

Nutan Marathi Vidyalaya School Building.

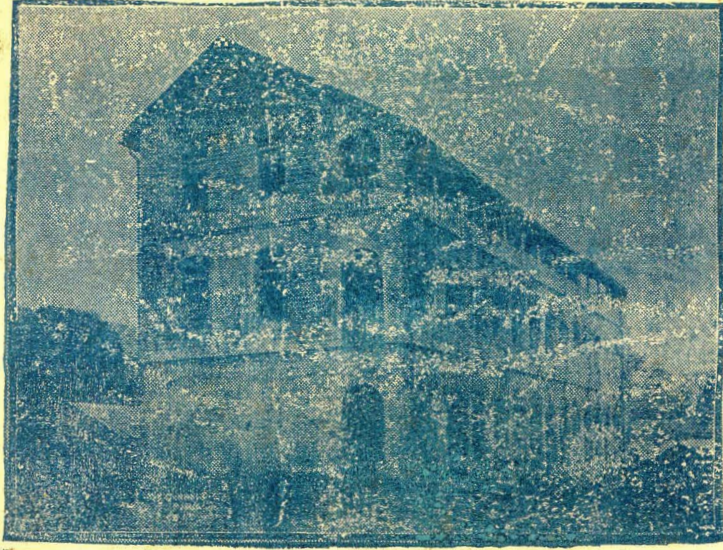
‘निर्वाहः प्रतिपन्नवस्तुषु’—भर्तृहरि.

THE
SHIKSHANA PRASARAK MANDALI'S
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NEW POONA COLLEGE BUILDINGS, SOUTHERN BLOCK.

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Let all the ends thou aim'st at be thy country's,
Thy God's, and truth's.

—*Shakespeare.*

Vol. VIII.]

August 1923.

[No. 1.

Editorial Notes.

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The College opened as usual for the first term on the twentieth of June. Nothing noteworthy has transpired since in the College republic except the rather languid affair of Gymkhana elections. There has been a marked diminuendo in the students' enthusiasm to compete for the various posts, two or three of which were filled this year by candidates who were returned unopposed. The senior students most scholastically abstained from taking the least part in the elections. We should like to remind them that in this strenuous world the physical basis of education counts even more valuable than the intellectual one.

* * *

We congratulate Principal Shah upon his being nominated a Fellow of the Bombay University.

* * *

The University results of various examinations have been rather disappointing this year; for our College there have been none who have stood in the first class. We do not feel despondent however but rather hope for the best next year.

* * *

Messrs. Wankar and Kanat have been appointed fellows of our College for the academical year 1923-24.

o o o o

The Bombay Legislative Council at its last session in July passed a resolution recommending to Government that the educational grants to schools and colleges should be restored to their original level. The resolution was rendered necessary owing to the recent Government order reducing such grants due to financial stringency. We thank the Legislative Council for thus asserting itself, as the policy of Government in cutting

down the educational grants would have undoubtedly led to the closing of a number of private institutions and to the infliction of great hardship on others. In fact, retrenchment in educational expenditure is an essentially unsound policy and the Minister of Education ought to have opposed it tooth and nail from the very beginning. We understand that the Minister has now declared that he would give effect to the resolution passed by the council. So far so good. But what about the excuse of financial stringency that led to the first Government order re the reducing of the grants? If money can be found now, it could have been available even before. Are we to take it that the Hon'ble the Minister did not sufficiently press his claims before?

* * *

We are glad to find that after all Government have made up their mind to start the Mahomaden College after considering the matter for more than ten years. We know that Government mills grind slowly but we must confess that we had no idea that they grind so slowly. It will be remembered that Sir Muhamad Yusaf gave his munificent gift of 7 lacs of Rupees when Lord Sydenham was the Governor; Lord Willingdon, his successor, apparently could do nothing in the matter, and it is now almost at the expiry of his term of office, that H. E. Sir George Lloyd has succeeded in coming to a definite conclusion in the matter. Better late than never!

* * *

We confess we are too dense to understand that educational progress can be achieved by closing institutions of a long standing. It seems to be at any rate quite a novel method of achieving the desired object. Last year we witnessed the abolition of the Poona High School. This year we understand some classes in the Training Colleges are going to share the same fate. And the pity of it is, that there does not seem to be any way of arresting this progress of education in the direction of the tail. One occasionally hears of the contemplated abolition of the Deccan College. If the rumour has some truth in it, this would be vandalism pure and simple. To us, the very idea seems to be blasphemous in the extreme. We hope that the rumour has no foundation whatsoever.

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सहकारी ग्रंथशाळा.

२१, बुधवार, पुणे सि.टी.



बराळ नांवाचें पुस्तकाचें दुकान गेल्या मार्चपासून शिक्षणप्रसाराक मंडळाचें एक अंग म्हणून उघडण्यांत आलें आहे. या संस्थेचा मुख्य उद्देश विद्यार्थ्यांना पुस्तके व अन्य शिक्षणोपयोगी सामान शक्य तितक्या स्वस्त दरानें देणें हा होय. गेल्या सहा महिन्यांच्या संस्थेच्या कामांवद्दल संस्थेचा उद्देश कितपत सफल झाला आहे हें विद्यार्थ्यांनी स्वतःच ठराबिणें योग्य आहे. संस्थेचा सर्व कारभार शिक्षणप्रसाराक मंडळांतलें जबाबदार माणसेंच पहात असतात.

संस्थेस भांडवल म्हणून एक रुमायाचा एक असे एक हजार भाग काढण्यांत आले आहेत. त्यापैकी अद्यापपर्यंत फक्त सुनारें अडीचशेंच भाग सपले आहेत. आतांपर्यंतच्या अनुभवावरून शेकडा १२ $\frac{1}{2}$ टक्के व्याज देणें संस्थेस सहज परवडेंच असें वाटतें. या व्याजाशिवाय दुसरी एक गोष्ट होतकळ भागीदारांनी लक्षांत आणावयास पाहिजे कीं संस्थेनें आतांपर्यंत सर्व पुस्तके बाजारपेक्षा बरीच स्वस्त विकली आहेत.

संस्थेचा पुढील उद्देश शिक्षणविषयक पुस्तकप्रकाशन हा होय. संस्था सध्या प्रो. हर्डिकर यांनी लिहिलेलें भूमितिप्रवेश नांवाचें पुस्तक छापवांत आहे. पुढील वर्षांत कर्मांत कमी चार पांच पुस्तके छापविण्याचा विचार आहे. संस्थेस शिक्षणप्रसाराक मंडळ सर्व दृष्टींनी मदत करीत आहे; तरी पण भांडवलाच्या दृष्टीनें संस्था स्वतःच्या पायावर जितक्या लेवकर उभी राहील तितकें चांगलें. संस्थेंत शिक्षण घेणाऱ्या विद्यार्थ्यांनी, त्यांच्या पालकांनी व संस्थेच्या दुसऱ्या हितचिंतकांनी मनांत आणल्यास हें काम अतिच सोपें आहे. चालकाना उमेद आहे कीं जरूर तें भांडवल थोडकेच दिवसांत बरील त्रिवर्गाकडून मिळेल व संस्थेचें काम पूर्ण जोरांत चालेल.

चालकांनी आपलें ध्येय म्याकमिलन कंपनी हें ठेवलें आहे

संस्थेचे भाग संस्थेच्या कचेरींत कोणतेही दिवशीं मिळू शकतील.

A STUDY
OF
The influence on its literature of great periods
in the history of a country. *

There is a tide in the affairs of nations as in the affairs of men. At a full flow of this tide, nations, like men, are seen at their best and are found capable of accomplishing far more than what frail humanity can hope to achieve in more normal conditions. Such a full flow of tide enabled the Elizabethan England to deal such a mighty blow to Spain, as not only made her reel under the blow but completely put an end to the naval supremacy of Spain, thus paving the way to Britain's mastery over the seas. Such a full flow of tide sent the Revolutionary armies of France, to march unimpeded across the continent of Europe, with laurel victory sitting on their sword, and smooth success being strewn before their feet. Such a full flow of tide, in our own times, caused the sudden awakening of Japan, and made her powerful enough to arrest the progress of the Russian steam-roller, and secured, once for all, for Japan the enviable position of being the 'Britain of the East.' Similarly, in the affairs of nations, are also to be found ebbs of these tides when all their activities are either at a dead halt, or are rendered impotent by stronger adverse circumstances. There are ups and downs in a nation's life as in the life of men.

It is our business here to examine how and in what manner the literature of a country is influenced by such great historical periods of that country. Carlyle and his devotees would strongly object to the statement that a genius is a creature of his time, and they are, no doubt, partially right. Great poets and authors are nothing if they are not original, but this does not mean that they are proof against the thoughts and ideas which prevail in their own times, and these thoughts and ideas are largely dependent upon the historical conditions of the period. Poets and

* Written in 1912. Owing to various reasons, the essay could not have the benefit of a revision by the writer. We have decided to print it as it is, as we think that the essay, even in its unrevised form, would be of some use to the student.—Ed.

authors, of all men, are generally acknowledged to be most sensitive and capable of receiving impressions. It would be surprising therefore, if they can pursue their work without being influenced by what is passing around them. 'Every great poet is a teacher' says Wordsworth. But if the great poet stands unmoved by the events of his times, how will he be able to provide for his time the 'healing power' if he does not make a correct diagnosis of the disease ?

It is not at all an accident that the period, from 1640 to 1660 A. D., in English history, that is, when the dogs of civil war were let loose over the land, and when Cromwell and his Puritans were carrying fire and sword all over the country,—this period of twenty years is almost barren as regards literature. How can we account for such a deplorable state of literature at this period ? The explanation is quite simple. The civil wars and the insecurity that was the out-come of the despotic rule of Cromwell destroyed all literature. Literature is produced by enthusiasm and inspiration, and its birthplace is the soul of man ; and what soul would like to sing in times of turmoil and trouble ? Dr. Scott has well remarked 'It may be in the fervour of youth before the world forces are fully felt, or it may be in the calm of retirement such as Wordsworth's amongst his hills, but rarely is it in the heat and conflict of life or under the sway of fear or doubt or any form of wordliness that the soul can utter music.' (Wilson College lectures. 'The idea and aim of poetry' by Prof. Scott. P. 155). It is impossible to think of literature when life is in danger, and there is no knowing when you will be killed. Let us imagine Shakespeare to be living at the time of the 'Reign of Terror' during the French Revolution ; can we possibly think that he would have given to the world his dramas in spite of the hellish terror menacing him in the face ? We can not bring ourselves to believe that Shakespeare would have been allowed to pursue his work unmolested. On the contrary we think that Shakespeare would have most probably shared the fate of the French author and poet, André Chénier—the fate of being guillotined by his appreciative country-men !!

Just as the times can influence the authors and writers, so also the authors in their turn can influence the period in which they live. The question viz. how far the authors influence the

period in which they live is outside the scope of our subject. We are concerned only with the question, how the times influence literature in general of a country. When literature is in infancy, the language is not fully formed and when civilization has just begun, the external forces play a very important part in moulding literature, and their influence is visible in a very marked manner, and can be pointed out with a good deal of precision; but when civilization has advanced, and the forces operating upon thought increase, it becomes a difficult task to ascertain how far the different forces are instrumental in bringing about a change in literature, though, here also, some general conclusions—none the less precise—can be drawn after a careful study of the period in question.

We shall select for a detailed study the great periods in English history, and examine their influence upon English literature. After we have dealt with English historical periods, we shall very briefly discuss in an appendix, the influence exerted by the two great events, the French Revolution and the Renaissance, upon the literatures of France and Germany. These two great events touched the three countries alike, and hence a comparative study of the influence, exerted by them upon the literatures of the three countries, is likely to throw much light upon certain points, and would prove of much use for our present purpose.

Before we begin to examine the great periods in English history, it would be desirable to consider the word 'literature,' and determine what it exactly includes. To discuss the question is quite beyond our subject. We shall, therefore, content ourselves with dwelling upon it in a very brief manner, and try to point out the chief characteristics of literature. Mr. (now Lord) Morley in his 'Studies in literature' and Mr. Gosse in his 'Eighteenth century literature' have discussed the question in a very able manner, though we cannot obtain from them any practical criterion for determining whether a certain work is literature or not. Mr. Gosse, for instance, tells us that anything written by such masters as Burke and Swift, should be styled literature, no matter even if it be strictly technical. Matthew Arnold's definition of literature as 'a criticism of life' is very vague. 'The greatness of a poet lies in his powerful and beauti-

ful application of ideas to life,—to the question : How to live.' (Preface to 'Wordsworth selections' by Arnold) remarks Arnold. But this does not help us much and, in fact, it would be very hard to define literature, though not so hard to declare whether a certain work is literature or not. Strictly scientific or technical subjects cannot be called literature, though they might lay claim to that position in so far as their style is considered. Whatever is beautiful in thought or expression, and of a more or less permanent interest for mankind, may come under the fold of literature.

We shall divide English history into the following great periods and discuss them, one by one, as regards their influence on literature :—

- | | |
|---|-----------------------|
| (1) Introduction of Christianity and after | 600 A. D.--1000 A. D. |
| (2) Norman Conquest and after (including Chaucer) | 1066-1400 A. D. |
| (3) Wars of the Roses, Renaissance and the invention of Printing and the Reformation. | 1400-1550 A. D. |
| (4) Elizabethan Period | 1580-1610 A. D. |
| (5) Civil War and Commonwealth | 1640-1660 A. D. |
| (6) Restoration | 1660-1688 A. D. |
| (7) Reign of Queen Anne (1702-1714 A. D.) and after | 1700-1720 A. D. |
| | and |
| | 1750-1760 A. D. |
| (8) French Revolution | 1790-1820 A. D. |
| (9) Victorian Era | 1840-1900 A. D. |

English literature, before the Age of Chaucer is written either in Anglo-Saxon or in one of the old English dialects, and is very difficult to understand. But, it is necessary to review the first two periods in as much as they influenced literature while it was in infancy, and when the language was to be fully formed.

(1) INTRODUCTION OF CHRISTIANITY AND
AFTER 600-1000 A. D.

Before the introduction of Christianity, the only literature prevalent was the songs of the minstrels, describing the heroic deeds of the old heathen warriors and generally sung at the courts of Kings. The patrons of the bards, had also their own deeds celebrated in song by their bards. Similar songs are frequent in the oldest literature of the world—the Rigveda. The conversion of the people to Christianity, lessened the interest in these war-songs, as they celebrated the heathens, who were now hated by the devout Christians. Yet, it was not to be expected that these war-songs would be completely ignored by the people, and as late as the 14th century, we find Chaucer, knowing the 'Song of Wede, which points out that the heroic deeds of the old Germanic heroes continued to be recited in Minstrel verse.

In the seventh century, Latin schools set up by Italian monks, were instituted in England, and the Roman missionaries also brought with them a good deal of Latin literature. Latin began to be learnt, and this had an enormous effect upon the old English tongue. New words were freely introduced and words were coined in imitation of the Latin language. The literature produced during this period is composed of translations of Latin works. The chief figure of this period was the Venerable Bede. He translated into English prose St. John's Gospel and may be said to be the first English prose writer. The most famous of his works is his 'History of the English Church' written in Latin. The literary movement in the North and Midlands, commenced by Bede, seemed to be quite successfully progressing, when it was greatly hampered by the invasion of the Danes, and the ruin of Northumbria. Towards the end of the 8th century, the Danes began to harass the coasts, and England had not been free from their encroachments for nearly hundred years, until Alfred's treaty with Guthrum in 879. In 1016, they conquered the whole of England and in 1066 came the Norman Conquest. We must not, however, pass unnoticed the great literary revival during the reign of Alfred the Great. The cessation of wars and the establishment of peace for a time at least, enabled Alfred to pay attention to literature, and he

caused many good Latin works to be translated into the vernacular, and an effective beginning in the direction of prose was made.

(2) NORMAN CONQUEST AND AFTER 1066-1400 A.D.

With the Norman Conquest commences quite a new epoch in English speech, character and thought. Scarcely has any other event exercised such a strong influence on England. The Normans considered the English to be mere barbarians and would not condescend to employ their language. Latin and Norman-French were the Court languages, and consequently authors who wrote at the courts of Kings, would not use English, as it was discarded by the rulers. The development of the vernacular literature was an impossibility in such a state of things. The prose work was the first to disappear, and poetry soon followed as it was quite different from the Romance Poetry introduced by the Normans. The chief features of the Teutonic poetry were alliteration and accent, while those of the Romance poetry, were metre and rhyme; and when the writers imitating the Romance manner, began to use rhymes, alliteration began to disappear. From the times of Langland and Chaucer, the Romance methods were completely victorious, and the Teutonic system disappeared for ever.

As regards the effect upon the old English language, it is necessary to remark, that it is not to be supposed that the Conquest gave England an entirely new language. The nature of the old language, as a matter of fact, did not change. It was, of course, forced to accept many French words, and large changes were made in spelling and pronunciation; but all the same it continued to preserve its own nature, so much so that the English language of to-day is nearer to the language before the Conquest than it is to French.

The English monasteries were crowded with foreigners who taught French in the monastic schools, and who, with their cultivation of Rome, introduced the Romantic element and 'matter of Rome' in English thought. The Teutonic races had been deficient in imagination and lacking in taste up till now; but the Normans brought about a revolution in thought, by introducing in England new ideals, and by directing England's attention to the extraordinary production of the French poetry in the 12th

century. The Norman Conquest is important because it changed, so to speak, the 'angle of vision' of the nation. All the chivalrous ideals may be said to have begun from the 12th century with the Crusades. The Normans for the first time gave England a real place among the great nations of Europe. They were fond of pilgrimages and travel, they were in relation with different people, and all this contributed to give a healthy tone to the literature of the period.

The great writers in this period were, naturally enough, Romance writers. Most of them wrote their works in Latin or French, though some good books were written at the same time, in English. The most important of these Romance writers are Malmesbury, Geoffrey and Map. Though they wrote their works in Latin or French, their influence in widening and cultivating the thought of the people was indeed considerable. Malmesbury wrote in Latin the History of England up to the time of Henry I, and also a history of his own times, which he called 'Historia Novella'. Geoffrey constructed an imaginary history of King Arthur, which is still famous as one of the best romances. It was written in Latin, and afterwards translated into French. Map throughout his life, fought against the corruption that prevailed among the clergy. He gave a spiritual turn to the Romances of passion and courage that were then current and wrote 'the Romance of the Holy Grail' and 'Lancelot of the Lake' and 'Morte Artus'.

The literary movement that had been going on for so many years at last culminated in the performance of Chaucer. The Age of Chaucer is remarkable in two ways. Firstly, the literature produced is considerable and even brilliant, and secondly, it gave promise of a still more brilliant production in future. We must notice here the growing importance of the English language due mostly to the 'spirit of the age.' By the time of Chaucer, French had been ultimately defeated by English, as may be gathered from what Chaucer says in the Prologue to the Canterbury Tales, of the Nounes.

'And Frenssh she spak ful faire and fetisly,
 After the scale of Stratford-atte-Bowe,
 For Frenssh of Parys was to hire unknowe,
 [lines 124-126]

French literature, however, retained its influence and authority in England, and English language came to be adapted to the French manner of thought and expression. Chaucer has sometimes been represented as a French poet writing in English. This is certainly an exaggeration, but there is much truth in the statement. His early training was derived certainly from French authors, and he also was much indebted to Italian Literature, especially Boccaccio. The great fault of Chaucer, and of all the literature of the age, was the fundamental lack of imaginative powers and poetic ability. The writings of the authors generally are not a faithful transcript of what the authors actually feel about what they have seen, heard or read, but they content themselves with a skilful adaptation or manipulation of something which they had read in the writings of other authors, and this policy of imitation and manipulation cannot possibly produce literature of a very high order. Chaucer, certainly a man of genius, and Gower, an ordinary writer are found to pursue their work with common objects. What should be the reason for this? Why did not Chaucer take a different aim if he had better abilities than Gower? Prof. Ker remarks as follows on this point, 'The English poetry of Gower is enough to prove that what Chaucer did was not at all due to Chaucer's original genius, but was partly the product of the age and the general circumstances and tendencies of literature and education..... (They both are) equally dependent on French authority and equally satisfied with the French perfection' (Mediaeval literature, Home University Library, P. 222.). But, we must not underrate Chaucer's performance. As a painter of character-sketches. Chaucer is unrivalled. His characters are so life-like, that if you prick them, they will bleed. Dryden, in his Preface to the Fables, thus remarks about the Canterbury pilgrims, 'I see.....all the pilgrims in the Canterbury Tales, their Humours, their Features and the very Dress, as distinctly as if I had supp'd with them at the Tabard in Southwork,' and an ability of this kind cannot be found in one who is not a genius. It was a fault of his times that Chaucer could not be more original, and free himself from the fetters of French and Italian thought, though he tried to cloth it with English nationality and character as far as possible.

(3) THE WARS OF THE ROSES, THE RENAISSANCE,
INVENTION OF PRINTING AND REFORMATION.

1400-1550 A. D.

The excellent work done by Chaucer at the end of the 14th century, raised great hopes of England's producing a first rate literature; but the political and social conditions that followed soon after Chaucer's death, completely rendered these hopes futile. During the whole of the 15th century, England was fighting with others or herself. She had been embroiled in a war, first with France, and then in the bloody civil war known as the Wars of the Roses. The Wars of the Roses, a series of fierce struggles between the Lancastrians and the Yorkists, two great branches of the Plantagenet family, lasted from 1450 to 1485, and destroyed the nobility of England. Peace was ultimately established with the coming of the Tudors on the throne. Such wars naturally engross the minds of the strongest, and literature comes to be discredited in such tumultuous times. This explains the barrenness of the period as regards literature. In addition to these wars, England was troubled at this period by social disputes, which had arisen on account of the old social system being superseded by a new one, as the former had fallen in ruins. The Lollards were preaching their doctrines, and even encouraged rioting and disorder. These conditions were unfavourable to literature in a marked degree and poetry was almost extinct. Songs and ballads were produced to satisfy the bulk of the people and higher poetry was altogether neglected. Chaucer indeed continued to attract a good deal of attention, but his followers, Lydgate, Occleve, were quite third-rate men. The only prose work worth mentioning is Sir Thomas Malory's 'La Morte d' Arthur', written with the object, as declared by the author himself, 'to beware that we fall not to vice nor sin, but follow virtue.' Commenting upon the disastrous effects of the Civil War i. e. 'the Wars of the Roses' on literature, a writer* says 'It is clear that if Sir Thomas Malory had perished in one of the many fights through which he lived, his chivalric and literary impulses would have gone for nothing and we should

* Encyclopaedia Britannica.

lack the 'Morte D' Arthur.' Mars and the Muses cannot live together.

RENAISSANCE :--The year 1453 A. D. is a very important date in the history of Europe. Constantinople had fallen into the hands of the Turks, and the scholars of that city had to seek their abode in other countries, and they were scattered all over Europe. Translations of the Greek and Latin Classics were given to the nations of Europe, by these scholars, and an increased attention began to be paid to the Classics. In England, a revived interest in Italian affairs arose. Before the 16th century, no one except Chaucer, knew any thing about Italian literature. But now many Englishmen went over to Italy to study the Classical works, and on their return to England, translated these into English. Italians also visited England and this free intercourse paved the way for the great intellectual awakening of the Elizabethan Age.

R. D. K.

(*To be continued*).

F. Y. A. Practical Physics—Some Observations.

The F. Y. A. Physics is a puzzle to educationists who are ignorant of the history of its introduction. It is not intended to give a general grounding in science. This is already done at the school and many of the experiments done by F. Y. A. students are identical with those done by them at the school. They are not meant to be a preparation for the I. Sc. course. The Physics-Professor in the I. Sc. class proceeds on the assumption that his pupils are freshmen and innocent of any science.

The F. Y. A. Physics is thus not intended to give any instruction in science; it is believed by some to train the students in the use of their eyes, their hands and their brains. They are supposed to develop precision in observation, dexterity in manipulations and accuracy in reasoning, and in achieving this, the work in the laboratory is considered more important than the lectures in the class room. It is proposed here to examine how far the course of practical work and the way the experiments are performed are likely to fulfil this object.

Exp. 1—Measurement of lengths and areas with a metric scale; a nice exercise for children in a primary school, quite silly for boys of eighteen who can solve naughty problems in mensuration and who have mastered four books of Geometry. It is like placing a pop-gun in the hands of a trained soldier.

Exp. 2—Construction and use of a Vernier. The use is all right but why should the students be made to construct a Vernier? What they construct is not a Vernier but a model of a Vernier which does not impress on their minds the lesson that a Vernier is an instrument for measuring lengths accurately to a minute fraction of an inch. If the time spent in preparing a Vernier be used for taking Vernier readings on a barometer, a sextant, a travelling microscope, a cathetometer or a spectroscope, the importance of the device will be better impressed on their minds.

Exp. 3—Measurement of area of sheets of card-board by weighing. The principle is important but the F. Y. A. boys will readily concede it without actually performing the experiment.

The experiment involves no interesting manipulations and is simply an exercise in weighing.

Exp. 4—Determination of the diameter of wires by linear measurement and weight. See remarks on Exp. 3.

Exp. 5—Measurement of the volume by regular solids by using calipers and determination of their density of weighing. See remarks on Exp. 1.

Exp. 6—Determination of the volume and density of solids both heavier and lighter than water, by measuring the displacement of water when they are immersed in a graduated vessel and weighing the solids in air. As silly as Exp. 1 or 5.

Exp. 7—Determination of the densities of liquids by means of a flask and a balance. Not a good experiment as is done at present for finding the density of a pure liquid only. May prove instructive if used for calculating the proportion of the adulterant by noting the change in density.

Exp. 8—Verification of the laws of equilibrium of three forces acting on a body. The principle involved is not quite axiomatic, but most students accept it without a question because when first explained they feel they understand; but they don't. They have thus no notion what they have to note in the experiment. There may be a better appreciation if the experiment is repeated half a dozen times with different weights. This is however not done.

Exp. 9—Verification of the law of moments. Will prove useful if all the three types of levers can be tried and the mechanical advantage noted in each case. As done at present, it does not illustrate a single thing which cannot be grasped in the class-demonstration.

Exp. 10—Experimental determination of the centre of gravity of plates...see remarks on Exp. 3.

Exp. 11—Measurement of the efficiency of any system of pulleys...see remarks on Exp. 9.

Exp. 12—Experimental determination of the law of equilibrium on an inclined plane and of the efficiency of the plane as a machine—A very good experiment if performed on a costly frictionless plane. It is usually performed however on a crude

apparatus and it is criminal to force the boys to accept after the experiment the law $\frac{P}{W} = \sin a$. The principles in mechanics are generally better mastered by solving numerous examples than by performing an experiment with a crude apparatus.

Exp. 13—Determination of the co-efficient of statical friction. A very good and instructive experiment especially if an attempt is made to verify the laws of friction.

Exp. 14—Determination of the co-efficient of dynamical friction. I have not seen a simple apparatus with which this can be done. As far as I know the experiment is dropped in most colleges.

Exp. 15—Measurement of the acceleration produced by the action of constant force upon a body and of the kinetic energy after the body has moved through a certain distance. A good experiment if performed with care. Owing to experimental difficulties however it is often not done.

Exp. 16. Laws of a pendulum. A good experiment usually well-done and well understood. Many boys however do not understand why the time for 50 or 100 swings is taken or again why three or four observations are recorded and their mean is accepted.

Exp. 17—Determination of the upward pressure of water or any other liquid or a solid immersed in it. The principle is easily grasped in one demonstration and to ask the boys to repeat it is to waste their time.

Exps. 18, 19, 20, 21.—Determination of densities of solids heavier and lighter than water by means of a Hydrostatic balance or a Nicholson's Hydrometer. Good experiments usually well performed. But very few boys understand the superiority of these methods over that in Exp. 6 and fewer still can explain why it is necessary to find densities with such accuracy. If alloys are given instead of pure metals and the composition is determined afterwards by calculation the experiments may prove more instructive.

Exp. 22—Comparison of densities of liquids by means of U-tubes. See remarks on Exp. 17.

Exp. 23—Verification of Boyle's law for pressures less than that of the atmosphere. An interesting experiment which the students like to do with their own hands. It is not clear however why only the pressures lower than the atmosphere are suggested.

Exp. 24—Construction of a water thermometer and its comparison with the mercury thermometer.....See remarks on Exp. 2

Exp. 25—Observation of the error in the fixed points of a thermometer. A good experiment if performed with a delicate thermometer showing tenths of a degree. Usually it is performed with a cheap thermometer and the exercise is transformed into one of verifying that ice melts at zero and water boils at 100°C and then it is childish.

Exps. 26 and 27.—Determination of the specific heat of a solid and the latent heat of fusion of ice. Good experiments generally well performed. They will be more instructive however if performed with better apparatus.

Exp. 28—Comparison of the conductivity of rods. As usually performed it is but a qualitative comparison and nothing is learnt in the laboratory which is not mastered in the lecture-hall. See remarks on Exp. 17 and 22.

Exps. 29-30-31-32. Verification of the laws of vibrating strings or tuning fork. Important experiments for a specialist. For one who does not take the Science course they are rather uninteresting. Moreover both the theory and the working of the experiments are hard and the explanation takes a substantial part of the time allotted for Physics. It is not possible under the present conditions to spare this time nor is it considered advisable to spare it for these hard experiments of little utility. They are either dropped or performed in a slipshod manner and even boys wishing to go up for I. Sc. do not learn much from them.

Exps. 33-34-35-36-37. Experiments illustrating the laws of reflection and refraction of light. A very interesting set and quite easy to perform in a tolerably dark room. This latter however cannot be provided when as many as 50 students have to work together. The results are then rough and the value of the experiment is diminished or we have to use some special device which makes the experiment difficult to grasp.

It will be seen from above that of the thirty-seven experiments set down about ten are silly, an equal number need not be done by the students individually, some 8 or 9 are for a specialist only, and a large number are done at the schools. After ten years' experience only a bold optimist can say that we have been able to make our student more accurate in manipulations or more precise in argument. The disappointment is keener still when we consider the expenses incurred by the colleges for obtaining this negative result. No one will deny the importance of individual practical work for students who want to be specialists. In the case of others a good demonstration is generally more instructive than a tedious quantitative experiment. There is much more science fit to be learned by a layman than what is included in these experiments and time has come when one of the following alternatives should be accepted.

1. Remove all practical work and teach science by demonstration experiments only.

OR

2. Make science an optional subject (say Sanscrit or Science) and make it stiff enough to serve as a preparation for the Science course.

It is not proposed here to argue in favour of any particular alternative. There is room for honest difference of opinion in this respect. It is high time however that we recognise the futility of hoping to develop accuracy and precision in the students by making them work out tedious quantitative experiments in the laboratory. Psychologists have long since recognised this as an exploded hypothesis.

M. R. P.

Browning and Tennyson.

BY

T. D. Waknis, B. A. (Hons.)

—o:0—

It is Mr. Stopford Brooke, who says, that Tennyson and Browning are the twin peaks in the sublime range of Victorian poetry. Now, at least, the judgment may well be accepted.

There was a time when each of Browning's poems was pronounced to be a piece of pure bewilderment. But that time is now happily past. And Browning has come to be appreciated as much as Tennyson. None-the-less, it is as instructive at present to look for those imperfections in Browning's poetry which impeded his popularity at first, as it is instructive to look for the excellences of his poetry which have latterly induced a reaction in his favour.

Looking historically at his poetry we soon see, that Browning was the owner of a very unpopular HARSH RHYTHM. style. His genius was, as he has himself assured us, essentially dramatic; even as Tennyson's was essentially narrative. Hence while in Tennyson we find a smooth and an agreeable flow of narrative, in Browning we have the jerks and spasms of spoken speech. Look for instance in what style, Jules takes his leave of Phene.

This — and what comes from selling these my costs
And books and medals.....let them go
Together, so the produce keeps you safe
Out of Natalia's clutches.

How wild, abrupt, harsh and strident these lines are! But compare with them the following from Tennyson's *Guinevere*, and notice how quiet-full and subdued they are and withal how musical!

And (Modred) crying with full voice
"Traitor thou art trapt at last" aroused
Lancelot, who rushing outward lion like
Leapt on him and hurled him headlong, and he fell
Stunned, and his creatures took and bore him off
and all was still.

Notice here the assonance in the second line, the inversion of accent in the fourth and the fifth lines, the alliteration in 'hurled him head-long' as also in 'lion-like leapt' on him, and above all notice how like Milton, Tennyson has varied the pause in these five lines. And this is by no means a favourable specimen of Tennyson's poetry. It is essentially typical. The fact is that Tennyson had made himself a complete master of every instrument in the poet's trade. And in addition he spent prodigious labour in perfecting and polishing his lines. Browning never so disciplined his style, and always grudged to take pains over his verses. The result has been that whereas Tennyson instantly leapt into public estimation, Browning had to wait for his acceptance by the public as a first rate poet till it was brought to see the rich contents of his poetry.

Another reason of Browning's relative unpopularity is that, as Bagehot points out, the grotesque and the GROTESQUENESS & abstruse exercise as much fascination over ABSTRUSENESS. Browning as the natural and the commonplace do over Tennyson. Tennyson has achieved his triumphs in what Lord Morley has called, the nobility of the commonplace. His illustrative similes for example are chosen from every-day natural phenomena. Browning on the contrary delights in decorating his verse with the grotesque and the abstruse. Thus, see, what queer creatures Browning has selected as the chosen exemplars of shrewd and foresighted prudence!

The bee in her comb
 The mouse at her dray
 The grub in her tomb
 While winter away.

They also, who exemplify improvidence are no less queer,
 But the firefly, the hedgeshrew and the lobworm I pray
 How fare they?

How abstruse or far from the commonplace again are the signs which Ottima and Sebald have to mark the time of their meeting. Ottima's sign was,

the sun

Influenced the sere side of you chestnut tree
 Nipt by the first frost
 and Sebald's was,

Till the red fire on its glazed windows spread
To a yellow haze.

Surely such grotesqueness and abstruseness are not calculated to insinuate their author into the public heart.

A third reason of Browning's failure as a poet and a dramatist was that his dramatic genius took delight in **PSYCHOANALYSIS**, in psychological analysis rather than in physical action. Browning tells in his *Sordella* that except the soul of man "little else is worth study". But this dictum can scarcely be accepted. We are disposed rather to agree with Pope who says that 'the proper study of mankind is man' and not soul. We have only to compare the stagnant scene of *Ottima and Sebald* with the great murder-scene in *Macbeth* to become aware of the cold failure of Browning's psychological study on the stage. The hushed whispers in monosyllables and the trepidations of the scared soul of *Macbeth* and the movings to and fro of the frightened pair—what a restlessness of spirit do these suggest and represent and how life-like the scene appears! On the other hand, look at *Sebald*. He wants to talk the murder out and talk it out again so that words may cease to be anything more than words. Somehow, however, we think that such cannot be a murderer's behaviour. By making his character-study psychological Browning has failed to invest his characters with flesh and blood. His stage is, as a sympathetic critic mildly puts it, a point in the spiritual universe where naked souls meet and wrestle. Possibly we gross human mortals have not yet exalted ourselves so much as to be able to appreciate this obscene combat of naked souls. Whatever it be, the psychological study of characters, robbed as it has the characters of human interest, has certainly entailed for Browning a dismal failure.

Browning still further destroys the dramatic interest of his characters by welcoming on the stage grotesque personalities. Just as he responds heartily to the grotesque in nature, so too he is attracted towards persons who have a bee in their bonnet. It transcends our understanding to know what interest Browning imagined public would take in persons such for instance as the chemist *Paracelsus* or the politician *Strafford* or

the non-descript Sordello or sculptor Jules? "We are nauseated" says one critic "to find such eccentric persons decomposing themselves into the cold eternity of print." It is for this reason that the Jules-Phene episode in *Pippa Passes* is absolutely uninteresting to us. Tennyson never undertakes to interest us in the concern of such characters and he gets the attention therefore which we deny to Browning.

Next, strange though it may appear it must be said that Browning's cosmopolitan sympathies cost HIS COSMOPOLITAN him a large measure of English applause. SYMPATHIES. Tennyson for all that a few poems of his might indicate to the contrary, was like Dickens emphatically an English man—all English to the core. Browning said that the word Italy might be found engraved in his heart. Consequently, though his patriotism was not a whit less than that of Tennyson he was not able to appeal to the English public with that degree of earnestness with which Tennyson could. Thus although Englishmen will not betray an utter indifference to an Italian patriot like Luigi, they will certainly not enthuse over him as they would enthuse over, for instance, say a Richard Grenville or over the charge of the Light Brigade or over the Relief of Lucknow. This is quite natural and it explains the reason why Tennyson was ever the darling poet of England while she was continuously discouraging his contemporary.

A sixth imperfection of Browning's poetry we shall now notice and turn next to his excellences. THE BROWNINGESE This imperfection Browning shares with Johnson. Goldsmith has said about the great Cham that he made little fishes talk like whales. Browning makes all his characters speak the same style of Browning. Thus the silk winder Pippa utters like Browning poetic rhapsodies over the sunrise and the fullblown martagon or the fool-hardy sunbeam caught in one splash of her ewer. And Bluphocks forgets that he is a vagabond Englishman and makes felicitous references to the Bible or Rabelais's novel, the History of Pantagruel or to the logical formulæ or to Greek myths etc. The pity of the whole thing is that factory-girls and truant gypsies are not so well up in literature as Browning would make them out to be. Tennyson never falls in such pitfalls.

the one and In Memoriam of the other. Both poems tackle the same subject viz. the immortality of soul. But whereas Tennyson simply believes in immortality Browning wins his way to the same belief by a close-footed logical ratiocination. His superiority as a thinker is again revealed in the fact that he forestalled the English nation by nearly a generation in psychological study. Men were driven later on to this minute analysis of mind when the progress of science brought fresher and newer beliefs in conflict with the old dogmas of orthodoxy. His superior thinking is still better displayed in the fact that "no poet ever laid down a more original basis whereon to build up a great poem than did Browning in Pippa Passes for instance or in the Ring and the Book." (Prof. Meiklejohn.) Tennyson never tried to forestall posterity. He marched in step with his generation; never thought out its problems in advance; but merely gave it its own verdicts clothed in melodious wording. He confined himself to the traditional schools of poetry and thus in all respects he gave the palm of superiority in intellect to Browning.

A third factor again in Browning's favour is his championship of unbounded energy and his optimism. Browning's philosophy of life is indeed all but identical with that of Stevenson. ENTHUSIASM AND OPTIMISM. "Nothing good is ever lost in this world" says Gottlieb in Pippa Passes and the words may almost be taken to be Browning's own. In his Abt Voglar Browning actually says "that there shall be never one good lost." "O world as God has made it, all is beauty" is his characteristic utterance. 'God's in his heaven' sings Pippa "And all's right with the world." All this complacent and joyful view of life is best summed up in the following words of Stevenson. "Childhood must pass away and then youth as surely as age approaches. The true wisdom is always to be seasonable. To love playthings well as a child, to lead an adventurous and honorable youth, and to settle when the time arrives into a green and smiling age is to be a good artist life". Again Browning tells us that

One must be venturous and fortunate

What is one young one for, else ?

Thus there is always a healthy moral tone in Browning's poetry. And if his poetry cannot be enjoyed as Tennyson's "lolipops" or "moonshine maidens" it is at least a healthy tonic and will assuredly do much more than Tennyson's to put us in love with the world.

Scouting

BY

R. M. Gole, F. Y. A.

—O—

“Capture the Boys of to-day and you have
got the Men of tomorrow”

—*The Chief Scout.*

Scouting is an pen air game in which Boys and Girls are trained so as to give them a clear sense of duty. Here they are taught to revere God and the king, to be loyal patriots of their mother-country and to be the best citizens of their times. It is a movement started as a supplement to the more scholastic training in the country.

Scouting is not a military organisation for training up boys and girls in drilling and marching, it is also not an organisation where the rod is the master. If then you think that it is conducted on the lines of the old Jesuits, once more dear readers, you will be disappointed, with all these ‘nots’, then what is it actually?

Scouting is, as heretofore said, a game—a very big game in which boys and girls take part. It is an institution that is conducted by sheer force of affection and love ; it is the band of universal brotherhood the high necessity of which needs no mention in these days of world-wide bustle, the formation of leagues and their failure.—It is a science not that deals with the pipette and the burette but that deals with the psychology of the boy. “In it the mental faculties of the boy are gradually and tenderly unfolded. Scouting, it is that cherishes his delicate perception, stores his mind with proper ideas, points out to him the different ways of observation”. By keeping him under some responsibility it teaches him to establish the limits of right and wrong. Here he is taught to distinguish beauty from tinsel and grace from affection. With all this it may clearly be seen that the real aims of Scouting are centred in one great motive viz. the character-development of the boy. This is done to its best in the camps that are conducted by the authorities. The boy constantly comes into contact with Nature by means of which he

begins to appreciate it. Here his character is trained, and his health improved or to quote the chief Scout "Camp is the best field for character-training and Physical fitness".

Students who think themselves too old to join this movement can do its work without actually joining it. They can form themselves in small groups of Six or Seven and work by them. One group may go and work with the depressed classes, another will find excellent work in the hospitals where they can go and speak a kind word to the patients and help them in minor things. One group can give a clear understanding of hygienic principles to the uneducated classes of the city. By doing such small things they will make themselves fit to take up the great cause of their country. They will no more be confounded as to how they can work for the country.

"Scouting", says the Chief Scout, "is a training for life. The two features which distinguish it from almost every other movement are (1) The appeal made to the boy by the romance and jollity of the open air life with its training in self-reliance and good sportsmanship, and (2) The definite appeal to the ideal of unselfishness expressed in the service of others".

Scouting then is an institution where the boy gets a clear idea about his duties to God and the country. Here he is taught to subordinate his personal interests for those of the public, to be helpful to others in times of difficulties, to make a strong physique and to be a better citizen, in future than his fellowmen. He is the member of a universal Brotherhood which in times to come may acquire that world-wide peace—a work which the greatest men of the time are unable to achieve.

"Scouting is a glorious fun, and you will be helping to conserve into a clear and generous manhood our biggest national asset—the Indian Boy".

College Scholarships.

The following have been awarded College Scholarships for the first term of 1923-24.

Senior B. A.

- 1 S. A. Gopujkar.

Junior B. A.

- 1 S. A. Kher. 2 N. B. Paradkar.

Inter-Arts.

- 1 B. V. Sudumbrekar. 5 G. N. Chaphekar.
2 N. K. Puranik. 6 Miss Mathura Gokhale.
3 V. M. Bapat. 7 D. B. Ranade.
4 R. B. Chitale.

First Year.

- 1 V. V. Kale. 4 B. P. Jog.
2 Miss Kamala Ukidave. 5 S. B. Joshi.
3 V. S. Tilak.

The following College prizes have been awarded on the results of the last year's examinations.

- (1) Rajawade Prize of Rs. 50 ...S. A. Kher (J.B.A.)
(2) D. G. Karmarkar Sanskrit Prize of Rs. 15 ..B. V. Sudumbrekar
(Inter).
(3) Laxmibai Sanskrit Prize of Rs. 20 ...S. A. Kher (J.B.A.)
(4) Vinayakrao Apte First Prize of Rs. 75 ...V. V. Kale (F.Y.)
(5) Do. Second Prize ... Not awarded.
(6) Shrimant Parvatibai Vishalgadkar Prize
of Rs. 50 ...Miss Mathura
Gokhale. (I.E.)
(7) Ahilya Sanskrit Prize of Rs. 30
(8) Chandrabhaga Prize of Rs. 25
(9) Anasuya Prize of Rs. 30 ...S. G. Maratha B. A.
(Hon).

Examination Results.—1923.

—:O:—

M. A.

SECOND CLASS.

- 1 Mr. V. V. Dixit.
- 2 Mr. G. S. Khair.

B. A.

SECOND CLASS,

- 1 Waknis T. D.
- 2 Dharap J. N.
- 3 Kulkarni R. D.
- 4 Kulkarni S. G.
- 5 Adkar B. M.
- 6 Kamat G. N.
- 7 Kulkarni G. R.
- 8 Marathe S. J.
- 9 Kulkarni N. N.

PASS CLASS.

- 10 Joshi L. D.
- 11 Dhalewadikar G. P.
- 12 Bapat R. R.
- 13 Bhopatkar B. D.
- 14 Gharpure A. L.
- 15 Gore V. N.
- 16 Gupte V. S.
- 17 Kunte K. W.
- 18 Pandharkar D. B.
- 19 Atre A. B.
- 20 Deshmukh D. R.
- 21 Dixit V. S.
- 22 Athalye B. V.
- 23 Aoharya G. K.
- 24 Badve V. B.
- 25 Galgale K. G.
- 26 Sakhalkar G. R.
- 27 Joshi D. V.
- 28 Karandikar J. V.
- 29 Sohoni G. K.
- 30 Vaidya S. S.
- 31 Deshmukh M. N.
- 32 Aurangabadkar V. V.
- 33 Gondhalekar C. B.
- 34 Patwardhan Y. G.
- 35 Bhawe G. A.

INTER ARTS.

SECOND CLASS.

- 1 Deshmukh B. K.
- 2 Joshi T. K.
- 3 Kale S. K.
- 4 Ratnaparkhi G. P.
- 5 Paradkar N. B.
- 6 Deshpande M. Y.
- 7 Kher S. A.
- 8 Sohoni G. P.

PASS CLASS.

- 9 Agache S. D.
- 10 Ambekar V. T.
- 11 Badodkar N. D.
- 12 Bhide G. V.
- 13 Bhonde G. P.
- 14 Chandorkar V. V.
- 15 Damle S. B.
- 16 Deshmukh B. P.
- 17 Deshpande H. S.
- 18 Dhamdhare S. K.
- 19 Dhongade N. L.
- 20 Garde D. J.
- 21 Gharpure V. H.
- 22 Gondhalekar V. N.
- 23 Jadhav M. K.
- 24 Joshi R. K.
- 25 Karandikar M. B.
- 26 Paranjape M. R.
- 27 Parkhi G. P.
- 28 Patkar V. R.
- 29 Shekdar G. Y.
- 30 Shirguppi R. K.
- 31 Shukla B. R.
- 32 Sirsikar R. P.
- 33 Tambekar K. S.
- 34 Vaidya D. Y.
- 35 Bhumkar D. Y.
- 36 Chakradeo L. M.
- 37 Deo K. G.
- 38 Deshpande S. G.
- 39 Dhande D. D.
- 40 Dravid S. L.
- 41 Godbole W. G.
- 42 Gudurkar P. V.
- 43 Joshi M. R.
- 44 Joshi N. D.
- 45 Joshi V. G.
- 46 Ketkar S. V.
- 47 Kulkarni M. D.
- 48 Limaye D. R.
- 49 Oka P. G.
- 50 Paradkar M. R.
- 51 Pathak S. S.
- 52 Sathe K. B.

First year certificate Exam'nation.

FIRST CLASS.

- 1 Sudumbrekar B. V.
- 2 Vaze G. S.
- 3 Agache V. D.
- 4 Apte G. V.
- 5 Puranik :N. K.
- 6 Bapat W. M.
- 7 Chitale R. B.
- 8 Chaphekar Ganesh N.
- 9 Gokhale Mathu.
- 10 Ranade D. B.

SECOND CLASS.

11	Abhyankar D. N.	72	Tapaswi M. V.
12	Antarkar G. B.	73	Thakur M. T.
13	Atre S. S.	74	Thakkar M. M.
14	Bhide B. N.		PASS.
15	Bhide N. D.	75	Abhyankar D. S.
16	Bergaonkar S. D.	76	Acharya M. L.
17	Chaphekar R. N.	77	Acharya V. G.
18	Chobhe B. V.	78	Agashe V. N.
19	Davalbhkta V. B.	79	Apte M. V.
20	Deo V. L.	80	Bahulekar L. G.
21	Deshmane Y. M.	81	Bapat M. G.
22	Deshmukh S. V.	82	Betrabet M. V.
23	Deshpande D. G.	83	Bhanage A. M.
24	Deshpande M. G.	84	Bhanage N. K.
25	Deshpande V. D.	85	Bhat K. W.
26	Dharmadhikari H. R.	86	Bhat P. K.
27	Dharmadhikari R. V.	87	Bhopatkar J. K.
28	Dighe V. G.	88	Chandorkar D. W.
29	Durwe S. D.	89	<i>Chirputkar Tana.</i>
30	Godbole R. R.	90	Dabholkar V. V.
31	Gole V. C.	91	Dadhe M. V.
32	Gondhalekar S. B.	92	Datar R. W.
33	Gore R. P.	93	Deobhankar B. R.
34	Gune D. B.	94	Deshmane V. L.
35	Gune W. B.	95	Deshmukh W. D.
36	Hajirnis S. K.	96	Deshpande M. D.
37	Jadhav B. R.	97	Deshpande S. R.
38	Joglekar D. R.	98	Dhere G. G.
39	Joshi A. K.	99	Dighe B. L.
40	Joshi R. S.	100	Dixit V. A.
41	Joshi S. R.	101	Ghanekar G. N.
42	Kale V. G.	102	Gharpure B. R.
43	<i>Karnatki Chandra.</i>	103	<i>Ghate Kashi.</i>
44	Karnik A. N.	104	Godbole V. G.
45	Keikar V. P.	105	Godbole V. S.
46	Ketkar S. V.	106	Gokhale D. R.
47	<i>Khare Gangu.</i>	107	<i>Gokhale Sindhu.</i>
48	Kulkarni S. K.	108	Gondhalekar V. K.
49	Kumthekar A. B.	109	Gore P. V.
50	Kute P. K.	110	Govande A. C.
51	Lagwankar G. B.	111	Gupte K. T.
52	Lele D. B.	112	Hagavane N. M.
53	<i>Lele Mukta.</i>	113	Hakim A. K.
54	Limaye R. B.	114	Inamdar G. R.
55	Lonkar A. K.	115	Jere V. M.
56	Magikar A. N.	116	Joshi B. D.
57	Mahajan M. V.	117	Joshi B. G.
58	Manohar K. D.	118	Joshi C. L.
59	Modak L. B.	119	Joshi K. V.
60	Navalekar B. G.	120	Joshi L. M.
61	Neurgaonkar S. K.	121	Joshi S. G.
62	<i>Paranjape Godu.</i>	122	Joshi Y. V.
63	<i>Paranjape Shanta.</i>	123	Kamble B. S.
64	Pendse V. P.	124	Karandikar J. G.
65	Phadke K. N.	125	Karmarkar G. R.
66	Phatak R. D.	126	Kawley S. N.
67	Fontshe S. S.	127	Kharkar S. G.
68	Potdar D. V.	128	Khedlekar G. V.
69	<i>Pradhan Shanta K. R.</i>	129	Kunte S. B.
70	Sathe R. K.	130	Marathe L. R.
71	Soman G. S.	131	Mhaskar V. B.
		132	Modak B. G.

- | | | | |
|-----|-------------------------------|----|--------------------------------------|
| 133 | Nabar Y. A. | 3 | Bhagwat Waman Pandurang. |
| 134 | Nazare V. . | 4 | Bhanage Shankar Bhaskar. |
| 135 | Nighojkar K. K. | 5 | Bhide Narayan Ramchandra. |
| 136 | Nisargand S. G. | 6 | Bhide Vishnu Bhikaji. |
| 137 | Oka B. G. | 7 | Bisawa Bansilal Shivdeo. |
| 138 | Pandit G. W. | 8 | Chhatre Moreswar Vasudeo. |
| 139 | Patvardhan P. P. | 9 | Date Vasudeo Anant. |
| 140 | Pendse N. G. | 10 | Deo Dattatraya Hari. |
| 141 | Pendse N. V. | 11 | Deshpande Raghunath Vinayak. |
| 142 | Phatak P. B. | 12 | Gole Govind Vishnu. |
| 143 | Pingle V. N. | 13 | Gubbi Bhikaji Vyankatesh. |
| 144 | <i>Pradhan Shanta K. T.</i> | 14 | Gujarathi Maganlal Dulichand. |
| 145 | Pundlik P. G. | 15 | Joglekar Govind Shivram. |
| 146 | Pusalkar K. G. | 16 | Joglekar Raghunath Jagannath. |
| 147 | Rairikar Y. V. | 17 | Joshi Gopal Nilkanth. |
| 148 | Rajamaehikar G. N. | 18 | Jumde Gajanan Chintaman. |
| 149 | Sahasrabudhe B. D. | 19 | Kale G. T. |
| 150 | Saokar K. D. | 20 | Khaladkar Vasudeo Ganesh. |
| 151 | Shimpi H. Z. | 21 | Kehpkar Vasant Trimbak. |
| 152 | Sonotki G. R. | 22 | Korbu Suleman Dadomiya. |
| 153 | Sumant D. K. | 23 | Kulkarni Narhar Vishnu. |
| 154 | Talvalkar S. H. | 24 | Latkar Trimbak Dattatraya. |
| 155 | Vaidya M. A. | 25 | Lonkar Keshav Vishnu. |
| 156 | Vartak H. V. | 26 | Machawe Pralhad Rajaram. |
| 157 | Vaze Gopal S. | 27 | Mahajan Uddhav Ganesh. |
| 158 | Wagh G. C. | 28 | Nagarkar Hari Raghunath. |
| 159 | Waghwadekar R. D. | 29 | Nagarkar Vishwanath Ram-
chandra. |
| | NOT CLASSED. | 30 | <i>Miss Nagpurkar Sharda.</i> |
| 160 | Chhatre E. V. | 31 | Paranjape Ganesh Gangadhar. |
| 161 | Gokhale N. V. | 32 | Paranjape Vishnu Damodar. |
| 162 | Joshi D. V. | 33 | Patankar B. S. |
| 163 | Kamat S. B. | 34 | Pathak Balkrishna Gangadhar. |
| 164 | Khare S. D. | 35 | Pathak Moreswar Ganesh. |
| 165 | Malpathak D. R. | 36 | Pathak Vinayak Kashinath. |
| 166 | Patankar G. G. | 37 | Patil Hamant Govind. |
| 167 | Raje Y. B. | 38 | Phadke Raghunath Vasudeo. |
| 168 | Sardesai R. N. | 39 | Posarekar Dattatraya Krishna. |
| 169 | Shah K. M. | 40 | Puntambekar Ramchandra Vishnu . |
| 170 | Solapurkar B. Y. | 41 | Pusalkar Achyut Dattatraya. |
| 171 | Harpale S. M. | 42 | Ranade Madhusudan Anant. |
| 172 | Kelkar R. B. | 43 | Ranganathan K. |
| | June Examination. | 44 | Sathaye Narayan Bhaskar. |
| 1 | Bagwe Vasant Ramchandra. | 45 | Tipre Shankar Tukaram. |
| 2 | Pedekar Ramchandra Pandurang. | 46 | Wagh Sitaram Chintaman. |

Contributions to the Permanent Funds of the Shikshana Prasarak Mandali, Poona.

—(o)—

From the 23rd February 1923 to the July 26th 1923.

Amount already received by instalments	Name.	Amount.		Total.
		Rs.	a p.	Rs. a. p.
	SANGAMNER.			
	M. K. Dabke Esq.	..	250	
	D. K. Parasharaman	...	60	
	M. G. Talekar	...	50	
	BOMBAY.			360
15	D. N. Patwardhan Esq.	...	10	
45	Prof. G. B. Jathar	...	20	
	Narsee Monjee, Esq.	...	50	
	Messrs. Desai & Bhuta	...	25	
	BHANDARA.			105
75	G. K. Kelkar, Esq.	...	25	
	NANDURBAR.			25
40	D. R. Bapat, Esq.	...	10	
	WAI.			10
70	K. G. Abhyankar, Esq.	...	10	
	ELLIOHPUR.			10
25	G. N. Godbole Esq.	...	10	
	THANA.			10
50	D. K. Agashe Esq.	...	50	
	BHANDARDARA.			50
	S. L. Oka, Esq.	...	25	
	Aziz Ahmed, Esq.	...	100	
	NASIK.			125
50	V. G. Abhyankar, Esq.	...	50	
20	B. R. Phatak, Esq.	...	25	
	AKOLA.			75
40	Y. R. Oka, Esq.	...	40	
	N. K. Phadke, Esq.	...	100	
	MAHABALESHAR.			140
	P. D. Dikshit, Esq.	...	50	
	Carried over	...		960

Amount already received by instalments	Name of contributor.	Sub-Total.	Grand- Total.
		Rs. a. p.	Rs a. p.
	JALGAON.		
20	R. K. Balo, Esq.,	... 40-0-0	
	Shet Kanjee Shivjie	... 100-0-0	
	,, Nanuram Beniram	... 25-0-0	
	Tayab Ali, Esq.	... 25-0-0	
	Shet Perojahab	... 20-0-0	
	,, Jajannath Kasturchand	... 10-0-0	
	,, Shankar Tatya	... 10-0-0	
	,, Dhanjee Hiralal	... 7-0-0	
	,, Ramdas L. Patil	... 7-0-0	
	S. B. Patil, Esq.	... 5-0-0	
	Shet Dukulchand K.	... 5-0-0	
	,, Shivjee Ramsodaram	... 5-0-0	
	,, Rupchand Gopal	... 5-0-0	
	Amounts below Rs. five	... 18-0-0	
	Shet Jaykisan Ramvilas	... 25-0-0	
	S. M. Sonalkar, Esq.	... 11-0-0	
	R. V. Chaughule Esq.	... 50-0-0	
	K. O. Sen, Esq.	... 50-0-0	
	Shet Laxmandas	... 100-0-0	
	S. A. Patwardhan, Esq.	... 5-5-0	
	M. L. Khambbete	... 11-0-0	
	SHENDURNI.		534-5-0
	Sardar K. J. Dixit	... 250-0-0	
	D. H. Chaudhari, Esq.	... 10-0-0	
	J. T. Kshirsagar	... 5-0-0	
	SAVDA.		265-0-0
	Sardar Gambhirrao Deshmukh Deshpande.	125-0-0	
	B. D. Patil, Esq.	... 100-0-0	
	FAIZPUR.		225-0-0
	Shet Totaram B. Mahajan	... 10-0-0	
	JAMNER.		10-0-0
	Shreemant S. K. Deshmukh	... 125-0-0	
	Obedulla Akabar Ali, Esq.	... 25-0-0	
	D. D. Sathe, Esq.	... 25-0-0	
	S. V. Damle, Esq.	... 11-0-0	
	S. L. Viegas, Esq.	... 10-0-0	
	N. S. Deshmukh, Esq.	... 5-0-0	
	G. V. Deshmukh, Esq.	... 5-0-0	
	Nana Devrao Patil, Esq.	... 5-0-0	
	P. G. Dudhmande, Esq.	... 5-0-0	

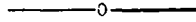
Amount already received by instalments	Name.	Amount.	Total.
		Rs. a. p.	Rs. a. p.
	S. Shimpi Esq.	...	5
	Abdul Kadar	...	5
	MALEGAON.		226
	L. V. Pophale Bros.	...	250
	JABBALPUR.		250
	R. G. Khandekar, Esq.	...	5
	DHARWAR.		5
	Dr. V. G. Bhat, Ph. D.	...	10
	POONA.		10
	B. N. Sathaye, Esq.	...	100
40	K. G. Pundlik, Esq.	...	10
70	P. D. Chitale, Esq.	...	30
100	Messrs. Vaidya Bros. & Co.	...	150
25	P. D. Kanhere, Esq.	...	100
95	Dr. V. B. Gokhale, Esq.	...	5
25	R. G. Islur, Esq.	...	75
40	R. S. G. H. Desai	...	50
	D. G. Shaligram, Esq.	...	5
80	N. V. Bhonde, Esq.	...	10
10	K. M. Ohiplunkar, Esq.	...	20
	G. B. Soparkar, Esq.	...	100
40	K. N. Raje, Esq.	...	40
	D. L. Sahasrabudhe, Esq.	...	100
	Shridhar R. Bhagwat, Esq.	...	31
50	D. D. Abhyankar, Esq.	...	100
	Dr. R. V. Rahatekar	...	100
100	N. K. Gokhale, Esq.	...	150
10	G. G. Rairkar, Esq.	...	15
75	P. P. Nagarkar, Esq.	...	40
15	S. S. Vaze, Esq.	...	5
10	D. M. Ranade, Esq.	...	20
25	G. S. Kulkarni, Esq.	...	25
66	M. G. Honap	...	20
30	K. V. Shinde, Esq.	...	30
40	S. T. Apte, Esq.	...	10

CONTRIBUTIONS TO THE PERMANENT FUNDS.

31

Amount already received by instalments	Name-	Amount.		Total.
		Rs.	a. p.	Rs. a. p.
	Shri Ramdas Govardhandas	...	30	
	T. R. Apte, (Vaidya), Esq.	...	100	
	R. D. Parekh, Esq.	...	25	
	R. S. Deshmukh, Esq.	...	9-1-3	
	P. S. Kanetkar, Esq.	...	100	
10	D. L. Paranjpe, Esq.	...	50	
50	T. M. Banadive, Esq.	...	50	
10	N. V. Gadgil, Esq.	...	20	
175	L. G. Ketkar	...	10	
25	L. G. Vaidya, Esq.	...	20	
	Prof. B. S. Patel	...	100	
				1,855-1-3
	Grand Total ..			4,340-6-3

New Poona College Gymkhana.



Bye-Laws of the Managing Committee.

1. That the Vice-President shall preside at all meetings of the Managing Committee.

2. That the Managing Committee shall hold ordinary monthly meetings during term time before the 10th of the month; additional extraordinary meetings may be held whenever necessary.

3. That the General Secretary shall prepare the agenda for the meeting and notify it at least 24 hours before it is to meet.

4. That the Chairman shall have an additional casting vote at meetings of the Managing Committee.

5. That regular minutes of the meetings of the Managing Committee shall be kept by the General Secretary and all reasonable facilities shall be afforded by him to members of the Gymkhana for their inspection.

6. That at the first terminal meeting of the Managing Committee each secretary shall submit an estimate of the expenses he expects to incur during the term. The Secretary shall prepare these estimates in good time, so that the General Secretary and other secretaries may be able to inspect them before the Managing Committee meets. These the Managing Committee shall consider and formally record its decision upon them. Neither the estimates nor the expenses incurred shall exceed the % allowance of the department.

7. That at the first ordinary meeting of the Managing Committee, sub-committees for each department shall be constituted. Vacancies in non-elected members of any of these sub-committees shall be filled by the Managing Committee as soon as possible.

8. That at every meeting of the Managing Committee the secretaries shall attend with their accounts and file of vouchers ready up to date and the Chairman as soon as the minutes of the preceding meeting have been read and confirmed shall inspect each of these books in order before proceeding to the other business.

9. That the sanctioned estimates by the Managing Committee shall be fully notified to the General Body by the General Secretary immediately after they are sanctioned.

10. That all disciplinary resolutions of the Managing Committee shall be notified by the Secretary of the department concerned, without delay.

11. That if any member or members wilfully or through negligence damage any property belonging to the Gymkhana it shall be repaired by the secretary at the expense of the defaulting member or members; but any accidental damage shall be borne by the Gymkhana. The question of the damage being or not being accidental shall be decided by the Managing Committee and such decision shall be final.

12. That the Vice-President or the General Secretary and 4 other members make the Quorum for a meeting of the Managing Committee.

13. That members of the Managing Committee who fail to attend two successive meetings without previous permission of the General Secretary, cease to be members of it and their places be filled at the next meeting according to rules.

14. That the reports and accounts to be submitted to the General Body every term shall be submitted by the several secretaries to the General Secretary at least 24 hours before the meeting of the Managing Committee; they will then be considered by the Managing Committee and submitted to the General Body with any alterations if necessary.

Bye-laws of the Cricket Department.

1. That a cricket Sub-Committee consisting of the Vice-President, Cricket Secretary and 2 Senior players nominated by the President shall be formed at the beginning of the Season.

2. That the Sub-Committee shall select players for the matches.

3. That the time for practice at cricket shall be from 4-30 p. m. to 6-30 p. m. The Secretary may allow at his discretion to play at other times.

4. That during practice, the members shall generally play in two sets senior and junior, the senior set to be constituted from time to time by the Cricket Sub-Committee.

5. The preceding rule shall not debar the Secretary or the Captain from inviting a member of the Junior set to join the Senior set in the game when necessary.

6. That in the Junior set all shall bowl by turns during practice, but in the senior set bowling shall be at the discretion of the Captain of the field.

7. That in the absence of the Captain, the Secretary shall be the general captain of the field and he may appoint two deputies one for each set to assist him.

8. That on ordinary practice days members shall go in for batting and bowling and continue to do so till the end of play according to the order in which they present themselves on the field and in case several come together, according to the alphabetical order of their names.

9. That no player who has had his turn in batting or bowling shall be allowed to retire from the game without the permission of the Captain or in his absence of the person deputed by him.

10. That members shall use the kit with care, and no member shall take for his use what kit he likes from the stock without the permission of the Cricket Secretary.

11. That Cricket Prizes shall be awarded to the competitors with the best averages provided they have played at least $\frac{1}{2}$ number of matches.

12. That the Secretary shall arrange a list of fixtures for the next season early in March or April and hand it over to the Vice-President as soon as possible.

13. The dead-stock of the department shall be checked by the General Secretary or any other person deputed for the purpose at the end of each term.

The Bye-laws of cricket are applicable to Foot-ball and Hockey also, with necessary changes.

Bye-laws of the Students' Library. & L. T. N. Library.

1. That the library shall be managed by a sub-committee consisting of a Prof. nominated by the President, the General Secretary and the elected Secretaries. The Secretary will be the executive officer.

2. That the students' library shall be open in the recess hours every day except on college holidays

3. That every volume shall be returned within a fortnight but that in the absence of any demand, it may be re-issued.

4. That the secretary can call in volumes at any time.

5. That the secretaries in the library shall be held responsible for the loss of books, including bound volumes of magazines.

6. That members going home for vacation shall deposit as security an amount equal to the original price of the book they wish to have issued. Scholars and Fellows may take out not more than two and six volumes respectively without any deposit.

7. That the rare books and volumes in the students library shall be kept with special care and that the Secretary shall not issue any such volume without the special permission of the Vice-president.

8. That the sub-committee shall close the library at their discretion.

9. That every retiring Secretary shall furnish his successor with a complete list of the books in his library showing the addition made and the loss incurred during his term of office.

10. That the Secretary shall maintain a proper issue book on the lines of the issue book of the College Library.

11. That the Secretary shall hand over charge of the department to the General Secretary at the end of each term.

12. The sub-committee shall meet in the second week of July to select books for purchase.

Bye-laws of the Reading Room.

1. That a sub-committee consisting of Professors, the General Secretary and the Secretary will be formed for conducting the Reading Room.

2. That the Reading Room shall be open from 11 A.M. to 5 P.M.

3. That the subscription for the Periodicals shall be subject to the sanction of the President.

4. That the Secretary and one member of the sub-committee shall make cuttings for the scrap-book.

5. That the Reading Room sub-committee shall in the beginning of each year decide what newspapers, magazines, etc. are to be purchased out of the grant available.

6. That the weekly papers shall remain on the table till the next issues are received. Dailies shall remain for two days after the receipt and the magazines for two weeks. The magazines removed from the Reading Room shall be kept in the students' Library, whence they may be issued as other books for not more than three days.

N. B.—The sub-committee shall decide which magazines are to be preserved. The rest shall be sold by auction at the beginning of each term.

7. That nothing shall be removed from the Reading Room by any member without the permission of the Secretary. Any infringement of this rule shall be severely dealt with by the Managing Committee.

8. That every retiring Secretary shall furnish his successor with a list of the papers that were subscribed for, during his term of office.

Bye-laws of the Debating Club.

1. That a sub-committee consisting of a Professor, the General Secretary and the Secretary shall be formed at the beginning of the year to manage the department.

2. That the meeting of the Debating Club will be held generally on Wednesday after-noons and their duration shall be limited to 2 hours only, unless specially extended by permission of the Chairman.

3. That the sub-committee shall help the Secretary in securing available lecturers and in all arrangements to be made in connection with them.

4. That the subject of the lecture and the name of the lecturer shall be notified at least 2 days before the meeting.

5. That the Secretary shall try to preserve in the records of the club the manuscript copies of addresses read before the club.

6. That the Secretary shall present for adoption at each meeting a brief report of the proceedings of previous meeting.

7. That at these debates except the principal speaker or speakers no one shall be entitled to speak more than once or for more than 10 minutes unless with special permission from the Chairman.

8. That the Secretary shall have the opinion of closing the club when there are other engagements in any one of the other clubs of the Gymkhana or when it is otherwise found inconvenient to hold a meeting, and that other Secretaries of the different clubs of the gymkhana shall, as far as possible, arrange that no engagements are entered into at the times fixed for the usual meetings of the Debating Club.

9. There shall be at least one debate in one fortnight.

10. At least one Debating Competition shall be held every year.

11. At least one Parliament per term shall be held; if its business appears likely to last longer than two hours the speaker shall adjourn the meeting.

Bye-Laws of the Minor Games Department.

1. That the Minor Games sub-committee shall fix the days and times for playing Hockey or Football.

2. That the Gymnasium and other minor games of the Gymkhana shall be under the control of this department.

3. That the Secretary shall be the general Captain of the field, but that he may appoint two deputies, one for each game, to assist him.

4. That players cannot, except with the permission of the Captain of the field, retire from the game until play is over.

5. That the Gymnasium shall be open from sunrise to 9 A. M. and 4-30 P. M. to 7-30 P. M.

6. That members shall provide themselves with their own hockey sticks.

7. That in the disposal of articles belonging to the department, General Rule 25 shall be strictly enforced.

General Rules.

1. The New Poona College Gymkhana will be open to the students of the College, past and present. The members of the staff shall be honorary members of the Gymkhana.

2. Any person paying Rs. 500 or more will be a Patron and one paying Rs. 300 or upwards a life-member of the Gymkhana.

3. Principal of the College shall be the President of the Gymkhana and one of the professors the Vice-president and Treasurer of the Gymkhana.

4. The Gymkhana fees for the present will be Rs. 6 including those for the Magazine and Tilak Library.

5. The Vice-President, who shall be the Chairman of the Managing Committee, shall with the help of the General Secretary inspect carefully all the kit and other belongings of each of the departments and clubs of the Gymkhana and shall see that complete inventories signed by the respective Secretaries are kept up-to-date and that charges are properly handed over and received by the out-going and new Secretaries. The treasurer shall also by virtue of his office keep with him all the money of the Gymkhana.

6. The General Management of the Gymkhana shall be entrusted to the Managing Committee which shall consist of 11 members as under :—

1. Vice-President and Treasurer.
2. The General Secretary.
3. Secretary for Foot-ball and Hockey.
4. Secretary for Cricket.
5.Indian Games And Gymnasium.
6.Reading Room.
7.Students' Library.
8.Tilak Library.
9.Debating Club.
- 10-11.Ordinary members.

7. The following rules shall be observed in the election of the Managing Committee :—

- (i) The General Secretary shall be nominated by the President from the Fellows of the College.
- (ii) The election shall take place in the first week of July and shall be conducted by the General Secretary with the help of two Scrutinisers nominated by the President. The voting shall be by ballot each member having one vote only. Each candidate must be proposed and seconded and his name with those of the proposer and seconder should be forwarded to the General Secretary 4 days before the election. The candidates who get the highest number of votes shall be declared elected. The General Secretary shall give at least two days notice of the elections and shall publish the names of the different candidates.
- (iii) The present students of the College only shall be eligible for the post of a Secretary.
- (iv) The President shall nominate one of the Fellows of the College to act as an Auditor.
- (v) No Officer shall hold more than one post.
- (vi) A vacancy of any Secretary or member of the M. C. occurring either by the resignation of the members or his absence from the College continuously for more than fifteen days, shall be filled up temporarily by the M. C. But the M. C. shall hold a bye-election as early as possible. All rules for elections shall apply equally to every bye-election.

8. (a) The ordinary Terminal meeting of the General Body of the Gymkhana shall be held not later than the 2nd week of November and the second week of February. For the purpose of passing the accounts and reports and discussing proposals if any.

(b) An extraordinary meeting of the General Body of the Gymkhana may be called by the M. C. whenever they deem it expedient.

(c) On a written requisition from 25 or more members of the Gymkhana addressed through the General Secretary to the President or Vice-president and specifying a particular matter for the consideration of the General Body, an Extra-ordinary meeting may be called within ten days of the date on receipt of the requisition for the consideration of that particular business only, if in the opinion of the President the business specified be of sufficient urgency and importance.

9. At the above meeting of the General Body of the Gymkhana no proposal shall be in order except such as have been notified on the Agenda for the meeting, over the signatures of the General Secretary, at least 5 days before the date of the meeting and that any amendments to such proposals, to be in order, shall have to reach the General Secretary to be notified by him to the general body, at least two days before the date fixed for the meeting.

N. B. The General Secretary merely notifies the proposals and amendments reaching him in due time with the signatures of the proposers and seconders. The President of the meeting has full discretion to rule any of them out of order or to take two or more together or to fix the sequence in which they are to be placed before the meeting.

10. The quorum for a meeting of the General Body shall be one third of the total number of members of the Gymkhana.

N. B. No quorum shall be necessary for meetings adjourned for want of quorum and such adjourned meetings may be held after two days notice.

11. Proposals concerning charges in the rate of subscription of the Gymkhana or in the percentage allotted to the various departments or such other proposals of vital importance shall not be considered accepted by the General Body unless they are passed by 3/4's majority of the members present at the meeting and sanctioned by the President.

12. Any matter once decided by the General Body shall not be re-opened during the same term.

13. The M. C. shall allot the amount of money to be spent on each department, approximately in the following proportion :—

Cricket.—	20 p. c. of the total income of the Gymkhana.
Football and Hockey.—	10 p. c.
Gymnasium and Indian games.—	5 p. c.
Debating Club.—	5 p. c.
Reading Room.—	15 p. c.
Library.—	20 p. c.
Tilak Library.—	5 p. c.
Servant.—	5 p. c.
Reserve Fund.—	10 p. c.
Ground repairs and rent.—	5 p. c.

N. B. (i) The balance remaining with the Secretaries shall go automatically to swell the Reserve Fund. (ii) Any proposal to spend any portion of the Reserve Fund shall have to be put before the General Body for their sanction and the ¾'s majority rule shall apply to all such proposals.

14. No order exceeding Rs. 15 shall be sent without the counter signature of the General Secretary who shall see that no department exceeds its allotment.

15. All bills exceeding Rs. 15 shall be paid through the General Secretary.

16. No Secretary shall exceed the estimate passed by the Managing Committee.

17. The Secretary and the Auditor shall meet together every fortnight with the General Secretary in the Chair and write up their accounts up to date; the General Secretary shall see that the Secretaries bring up at these meetings all the necessary vouchers which the latter shall preserve properly filed and pass on to their successors when handing over charge.

18. The Secretaries shall bring up their accounts and files of vouchers at every meeting of the M. C. and at the end of the term, every Secretary shall make a clearance of his accounts and hand over the balance to the treasurer.

19. The out-going Secretaries of every department shall give over charge to the General Secretary expressly stating all the un-paid bills and also the orders sent, thus making the accounts quite clear to the in-coming Secy.

20. The Secy. shall in consultation with the Gen. Secy. and the Vice-president decide from time to time what articles are to be disposed of; such articles shall be disposed of by the Gen. Secy. and the Secretary of the department acting together and that after such transactions the Secy. shall make the necessary alterations in his current list of articles belonging to the department and shall show the list so amended at the next meeting of the Secretaries (Rule 17) and at the next meeting of the M. C. The extra income thus obtained shall not be available without the sanction of the M. C.

21. No guest shall be brought without the permission of the Secretary of the department. No member shall bring a guest more than four times.

N. B. This rule applies to the Secretaries also. They shall not bring guests without the permission of the Gen. Secy. or Vice-president.

22. Any complaints against a Secretary, a member or members shall be referred directly to the M. C. (subject to the approval of the President or Vice-president.)

23. Any member or members doing any damage to the property of the Gymkhana wilfully or through negligence shall not only be made to make the damage good but he or they may also be subjected to such penalty as may be deemed necessary by the M. C. and the President of the Gymkhana.

24. The Auditor shall submit terminal reports to the General Body which shall be attached by the M. C. to their own terminal reports. The Auditor's functions are limited to:—

- (i) A proper scrutiny of the accounts. The secy. of each department shall show him his accounts and file of vouchers. The Treasurer shall also show his accounts, cheque books of payments made, file of receipts etc. at least once a term.

- (ii) An examination near the end of each term of the dead stock of each department and a comparison of these with list made by the new secy. when taking charge and notified to the General Body ; as to any difference between the two he shall satisfy himself by the scrutiny of every entry of sale and purchase. The secy. of each department and the Gen. Secy. shall give him every facility of his work also, and Auditor's report shall be strictly confined to these matters only.

26. No Secretary shall in any matter of importance take any step except in consultation with the Gen. Secy. and the Vice-president. Any Secy. absenting himself from the College for more than a day shall inform the Gen. Secy. and the temporary charge of the department shall rest with the member nominated by the Gen. Secy. with the permission of the Vice-president.

27. The M. C. shall submit Terminal reports and accounts of each department to the Terminal or Ordinary meeting of the Gen. Body.

28. All departments will close by the 5th of Oct. for the first term and by the 15th of February for the academic year. The secretaris shall hand over charges of their departments with Gen. Secy. or the person appointed by the president before the above dates.

29. The M. C. shall elect a Secretary to represent the M. C. on the Gathering Managing Committee and it will be his business to see that the property of the Gymkhana of which the Gathering M. C. is allowed the use, is returned in tact or that in case of damage it is made good.

30. No changes shall be made in these rules except by the Gen. Body. subject to Rule (ii).

31. The M. C. shall be empowered to make such bye-laws for their own working as well as for the working of each department as are in accordance with the spirit of these laws and such additional bye-laws shall remain in force until the next General meeting.

न्यू पूना कॉलेज मॅगझीन.

वर्ष ७ वें]

आगष्ट १९२३

[अंक ४.

शासनं धर्मश्च

ले० वामनशास्त्री किंजवडेकर.



शासनं हि नाम भगवतो विकर्तनस्थान्वयसंजातानां पार्थिवानामाजानसिद्धं तेजः । धर्मश्च नाम अकरणेप्रत्यवायापादकमरुतकैर्केचोनिचयेश्रोयमानं दृष्टकलविधुरं कर्मजातमेव । अन्यान्यपि व्यावहारिकाणि सन्ति भूयांसि शासनानि न तान्यंशतोद्युपयुज्यन्ते धार्मिके विषय इति तेषु सत्सु असत्सु वा समानैवावस्थितिर्धर्मस्य । इदं पुनः सावित्रं क्षात्रं तेजः प्राग्वह्यतिधात्समयात्मणश्चप्रायमेव संवृत्तमिति निवेदयितुं चेक्षियते चेत्तः । तस्य च प्रणाली इदमेव प्रमाणभावापद्यते । यन्-धनुर्वेदनिष्णातस्याचार्यप्रवरस्य श्रीमतेर्द्रोणस्य संप्रामर्शनाहप्रसक्तिः । यदि भारतीययुद्धे क्षात्रं शासनं परमार्थतो जागृकमभिव्यक्तं न प्राप्तं स्यात् ब्रह्मर्षिप्रवरस्य द्रोणस्यापत्कालमात्रविहितो युद्धोद्यमः । धर्मपदसमभिव्याहाराच्च प्रकृते शासनपदेन क्षात्रभावसहजातमेव तेजो विवक्षितम् । अथ धर्मपदार्थे मीमांस्यमाने भूयांसः परिस्फुरन्त्यर्थाः ।

“ अन्तःकरणवृत्तौ वा वासनायां च चेतसः ।

पुद्गलेषु च पुण्येषु नृगुणेषु पूर्वजन्मानि ॥ ”

इत्यादि वचनात् । लौकिकाः पुनरेनमेव धर्मं समामनन्ति यद्धि शिष्टैर्दृष्टकलविवर्जितमननुष्ठाने प्रत्यवायावहं केवलवेदमात्रवद्वप्रामाण्यपट्टैराचर्यते । एष एव च धर्मोऽनुशिष्यतेऽध्वरमीमांसायाम् । अस्थेव च धर्मस्य तदनुष्ठापितो च पारिक्लणमेव परमं फलं क्षत्रियशासनस्य, एतदेव च प्रधानं पवित्रतमं कर्तव्यं सावित्राणां राज्ञाम् । अत एव च भगवान् दाशरथी रामचंद्र आनीतो विश्वामित्रेण पर्यत्रायत अष्टोभ्यः श्रौतस्मार्तकर्मनुष्ठाननिष्ठागरिष्ठानृषिवरिष्ठान् । उच्चिच्छिदे च समलोच्छेदं निरगलं प्रसरत्तपः-प्रयूहभूतान् कंटकान् । क्षत्रियैरपि केवलं

वैषयिकानेव भोगान् भुञ्जानैस्तदासक्ततेजोभिः कृतार्थतामात्मनो मा ज्ञायीति निष्कामकर्मण एवाचरणमनुशिष्यते शास्त्रे उपदिश्यते च भगवता । अनुष्ठीयते च तथाविधैः शिष्टैः । येषां च भोगायैवानुकूला साधनसामग्री तैर्विषयेष्वेव संभाव्यते आसज्जनं, तत्रैव चावश्यकता मन्महे निष्कामकर्मोपदेशस्य नैव पुनरावश्यकं स्वत एव वर्णाश्रमधर्मानुष्ठान-परिनिष्ठितारङ्गाणां ब्राह्मणधोरियाणां निष्कामकर्मनियोजनम् । एतदेव चाभिसन्धाय भगवान् वासुदेवोऽपि उपादिक्षुद्दार्भिकं तत्त्वं क्षत्रियप्रवीराय श्रीमते पार्थायैव ' एवं परम्परा प्राप्तम् ' इत्यादिना । यां च भूयांसो विद्वांसः स्वस्य सहाय्यकाय बलवदभिव्यञ्जन्ति तदिदं सावित्रं क्षात्रशासनम् । अतएव स्वस्य क्षात्रशासनसापेक्षतामनुसन्धानो भगवान् वसिष्ठोपि बलवदभिनविशमानायापि विश्वामित्राय आजानक्षत्रभूताय नान्वमस्त बह्वभाव-मायादायितुम् । एतैश्चान्यैश्च प्रमाणजातैः सूक्ष्मेक्षिकया विमृश्यमानैः सुस्पष्टमेतदेव प्रतिपद्यते वैदिकक्रियायाश्च तदनुष्ठायिनां च सर्वतः परित्राणमेव क्षात्रसत्तायाः असाधारणं प्रयोजनमिति । कस्मिंश्चित्पुनः समये प्राबल्येन जैनबौद्धादीनां क्षात्रशासनं नाशतोऽप्युपाकार्षीद्ब्राह्मणनि-कुरम्बेषु । अतो ह्यवश्यमेवंविधे विषयतमे समये ब्राह्मणैरपि क्षात्रवृत्तिमाश्रित्य प्रजापालनैक-व्रतदीक्षा परिप्राहा निप्राहाश्च सत्कर्मनुष्ठानान्तरायाः कण्टका इत्येतदेव प्राप्तकालम् । मा कि-ल मनागपि विश्वस्यतामितरेषु सत्ताभासेषु । बुद्धेन च क्षात्रवृत्तिं परित्यजता जटिना मुण्डिना अरण्यतोरेण्यमाहिण्डितं तदाप्रभृत्यययावत्संपद्यमाना तन्निमिता भूयस्यार्यधर्मस्य हानिर्न कथंचिदप्यपाकर्तुं पार्यते सांप्रतम् । यद्धि शासनं नित्यकर्मनुष्ठानमपालयदुदासीनमेवावतिष्ठते न तेनास्माकं किमपि प्रयोजनमुत्पश्याम इति दूरत एवैतत्परिजिहीर्षामः । तदेव च शासनं विद्वाना-कलयति यत्परित्रायते सर्वतः सत्कर्माणि । अमुमेव च शासनानां कर्माणां च विभागं जगौ भग-वान् देवीमासुरीं च संपत्तिं विभजन् । लोभप्रधानया वाणिज्यवृत्त्या प्रवर्तमानं शासनं अविलोप्य भारतीयां सदाचारसंस्कारमर्यादां न तिरोधत्ते । यथाहि सर्वतः सावेगं समिन्धानो दावानलः आविलोप्यैवारण्यानीं न प्रशमिष्यति । अयत्ने पुनः प्रवर्तमानं शासनं वैदिककर्मनुष्ठानं संरक्षितुं तदनुष्ठायिनश्चोत्तेजयितुं नाशतोऽपि प्रयतमानं संदृश्यन् इति किमनेनान्यथा-सिद्धेन शासनेन आर्याणामस्माकम् । लौकिकव्यवहारपरिपालनपर्यवसन्नं हि शासनं शासितुरात्मभरितामेव स्कारं स्कारयति । निसर्गत एव किल भारतीयाः व्यवहारेषु नीतिमालम्बन्त इति सर्वथा मोघोयं तत्परिरक्षणमात्रफलकः शासनायासः । परचक्रतः स्वपरिपालनाय तु उपक्षायमाणं शासनं भारतीयानां अदृष्टफलपर्यायतामेवावहतीति व्यर्थो-यं परःक्रोष्टिदीनाराणां भस्मसाद्भावः । नैव पुनः स्वप्नेऽपि विचिन्त्यते वैदिककर्मपरिपालनोपक्रमः तदेवंविधे कराले अङ्गप्रधानानां विपर्यासादेव कालहृतके ब्राह्मणैर्वा स्वयंभूय कर्तव्यं न प्रसमर्तव्यं स्वीकर्तव्यं चापद्धर्म इति क्षात्रवर्तनमिति वाढमवधारयामः संसूचयामश्च ब्राह्मण कदम्बामिति शम् ।

वास्तवशास्त्राची परिभाषा

लेखांक ३.

प्रो. सखाराम विनायक आपटे एम्. ए. बी. एस सी.

समसन—तत्त्व एकदां मनांत चांगलें ठसलें म्हणजे मग निरनिराळ्या गति घेऊन त्यांच अम्यास व्यवस्थितपणें आणि समंजसपणें करता येतो. चेंडू हातांत घेऊन थेट सार्लीं मोकळा सोडून दिला, तर * निकर्षरेषेंत सरळ भुईकडे धाव घेतो. तोच जर थेट वर उडवून दिला तर निकर्षरेषेंतच पण भुईपासून दूर वर चढून जाऊं शकतो, व कालान्तरानें मूळ वेग संपून गेला म्हणजे निकर्षरेषेंतच पण सार्लीं भुईकडे परत येतो. गतिरूपीय—दृष्ट्या ही दोन्ही सरळ सरणीचीं उदाहरणें सार्लीं. पहिलें प्रमुक्त गतीचें उदाहरण होय व दुसरें उत्क्षिप्तगतीचें होय. आतां तोच चेंडू जर टेबलावर ठेवून टेबला सरसा साफ आडवा हात झटकून उडवून दिला तर तें अन्वस्ताचें उदाहरण होईल. त्याची सरणी सरळ नसून वक्र असत्ये हें उघड आहे. त्याचप्रमाणें चेंडू निरपा टोमणा मारून वर उडवून दिला असतां त्याचीही सरणी वक्रच येत्ये. तोफेच्या गोळ्याची किंवा उडविलेल्या बाणाचीही सरणी वक्रच असत्ये. हीं मागून दिलेलीं दोन्ही तिन्ही उदाहरणें प्रोक्षिप्तांचीं होत. पण येथें विशेष गोष्ट ही कीं त्यांची सरणिदेखील आलेखशास्त्राच्या दृष्टीनें 'अन्वस्त' जातीचीच ठरत्ये. पहिल्या उदाहरणांत म्हणजे प्रमुक्त पतनाच्या उदाहरणांत ज्याप्रमाणें निरुष्टीच्या योगानें निकर्षरेषेंत सारखा वेग वाढत चाललेला असतो त्याचप्रमाणें इतर सर्वही ठिकाणीं होत असतें. निरुष्टीच्या तडाक्यांतून कोणचाही पदार्थ झुटलेला नाहीं. पहिल्या म्हणजे प्रमुक्त पतनाच्या उदाहरणापेक्षा इतर उदाहरणांत विशेष फरक आहे तो एवढाच कीं अन्वस्तांच्या किंवा, प्रोक्षिप्तांच्या उदाहरणांत निरुष्टीकृत वेगाशीं मूळ केंद्रण्याच्या वेळीं दिल्या गेलेल्या वेगाचें समसन केलें जातें, आणि त्यांच्या सरणीला जी विशिष्ट वक्र आकृति येत्ये ती या समसनाचाच परिणाम होय.

अन्वस्त आकृतीची ओळख करून घ्यावयाची झाल्यास निरनिराळ्या दृष्टींनीं निरनिराळ्या शब्दांनीं करून घेतां येईल. पण सध्यां एकाच दृष्टीनें साध्या केळफूल चिरण्याच्या उदाहरणावरून ही ओळख करून पुढें जाऊं. केळफूल चिहून त्याचा काप वतुळाकृति दिसावा अशी इच्छा असल्यास तें कसें धरून चिरलें पाहिजे हें अगदीं सहज समजण्यासारखें आहे. तेंच जरा तिरपें धरून चिरल्यास त्याचा काप विवृत्ताकृति म्हणजे लांबट वतुळासारखा येतो. पण तेंच आणखी जास्त तिरपें करून काप त्याच्या एका उतरत्या बाजूशीं समान्तर दिशेनें जाईल असें चिरिल्यास छेद अन्वस्ताच्या आकृतीचा येतो ही गोष्ट लक्षांत ठेवण्यासारखी आहे. याच्याही पुढें जाऊन कापाची दिशा वतुळ छेदाच्या वेळेला होती तिच्यावर अवस्थित म्हणजे लंबरूप अशी केल्यास जी छेदाची आकृति येत्ये तिला आलेख शास्त्रांत अपास्त म्हणतात.†

* निकर्षरेषेंत = ओळख्यांत. पृथ्वीमध्ये कोणताही पदार्थ स्वकेंद्राकडे ओढून घेण्याचा जो गुण आहे त्याचें नांव निरुष्टि.

† शंकुच्छिन्नानि लभ्याति तिर्यक्छेदनतः क्रमात् । वृत्तं विवृत्तमन्वस्तमपास्तानिति चक्षते ॥

असो, सध्यां आरल्याला श्रन्वस्तारुतीचीच तेवढी ओळख मुख्यतः पाहिजे होती. तोटीच्या पाण्याशीं पुष्कळ वेळां मुलें सळतात धाजि तिची चिळकांडी लांबवर उडेल असें करितात. त्या चिळकांडीची सरणी ही देखील अन्वस्त आकृतिचेंच उदाहरण होय.

गतिरूपीयांत, सरणी ज्यांमध्ये सरळ असत्ये अशा तऱ्हेच्या विविध गतींचा अभ्यास जसा होतो तसाच सरणी ज्यांमध्ये वक्र आहे अशा तऱ्हेच्याही विविध गतींचा अभ्यास होतो.

वक्र सरणीच्या अभ्यासांत एका विशिष्ट प्रकारच्या वक्रसरणीचा अभ्यास जरा त्यांतल्या त्यांत जास्त महत्त्वाचा आहे; तो एकचाल वृत्तगतीचा होय. पण त्याच्यासंबंधी सांगण्याच्या अगोदर जातां जातां विवृत्त गतीचेंहि ठरक उदाहरण नमुन्याकरितां डोळ्यापुढें आणून ठेवून पुढें जाऊं. असें उदाहरण म्हटलें म्हणजे बहुतेक सर्व घड्यांच्या सूयांभोंवतीं फिरण्याचें होय. सधं घड्यांच्या कक्षा अगदीं वृत्तस्वरूप नसून विवृत्तस्वरूपाच्याच आहेत. असो. वर एकचाल वृत्तगतीचें जें विशेष महत्त्व आहे म्हणून म्हटलें तें एकपरी अशामुळेच आहे म्हटलें तरी चालेल कीं, साधारणपणें एकंदर संबंध कक्षा विवृत्तस्वरूपाचीं असो किंवा अम्बस्त-रूपाचीं असो किंवा आणखी एकाद्या विशिष्ट वक्रतेच्या प्रकाराचीं असो, वक्रता हा गुण रथांत सामान्य आहेच, आणि जितक्या जितक्या मानानें आपण सरणीच्या लहान लहान खण्डापुरतें पाहतात जाऊं तितक्या तितक्या मानानें तेवढा अत्यल्प खण्ड स-यास्तून्या वृत्ताचाच खण्ड असें मानण्यांत चूक कमी कमी होत जाणार. असें एकादें वृत्त तेवढ्या अत्यल्प खण्डापुरतें केव्हांही कल्पितां येणारच कीं जें वक्रतेच्या दृष्टीनें तेवढ्या अत्यल्प खण्डापुरतें तरी निदान ठिक बसतें करतां येईल. एकादी बांकडी तिकडी रेखाती सहन रीतीनें आपण काढिली तर तिची वक्रता निरनिराळ्या ठिकाणीं निरनिराळी आहे असें आपण म्हणतोच कीं नाहीं ! अलीकडे सरंगाड्यांचा सुळसुळाट पुष्कळ झाला आहे, त्याचेंच उदाहरण घ्याना. एकादें वळण सरंदिशीं वळतांना ' फार वाईट वळण घोवा, गाडी उलटून पडत्ये कीं काय ' असा भास होतो तर एकादें वळण अगदीं सौम्य आणि सुखावह असतें. या अनुभवांत सुद्धां मावार्थ वर म्हटल्याप्रमाणें म्हणजे वक्रता कमी अधिक अशा तऱ्हेचाच असतो. जितकें मोठें अरित्र घेऊन वळण मारिलें असेल तितकी त्याची वक्रता कमी; उलट जितकें लहान अरित्राचें चक्र काढून रस्त्याला वळण मारिलें असेल तितकी त्याची वक्रता जास्त. सामान्यतः वक्रता आणि तेथें तेवढ्यापुरतें ठिक बसणाऱ्या वर्तुळाचें अरित्र हीं एकमेकांच्या व्यस्त प्रमाणांत असतात म्हणजे वक्रता आणि तिचें अरित्र हे एकमेकांचें व्यत्यास होत.

असो एकचाल वृत्तगतीचा अभ्यास महत्त्वाचा आहे असें वर म्हटलेंच आहे. अशा गतीचीं उदाहरणें हवींतेवढीं देतां येतील. वाफइंजन किंवा तेलइंजन चालू असतांना पाहिलें तर त्याचें झोकचाक बहुतेकरून अगदीं एकचालीनें गिरगिरत असलेलें दृष्टीस पडते. बेंठें वाफइंजन चालू असतांना पाहिल्यास तेथें एक ' गिरगिर माता ' दोन हातांत दोन जड गोळे घेऊन गिरगिरत असलेला कित्येक वेळां दिसतो. इंजन संथपणें चाललेलें असतां गोळे एक चालीनें वर्तुळमार्गांत फिरत असतात. पण याहीपेक्षां सोपें उदाहरण म्हटलें म्हणजे गोफणाचें. दगड मारावयाच्या अगोदर साधारणपणें ती एकचाल वृत्तगतीनें फिरत असत्ये. रंगणावर

धरलेल्या धोड्याचें उदाहरणही लक्ष्यांत ठेवण्यासारखें आहे. या सगळ्या ठिकाणी विशेष असा की या वृत्तगतीचा वृत्तपणा मध्याभिमुख प्रवेगावर अवलंबून असतो. वृत्तस्थ पदार्थाच्या गतीला वृत्तपणा म्हणजे वाटोळेपणा आणि कारितां त्यावर मध्याभिमुख अशी खेंच एकसारखी चालू ठेवावी लागत्ये. वृत्तस्थाचा कोणत्याही विवक्षित क्षणीचा वेग म्हटला म्हणजे त्याची दिशा स्पर्शिकानुगतच असत्ये. ही दिशा क्षणोक्षणी पालटत्ये हा अरित्रानुगत प्रेरकाचाच परिणाम यालाच अभि-
मध्य प्रेरक असें म्हणतात. अर्थात् हा प्रेरक वृत्तस्थावर दोरीच्या योगानें लाविलेला असतांना, वृत्तस्थाच्या दृष्टीनें ही खेंच मध्याभिमुख; पण मध्याच्या स्त्राच्या दृष्टीनें पाहता ही ओढ सारखी वृत्ताभिमुख म्हणजे उन्मध्य (मध्य उसळूं पाहणारी) अशाच म्हटली पाहिजे हें धोड्या विचाराअन्तीं कळून येतें. ही ओढ आतां किती असली पाहिजे म्हणजे वृत्तस्थाच्या वस्तुमानाच्या आणि वेगमानाच्या काय प्रमाणांत असली पाहिजे हें गणितदृष्ट्या सिद्ध करण्याची एक विशिष्ट पद्धति आहे. ही पद्धति मूलतः व्यस्यपद्धतिच* होय. एकाच बिन्दूपासून निरनिराळ्या क्षणींच्या वेगांच्या योग्य निर्देशिका काढितात आणि मग त्यांचीं टोके एका साफ रेषेनें जोडतात म्हणजे जी आकृति येत्ये तिला **वेगवर्तनि** म्हणतात.

असो. प्रस्तुत एकचाल वृत्तगतीसंधानें आतां सांगितलेल्या वेगवर्तनीच्या साहाय्यानें किंवा दुसऱ्या एकाद्या रीतीनें म्हणा असें सिद्ध करता येतें की:-

१ अशा तऱ्हेच्या गतीला अभिमध्य प्रेरकाची आवश्यकता असत्ये, आणि म्हणूनच अशा ठिकाणी प्रवेग जो असतो तो अभिमध्यच असतो. (वेग स्पर्शिकानुगत आणि प्रवेग अरित्रानुगत.) २ वृत्तस्थाचें वस्तुमान, वेगमान, आणि त्यावरील अभिमध्यप्रेरक यांचा

संबंध
$$प्रे = \frac{प. ते^२}{J}$$
 असा असतो.

येथें प्रे = अभिमध्य प्रेरकाचें मान,

प = वृत्तस्थाचें वस्तुमान,

ते = ,, वेगमान,

J = वृत्ताचें अरित्र,

अरभक्तो प - ते - वर्गोऽभिमध्यं प्रेरकं मतम् ।

ते वर्गोऽत्रिभक्तस्तु प्रवेगस्तत्र गण्यते ॥

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* ग्यालिलिओने पतत्पदार्थाच्या संबधीं तथ्य काय आहे हें हुडकून काढण्याचा जो अभ्यासपूर्वक प्रयत्न केला, त्यांत प्रथमतःच त्यानें हलक्या पदार्थापेक्षां जड पदार्थ अधिक त्वरेनें स्यालीं पडतात ही जुन्या लोकांची समजूत भ्रान्तिमूलक असल्याचें सिद्ध केलें. जड पदार्थ हलक्यापेक्षां लवकर पडतात आणि असेंच असावयाला पाहिजे अशा तऱ्हेची समजूत वरवर पाहणारांची अगदीं सहज होऊन बसत्ये हें खरें आणि म्हणूनच हें तथ्य नव्हें ही निव्वळ समजूतच आहे, असें कोणी म्हटल्यास तें तिरस्करणीयच वाटतें; वरील समजूत नियमवजा नसून भ्रान्तिमूलक असणें हें मुळां शक्यदेखील वाटत नाहीं. तथापि येथें एक दाखला मनांत आणून विचार करावा; म्हणजे निदान ही समजूत भ्रान्तिमूलक असणें कसें शक्य आहे हें तरी प्रथम ध्यानांत येईल. समजा, एकाच्या मुलाच्या घांति नेहमींच ओलसर सर्पण जाळण्याचा प्रघात असला आणि त्यानें कोरडें सर्पण जाळलेलें कधींच पाहिलें नाहीं; तर अशा मुलाच्या मनांत चूल पेटली कीं धूर झालाच असा टाम नियम टरून गेल्यास त्यांत काय नवल आहे, परंतु या बाबतींत ओलें सर्पण हा एक उपाधि आहे आणि तो दूर केला कीं मग विस्तव असूनही धूर नसूं शकतो हें त्याच्या प्रत्ययास आणून देतां येईल हें उघड आहे. प्रस्तुत पतत्पदार्थांच्या संबधानें पाहनां देखील असाच एक उपाधि आहे हें ग्यालिलिओच्या लक्षांत आलें. जड व हलके पदार्थ निरनिराळ्या त्वरेनें स्यालीं पडतात असें लोकांना कां वाटतें, त्या बाबतींत धनाचें मूळ कारण काय आहे हें ग्यालिलिओनें बरोबर ताडलें. भुईकडे धांव घेतांना सगळ्या पदार्थांना नेहमीं हवेमधूनच मार्ग काढावा लागतो आणि या हवेच्या विरोधाची बाधा निरनिराळ्या पदार्थांना निरनिराळ्या मानानें होत असल्यामुळें मूळ पतनासंबंधानें जें तथ्य तें केवल-स्वरूपांत प्रकट होत नाहीं हें त्याच्या लक्षांत आलें. येथें हवा हा उपाधि असल्यामुळें तो काढून टाकावयाचा म्हणजे एक तर हवा उपसून टाकून रिक्तावकाशांत प्रयोग करून पाहिले पाहिजेत; किंवा निदान जे भिन्न वजनाचे पदार्थ प्रयोगाकरतां घेतले असतील त्या सर्वांनाच हवेचा विरोध समसमान होईल अशी तरी सधरादारी घेतली पाहिजे हें उघड आहे. हल्लीं उपलब्ध असलेल्या उत्कृष्ट साधनांनीं रिक्तावकाशासंबंधीचे प्रयोग चांगलेच करून दाखवितां येतात आणि त्यावरून निरनिराळ्या वजनाचे पदार्थ एकाच त्वरेनें पडतात हें सिद्ध करतां येतें. रिक्तावकाशांत पीस आणि पैसा दोन्हीही एके ठिकाणाहून एकदम सोडिलीं असतां दोन्ही बराबरीनेंच पडत राहून शेवटीं एकदमच स्यालीं तळावर येऊन पोहोचतात हें हल्लीं सहज दाखवितां येतें. ग्यालिलिओच्या

* वास्तवशास्त्राचा युरोपीयन इतिहास जो प्रसिद्ध आहे त्याच्या आधारांनें पुढील लेख लिहिला आहे. तरी ज्यांच्याकरितां हा लेख लिहिला आहे त्यांनीं ग्यालिलिओ म्हणजे युरोपीयन शास्त्राच्या इतिहासातील एक प्रसिद्ध इटालियन तत्त्ववेत्ता असाच अर्थ घेतला पाहिजे असें नाहीं; कोणी एक संदिग्धान, परंतु बुद्धिमान् जिज्ञासू असा सामान्य अर्थ जरी घेतला तरी चालण्यासारखे आहे. अशा तऱ्हेच्या तत्त्ववेत्त्यांची वृत्ति शास्त्रीय प्रश्नासंबंधानें कशी असत्ये, तो त्यांचीं उत्तरें कोणत्या घोरणानें कोणत्या पद्धतीनें देण्यास झटत असतो हें या ठिकाणीं मुख्यतः दाखविण्याचा हेतु आहे. आपल्या इकडेही ग्यालिलिओच्या काठीं किंवा त्याच्या आगेमागे कोणी तत्त्ववेत्ता या प्रश्नाचाच शोध करणारा झाला असणें असंभवनीय नाहीं. तथापि आपल्या इकडेही इतिहास अजून दुर्दैवानें उजेडांतच यावयाचा आहे.

वेळेला रिक्तावकाश करण्याची हल्लींसारखी उत्कृष्ट साधनें नव्हती, म्हणून त्यानें हबेंतच प्रयोग करून दाखविला. पांशा येथील विद्यापीठाची सर्व मंडळी जमली होती आणि सर्वांच्या समक्ष ग्यालिलिओनें पांशाच्या सुप्रसिद्ध कलत्या मनोऱ्यावर चढून एक रत्तली आणि शंभर रत्तली असे दोन गोळे एकदम सोडून दिले आणि ते जेव्हा एकदम एकाच वेळीं भुईवर येऊन आदळले तेव्हा त्यासरशी पदार्थाच्या मुकपतनासंबंधी दोन हजार वर्षे युरोपांत चालत आलेल्या भ्रमाचा भोपळा पार फुटला ही ऐतिहासिक गोष्ट प्रसिद्ध आहे.

असो. पतत्पदार्थांचें अवलोकन केलें असतां एक गोष्ट सहज आपल्या ध्यानांत येत्ये. ती ही कीं तो पदार्थ जसजसा झालीं येतो तसतसा अधिक अधिक वेगांत येतो ही गोष्ट कोणाच्या ध्यानांत सहज नच आली तर त्यानें निःशब्द पतनापेक्षां एकादें सशब्द पतनाचें उदाहरण आठवून पाहिलें, म्हणजे ती ध्यानांत घेण्यास उशीर लागणार नाही. उदाहरणार्थ विहिरींत पोहारा सोडतांना तो अगदीं मोकळेपणीं विहिरींत उतरूं यावा आणि तो उतरतांना जो आवाज होतो त्याकडे लक्ष्य द्यावें, म्हणजे सहसा ध्यानांत आल्याशिवाय राहणार नाही कीं बहुधा पोहारा सर सर सर सर असा झालीं जातो. तेव्हां तो आवाजच सांगतो कीं त्याचा वेग सारखा वाढत वाढत जात असतो. दुसरे उदाहरण एकाद्या सरळ उतारावरून घळघळत जाणाऱ्या पायगाडीचें मनांत आणावें. ती जर मोकळी सोडलेली असली, तर जशजशी झालीं झालीं जात्ये तसतशी ती अधिकाधिक वेगांत येत्ये ही गोष्ट वर बसणाऱ्याला तर कोणी सांगायला नकोच, पण नुसत्या पाहणाऱ्याच्या देखील अवलोकनानें आणि तिच्या किट्ट किट्टाकिट्टावाजाच्या योगानें तेव्हांच ध्यानांत येत्ये. जी गोष्ट पायगाडीची तीच गोष्ट बैलगाडीचीही. हांकणाऱ्याच्या व पाहणाऱ्याच्याही ही गोष्ट चांगली ध्यानांत येत्ये कीं ती उतारावरून (वरंघळीवरून) मोकळी जाऊं दिली तर ती सारखी अधिक-अधिक वेगांत येत्ये. आतां येथें प्रश्न असा निघतो कीं अशा ठिकाणीं हा जो जागजागीं आणि क्षणोक्षणीं उत्तरोत्तर वाढत चाललेला वेग दृष्टीस पडतो तो काय अन्तराच्या प्रमाणांत वाढत जातो ! सरुद्धर्शनीं असा ग्रह होतो कीं तो अन्तराच्या प्रमाणांत वाढत असावा. तसाच ग्रह प्रथम ग्यालिलिओचाही झाला. त्याला वाटलें कीं पदार्थ मूळ जागेवरून सुटल्यापासून एका हाताच्या अन्तरावर गेला म्हणजे त्यामध्ये जितका वेग येतो त्याच्या दुप्पट वेग तो आणखी एक हात पुढें चालून गेला म्हणजे येत असावा. येथवर ग्यालिलिओच्या आणि सामान्य जनांच्या विचारांत फरक नाही. पण याच्यापुढें साधारण माणसाची वृत्ति अशी असत्ये कीं, हा ग्रह सयुक्तिक दिसतो असें म्हणून लगेच त्याला ग्रह म्हणून न म्हणतां नियम म्हणूं लागावयाचे. तर इकडे ग्यालिलिओ प्रथम हा ग्रह आपल्या इतर अनुभवाशीं पूर्ण सुसंगत आहे कीं नाही, हें शक्य तितकें मनांत पडताळून पाहणार आणि मग तसा तो इतर अनुभवाशीं मिळता आहे असें वाटल्यास त्याला लागलाच मोजमापासहित प्रयोगांनीं सिद्ध करूं पाहणार. कल्पना चालवावयाचीच, नाही असे नाही, तर्क बांधावयाचा; पण ती कल्पना किंवा तो तर्क इयत्तापूर्वक प्रयोगांनीं सिद्ध झाल्याशिवाय त्याच्यावर पुढची इमारत केव्हाही रचावयाची नाही हा ग्यालिलिओचा बाणा.

याच धोरणाला अनुसरून प्रस्तुत ठिकाणीं वेग हा अन्तराच्या प्रमाणांत वाढत असावा हा जो सरुद्धर्शनीं होणारा तर्क तो प्रथम आपल्या मनाशींच तपासून पाहतां सयुक्तिक ठरतो कीं

नाहीं हें ग्यालिलिओ पडूं लागला. तों त्याला असें आढळून आलें कीं हा तर्क पहिल्या जुजबी तपासणीलाच मुळीं टिकत नाहीं तर पुढच्या प्रयोगाच्या कसोटीला कसचा उतरतो ! या-संबंधानें त्याची विचारसरणी अशी:-

दोन पदार्थ बरोबर एकाच उंचीवरून खाली सोडिले असें समजा. पहिला एकच पुरुष खाली घेऊं दिला आणि दुसरा दोन पुरुष खाली घेऊं दिला. आतां येथें तुमची कल्पना अशी कीं पहिल्याचा शेवटचा वेग दुसऱ्याच्या शेवटच्या वेगाच्या निमपट असावा. तसें जर खरें असेल तर मग दुसरा पदार्थ साधारण दुप्पट त्वरेनें आपलें एकंदर अन्तर चालून आला असा त्याचा अर्थ होतो. अर्थात् त्यानें आपल्या एकंदर मार्गाचा पूर्वार्ध देखील दुप्पट त्वरेनें आक्रमिला असला पाहिजे, असें म्हणणें प्राप्त होतें. म्हणजे याचा अर्थ असा कीं पहिल्या पदार्थाला आपलें पुढपर अन्तर सुळकून यावयाला जितका वेळ लागला त्याच्या निमपट वेळ दुसऱ्याला तितकेंच अन्तर आक्रमावयास लागला असें म्हटलें पाहिजे. पण हें प्रत्यक्ष अनुभवाशीं जुळतें आहे काय ! मुळींच नाहीं. कारण दोन पदार्थ एकाच वेळीं एकाच उंचीवरून सोडिले असतां त्यांची धाव अगदीं जणू काय साद्याला झाडा लावून होत्ये आणि बिबक्षित टप्पा ते बरोबर सारख्याच वेळांत येऊन गांठतात हें प्रत्यक्ष प्रमाणानें अगोदरच आपण सात्रीपूर्वक सिद्ध करून घेतिलें आहे; तेव्हां असा विचार करून पाहतां वेगाची वाढ अन्तराच्या मानानें होत असावी ह्मणून तर्कच बरोबर नाहीं असें ठरतें. *

याप्रमाणें पतत्पदार्थांच्या वेगवाढीसंबंधानें सरुदृशनीं जो तर्क होतो त्याचा आपल्या मनाशींच निरास करून दुसरा जो एक विकल्प त्यासंबंधानेंच साहजिक मनांत येतो त्याकडे ग्यालिलिओ षळला. हा दुसरा विकल्प म्हणजे असा कीं पतत्पदार्थांचा वेग आक्रमिलेल्या अन्तराच्या मानानें नव्हे तर मग बहुतकरून कालाच्या मानानें वाढत असावा. आतां हा विकल्प मनांत आला कीं त्याबरोबरच आणखी एक प्रश्नही लगेच सुचतो. तो असा कीं, आक्रमिलेल्या अन्तराचें आणि तो आक्रमावयास लागलेल्या काळाचें तरी प्रमाण काय पडतें ! यासंबंधानें जेव्हां ग्यालिलिओ विचार करूं लागला तेव्हां त्याला आढळून आलें कीं, वर निर्दिष्ट केलेला विकल्प आणि त्याबरोबरच सुचणारा पुढचा प्रश्न यामध्ये इतका निकट संबंध आहे कीं, एक सुटला कीं दुसरा सुटलाच. किंबहुना पहिला विकल्प प्रयोगाच्या कसोटीला उतरतो किंवा नाहीं हें पारखून पाहण्याला या दोन प्रश्नांचा अन्योन्याश्रय पुरतेपणीं ओळखल्या-शिवाय दुसरा प्रत्यक्ष मार्गच सांपडत नाहीं. कारण असें कीं वेग हा कालाच्या प्रमाणांत आहे किंवा नाहीं हें साक्षात् प्रयोगांनीं निश्चित करावयाचें म्हटलें तर काल आणि वेग या दोहोंचीं मोजमापें प्रत्यक्ष रीतीनें घेतां येतील अशीं साधनें उपलब्ध पाहिजेत. यापैकीं कालाचें मापन करण्याची युक्ति सहज एकादी सुचण्यासारखी आहे, पण वेगाचें प्रत्यक्ष मापन करावयाचें कसें ! धावत्या पडत्या पदार्थांचा वेग प्रत्येक क्षणीं निरनिराळा होत आहे ही गोष्ट प्रत्ये-

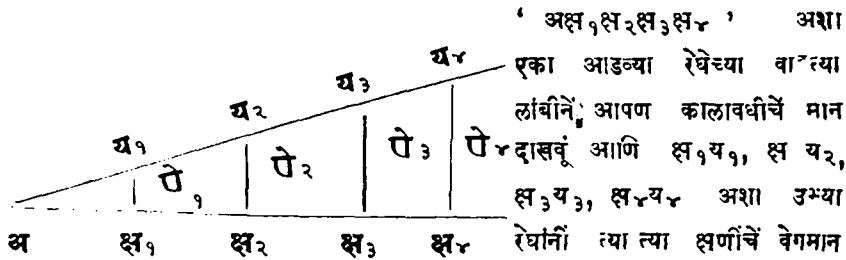
* हें ग्यालिलिओचें स्वतःच्या तर्काचें स्वतःच केलेलें सण्डन अगदीं न्यायशुद्ध आहे असें म्हणतां येत नाहीं. तथापि त्याचा निकाल बरोबर आहे. ही एक गोष्ट, आणि दुसरी याची वरील ऐतिहासिक इकागत मनोरंजक आणि बोधप्रद आहे यस्तव ती या ठिकाणीं उद्धृत केली आहे.

काला कबूल होत्ये म्हणजे वेग ही कल्पना प्रत्येकाला करता येत्ये; पण अमुक पदा-
र्थाचा अमक्या क्षणीचा वेग प्रत्यक्ष मोजून दाखवा पाहूं असें म्हटले म्हणजे मोठी पंचा-
ईतच. या प्रश्नामधून ग्यालिलिओने मोठ्या शिताफीनें मार्ग काढिला. प्रथम कालमापनाचीच
गोष्ट घेतली तर ती सुद्धा हल्लीं आपल्याला वाटत्ये नितकी त्यावेळीं सोपी नव्हती. हल्लीं
शर्यतीचे वगैरे नक्षी काळ खटक्याच्या घड्याळाच्या साहाय्यानें एक पंचमाश विपकापर्यंत* देखील
आपण सूक्ष्मतेनें मोजूं शकतो हें सर्वांनाच माहीत आहे. याहीपेक्षा अधिक सूक्ष्मतेनें काल-
मापन करण्याच्या पद्धती आणि त्यांना लागणारी साधनेंही हल्लीं उपलब्ध आहेत. परंतु
हल्लींच्या आणि ग्यालिलिओच्या काळामध्ये केवढी मोठी तफावत ! त्यावेळीं कालमापना-
करितां वाळूचें घड्याळ किंवा आपल्याकडे फार माहित असलेलें घटिकापात्र यांसारखीं
साधनेंच फायतीं उपलब्ध होती. लम्बकाचा उपयोगही या कार्यां करतां येईल ही गोष्ट
प्रथम ग्यालिलिओच्याच ध्यानांत आली, आणि तेव्हांपासून पुढें मग लम्बकाचा अभ्यास
अधिकाधिक होऊन घड्याळें हल्लींच्या नमुन्याप्रमाणें होण्याच्या मार्गास लागलीं असें म्हणतात.
असो; प्रस्तुत प्रयोगाकरितां कालमापनाचे कार्यां घटिकापात्रासारखें पात्र ग्यालिलिओ वापरी, पण
त्याच्या उपयोगाची रीत मात्र थोडी निराळी असे. अशा एकापात्रांत तो पाणी अगोदर भरून
ठेवी. पाणी अर्थात् छिद्रावाटे सारखें गळत राही, पण तें त्याला वाटेल तेव्हां बोटानें
चटकन् बंद करतां येई, किंवा सुरू करतां येई. विवक्षित वेळांत बाहेर गळून आलेलें पाणी तो एका
लहानशा तबकडींत नेमकें पडूं देई, आणि अगदीं नाजूक तमाजवर तें वजन करी. बरेच नाजूक
तराजू त्या वेळींही उपलब्ध असल्यामुळे निरनिराळ्या कालावधींचें प्रमाण त्या न्या अवधींत
गळून आलेल्या पाण्याचें वजन करून त्याला चण्याचें सूक्ष्मतेनें ठरवितां येई. हें सर्व येथे
विशेषानें सांगण्याचें कारण असें की, सत्या अभ्यासकाला या गोष्टीपासून पुष्कळच बोध घेण्या-
सारखा आहे. नुसती अमुक कल्पना सयुक्तिक दिसत्ये म्हणून तेवढ्यावरच ती केव्हांही पतकरा-
वयाची नाहीं, इयत्तादृष्ट्या प्रयोगांनी तिची सिद्धि झाली पाहिजे; असा एकादा मनाचा
निश्चय झाल्यावर मग उपलब्ध साधनें अधिक सूक्ष्म करणें किंवा नवीन युक्त्या
योजून नवीं उपकरणें सिद्ध करणें ही गोष्ट करावीच लागत्ये, आणि कुशल प्रयोजकाला
ती करतांही येत्ये.

असो, हें कालमापनासंबंधानें झालें; पण वेग मापावा कसा ? तो तर योग्य रीतीनें
आणि सूक्ष्म मानानें मोजतां आल्याशिवाय येथें वेग कालाच्या प्रमाणांत वाढतो ही
आपली कल्पना प्रयोगांनीं पडताळून पाहणें शक्य नाहीं. अशी अडचण ग्यालिलिओच्या
पुढें दत्त म्हणून उभी राहिली; तेव्हां त्यानें मोठ्या सुवीनें या अडचणींतून मार्ग काढिला.
प्रथम हें लक्षांत आणिलें पाहिजे कीं वेग प्रत्यक्ष मोजतां येणें सर्वत्रच अशक्य आहे अशी
कांहीं गोष्ट नाहीं. कारण पहा कीं एकादा मनुष्य म्हणा किंवा एकादा पदार्थ म्हणा, सारखा
संथपणें एकाच चालीनें चाललेला असला तर अशा ठिकाणीं त्याचा वेग सांगणें म्हणजे

* हें मोठें विपळ ध्यावयाचें. लहान विपळाच्या अडीचपट मोठें विपळ. पटका, पळ
विपळ अशी एक रीती. तींतील विपळ लहान विपळ होय. दुसरी रीती घंटा (किंवा तास)
पळ, विपळ, ही होय. तेथील घंटा हा काल घटकेच्या २॥ पट. त्याचप्रमाणें येथील पळ विपळ
हेही विभाग पाहिल्या रीतींतल्या पळविपळाच्या २॥ पट.

तो दर एक कालावधीत अमुक एक अन्तर चालतो हे सांगणेच होय. याकरिता तो संधपणे चालू असताना केव्हांही अमुक एक मोजलेले अन्तर त्याला चालून जाण्यास नक्की वेळ किती लागतो हे मोजून काढिले म्हणजे झाले. या मापनात काही मोठेसे अवघड नाही. परंतु प्रस्तुत पतत्पदार्थाची गोष्ट बरीच निराळी पडत्ये. त्यांचा वेग क्षणोक्षणी आणि जागजागी वाढता असल्यामुळे दर क्षणी निराळा हे नाकबूल करता येत नाही, कारण ते प्रत्यक्षच दिसते. तेव्हा या ठिकाणी अमुक क्षणी वेग अमका हे प्रत्यक्ष मोजून काढावयाचे कसे ? काही एक निश्चित वेळ जर वेगाची किंमत एकच अढळ राहती तर मग तेवढ्या वेळात किती मार्गक्रमण झाले हे मोजून काढून प्रत्येक ' विपळागणीक अमुक अन्तर ' असे वेगमान पडते म्हणून सांगितले असते. पण येथे मुळांच कोणताही क्षण पाहिला तरी त्याच्या आजूबाजूच्या अगदी निकट क्षणी सुद्धा वेग निराळाच पडला, तेव्हा येथे नैष्ठिक वेगाचे मान प्रत्यक्ष मोजून काढावे कसे ? त्याला उत्तर अर्थात् हेच की, प्रत्यक्ष नैष्ठिक वेगमान जर मोजता येत नसेल तर दुसरा एखादा त्यावर अवलंबून असलेला असा राशि मोजून काढावा की त्यावरून निःसंशय नैष्ठिक वेगमान सांगता येईल. असा राशि या ठिकाणी अन्तर हा आहे आणि शिवाय तो असाही आहे की तो अगदी सहज आणि फारच सूक्ष्मतेने मोजता येतो. तेव्हा आता येथे निदान इतके तरी करता आले पाहिजे की, वेग हा काळाच्या मानाने वाढत जातो ही आपली कल्पना जर तथ्य असेल तर या समजुतीच्या आधारावर पतत्पदार्थाला आरंभापासून निरनिराळी अन्तरे चालून जाण्यास जे निरनिराळे कळ लागतील ते अन्तराच्या नक्की अमुक प्रमाणांत असले पाहिजेत असे आपणांस आगाऊच निश्चित सांगता आले पाहिजे. मग प्रत्यक्ष प्रयोग करून निरनिराळी अन्तरे आणि त्यांना लागलेले निरनिराळे काळ काळजीपूर्वक सूक्ष्मपणे मोजून काढता येतील, आणि जर त्यांच्यामध्ये पडणारे प्रमाण आणि अपेक्षित प्रमाण यांचा ताळा जमला तर मग आपला पूर्वकल्प बरोबर होता असे म्हणता येईल. अशा तऱ्हेच्या एखाद्या वाढत जाणाऱ्या वेगामुळे विवक्षित कालावधीत आक्रमिलेले अन्तर आणि तो कालावधि यांचा नक्की संबंध कसा असला पाहिजे हे प्रथम युक्तिवादने काढण्याकरिता ग्यालिलिओने ज्या आलेखपद्धतीचा उपयोग केला तीच आलेखपद्धति अजून देखील त्या कार्मी हमेशा उपयोगांत आणिली जात्ये. त्याची विचारसरणी अशी:- पतत्पदार्थाचा वेग कालाच्या प्रमाणांत वाढत जातो अशा समजुतीच्या आधारावर आणून मार्गक्रमण आणि कालावधि यांचे प्रमाण काय पडले पाहिजे हे काढणार आहो. येथे



दाखवू असे म्हऱेले तर, अर्थात् आपली मूळ समजूत सरी धरल्यास य_१, य_२, य_३, य_४ ही या वेगदर्शक स्तभांची अग्रे नेमकी ' अ ' मधून काढलेल्या एकाच सरळ तिरप्या आणि

चढत्या रेषेत यावयास पाहिजेत. कारण तेव्हांच आपल्याला असे म्हणता येईल कीं

$$\frac{\text{क्ष}_१\text{य}_१}{\text{अक्ष}_१} = \frac{\text{क्ष}_२\text{य}_२}{\text{अक्ष}_२} = \frac{\text{क्ष}_३\text{य}_३}{\text{अक्ष}_३} = \frac{\text{क्ष}_४\text{य}_४}{\text{अक्ष}_४} \text{ अथवा } \frac{\text{पे}_१}{\text{म}_१} = \frac{\text{पे}_२}{\text{म}_२} = \frac{\text{पे}_३}{\text{म}_३} = \frac{\text{पे}_४}{\text{म}_४}$$

आतां येथें असें समजा कीं एकंदर विचारांत घेतलेला कालावधि जो अक्ष_४ म्हणजे म_४ याचा बरोबर मधला क्षण म्हणजे 'क्ष_२' हा होय. आतां 'क्ष_२' या क्षणीचा जो वेग तो 'क्ष_४' या क्षणीच्या वेगाच्या बरोबर निम्मा असणें हें आपल्या आययहानुसार प्राप्त आहे. शिवाय 'क्ष_२' हा क्षण असा आहे कीं त्याच्या एका बाजूच्या सर्व क्षणींचे वेग 'क्ष_२य_२' म्हणजे पे_२ या वेगमानापेक्षा कमी कमी आहेत, तर उलट दुसऱ्या बाजूच्या सर्व क्षणींचे वेग यापेक्षा जास्त आहेत. एवढेंच नव्हे, तर एक क्षण एकीकडचा घेतला तर लगेच त्याच्या जोडीला दुसरीकडचा असा एक क्षण सज्ज दाखवितां येईल कीं पहिल्यांत पे_२ च्या मानानें जितकी कमतरता तितकीच दुसऱ्यांत बरचढता. उदाहरणार्थ, 'अ' हा क्षण असा आहे कीं त्यावेळेचा वेग शून्य आहे म्हणजे पे_२ यापेक्षा पे_२ इतक्याच मानानें कमी आहे तर उलट बाजूला 'क्ष_४' या क्षणीचा वेग 'पे_२' यापेक्षा नेमका पे_२ इतक्याच मानानें जास्त आहे. एवंच असें समजावयास हरकत नाहीं कीं सगळ्या क्षणांना येथून तेथून आपल्या वेगाच्या मानानें उंचीचे स्तम्भ घेऊन रांगेनें उभे केले, आणि मग मध्यस्तम्भापेक्षा अधिक उंचीचे सर्व स्तम्भ छाटून बरोबर त्याच्याच उंचीचे कडून टाकिले, तर असें आढळून येईल कीं हे छाटिलेले वाढत्याचे तुकडे पलीकडच्या टेंगण्या स्तम्भावर नेमके असे बसवितां येतात कीं पहिले तो सगळींच्या सगळीच रांग मध्यस्तम्भाच्या उंचीची. तात्पर्य असें कीं या ठिकाणीं मध्यम वेग जो $\frac{० + \text{पे}_४}{२}$ म्हणजे पे_२ हाच आपला आरंभपासून अखेरपर्यंत कायम होता असें मानिल्यात जितकें मार्गक्रमण होणार तितकेंच वास्तविक सन्यासून्या एकसारख्या शून्यापासून पे_४ पर्यंत वाढत्या वेगाच्या उदाहरणांत होणार. हें जें दोन प्रकारांमध्ये समीकरण आहे किंवा साम्यदर्शन आहे त्यांतच तत्त्वद्रष्ट्याची बुद्धि प्रकट होत्ये. अशीं या युक्तिवादाप्रमाणें विवक्षित कालावधीत मार्गक्रमणाच्या बाबतीत अन्योन्य प्रतियोज्य जे दोन प्रकार दिसतात ते असे:-

(१) सुरवातीला वेग शून्य आणि मग एकसारखा कालाच्या प्रमाणांत वाढत जाऊन एकंदर 'म_४' या कालावधीच्या शेवटीं पे_४ पर्यंत चढणें, आणि

(२) सुरवातीलाच 'पे_४' च्या निम्मा म्हणजे 'पे_२' इतका वेग असून तो सर्वद 'म_४' या कालावधीत न बदलतां कायम राहणें.

एका प्रकारान जितकें मार्गक्रमण होतें तितकेंच विवक्षित अवधीत दुसऱ्या प्रकारानेंही शालें पाहिजे असें युक्तिद्रष्ट्या म्हणणें प्राप्त होतें, पण यांतील दुसरा प्रकार गणिताला अत्यन्त सोपा आहे. त्यांत 'पे_२' हा वेग 'म_४' या अवधीत पहिल्यापासून शेवटपर्यंत कायम असल्याकारणानें मार्गक्रमण $\text{म}_४ = \text{पे}_२ \cdot \text{म}_४$ अथवा $\frac{\text{पे}_४}{२} \times \text{म}_४$ इतकें

होतें. पण ज्याच्या आधारावर हें सर्व प्रतिपादन रचितां आलें तों आपला आयपद मुळीं असा आहे कीं वेग हा कालाच्या समप्रमाणांत वाढत असावा तेव्हां तदनुसार $P_1 = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$ (व त्याचप्रमाणें $P_2 = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$, $P_3 = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$) असें मांडतां येतें. म्हणून

$$M_1 = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \text{ अथवा सामान्य स्वरूपांत}$$

$$M = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \text{ असें समीकरण प्राप्त होतें.}$$

याप्रमाणें बिनबद्दल वेगाचा साधा प्रकार आणि एकसारख्या वाढत्या वेगाचा अवघड प्रकार यामध्ये ग्यालिलिओनें मोठ्या सुधीनें सांगड घालून दिली, आणि आपल्या मनाशीं ठरविलें कीं जर पतस्पर्धाधांचा वेग कालमानानें सारखा वाढत जातो ही कल्पना सरी असेल तर मग निरनिराळ्या कालावधींत आक्रमिलेले मार्ग त्या त्या अवधीच्या वर्गीप्रमाणांत असले पाहिजेत. म्हणजे उदाहरणार्थ एका विपळांत जितकें पतन होईल, त्याच्या बरोबर चौपट पतन दोन विपळांमध्ये झालें पाहिजे.

ग्यालिलिओनें पतस्पर्धाधांचें अवलोकन केलें तेव्हां प्रथम त्यांच्या वाढत्या वेगाची कल्पना त्याच्या मनांत ठसली, आणि हा वेग अन्तराच्या प्रमाणांत वाढतो कां कालाच्या प्रमाणांत वाढतो ही जिज्ञासा त्याच्या मनांत उत्पन्न झाली. नंतर तो आपल्या मनाशींच विचार करूं लागला तों त्याला यापेकीं दुसरी कल्पना सरस होय, पहिली आपल्या एकंदर अनुभवशीं सुसंगत नाहीं, असें वाटलें. मग लगेच त्या कल्पनेचा प्रयोगांनीं ताका पहावयाचा; पण तेथें वेग हा एकसारखा वाढत जाणारा पडला; तेव्हां अमक्या क्षणीं अमुक वेग हें काढावें कसें अशी अडचण पडली. म्हणून पुढें लगेच प्रस्तुत कल्पना सरी असल्यास तिचा नियमित परिणाम काय झाला पाहिजे याविषयी विचार करून पाहतां त्याच्या ध्यानांत आलें कीं वेग कालाच्या प्रमाणांत वाढत असल्यास मार्गमान कालाच्या वर्गीप्रमाणांत वाढलें पाहिजे. इतका उदाहोर्ह झाल्याबरोबर त्याला प्रयोगांनीं पडताळा पाहण्याची संधि प्राप्त झाली. कारण कालमापन सूक्ष्मतेनें करण्याची त्याची तयारी होतीच, आणि मार्गमान मोजून काढणें तर विशेष कठीण नव्हतेंच. मात्र यांत एवढेंच साधावयास पाहिजे होतें कीं पतस्पर्धा अतोनात क्षपाट्यानें कांहीं पडूं नये. फार क्षपाट्यानें पडल्यास कालमापन आणि मार्गमापन हीं दोन्हींही अर्थात् अवघडच जाणार, पण जर कदाचित् वेग एकसारखा वाढत जाणें हें जें प्रमुक्त पतनाचें विशेष लक्षण तेवढें कायम राखून वेगवाढीचा क्षपाटा अमळ कमी करतां आला, तर तें प्रयोगाला फारच सोईस्कर होणार आणि मापनाच्या सूक्ष्मतेतही मोठीच भर पडणार हा साहजिक विचार ग्यालिलिओच्या मनांत आला. यामुळें वेगाची एकसारखी वाढ एवढें लक्षण कायम ठेवून काल आणि मार्गक्रमण यांचा संबंध सूक्ष्मतेनें काढतां येण्याला प्रयोग कशा रीतीनें केले पाहिजेत याची युक्ति ग्यालिलिओला पुढें सुचली ती अशी—

त्यानें असें मनांत आणिलें कीं एकादा चेंडू थेट उभा झालीं सोडून देणें आणि तोच एकाद्या तिरप्या उतरत्या स्रोवणीतून घळघळत झालीं जाऊं देणें या दोन्ही ठिकाणीं एका बाबतींत उघड साम्य दिसतें, आणि ती बाब ही कीं दोन्ही ठिकाणीं वेग अगदीं पहिल्यापासून शेवटपर्यंत क्षणोक्षणीं वाढत राहतो. मात्र फरक इतकाच कीं एके ठिकाणीं ही वेगवाढ

जितक्या सषाट्यानें होये तितकी ती दुसऱ्या ठिकाणीं होत नाहीं. याप्रमाणें कमी अधिक त्वरेनें कां होईना पण ज्या अर्थीं दोन्ही ठिकाणीं वेगवाढ सतत चालूं असलेली आढळये त्या अर्थीं मार्गक्रमण आणि त्याला लागणारा काल यासंबंधीं नियम दोन्ही ठिकाणींही सारसाच असला पाहिजे. म्हणजे अर्थात् वेग हा कालाच्या प्रमाणात वाढत असावा हा आपला प्रथमकल्प जर सारा असेल तर दोन्ही उदाहरणांत $m = \frac{1}{2} \frac{d}{dt} v$ हाच नियम लागू पडत असला पाहिजे. मात्र एवढेंच कीं प्रमुक्त पतनांतिल 'ड' ची किंमत तिर्यक्पतनांतल्या 'ड' च्या किंमतापेक्षा जास्त येणार. याप्रमाणें विचार करून वेगाची वाढ कालाच्या प्रमाणात होणे आणि अनएव मार्गमान कालाच्या वर्गीयमाणात वाढणे या अटकळीची कसोटी प्रयोगांनीं पाहण्याकरितां ग्यालिलिओनें एका उतरत्या गुळगुळीत खोषणीचा उपयोग केला. प्रथम त्यानें उतरत्या मार्गावर १, २, १, १६ अशा प्रमाणांत अन्तराच्या खुणा करून घेतल्या आणि नंतर मग इतकीं अन्तरें आक्रमावयास गोटीला वेळ किती लागतो हें बर सांगितलेल्या कालमापनाच्या युक्तीनें शक्य तितक्या सूक्ष्मतेनें अनेक प्रयोग काळजीपूर्वक करून ते पुनः पुनः तपासून निश्चित करून घेतले. तेव्हां त्याला हे कालावधि अनुक्रमे १, २, ३, ४, या प्रमाणांत असल्याचें आढळून आलें. अर्थात् अशा ठिकाणीं मार्गमान हें कालवर्गाच्या प्रमाणात असतें हें निश्चित झालें आणि त्याच बरोबर वेग कालाच्या प्रमाणात वाढत असावा ही मूळ अटकळही सरी टरली.

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प्रत्येक प्रकरणामध्यें बहुतकरून काहीं नियम अगदीं इतके हमेशा लागणारे, साधे, आणि मूलभूत म्हणून गणिले जातात कीं त्यांना त्या प्रकरणांतले पाटेच म्हणावयास हरकत नाहीं. गतिरूपीय प्रकरणांतही असें पांच चार पाढे आहें, ते अगदीं तोंडपाठच असावे लागतात, वारंवार उपयोग करावा लागल्यामुळे ते तसे सहज होतातही.

वेगमान बिनबदल कायम राहत असेल तर अर्थात् विवक्षित कालावधींत आक्रमिलेलां मार्ग म्हणजे कालावधि आणि वेग यांच्या गुणाकाराइतका होणार हें उपड आहे, तेव्हां

वेगकालइतिमार्गः वेगश्चेत् समसंततः ।

किंवा थोडक्यांत

$$\underline{\underline{m = \frac{1}{2} \frac{d}{dt} v}} \quad \text{असें समीकरण येतें.}$$

पण, जेव्हां वेगमान बदलत चाललेलें असेल आणि तें सारखें एक धोरणानें बदलत चाललेलें असेल म्हणजे प्रवेग समसंतत असा असेल—(उदाहरण—उतारावरून पळपळत जाणारी दुचाकी)

तेव्हां विवक्षित कालान्तरानें होणारें वेगमान हें अर्थात मूलवेग अधिक प्रवेग गुणिलें काल इतकें होतें म्हणजे

$$\underline{\underline{\frac{d}{dt} v = v_0 + \text{प्र. } \frac{d}{dt} v}} \quad \text{असें समीकरण येतें.}$$

अर्थात् विवक्षित कालावधींतलें मध्यम वेगमान

$$\frac{\text{पे. म.} + \text{पे.}}{२} \quad \text{इतकें होतें.}$$

त्यामुळे एकंदर तेवढ्या कालावधीत आक्रमिलेला मार्ग

$$\text{म} = \frac{\text{पे. म.} + \text{पे.}}{२} \cdot \text{म.} \quad \text{इतका}$$

म्हणजे

$$= \frac{(\text{पे.} + \text{प्र. म.}) + \text{पे.}}{२} \cdot \text{म.}$$

$$\text{म.} = \frac{\text{पे.} \cdot \text{म.} + \frac{१}{२} \text{ प्र. म.}^२}{२} \quad \text{इतका असें होतें.}$$

आता वरच

$$\text{म} = \frac{\text{पे. म.} + \text{पे.}}{२} - \text{म.} \quad \text{असें समीकरण आलें आहे.}$$

त्यांत 'म.' बदल $\frac{\text{पे. म.} - \text{पे.}}{\text{प्र.}}$ असें घालता येईल. तसें

केलें म्हणजे

$$\text{म} = \frac{(\text{पे. म.} + \text{पे.})(\text{पे. म.} - \text{पे.})}{२ \text{ प्र.}} \quad \text{असें येतें.}$$

अर्थात्

$$\underline{\underline{\text{पे. म.}^२ = \text{पे.}^२ + २ \text{ प्र. म.}}} \quad \text{असा}$$

मूलवेग, अन्य वेग, प्रवेग, आणि मार्गमान यांचा संबंध येतो.

विद्यमाने मूलवेगे प्रेरकं चेत् प्रयुज्यते ।

प्रवेगगुणितः कालो मूलवेगसमन्वितः

कालान्तरमव वेगं ददातीति विनिश्चितम् ॥

मूलवेगहतेनाथ कालेन तु समन्वितः ।

कालवर्गो मार्गमानं प्रवेगार्धगुणो यदि ॥

अथ शून्यो मूलवेगः प्रवेगः सुसमो यदि ।

प्रवेगगुणतः कालः वेगमानं प्रयच्छति ॥

कालवर्गो मार्गमानं प्रवेगार्ध गुणोऽपि च ॥

अन्त्यवेगस्य वर्गोऽथ द्वि-प्र-मार्गो भवेद्, यदि

मूलवेगस्य शून्यत्वम्, नोचेत् तद्वर्गसंयुतः ॥

बापू-भूमिती पुराण.



(मी मॅट्रिकमध्ये बापूंचे साहाय्य घेऊन कसाबसा पास झालो. बापू माझा मित्र असून मी त्यास ' गणित्या ' ' गणितानन्द ' असे चिडवीत असताहो त्याने मला साहाय्य केले. यामुळे त्यास त्याचा अंशतः उतराई होण्याकरिता हे काव्य-पुराण मी नजर करीत आहे. त्याला मी दोनचार मित्रांसमवेत फारच चिडविले, तरी त्याची मी आता माफी मागतो.)

आधी वंदूं गणनायक ।
जो ऋद्धी-सिद्धीचा नायक ।
पापावरी सुख-सौरक । चूर्णच जणूं ॥ १ ॥
तयाची लेक शहाणा ।
भूमिती जणूं लावण्य-साणी ।
बीजगणित-तन्मर्णा । साजे तिला ॥ २ ॥
तिचे बापूसह विलास ।
वर्णिती ते यक्ष-राक्षस ।
किन्नर डोलावती मानेस । ऐकितां जे ॥ ३ ॥
ते जरी वर्णिले म्यां पामरें ।
तरी मी गर्विष्ठ शिष्ट ठरें ।
परंतु एक्या विश्वंभरें । स्फूर्ती केली ॥ ३ ॥
“ लिही लिही ते विलास ।
बासाणी रे तूं त्यास ।
प्रसन्न करुनि घे भूमितीस । त्या योगें करुनि ” ॥ ४ ॥
मग मी बापूगृही गेलों ।
विलास ते देखिता झालों ।
स्फूर्तीनें लिहिण्यास बसलों । गोड करुनि घ्या ॥ ५ ॥
गणित-देव आहे सासरा ।
सासू त्रिकोण-मिती दे आसरा ।
कान्ता भूमिती शोभवी घरा । ऐसा बापूमहिमा ॥ ६ ॥
भूमितीचें करणें वर्णन ।
जरी तें अपुरें होई जाण ।
तरी पाहिजे केले लिखाण । येईल तसें ॥ ७ ॥

सेट्सस्केअर नाम कंकणें ।
 प्रोटॅक्टर नथ समजणें ।
 भूषणांच्या या मधु किणकिणें । लुब्ध व्हाल ॥ ८ ॥
 डिन्हायडर गळ्या लोभें ।
 कंपास करुनि उलट उभे ।
 मयूरपिच्छसम शोभे । डोंकीवरी ॥ ९ ॥
 अशीचा बापूस सहवास सान ।
 कधी कंपास बोचे जाण ।
 परी त्यास इनां क्लेश न । होत असे ॥ १० ॥
 तधी बापूस होई तिचें ज्ञान ।
 थिआरेम सुचे एक नवीन ।
 जो करी सर्वावरी ताण । काठिण्यांत ॥ ११ ॥
 ऐशी ही युक्तीद-लेक ।
 बापूवरी प्रीत देख ।
 आम्हां देववी शून्य मार्क । परीक्षेंत ॥ १२ ॥
 जधी बापू ये घरांत ।
 तधी ही उभी दारांत ।
 हातांत घालुनि हात । घरामध्ये नेई त्या ॥ १३ ॥
 जें जें संध्येस माडिलें ।
 तें तें बापूनें लाथाडिलें ।
 येरू म्हणे भूमिती-बाले । तूंच माझी स्नानसंध्या ॥ १४ ॥
 जेवणास बसती ओंवलें ।
 केलीं न पुरीं-सर्कलें ।
 तधी संतापची हे सावळे । ओंठ चाविती करकरां ॥ १५ ॥
 म्हणती 'रे आचाऱ्या ।
 सेमी-सर्कलें नसती काचऱ्या ।
 ताटांतल्या या पुऱ्या । सर्कलें नसती ॥ १६ ॥
 पिरॅमिड भाताचा कां न ।
 तूं मोठा ड्याम जाण ।
 लांबविले पाहिजेत कान । गाविण्यांत धरोनी ॥ १७ ॥
 चिरोटे स्केअर जाण ।
 शंकरपाळे पॅरलॅलोग्राम ।
 पदार्थाचे आकार ठाम । असवेत ॥ १८ ॥

बापू-भूमिती पुराण.

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ऐसें होई रोज भोजन ।
न्यानन्तर तें तांबूलभक्षण ।
पुढें भूमिती-रेखाटण । कागदावरी ॥ १९ ॥

ऐसें होता वाजती पांच ।
गुंग बापू भूमितीतच ।
तों मित्रांसमवेत चार पांच । दारी उमा ठाके मी ॥ २० ॥

ह्रीं मारितां बापू सडबडे ।
कंपासबॉक्स झालीं पडे ।
हाल पाहून भूमिती विडे । कंपास-वेडी सखीचे ॥ २१ ॥

म्हणे मनीं ह्रीं टारगट पोरटीं ।
नेवी किराया मासा पती ।
रोज रोज न्यास छळिती । चिडबोनियां ॥ २२ ॥

पुढें ती हात बर करी ।
म्हणे आडवण झाली बरी ।
तुम्हां शापितें थोडें तरी । छळितां मला ! ॥ २३ ॥

बसाल परीक्षा-पेण्डालमधीं ।
येईना मीं तुम्हां तधीं ।
नेईल हरोनां तुमची बुद्धी । तपःसामर्थ्ये करोनियां ॥ २४ ॥

आम्हांस शब्द हे झोबती ।
तसलोहरस कर्णीं ओतिते ।
तों कम्पासायुधें भूमिती । टोंचूं लागे ॥ २५ ॥

तधीं दिसे ती संक्रांत ।
कीं विद्यार्थिमर्दिनी कळींत ।
अथवा म्हाळसाकाकू क्रोधांत । अक्राळ विक्राळ ॥ २६ ॥

कपाळीं उमटती परेलेल रोषा ।
हायपरबोळा भोंवया जेसा ।
ज्या दाविति अपरिमित रोषा । तेणें समर्थीं ॥ २७ ॥

आम्ही केला बापूचा धांवा ।
धांव धांव मित्र-रावा ।
आम्हांलागीं हात यावा । परीक्षापेण्डालसागरीं ॥ २८ ॥

तूं तों आम्हांसी नोंका ।
पोंचवी आम्हां देवोनि टेंका ।
पैलतीरीं तुजविना सखा । कोंग आम्हां नेणार ॥ २९ ॥

न्यू पूना कॉलेज मॅगॅझीन.

तों तो प्रसन्न होई भूमिती-रमण ।
 करा तिचें कोप-शामन ।
 आम्हां देई थोडे ज्ञान । रोज रोज ॥ ३० ॥
 ऐशापरी मी मॅट्रिक-पास ।
 झालों हें समजा सास ।
 तों घेऊन माता त्रिकोणमितीस । छळी भूमिती आम्हांतें ॥ ३१ ॥
 तेष्हां हे मित्रवरा ।
 प्राहि पाहि दया-सागरा ।
 देई आम्हां तव आधारा । विसरूं न तुझ्या रूपेतें ॥ ३२ ॥
 ठेवितों ही लेखणी सालती ।
 सडोन जावो तिची बोधी ।
 लिहिलें जरी आणखी किती । भूमिती ती येई कां ! ॥ ३३ ॥

—आमची स्वारी
F. Y. B.

भूमिती = Geömetry, त्रिकोणमिती Trigonometry.

एकाकी निर्झरिणी !

कवि.-श्री. वा. गाडगीळ.

सहाद्विच्या वरुनि निर्झरिणी निघाली,
 सालीं हळू उतरुनी मुरडोनि आली,
 सोन्याद-न्यांतुनि बहू तुमकोनि चाले,
 तीच्या जला बघुनिया मम चित्त धालें !
 हर्षे अती पुढति धांवत चालली ती,
 मार्गामधें झडक ते तिज आड येती.
 घेऊनिया झडकरी वळसे तयांना
 मार्ग क्रमे पुढति गाउन गोड गाना.
 ती चालली पथि जुमानुनिया न काहीं;
 तळीनची स्वपथ आक्रमण्यांत होई !
 भेटावयास अति उत्सुक सागराला
 सालीं सरीच गमते मज सह-चाला !

× × × × × ×

तों एक निर्झर तिथें तिकडोनि आला
 तीच्या सर्व रमतची पथ चालण्याला,
 “ दोघें क्रमूं मिळुनिया पथ अपुला गे ।
 ये, हांसुनी रमत सागरि जाउं वेगें. ”
 ओढ्यात्रिया परिमुनी असल्या वचाला
 ती मानिनी कुधित हो झणिं सस्य-बाला.
 धिःकारुनी कटुवचें तधिं निर्झरातें
 बेगें क्रमे पुढति निर्झरिणी पथार्तें.
 “ कोणी मला मिळुं नये नच मीहि कोणा-
 मार्गी मिळेन, परिसा मम हाच बाणा
 गर्वें असें वदुनि धांवत एकटी ती
 चाले पुढें; तिज कुणी मिळुनी न जाती.
 तीही कुणा न कधिंही पुढती मिळाली,
 या कारणें तिजसि विस्तृतता न आली.

× × × × × ×

तों बालुकामय पुढें पथ रूस आला-
 आला तिच्यावरि सरा अति घोर घाला
 क्षीणत्व तीस सिकतेमाघिं फार आलें,
 वाहूं बघे, परि मुळीं नच नेट चाले ।
 सारे तिचे विफलची मग यत्न होती;
 हा, हाय ! तेथचि लया झणिं पावली ती ।
 “ रत्नाकरा प्रति मिळूं असली सदाशा
 वाटे पदोपदिंच निर्झरिणीस साशा,
 त्या बालुनें तिज परी गिळिलेच पार.

× × × × × ×

द्वेता पुढेंच अजुनी किति आधि दूर ।

प्रेमाचा खेळ.

[She heard,

Heard and not heard him; as the village girl,
 Who sets her pitcher underneath the spring,
 Musing on him that used to fill it for her,
 Hears and not hears, and lets it overflow]

—TENNYSON.

न्यू पूना कॉलेज मॅगॅझीन.

घडा पाण्याचा...नाहि कां घरीं न्यायाचा !

डोळे पाण्यावरती सिळलें

डोळ्यांमधुनी पाणी गळलें

मुके भाव त्या कसें ग कळले !

घडा प्रेमाचा...नाहीं कां घरीं न्यायाचा !

+ + + +

भरला आहे काठोकाठ

बघते निरस्तुनि जरि त्या नाट

लक्ष लागलें आहे धेट !

परी चित्ताचा...चालतो सेळ प्रेमाचा !

रोज भरावी घागर ज्यांनीं !

तिकडे आहे गुंग मनानीं,

मान इकडचे कसलें नाहीं !

हाच मजेचा !सेळ असे नव-प्रेमाचा

गोपाळ लक्ष्मण आपटे.

(F. Y. A.)

नच कळे ।

चंद्र, तारका-माणिक, मोत्यें-उंचावरती कां असती !

कारणें नच गवसती ।

सुंदर पक्षी, झाडांवरती, रानामध्यें कां उडती !

उत्तर ह्यांचें त्यां माहिती ।

नव-पुष्पां भरल्या वेळीं, वृक्षावरती कां डुलती !

त्यांचे त्यांस माहिती ।

स्वदेश-भक्ती आवडते कां स्वदेशभक्तांमती !

उत्तर ह्या तेच सांगती !

सेळांसाठीं पोरे सगळीं तयार कां राहती !

जगदीशास माहिती !

ओळीं आणुनी चोरुनि कां नव-कवि काव्यां गुंफिती !

त्यांचें त्यांस माहिती !

असो कुणाचे कांहीं गोधळ दिसावया सावळे !

दुस-यांना ते नच कळे !!

गो. ल. आपटे.

(F. Y. A.)

× × स



कवि-श्री. टिळक.

प्रेमाचें तुझिया सुरम्य नवनीं पाणी सदा वागडे
जैसा सुंदरसा गुलाब-कळिच्या बिंदू तळार्शी दडे
उत्कंठाकुल माझिया परे मनीं शान्ती कुठें बावरो-
“ रागानें बघशील तू तरि गडे पोळेल ना तो तरी ! ”
जेव्हां चंचल कापरे धरथरे गालावरी राजसे
हस्तें नाजूकसें जसें चिमुकल्या पुष्पावरी जातसे
रोमांचांतुनि माझिया परे सखे भोती जणूं कापते-
“ प्रीतीया अशीच झुलवी सारी क्षणीं लोपते ! ”
प्रेमाची सखे तुझ्या फुलविली जेव्हां अशी वाटिका
पाहोनी मधु-पुष्प-संघ रमलो वणूं कसा त्या झुसा !
तेव्हांही मजला कधींही न मिळे सौरभप्रदा शान्तता
काटे संतत बोंचले मज गडे ! पुष्पांपती हुंगितां !
सारीं कालवर्षे फुलेही सुकलीं मेलें चि बागाइत
काटे राहति कां निराश हृदया टोंचावया संतत !

काव्य आणि स्त्रिया



ले.-श्री. व्ही. एस्. टिळक.

“ कवीनीं स्त्रियांना चढवून ठेवले आहे ! ”

बाळकराम.

काय झसेल तें असो, स्त्रियांच्या समान हक्कांची मागणी कबूल करतां करतां कवीनीं त्याच्याही पुढें जाऊन त्यांना “ परमेश्वराच्या मूर्ति ” पर्यंत नेऊन बसविलें आहे ! स्त्रियांना मंदू नसतो असलीं बाष्कळ मते प्रतिपादन करणाऱ्या लोकांपैकीं लेखक नाही. त्यांना मंदू असतो. बुद्धि असते. पण त्यांचे डोळे काहीं तारे नसतात व गाल लिटमस पेपर नसतो ! तसेंच प्रेमसाधन करणाऱ्या एकाही कवीचें हृदय फुटल्याचें आजपर्यंत ऐकित्वात नाही. जेथें काहीं नाही तेथें मोडक्या मोटाराप्रमाणें धडधडणारीं हृदये, प्रेमाचीं ‘ स्नेपेलिनें ’ इत्यादि भौतिक चमत्कार कवीनीं कशाकरितां केलें कळत नाही. कवी बहुधा भिकारी असतात, त्याचाच हा परिणाम असावा. पण हे ‘ पिसाट ’ कवी त्या मोडक्या-

तोडक्या कल्पनिक रिज-न्यात जाऊन बसल्यानंतर काय ध्वज लावणार हा प्रश्नच आहे !

असल्या वर्तनाने कवींना काही प्राप्ति होते म्हणजे तर तेही नाही. स्त्रियांनी पुरविलेले विषय त्यांच्याच नावे स्वचं करण्याचा धिनध्याजी व्यापार कवी किती दिवस चालविणार ते चालवोत. कवींची व व्यवहारज्ञानाची झालेली फारकत काही आजकालची नाही. ब्रह्मदेव अकलेची सैरात वाटीत हमरस्याने चालला होता त्यावेळी हा कवींची टोळी-किंवा काव्य-सम्मेलन म्हणा कोणत्या बोळांत काम करीत होते कोणाला ठाऊक ! पण या फारकतीचे परिणाम मात्र सर्वसाधारण लोकांना भोगावे लागतात. स्त्रियांनी आपले भाव फारच धाडवून घेतले म्हणजे जगावर ओढवणाऱ्या संकटपरंपरेची योग्य कल्पना देऊन ह्या मूर्खांची कान-उघाडणी करणारा समाजशास्त्रज्ञ यांना कसा भेटत नाही ! तरी बरे, अजूनही कवितांची मेलगाडी पोस्टऑफिसाच्या ताड्यांत सांपडली आहे. नाहींतर पंचाईत होती ! " माथाप सरकारच्या " ह्या तरी छपने कविता न वाचणाऱ्या ' मनोरमा ' व त्यांचे आईबाप सांपडून समाजयंत्र सुरळीत चालले आहे. शिवाय कृष्ण मूर्खीवर कवींची रुपाट्टि वळत नाही. त्यांच्या पायांतले, कवी ' पुंगुरवाळे ' होत नाहीत हे भाग्यच म्हणावयाचे. ह्या भरमसाट कविराजांना एकच गोष्ट कळत नाही की तुम्ही जशी त्यांच्यावर आपली लेखणी सिजविता तशी कवयित्रींनी तुमच्याकरितां लागलेल्या तळमळीचीं पयें कां लिहू नयेत !

नाहीं म्हणावयाला अगदी अलीकडे एक दोन कवयित्रींनी एवढा धोरणपा दाखविला आहे ! पण हे प्रमाण शोधू गेलें असतां लासांत एक सुद्धा मिळणार नाही ! पण याचें कवींना काय ! त्यांनी संसारवाङ्मयाचे सुद्धा " स्वारस्ययुक्ता कविता किल स्त्री पारुष्य-युक्तः पुरुषश्च गयम् " असे दोन भागच पाडून ठेवले आहेत ! स्त्रियांशिवाय जिकडे तिकडे दुसरा विषयच नाही. स्त्रीलिंगी शब्दांत सांपडणारी गोडी पुलिंगी शब्दांत नाही असेही कवींचें म्हणणें आहे ! शब्दांचा हा बायकी आसाडा फारच वाढल्यामुळे ' गडे ! ' हा शब्द जसा गोड समजला जातो तसा ' गडी ' किंवा ' गड्या ! ' हा समजला जात नाही. बायकांच्या कवितांतून सुद्धा यामुळे हे रूढ झालेले ' नाजुक ' ' कोमल ' शब्दच जिकडे तिकडे बागडतांना आढळतात. स्त्रियांनी कविता लिहून सरसहा पुरुषी शब्द सुंदर समजण्याचा प्रघात पाडल्यास ठीक आहे ! पण इतकी स्वार्थत्यागी दृष्टि त्यांनी काय म्हणून दाखवावी ! पुरुषांनीच अशा बायकांच्या तोंडीं घातलेल्या पुरुषी कविता लिहिल्या पाहिजेत ! एका आधुनिक थोर कवीने स्त्रियांच्या तोंड्या अशाच एका सुंदर काव्यांत ' गड्या ! ' अशी हांक मारून शेवटी त्याला शिवाय खेळण्यास व बोलाविलें आहे ! नशीब ' मेल्या पुरुषांचें ! '

स्त्रियाही कवी-नव्हे कवयित्री असतात, पण कालिदासानें म्हटल्याप्रमाणें " इदं तत्प्रत्यु-त्पन्नमस्ति स्त्रैणमुच्यते ! " त्यांचीं सारीं पयें देवावर, कोठें निर्जीव पंढरीला आळवितील तर आपलीं शृंगारगीतें राधाकृष्णांच्या नांवासालीं दडवून ठेवतील ! नाहींतर आमचे भरकट कविराज ! स्रकस्रकीत विठोबावर लिहिण्याचा प्रसंग आला असतां त्याला ' विठाबाई माउली ! ' करून लागले त्याच्या पटीस ! विसरूनच जातो तो पुरुष आहे म्हणून ! तरी बरे स्वतःलाच स्त्री समजून एकाद्या पनीकरितां सुरत नाहीत ! कोळसा उगाळावा तेवढा

काळाच ! आम्हांला जास्त लिहिण्यास सवड नाही व या पालथ्या घागरीवर शाई ओतण्या-सही आमची तयारी नाही. आमच्या मते या साऱ्या गोष्टीस जे काही उपाय आहेत ते:-

१ आधीच चढून गेलेल्या स्त्रियांना काही तरी दिलेच पाहिजे, म्हणून त्यांचा समान इक कबूल करणे. त्यांनी बरोबर बसावे, बरोबर खेळावे, डाव्या बाजूबद्दल आमचा आग्रह नाही. स्त्रियांची प्रेमयाचना करित फिरावयाचे नाही. ' उपजत जोड्या ' निर्माण करण्याऱ्या परमेश्वराच्या चुकीबद्दल एकट्या पुरुषांतच काय म्हणून दंड !

२ कर्षीना सांगून काहीच उपयोग होणार नाही म्हणून तो प्रयत्न व्यर्थ आहे. पण इतरांनी तरी स्त्रियांच्या योग्यतेबद्दल काही लिहू नये. त्यांच्या सौंदर्याची स्तुति करू नये. कुरूपतेची निंदा करण्यास हरकत नाही. त्यांच्या दोषाबद्दल आपली लेखणी इथी तशी चालवावी. जुने खोविषयक वाङ्मय जाळून टाकावे व काव्ये लिहू नयेत. काव्ये या शब्दाचा अर्थच स्त्रियांची निंदा असा होईल अशी तर्जनी करायची. संयत्नाती परमेश्वर !

माझ्या एका मित्राने एकदा अशी सूचना केली होती कीं, स्त्रीपुरुषांच्या मांडण्याचा पुढे प्रसंग येऊं नये म्हणून एकदां जगाची वाटणी करून कां टाकू नये ! सारे खोलिंग-शब्द द्योतित पदार्थ स्त्रियांनीं वापरावे, पुष्टिंगी पुरुषांनीं वापरावे. नपुंसकलिङ्गी शब्द दोघांची सामान्य मिल्कत (Common property) म्हणून राखून ठेवावे. अशा रीतीनें टाक पुरुषाचा, लक्षणी वायकाची. त्यांनीं भात जेऊं नये. आजीबाईबरोबर सोजी सावी. पलंगावर निजूं, नये. पोलका वापरू नये, इत्यादि इत्यादि. परमेश्वराच्या काही चुक्यांबद्दल नाइलाज आहे. पण अपवादानें नियमाची सिद्धता होते असें म्हणतात !

इतक्या कडक रीतीनें प्रस्तुत वाद मिटविण्याची आमची इच्छा नाही. स्त्रियाही सुज्ञ असतात व पुरुषही मूर्ख असतात, तेव्हां दोघांनींही तडजोडीनें घेऊन वादाचे प्रश्न उपस्थित करू नयेत व उगाच आपल्याच मोठेपणाने चढून जाऊं नये अशा संदिग्धेनें प्रस्तुत लेख लिहिला आहे. इतक्याउपर माझ्या भगिनींचा राग कायम राहिल्यास त्यांची मोर्कळ्यां मनाने क्षमा मागण्यास त्यांचा गरीब बंधु तयार आहे. हाहून आपली ' मिनत'वारी लेखक कोणत्या शब्दात व्यक्त करणार !

अभिप्राय.

इंदुकला.

(कवि-यशवंत.)

यांत बाललीलाचें रम्य वर्णन आहे. पण यशवंताच्या कवितेंत दिवसेंदिवस जास्त रुग्णमपणा घेत चालला आहे असें वाटतें, ' यशवंती ' तील कवितांचा जोरदार साधेपणा लयाला जाऊन पहात आहे. भाषेच्या नटबेपगापेक्षा कल्पनांच्या मनोहरतेवर जास्त लक्ष ठेवले पाहिजे. विचित्र शब्दांचा समूह झुचला कीं कसेंहि कळत तो कवितेंत बेचावयाचाच असें धोरण ठेवितां उपयोगी नाहीं; अशामुळे गोविंदायजाच्या काळांत देखील पुष्कळ वेळां रसहानि झाली आहे. त्याचप्रमाणें सडकाळ रस्त्यांतून बैलगाडीच्या प्रवासानें जो शरिरास तोच अनुभव कर्णेंद्रियास देणाऱ्या शार्दूलललितादि नवीन वृत्तें बनविण्याच्या व्यर्थ साटाटोप न केलेला जास्त श्रेयस्कर होईल.

रा. प. सखनीस.

आर्यभूषण प्रेस, पुणे] जॉन रस्कीन. [किंमत ४ आणे

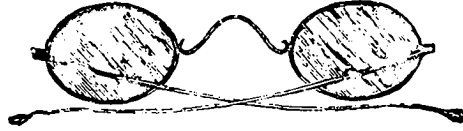
(लेखक- पी. एच. बर्वे-बी. ए.)

या बखीस पानांच्या छोट्याशा मराठी पुस्तकांत श्रीयुत बर्वे यांनीं रस्कीनचें चरित्र संक्षिप्त रीतीनें चांगलें वर्णन केलें आहे. त्यांतल्या त्यांत रस्कीनच्या निरनिराळ्या पुस्तकांतील मथितार्थ जो ठिकठिकाणीं त्यांनीं थोडक्यांत दिला आहे, त्यामुळे तें पुस्तक रस्कीनचा अभ्यास करणाऱ्यांना अत्यन्त उपयोगाचें झालें आहे. सतत व्यंग्यार्थांनिं लिहिणाऱ्या व बोलणाऱ्या रस्कीनसारख्या व्यक्तीचें मर्म दुसऱ्यानें थोडक्यांत समजावून सांगणें म्हणजे काहीं इलकीसलकी गोष्ट नाहीं. शिवाय तेंच दुसऱ्या भाषेंत सांगावयाचें म्हणजे तर जास्तच कठीण आहे. श्रीयुत बर्वे यांनीं हें अवघड काम सहज कळून दाखविलें आहे. यावरून त्यांचा रस्कीनचा किती पूर्ण अभ्यास असला पाहिजे हें स्पष्टच आहे. रस्कीनची भाषासरणी व त्याचा स्वभाव या दोन गोष्टींवर जर श्रीयुत बर्वे यांनीं थोडें अधिक लिहिलें असतें तर त्यांचें पुस्तक सात्रांनिं अधिक उपयुक्त झालें असतें.

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