે. કોંગ્રાના
મેમ્બર અને યોગ્ય પગલું ચીંતું. પરંતુ
અવગણના કરનાર આફ્રિકાને તે કંઈ
નથી.

મે પુલ્કે થઈ ગયા. બીજું વિશ્વવુદ્ધ
કેલે "એફ નેશન્સ" નિર્ણય થઈ. પરંતુ
વિશ્વવુદ્ધ શકવામાં યુને સફળ થઈ જાય
કેલે લોકો માનતા ચિકલય પંજમાં ફસાતા
તે તેની સોથી મવાના સિદ્ધિ હશે.

સમગ્ર વિશ્વના માનવ સમુદાયને એટલું
છે કે "ચાલો આપણે સંગઠિત થઈએ,
એજને દબ આધિપત આપીએ, આપણા
કરીએ. આ પરતીમાં કમ્મા કરી રહે
પરતીકરો, મલાપ્રવયો, તરના અરફના

ત્રણ પત્તાની રમત

માર્કે એમ. આર.
બી. ડી. (મક.)

કરકોળ રાતના અમે અચૂક
રમના ત્રણ પત્તાની રમત
જ્યારે લતા અમે વિદ્યાર્થી...

ને પેસાતી થતી ઉથલપાથલ
સાથે બીયર-વહીસકોની રમટ
જ્યારે રોતા લતા લેક્ટેલમાં...

ને પછી વાંતા થતી પછી
કેલેજીલીરોનોનો ને ગર્લ ફ્રેન્ડોની
જ્યારે લતા અમે બકમાથ...

ને પછી લાર-જીતના મૂળમાં
બીયર મારના બેફામ
જ્યારે લતા અમે નામના વિદ્યાર્થી...

ને લેકચરો કોઈ દિવસ ભરતા
નારી ને દિવસના ઉપના થસથસાટ
જ્યારે લતા અમે કેલેજમાં...

ને જ્યારે પરીક્ષા આવતી ત્યારે
રોતા પાંચવામાં મદ્યબુલ રાતના
અને દિવસના પણ આરામ વિના
પછી પર ભરતા કોલેજોના
જ્યારે લતા અમે કેલેજીયનો...

★

ફોના કે ઉલ્કાઓ કે વિશ્વવુદ્ધો આપણા નાશ કરે
તે પાંચમાં ચાલે આપણે વિશ્વ માટે ખુદી, શક્તિ અને
લડય સજિઓ, અતિમાનુષી એવા સંધર્ષને માનવતાનો
એપ આપીએ."

કોઈ કિત્તે યોગ્ય નર કરતું છે,

"બીલેજું ફૂલ થરમાશે કોઈ દિન
સુરભ-શુગાર લોપાશે કોઈ દિન
ભલો યાદી કોઈ જુની શકે ના
જદન બાકે બધી જશે કોઈ દિન."

★

સમય થઈ ગયો છે

બપેન્ડ દેસાઈ
બી. ઈ. (સી.સી.સી.)

અજાણ્યા હૃદયથી પ્રાપ્ત થઈ ગયો છે
અને નવી જિંદગીના ઉદય થઈ ગયો છે.
જનન જેમ કરશે અદનામ વધારો
હૃદય માનશે વિગૂણિય થઈ ગયો છે.
ડોલ નથી છરવું આ પ્રેમ-જીવન
પ્રેમ-જીવાન્મા અભય થઈ ગયો છે.
તડપતાં ઝોલું અને આંધ્ર ભરવી;
એ, હવે વિરલી હૃદયના વિષય થઈ ગયો છે.
છે આ તોફાની યોધન; દીગ્ગજન સાચવી શી રીતે?
ચાર-ચોટ્ટે વાલુઅપરાધ ચર્ચાઈ જવાનો સમય થઈ ગયો છે.

આખરી મક્કસદ

લઈ તુજ પાસ આવ્યો હું, ભર્યા હૈયે જે ભાવો છે
સુખે જે ભાવથી એને હૃદયનાં એ પ્રતાપો છે.
બસ છે બાકી રહ્યો એક મક્કસદ આ જિંદગીના તવે;
ખિલે પ્રસ નારાયી; ન ખિલ્યા જે પવત્રો છે.
ખુદીથી એ ખિલાવે તું; કર્યો કર્યાં મેં એ દાવો છે
મળે ના મહેર તારી તો ખડા પલ્લ એક ક્ષણો છે.

અરમાન

આ વિશાળ દુનિયાનાં ઘરમાં મહેમાન બનીને આવ્યો છું
ને કોઈના ઉર્મિલ હોવાનું અરમાન બનીને આવ્યો છું.
સૌજન્ય તમારું છે કે કળશ કાલી મને બીરતાવો છે;
તું તો કોઈનાં પાવન ચરમ્ભાનું અરમાન બનીને આવ્યો છું.
તું જાણું છું કે આ દુનિયા એ નવતર અનુભવની યાગ્ય છે
તેથી તું તો મુલ્કિનો ગર્વ ન્યજીને નાદાન બનીને આવ્યો છું.

★

સંકલન.....

પારંખ બિનેશ
નૃતીય વર્ષ ૬૪૭૯૨ (વૈશાકી)

હું બિન્દુ છું છતાં દરિયાવ દિલ મારું પ્રતાપી દડો,
થવું ઝાકળને કે હું પ્યાસ સુરજની છિપાવી દડો,
નજીવો અમાસાને નેય હું એક કામજીવી નિખારાવું,
જે થાકું તો ગગનચુંબી જવાળાઓ જગાવી દડો,
ફક્ત પુનમની રાતને નથી હું ચાંપનો હૈયે,
અમાસો નેય મારી આંખનું અંજન પ્રતાપી દડો,
તમા સંતેગની જંજીર જે તારી નથી શકતા,
સ્મરણ રૂપે કરી આવો તો અંતરમાં વસાવી દડો,
અવેનન છું હું ભલે કિનુ વિભાનો તાર છું એને,
ફરે તુંજ અંશલિ તો સૂરની રંજન જમાવી દડો,
ઝલક તુજ રૂપની સવળે નિદાણીન થવું મુજને,
સકળ આ પ્રકૃતિદર્શન ને આંખમાં સમાવી દડો,
પરુપરનાં જ છે સદ્ભાવ પર આધાર જીવનનો,
પવન ને કેમ હું દિપક તમો દુરમન પ્રતાપી દડો?
પ્રાણપતી આન મારે મન અનામો આગરે 'સાકિન'
થવું નાદાન અશ્રુને કે હું એને ખુલાવી દડો,
તારી યાદ શું તવેશરથી ખાલસે નારી એને?
સમયને થાય છે કે લાવ જન્મને ક્યાવી દડો,
કરી તો આવશે મંગળ થવી તુજ આગમન કેવી,
જીવનની હરધરી હું એજ આશામાં વિતાવી દડો.

★

શાયરી

મહેશકુમાર ચાંનિલાલ દોશી
બી. ઈ. (ઈલેક્ટ્રીકલ)

નજર શું આપથી ટકરાઈ અમે ધાયલ થઈ બેઠા
તમે એક સ્મિત ફેંક્યું ત્યાં અમે પાગલ થઈ બેઠા
સંક્યા થઈ ગઈ છે હજી નો રાત ઘણી બાકી છે
નયનો સાવ મુંઝા છે પણ વાત ઘણી બાકી છે.

ફરિયાદ નથી કરી, ફરી-યાદ કરી છે
ફરી યાદ કરવામાં જિંદગી બરબાદ કરી છે.

★

પ્રિયાને સંબોધન.....

મારું એમ. આર.
બી. ડી. (મેડ.)

પ્રિયો ય વધુ મોંઠે દેખી છે નમારામાં,
નવરા તેને કરી લેશું કાંઈ સાથે પ્યાર,
તારું વાસ્તવ મુજ જિંદગીનું અર્પણ કરી દેશું
તેને નેન મારાં કરી લેશે આંખો સાથે પ્યાર,
તારું નજર તમારી, નહા માટે વપાર થઈ પડે છે,
તું કામ કરું, તું મહિરા સાથે પ્યાર,
જેનો કરી રહ્યા છે, આજે ખ્યા મને,
તારી, આજે દિવાનો થયો છે માટે પ્યાર,
જનામ થરા નેયાર છું જનતા અજરમાં,
તું મળે છે મને ફક્ત તમારા પ્યાર,
જ્યાર છે નમારો, આવો મુજ જિંદગીમાં,
જે તો કરવો પડશે અમારે મોત સાથે પ્યાર.

દંતઝાર નથી

જેના માનવીમાં રહ્યું હવે દિમાન નથી,
જેના હરબારમાં રહ્યો હવે દંતઝાર નથી,
જે સંજન કરવાની આદત થઈ લગતને
જે આવે જીવનમાં, રહ્યો હવે દંતઝાર નથી.

સરનામું

ગળી પર ખોલ્યું એક ફૂલ:
ફૂલની ઉપર ખોલ્યું આકાશ;
આકાશની આંખોમાં પોખીના વાસ!
ગળી પર ખોલે છે એક પોખી:
પોખીની ઉપર ખોલ્યું આકાશ:
આંખોમાં મલક્યા કરે છે ઉજાશ!
ગળી પાસે ખોલ્યા છે દરિયા:
દરિયામાં મૂળિયામાં ડૂબે છે ભામ;
ભામમાં ચાંદનીની ઉંઠે છે સુવાસ!
ગળી પર ખોલ્યું છે જાડ:
જાડમાં મુપમય તરનું નગાવ;
નગાવને કહે છે માટે આવસ!

*

યાદ તારી !

ભરત પારેખ
ડી. ડી. (મેડ.)

ઉપાની આખા અને સોપાની રંગોળીમાં
તારા જાણની મુલાબી નથી,
તો કંઈ નથી ખસ કંઈજ નથી;
અમાસની રાતે અને વનધાર ઘટાઓમાં,
તારા જૂલોની કાગીમા નથી,
તો કંઈ નથી ખસ કંઈજ નથી;
જાંઘતા સમંદર અને સ્વચ્છ આકાશ,
તારી આંખોનું અંગત નથી,
તો કંઈ નથી ખસ કંઈજ નથી;
રવિ કર સ્પર્શ પીવતી કળીઓ પર,
મથુર તારું સ્મિત નથી,
તો કંઈ નથી ખસ કંઈજ નથી;
સ્થિર જળ ઉપર લપસતાં સૂર્ય કિરણોમાં,
તારી વિપત્તિવાટ નથી,
તો કંઈ નથી ખસ કંઈજ નથી;
પ્રેક્ષ્ય માટે જિંદગીની મુખની પળોમાં,
એક તારી યાદ નથી,
તો કંઈજ નથી ખસ કંઈજ નથી.

તું !

વાદળો પેસાય છે, તારા, જૂલોનાં સોગંદ પ્યાદને,
વિજળો ચમકે છે, તારી દંતપંક્તિ લેવાને જ્વાળે,
જાણની કાગી તારી, કળીઓને ધરમાળીને,
મને પણ આકર્ષે છે તારા સ્નેહને જ્વાળે.

અભ્યુથના

તારા જીવનની કેડીએ કંટક ઢોળના યાથરે,
સ્નેહ પુષ્પોનાં પમરાટે, મુજ જીવન સારનું રહે,
તારા ચોંટાલી મીન અને પ્રેમાળ તારું સ્મિત,
તારા તારું સાર્થક કરે સ્મિતા! એ જ પ્રાપ્ત પ્રાર્થના.

યાદ તારી !

એ નાજુક પાયાનીસી આંખો
અમકની એ પવચંદનપંક્તિ
વાસ્તવ સજર એ નમણા ચહેરા,
યાદ મીઠી તારી જ વડોવર છવાઈ જાય છે.

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અસ્તિત્વ...

(આશ્વાસન પાસ્તિભિક્ક)

લલિત ન. મહેતા
(પ્રથમ વર્ણ)

અર્ધ મેઝીલે આવી થોભી ગયો છું હું,
શું વાંકીચુંકી ડગલોમાં જ હું અટકાયા કરીશ?

નસીબ માટું લંમેશા મે ડગલા આગળ રહે છે
છતાં કેટલી વાર તકદીર સાથે લડયા કરીશ?

વફા બદલે બેવફાઈ જ મળી છે જીવનમાં
છતાં લંમેશા શું હું વફાદારી જ કરીશ?

મુજ તારક કોણ છીનવી ગયું મુજ પાસેથી!
લવે શું હું ફક્ત આંસૂ જ સાચો કરીશ?

જવાબ નથી જગત પાસે મારા વણા પ્રશ્નનો
ક્યાં સુધી હું દુનિયાને સવાચ પૂછવા કરીશ?

તમે ક્યારે આવો છો મુજ જીવનમાં,
એ જ શબ્દમાં દિવસો પસાર કર્યા કરીશ.

માટું કશું જ સ્થાન નથી રહ્યું લવે જગતમાં,
છતાં ક્યા લગી માટું અસ્તિત્વ હું ઘોષ્યા કરીશ.

★

વિરહી મનને દિલાસો

શા માટે?

ભૂષેન્દ્ર દેસાઈ
બી. ઈ. (સીવીલ)

ભસ્ત પાસે
ટી.ઈ. (મિક.)

કોઈ પગલાં, કોઈ પગરવ, ન હતા દૂર સુધી
તોયે મેં ધરતી સીમાઓને સજલવી રાખી.
આપ આવશો નહીં, નહીં જ લાગું તોયે
મેં માત્ર હંચાચી; આ વાત છાની રાખી.

સ્નેહની સાંકળમાં માનવી બંધાય છે શા માટે?
મિલનસુખ થોડું અને વિરહદુઃખ મોટું શા માટે?
લપ્સ્યાકનો વિરોધી ભાવો એક આંસુમાં શા માટે?
હે પ્રભુ! તે માનવીને એવું દહય આપ્યું શા માટે?

★

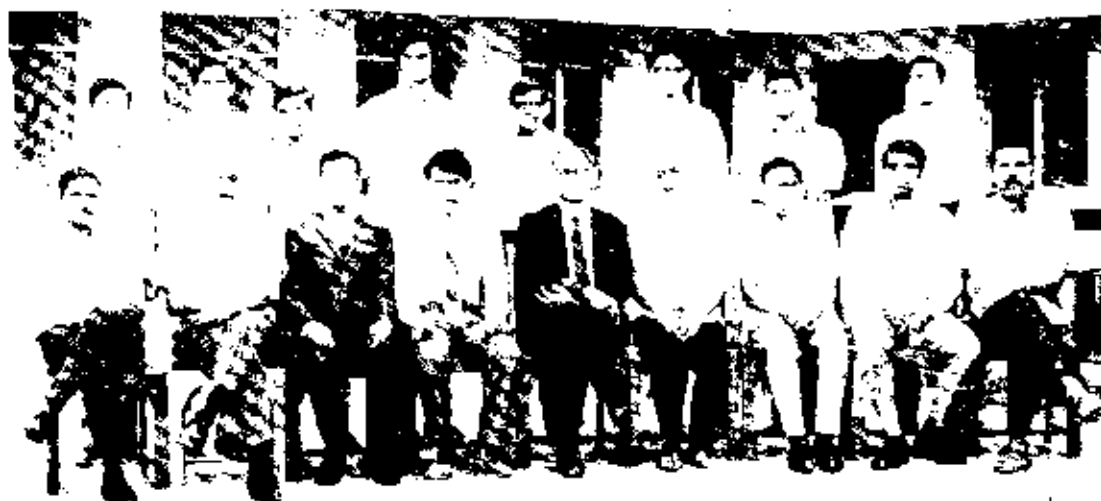
★



Gymkhana Managing Committee



College Magazine Committee



Our Principal with Prize Winners and Ex-officials



Arun V. Rao
Prize Winner
Essay Competition



M. E. Khairaz
Prize Winner Table
Tennis (Singer)



M. V. Prabhu
Prize Winner
Inter Collegiate



BULLETIN

GYMKHANA COMMITTEE

The following is the list of the various Sub-Committees of the Gymkhana Committee for the year 1972-73.

<i>Sub-Committee</i>	<i>Secretaries</i>	<i>Ex-officio</i>
Athletics including	Sri. Desai R.J. F.I.A.	Sri. N. K. Panickar
Boxing	.. Prabhu L. A. S.E. (M)	.. M. C. Shah
Valley Ball and	.. Hemmady M.R. T.E. (C)	.. O. M. Lemos
Basket Ball	.. Chandvadkar D.M. B.E. (M)	.. O. M. Lemos
Foot Ball & Hockey	.. Parkar A. B. T.E. (M)	.. R. Narayanan
	.. Taware D. S. T.E. (C)	.. S. W. Marathe
Cricket	.. Pardiwalla M.A. B.E. (C)	.. S. W. Marathe
	.. Raje N.M. S.E. (L)	
	.. Shaikh Y. I. S.E. (C)	
Cultural Activities	.. Poonatkar D. H. S.E. (C)	.. V. S. Chandrasekhar
	.. Hirvewala N. M. F.E.I.	.. R. Narayanan
Badminton	.. Jagdeep S.B. T.E. (M)	.. B. Prasad
	.. Potdar S. S. T.E. (M)	.. Ramaswamy Iyer
Indoor Games	.. Dhamale P. R. B.E. (E)	.. Parmeshwaran (Carrom)
	.. Shah N. J. F.E. (M)	.. S. G. Bhatt (Chess)
Indian Games	.. Bhandare S. H. B.E. (C)	.. S. W. Marathe (Table Tennis)
	.. Narurkar G. B. T.E. (E)	Prof. V. R. Doolphode
Boat Race and	.. Chandvadkar D. M. B.E. (M)	Sri. S. C. Goyal
Rowing	.. Nadkarni A. B. B.E. (M)	.. D. D. Desai
	.. Vanoo M. I. F.I. III	.. B. H. Pancholi
Gymnastics	.. Nadkarni A. B. B.E. (M)	.. R. H. Kulkarni
Mar and Long	.. Samant Y. B. F.E. (H)	.. V. R. Raddi
Distance Journey	.. Taware D. S. F.E. (C)	Prof. L. L. Bhurud
Students Library	.. Shaikh Y. I. S.E. (C)	Sri. P. P. Vaidya
	.. Lokhandwala S. E. B.E. (C)	.. G. K. Vaidya
Magazine	.. Sanghvi D. S. B.E. (M)	Prof. L. L. Bhurud
Debby	.. Shaikh Y.I. S.E. (C)	Prof. V. R. Doolphode
	.. Prabhu L. A. S.E. (M)	Dr. J. G. Shah
Essay Competition	.. Mangaonkar N. S. F.E. (H)	Prof. V. R. Doolphode
Speakers Forum	.. Poonatkar D. H. S.E. (C)	Prof. M. M. Ranade
Club	.. Kadakia P. B. T.E. (E)	Sri. M. M. Shah

17. Students Welfare

Sir Lokhandwala S.E. B.E. (C)
Hemmady M. R. T.E. (C)

Dr. S. S. Maneek
Sri. B. H. Paneholi
V. S. Chandrashekhar
A. G. Mhaskar
R. Narayanan

18. Industrial Visits

Nadkarni A. B. B.E. (M)
Dharmale P. R. B.E. (E)

General Secretary :

Joint Secretary :

Shri M. R. Hemmady (T.E.-C)
(1) Shri D. Chandvadkar (B.E. M)
(2) Shri L. A. Prabhu (S.E. -M)

* * *

"SARJANIKA" Vol. VIII 1973—PRIZE WINNERS

1. First Prize (Technical) Fourth State of Matter by R. B. Balakrishnan S.E. (E)
First Prize (General) The Great Escape by A. V. Rao T.E. (Mech)
2. Second Prize (Technical) Laser Weapons by R. M. Butle T.E. (Ete)
Second Prize (General) कैफियत, लेखक-प्र. म. बरळकर टी.ई. मेक
3. Consolation Prize—छंद, गंध, पुंद, कवि-आर. डि. समेक टी.ई. मेक.
4. Consolation Prize—त्रिपरी, कवि-दिलीप मांडवीकर एम.बी.मि.
5. Consolation Prize—अन्वीक्ष-रविन मेहता एफ. बी.

S.P.C.E. CINE CLUB REPORT (Year 1972-73)

This year 'Cine-Club' worked with full enthusiasm, and it received good response from the students. Total members of the 'Club' were 205. There was good response from non-members also. In all seven films were screened out of which 2 were English movies and 5 were Hindi movies. English movies were all coloured movies. Principal encouraged and appreciated this activity by attending most of the pictures.

We are thankful to Mr. Advani, A. G., Mr. Devatar D., Mr. Shobham R. R. and

Mr. Kirti Desai all from T.E. (E) for spontaneous support in organizing shows.

Ex-Officio and Secretaries sincerely feel that acoustics of the hall will have to be improved for better response from students.

Ex-Officio:

- (i) Prof. M. M. Ranade
- (ii) Mr. M. M. Shah

Secretaries

- (i) Kadakia P.B., T.E. (E)
- (ii) Poonatkar D. H., S.E. (C)

General Secretary's Report :

FIRST of all, thank my fellow students who elected me as a General Secretary of the College Gymkhana Committee, for the year 1972-73. I have always yearned to be a useful member of the students community.

I sincerely acknowledge the excellent and served guidance and help received from Principal S. S. Dighe, Vice-Principal J. G. Shah and other Staff members of different departments and my fellow students.

The elections for the class representative were held, who in turn, elected me as a General Secretary.

The Sub-Committees were organised for an all round progress of the Gymkhana activities with the elected representatives in charge of these activities, who were ably guided by their respective Ex-Officios.

I am thankful to all the representatives who have worked with dedication and the results show for themselves the achievements of the Gymkhana Committee. The Gymkhana Committee is specially thankful to the Ex-Officios who co-operated so well with the members of the Committee and the staff body.

Our College Students took part in various Debating Competitions and I heartily congratulate Mr. Chandvadkar D. and Mr. Vaidhya G. V. for having bagged certificates of merit. It is rather unfortunate, I must say, that our College Students don't have an opportunity to represent in Cricket and Volleyball because these tournaments take place exactly when we have University Examinations. I am sure they will bring honour to our College in these fields of sport.

September Melody : I need not mention anything much about it, as all of us have actually witnessed the exciting and pulsating programmes on this occasion.

The College day functions and Dinner were emceed this year and the amount sanctioned was diverted to the Relief of the Drought victims. I am extremely thankful and proud for this sacrifice, that our College students willingly volunteered.

Lastly I thank the Principal, the members of the staff, the students and all those who helped in various capacities to make the function held this year as enjoyable and colourful as possible, and also for the all round progress we have achieved.

M. R. Hemnady
Gen. Secretary

EXTRA CURRICULAR ACTIVITIES

The following students have won the 1st in A. D. Shroff Memorial Elocution Competition held on 5th September, 1972:

- D. M. Chandvadkar (First prize).
- Ramesh S. R. Bhel (Second prize).
- Garish G. Vaidya (Third prize).
- S. F. Lokhandwala (Consolation prize).
- S. M. Kulkarni (Consolation prize).
- A. B. Nadkarni (Consolation prize).

Shri Arun V. Rao, T.E., (Mech.) has won the Second Prize in Essay Competition in Hindi organised by Naya Samaj, Bombay. The essay competition was held in celebration of the Silver Jubilee of Indian Independence.

Shri S. G. Bhatt, B.E., M. TECH., Lecturer in Mech. Engg. has won the "Principal K. M. Kundarani Chess Championship Trophy for Bombay University Teachers".

V. R. Diphode

REPORT ON RESEARCH PROJECT

The Ministry of Defence made a grant of Rs. 27,600 for design and development of a transistorised potentiostat to Shri S. C. Goyal, Assistant Professor in Electrical Engineering in 1969.

The work was started in the beginning of 1970 and two models of transistorised potentiostats were designed, developed and tested and were delivered to Defence Research Laboratory (Materials) Kanpur. These models are used for maintaining the potential of electrodes at a constant value under medium fast electrochemical conditions and reactions. In particular the instruments were tested to draw the passivation of ferrous group of metals. Other uses of instrument include analysis of metals in solution, recovery of rare metals on laboratory scale etc.

Large scale uses of larger potentiostats which can be designed by the investigator include prevention of corrosion in acid carrying tanks, chemical pumping systems, brine carrying pipe lines, ships and structures. Such instruments could further be used for chemical alloying, selective electroplating, electrochemical polishing, and etching, separation of rare metals on large scale.

A paper on "use of potentiostat" was presented jointly by Shri S. C. Goyal of S.P.C.E., and Dr. S. N. Pandey of D.R.L. (M) Kanpur at a seminar on "Instrumentation for Chemical Industry" arranged by Century Rayon, Kalyan in May 1972, which was widely appreciated by industry. S. C. Goyal.

PHOTOGRAPHIC SOCIETY'S ANNUAL REPORT

Photographic Society was formed this year. Darkroom was equipped with basic equipment. An enlarger for 35 mm. negatives was made by students with the help of Workshop people. More than 50 stu-

dents were enrolled as members. About 25 members who were new to the subject were taught photography some learned members. teaching consisted of series of lectures on developing, printing, enlarging, composition and camera and its mechanism followed by practicals on the above subjects. Two outings were also arranged just one was at Versova to give students basic knowledge of exposure and composition. second was held at Khandala to give students practice in candid photography, nature and also taking photographs of historical places.

S. N. Hinduja

Sec. Prabhu

WALL PAPER

This is a new addition since last November to the various activities in the College. Some of our students felt the need for such a feature in the College. So, with the kind permission of our Principal, we have now a Notice Board, very near the Reading Room, meant for the Wall Paper.

We have been getting fairly good number of contributions, which include light and serious reading matter, paintings, sketches of personalities right from the mystics' world to the film world, cartoons and so on. One of the interesting contributions has been the 'Gossip' 25 in number, by Mr. Vasant Dave of T.L. (I lect.) Class. The theme had been some interesting event in the College and the writer's involvement in it, narrated in a very humorous and lucid style.

Students seem to be enthusiastic about the Wall Paper as one can see from the growing response from them, inspite of their heavy assignments.

Miss L. J. Thailamani

In Charge of Wall Paper

SARDAR PATEL COLLEGE OF ENGINEERING

LIST OF STUDENTS PASSED IN MAY 1972

B.E. (Civil)—First Class

1. Shri Ghugre V. H.
2. Shri Iyer S. R.
3. Shri Kalbag U. D.
4. Shri Badkar U. J.
5. Shri Borkar S. D.
6. Shri Churi V. N.
7. Shri Bhandari A. Z.
8. Shri Dave D. B.
9. Shri Gandhi M. P.
10. Shri Kanbarkar R. B.
11. Shri Khambhadiya H. M.
12. Shri Parmar J. M.
13. Shri Parekh D. M.
14. Shri Parikh A. K.
15. Shri Parpia Z. H. S. M.
16. Shri Shah D. M.
17. Shri Shah J. M.
18. Shri Thaker C. J.
19. Shri Khara B. H.
20. Shri Nadkarni V. R.
21. Shri Sonavane A. M.

(Civil) Second Class

1. Shri Deodhare J. D.
2. Shri Gaonkar K. V.
3. Shri Gupte M. R.
4. Shri Khamkar S. N.
5. Shri Kulkarni V. V.
6. Shri Mishra S. R.
7. Shri Rege S. M.
8. Shri Desai A. C.
9. Shri Desai Y. P.
10. Shri Doctor J. K.
11. Shri Fafadia B. K.
12. Shri Khan S. A.
13. Shri Patel R. T.
14. Shri Sohoni A. V.
15. Shri Vora R. B.
16. Shri Annegiri P. R.
17. Shri Doshi A. H.
18. Shri Khedekar D. I.
19. Shri Lea M. H.

20. Shri Mehta B. J.
21. Shri Mistry N. P.
22. Shri Pawse S. P.
23. Shri Shah H. V.
24. Shri Solanki D. J.

B.E. (Civil) Pass Class

1. Shri Paranjpe U. M.

B.E. (Mech.) First Class

1. Shri Date A. A.
2. Shri Joshi B. K.
3. Shri Medak P. B.
4. Shri Morparia G. D.
5. Shri Sinkar P. G.
6. Shri Vishvekar A. M.
7. Shri Zalavadia V. S.
8. Shri Bhansali H. R.
9. Shri Bharucha H. B.
10. Shri Bhatia K. D.
11. Shri Chandarana V. M.
12. Shri Chansarkar V. V.
13. Shri Dattani R. H.
14. Shri Desai H. M.
15. Shri Desai V. N.
16. Shri Gala S. K.
17. Shri Gogate S. V.
18. Shri Jain A. M.
19. Shri Jain S. G.
20. Shri Joshi S. M.
21. Shri Kapadia K. M.
22. Shri Karania G. G.
23. Shri Korgaonkar R. P.
24. Shri Lewis Urban Philip Neri Ignatius
25. Shri Lulbhavja B. V.
26. Shri Mali Balasaheb S.
27. Shri Mhatre A. R.
28. Shri Minani Vinod
29. Shri Mirajkar Kalidas V.
30. Shri Pundle H. S.
31. Shri Salunke P. A.
32. Shri Shah Bharatkumar C.

33. Shri Shah Kamlesh R.
34. Shri Shah Vinodray K.
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43. Shri Modi R. J.
44. Shri Motiwala J. I.
45. Shri Nair V. N.
46. Shri Shanker Narayan R.
47. Shri Talib S. A.
48. Shri Vora S. T.
49. Shri Warriar S. K.

B.E. (Mech.) Second Class

1. Shri Mulay V. K.
2. Shri Ashar D. B.
3. Shri Desai A. S.
4. Shri Ganeriwala S. N.
5. Shri Goradia H. B.
6. Shri Mandavia V. S.
7. Shri Patel K. J.
8. Shri Popat H. K.
9. Shri Rao V. A.
10. Shri Surve P. P.
11. Shri Taswala V. S.
12. Shri Vasa M. J.
13. Shri Jariwala Y. N.
14. Shri Nagle P. K.
15. Shri Sethi S. S.

B.E. (Elect.) First Class

1. Shri Mehta G. N.
2. Shri Mehta K. D.
3. Shri Bhawe A. S.
4. Shri Daruwala H. P.
5. Shri Kane A. V.
6. Shri Karmarkar A. K.
7. Shri Khushlani N. R.
8. Shri Vishwanathan K. S.
9. Shri Kulkarni A. B.
10. Shri Limaye S. M.
11. Shri Maheshwari I. K.

12. Shri Mastakar P. D.
13. Shri Mehta B. H.
14. Shri Mudholkar G. C.
15. Shri Naik R. I.
16. Shri Punjabi K. P.
17. Shri Rege S. B.
18. Shri Santoshkar A. J.
19. Shri Shah M. S.
20. Shri Shah P. H.
21. Shri Shah S. P.
22. Shri Sheth P. I.
23. Shri Tamboli V. B.

B.E. (Elect.) Second Class

1. Shri Gupte S. B.
2. Shri Mehta V. C.
3. Shri Modi A. N.
4. Shri Parelkar M. G.
5. Shri Akerkar R. M.
6. Shri Artist S. K.
7. Shri Bavisi A. L.
8. Shri Bhide A. S.
9. Shri Chhapra M. J.
10. Shri Gandhi A. A.
11. Shri Hurdikar D. P.
12. Shri Jog A. V.
13. Shri Karkare A. A.
14. Shri Kaul R. G.
15. Shri Kharkar S. V.
16. Shri Limaye S. D.
17. Shri Londhe A. K.
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23. Shri Parekh P. G.
24. Shri Patel D. M.
25. Shri Patel R. S.
26. Shri Patil B. G.
27. Shri Rajani J. A.
28. Shri Rajda D. P.
29. Raje P. P.
30. Shri Rathun P. R.
31. Shri Rana H. C.
32. Shri Rane S. S.
33. Shri Redkar V. B.

34. Shri Sampat P. J.
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36. Shri Supatwala J. A.
37. Shri Sawant H. M.
38. Shri Shah G. P.
39. Shri Shah U. R.
40. Shri Shah V. U.

41. Shri Shingrani V. J.
42. Shri Suchde A. P.
43. Shri Thakurdesai V. G.
44. Shri Vasani B. C.
45. Shri Vijaykar A. A.
46. Shri Zaveri Y. N.



Sardar Patel College of Engineering

List of students passed, October 1972

E. (Civil) Pass Class

1. Shri Doshi B. D.
2. Shri Kothuri K. S.

3. Shri Waghela H. P.

E. (Mech.) First Class

1. Shri Shah K. C.
2. Shri Desai D. T.
3. Shri Nadkarni S. J.
4. Shri Sanghavi N. A.

B.E. (Elect.) First Class

1. Shri Chawla L. M.
2. Shri Chheda L. M.
3. Shri Jariwala H. J.
4. Shri Narsule A. V.
5. Shri Patel Y. B.
6. Shri Wadiwala A. R.

E. (Mech.) Second Class

1. Shri Acharya U. J.
2. Shri R. Sundar Raman

B.E. (Elect.) Pass Class

1. Shri Aga K. K.



LIST OF STAFF MEMBERS SARDAR PATEL COLLEGE OF ENGINEERING BOMBAY-400058.

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Vice-Principal : Dr. J. G. SHAH

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Shri A.S. Parchure, B.L. (MECH.)
Shri P. V. Naru, B.L. (MECH.)

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Shri B. H. Engineer.

Asstt. Foreman

Shri F. M. Rathod.

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Shri Dalsingar Ramshiy.
Shri Mohammed Shaffi.
Shri M. Ansari
Shri H. S. Jagatap.
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Shri Bento Lopez.

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Shri R. P. Joshi B.E., M.E. (CIVIL.)

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Shri S. W. Mhatre, D.C.E.
Shri O.M. Lemos, B.E.

Senior Laboratory Assistant

Shri H. G. Pandiya.

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Professor:

Prof. M. M. Ranade, M.Sc. (APP. MATH.),
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Lecturers:

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Shri E. M. Pereira, M. Sc. (PURE), M.Sc.
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Head of the Department:

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Prof. V.R. Doiphode, M.Sc.

Lecturer:

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Shri. C.D. Agate, M.Sc.

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Shri. R.G. Bhatt, M.Sc.

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Lecturer.

Dr. (Miss) C. D. Mehta, M. com. ph. D.

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Shri B. M. Gandhi.

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June 1973

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Signature of Publisher

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College of Engineering,
Andheri, Bombay-400 058
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June 1973

S. S. DIGHE,
Signature of Publisher

The opinions expressed in this magazine 'Sarjanika' by individual Authors, Writers and Poets are their personal opinions, and not the opinions of the Editorial Board, nor the Policy of Sardar Patel College of Engineering, Bombay 58.

THE BHAVAN'S ANTHEM

जय जय विद्या भवन भारती
जय जय विद्या भवन हमारा ।

ज्ञान कर्म की ज्योति जगता
अनन्य विद्या सरवता
यहाँ ज्ञान कल्याण मुखा की
वहे प्रेम रत्न धारा ।

गुणगीरव संस्कृत भाषा का
देश-विदेशों से फैलाता
सत्य शिवम् सुन्दर का संगम
भारत राज हुम्बरा ।

भारत संस्कृति कला निकेतन
विक्रान्त साहित्य गगन
मंत्र विज्ञान-कला-कीर्ति का
पावन सौंदर्य प्यारा ।

प्रश्न अविन सत्य कर्म कराता
मानव की संपन्न बनाता
महा एकता-प्रेम-भक्ति पर
तन-मन-धन सब बारा ।

