

127

The South Indian Teacher

1943 - February

VOL. 16. NO. 2.



JL
Tm21, N30
N43. 16. 2
98810.

Vol. XVI

Regd. No. M. 2347

No. 2

The South Indian Teacher

(The Official Journal of The South India Teachers' Union)

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FEBRUARY 1943

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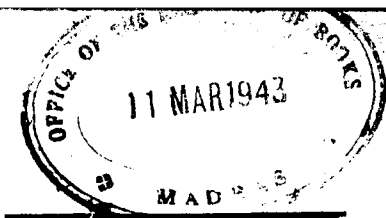
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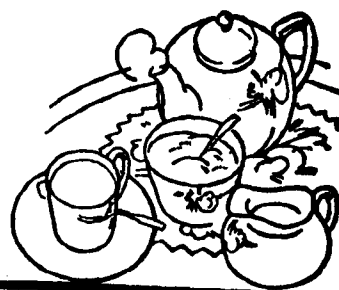
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THE SOUTH INDIAN TEACHER

Vol. XVI

February, 1943

No. 2

THE SECONDARY CURRICULUM : AN AMERICAN EXPERIMENT

(From the Journal of Education)

The American educational system favours bold and ambitious experimentation. Its decentralised administrative methods have, at least, the advantage of being attuned to change; there are many properly trained and equipped research workers; and, above all, the social climate is progressive and pragmatic rather than conservative and traditional.

It would be short-sighted of us not to endeavour to profit from all the work being done in the States. True, the results obtained by American teachers and educationists have to be interpreted carefully—translated, so to speak into our own medium—and we have to select and adapt. Ideas cannot just be transplanted from one society to another. Yet much of what has been done during the last twenty years has been a response to social and economic changes very similar to those which face us in Britain, and therefore has relevance to our own problems.

The most important of the large-scale investigations, from which we can learn a great deal, is the one on 'General Education' which was initiated some ten or twelve years ago by the Progressive Education Association (the American Section of the New Education Fellowship) and financed by the General Education Board of the Rockefeller Foundation. Already well over £2,000,000 has been spent—well and economically spent—on the various projects included in the research programme. The volume of results obtained and of reports published is so large that it is quite impossible, within the limits of a short article, to describe them adequately. All that can be attempted here is to call attention to one section of the work done—a section which may serve to illustrate the sort of thing we could and should attempt to do over here,

As a result of a survey of the educational needs of the United States, the conclusion was reached that "the field of general education on the level of the secondary school and the junior college was the area which most urgently required fundamental reorganisation on the basis of a satisfactory philosophy of education, buttressed by well-devised and adequately supported experimental and demonstrational procedures."¹

Those interested felt sure that the fundamental reconstruction of secondary education must come, but they felt equally sure that to achieve it, the full cooperation of colleges and universities would be needed. So in 1930 the Progressive Education Association set up a "Commission on the Relation of School and College." Its first success was to secure complete exemption from all college or university entrance requirements (matriculation, etc.) for, thirty schools or school systems. These schools accepted the responsibility of preparing for college work those of their pupils who wished to proceed to Higher Education, but they were left entirely free to do this in whatever way they thought best for each pupil. "These schools thus found themselves challenged to reconsider their whole obligation to their boys and girls and to American society. Their attempts to meet this challenge have resulted in the greatest period of growth in each school's history. Since the colleges were no longer telling them what they *must* do, they had to decide what they *should* do. They found the answer in a fresh study of youth in a democratic society."²

It is not the purpose of this article to describe the work done by these schools in their new-found freedom—the experiments with curriculum reorganization and with the new kinds of courses, the development of new and different methods of teaching and of new kinds of tests and examinations, the ways in which they enlisted the cooperation of the parents, the success of their attempts to get the pupils themselves to suggest improvements in their curriculum, the reorientation of the whole programme of the school and of the attitudes of the teaching staff. Obviously, once external examinations no longer dominated the curriculum and the methods of teaching, it was much easier than before to adjust the work to the ability of the average pupil and to make it more relevant to his needs. But nearly a fifth of the pupils in an American high school go on to college—a higher proportion than in English schools. How well were these adolescents, who naturally include many of the intellectually gifted, prepared for Higher Education?

So far, about 10,000 boys and girls from the thirty schools have been admitted to about 150 different colleges, of these, about 2000 have been carefully studied over a period of four years by a competent, impartial staff chosen from the college faculties. For purposes of

1. Annual Report of the General Education Board, 1940.

2. Wilford M. Aikin. Bulletin of the National Association of Secondary School Principals. February, 1941.

comparison, each of them was matched with another pupil of the same age, sex, home and community background, and of the same scholastic aptitudes—the only difference between the two groups being that the members of one came from the thirty schools while the others did not.

The advantages, it seems, are all on the side of the first group (*i.e.* the group from the thirty schools). Academically they proved themselves rather superior, though not significantly so; they were more skilled at organising their studies and rather better adjusted to college life; they exhibited a wider range of cultural interests; they were more active in pursuing hobbies of all sorts; their reading was not so tied to examination syllabuses. In a word, they were at least well prepared for university education as those who had been specially coached for it.

Nor is this really surprising. The result is explained largely to another part of the inquiry, in which an attempt was made to assess the qualities and abilities necessary to achieve success in college. Amongst these, the chief is the competence in the use of the mother tongue (a competence which often has little connection with the teaching of 'English'), and another is the attainment of some measure of intellectual maturity and readiness to work hard together with the habit of seeing a task through to completion. In comparison with these, the actual subject-matter studied at school seems to be of small importance. Even in subjects like the classics, science, or mathematics, pupils who first met them at college proved themselves able to catch up with the others within a few months. For instance, forty-six students who had done no mathematics during their last three years in the high school did better in this subject than their matched partners. In a word, students from the thirty schools, which were carrying through fundamental experiments in the reorganization of secondary education and were attempting to develop a programme of studies relevant to the needs of an industrial democracy, were not in the least handicapped in their college work. Further more, departures from the prescribed and conventional pattern of subjects does not lessen the student's readiness for the responsibilities of college—indeed there is some evidence that students from the schools which made the most fundamental changes in their curriculum did even better at college than the others.

The conclusion that can be drawn from all this are of profound importance. First we can take it as proved that success at the university depends very little, if at all, upon the kind of subject taught in the secondary school—in other words, experiments with new curriculum and new subjects can be carried out without fear of injuring the future academic prospects of the abler pupils. Secondly the universities can safely leave the selection of their pupils largely to the teachers in the secondary schools; they certainly need not pin their faith to examination in prescribed subjects. "The Eight-Year Study has demonstrated beyond question that colleges can secure all the information they need for selection of candidates for admission without restricting the secondary school by

prescribing the curriculum. For this purpose, evidence from such sources as the following would provide ample data :

"1. Description of students, indicating qualities of character, habits of work, personality, and social adjustment.

"2 The results of the use of instruments of evaluation :

(a) Such standardised tests as are applicable to the school's work.

"(b) Other types of tests appropriate to the objectives of the school, such as those prepared by the Evaluation Staff of the study.

"(c) Scholastic aptitude tests that measure characteristics essential to college work and are independent of particular patterns of school preparation.

"3. For colleges that require tests by an outside agency, records of achievements in examinations that do not presuppose a particular pattern of content."

Thirdly it has been shown that secondary schools can be safely trusted with much greater freedom than the yoke of external examinations now permits. The university members of the Directing Committee of the Eight-Year Study of the Thirty Schools frequently expressed their surprise, and even their regret, that the participating schools were not bolder and more adventurous. Even in the United States "Custom is deeply embedded in secondary education and it is not easy to break down traditional patterns of thinking and acting"; and, of course, most teachers feel a genuine and praiseworthy sense of responsibility. "They are conscious of the far-reaching consequences of their work. Because of this sense of duty they do not turn lightly from practice of proved worth to engage in irresponsible experimentation."

It cannot seriously be doubted that much of this applies to Great Britain just as fully as to the United States. In even greater measure than across the Atlantic, university entrance requirements have dominated the schools, either directly or through their degenerate forms commonly known as the School Certificate. Thus the universities have fixed the pattern of secondary education for the great majority of our young people. Without intending to do so, they handicap the schools in their attempts at educational advance. To move ahead our schools will have to set up a new relation with the universities and colleges.

Many of us are now constantly and vigorously thinking about the fundamental changes which are needed to make our educational system relevant to the needs of an industrial society and to the aspiration of a democratic community. In time our schemes will give birth to proposals for the revision of the traditional curriculum—a revision which has long

3. The quotation is taken from advance proof of the final report of the Commission, to be published this year (in 5 volumes) under the title *Adventures in American Education*.

been overdue. If our proposals are to be well founded, sound in conception, and feasible in practice, there will have to be a great deal of vigorous research and bold experiment.

If all this earnest searching is to be hampered by the cast-iron requirements of external examinations, the prospects of anything worthwhile being done within a measurable time are far from rosy. Is it altogether unthinkable that it might be wise for us to follow the example of our American colleagues? Is it useless to hope that we might find twenty or thirty schools, adequately equipped and staffed by men and women of vision who would be ready to try something new? Is it utterly inconceivable that we could then persuade the universities to set these schools free from examination requirements? Must we reconcile ourselves to the thought that we shall fail to rise to the height of our present opportunities and fail to meet the challenge of a changing world? Are we certain that both the schools and the universities of this country are so little alive to responsibilities not only to their pupils but also to the nation that they cannot adapt themselves, even temporarily and provisionally, to a much-changed situation, sufficiently to discover whether established and traditional procedures are now as valid as they are so often claimed to be?

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BUILDING PHYSICAL FITNESS DURING WAR TIME

By

DR. G. F. ANDREWS B.A., L.T. (Madras) B.P.E., M. ED.
(Springfield, U.S.A.) M.A., PH. D. (Columbia)

Divisional Physical Director, Coimbatore Division, Coimbatore

The form in which the certificate of physical fitness is to be given by Medical Officers to candidates applying for employment under the Government of Madras is as follows :—

“ Name and rank of officer granting the certificate

“ I do hereby certify that I have examined.....a candidate for employment under the Government of Madras.....in the.....service as.....and cannot discover that he has any disease constitutional affection or bodily infirmity except that his weight is ^{excess} below the standard prescribed or except.....I ^{do} do not consider this a disqualification for the employment he seeks.

I do further certify that in my opinion his general physical condition is such as to enable him to perform efficiently the active duties of executive service (for executive posts only). His age is according to his own statement.....years and by appearance about.....years.

I also certify that he has marks of ^{small pox} vaccination Chest measurement
on full inspiration.....in inches
on full expiration.....in inches
difference expansion in inches.....

Height.....ft.....in

Weight in lb.....

His vision is normal

Hypermetropic (.....)

Here enter the degree of defect and the strength of correction glasses. (.....)

Myopic Here enter the degree of defect and the strength of correction glasses. (Simple or mixed) (.....)

Astigmatic Here enter the degree of defect and the strength of correction glasses.

Hearing is normal, defective (much or slight).

Urine—does chemical examination show (i) albumen (ii) sugar.
State specific gravity.

Personal marks (atleast two should be mentioned.)

Station..... Signature.....

Dated..... Rank.....

Designation.

[Note: The chest expansion should not be less than two inches and the following proportion between height and weight should be taken as a guide in the examination of the candidates

$\frac{\text{Height in inches} \times \text{chest measurement on full inspiration in inches}}{17} = \text{Weight in lbs.}$

A margin of about 10 per cent above or below might be allowed.]

Physical fitness then is the sum-total of the condition of one's body judged in terms of age, height, weight, and chest expansion, in terms of absence of defects in the body, in sight and in hearing, and in terms of freedom from diseases, constitutional affection or bodily infirmity. Full physical development, vigour, vitality and radiant health should be seen in one who is physically fit.

Physically fit persons are national assets in as much as they could render service in any walk of life efficiently. They contribute to the nation's health and happiness and to the nation's riches by making it possible to reduce medical budgets and by lessening the wasteful periods of absence from duty and work on account of sickness and diseases.

Physical fitness depends on several factors. Heredity, hygienic living, nutrition and bodily activity play a very important part in developing the physically fit. Eugenics, health education including dietetics and nutrition, and physical education are the aspects of education which have bearing on physical fitness. Educational institutions thus have definite responsibility in this matter.

Within the last few years there has been a definite awakening regarding the need for making the nation physically fit and raising it from a C₃ to an A₁ nation. The stress of the war has brought this to the fore front. The press, the platform and the pulpit voice forth vigorously and in no ambiguous terms their opinion regarding existing conditions and as to what could and should be done.

Governments have not been inactive. In Madras, the Government have issued orders giving greater prominence to physical education in the S. S. L. C. and T. S. L. C. curriculum, and have reorganised the physical education branch of the Educational Department to facilitate intensive work. Government have also sanctioned the appointment of Rural Recreation Organisers for every district in the province and have directed local bodies and Municipalities to reserve open spaces for play and recreation. The “ Grow-More-Food ” campaign is a definitely war time action.

Private organisations also play their part. Boy scout organisations, Junior Red Cross groups, Physical Culture Clubs and Associations,

Interschool and Inter collegiate Athletic Associations—both district and provincial—Public playgrounds and many such organisations provide facilities for those who desire to be physically fit.

More however remains to be done. In the first place educators have to be educated regarding physical fitness so that they might give their whole-hearted co operation to programmes for better physical fitness. It is the apathy of educators to matters concerning the health and physical fitness of pupils that accounts to some extent for the deplorable state of pupils in elementary, secondary and training schools and even of students in Colleges—both men and women.

Secondly the parents have to be educated to realise the importance of their children being healthy and physically efficient and to provide for their children the necessary facilities. Parents should be made to understand that examinations are not the be-all and end-all of education and that it is their duty to co-operate fully in all educational activities in the school planned and organised for making their children healthy, happy and efficient mentally, morally, physically and socially.

Organisation of a physical fitness campaign is essential to focus the attention on "National Physical Fitnesses" and to devise and demonstrate ways and means of developing a physically fit nation. Educational Institutions, Public Playgrounds, Physical Fitness Clubs, Physical Culture Associations, Red Cross Societies, Boy Scout Associations, the Press, the Radio, the Talkies are all powerful agencies for promoting an effective physical fitness campaign. A five year policy for "National Physical Fitness" may be evolved and carried out with the aid of both the Central and Provincial Governments and the co-operation of philanthropic persons and organisations.

Physical fitness is not just a war time problem. It is an all time necessity. Serious consideration should be bestowed to this subject even now during war time to discover ways and means of improving the situation. Postwar reconstruction must provide for a sound programme of "Better Physical Fitness." One of the slogans in all educational institutions could be "Physical Fitness for an abundant life" or "Physical Fitness for joyful living" or "Physical fitness for success in life." Let the attention of the generations of children in schools be centered also on physical fitness; let parents give some more thought to the physical fitness of their children; let educators organise and conduct effective physical fitness programmes; let the public provide facilities and opportunities for all to become physically fit; let philanthropists and philanthropic bodies provide the funds for physical fitness campaign; let Government subsidise and encourage all who conscientiously strive to promote physical fitness in the nation; let all this and more be done now if physical degeneracy is to be stopped and the nation turned round on to the road to Physical Fitness.

ERRORS, DEFECTS AND DEFICIENCIES IN THE STUDY OF HIGH SCHOOL ALGEBRA

BY

S. BALAKRISHNA AIYAR,

Retd. Vice-Principal, Teacher's College, Saidapet.

A. INTRODUCTION

The study of errors represents an important aspect of educational enterprises, both in theory and in practice. The realization of the objectives of education in general and of mathematical education in particular, by the teacher as well as by the pupil, is prejudicially affected by the presence of errors and misconceptions, defects and deficiencies both in content and in procedure. A more or less complete elimination of these, and where this is not possible, the reduction of their incidence and presence to a minimum, are essential to success in teaching and progress in learning.

The traditional examinations have not been specially, utilized to subserve this end. Properly devised special tests have been gradually coming into use and functioning as an integral part of the teaching programme, not only to detect errors and limitations, but also to furnish a basis for the determination of the causes of the failures and weaknesses, in order that the teacher may readjust his efforts from the points of view of collection and organization of instructional materials and of the methods of procedure and administration.

The issues of the *Teaching* of December 1941 and March 1942 contain an article of mine on the study of "Errors, Defects and Deficiencies in the Study of High School Geometry." A similar attempt with regard to Algebra is now made in the present article. In both cases, the basis of the studies has been the scrutiny of the actual work done by the pupils in the classroom and in the examinations (class and public).

It will be observed that there is a difference in the manner of approach in the two studies in respect of sequence and development. If I may characterise this difference by single words, the approach in Geometry may be termed *organizational*, while that in Algebra *topical*.

Year in and year out, teachers and examiners have been calling persistent attention to the recurrence of such errors and defects. The only difference is very largely in the illustrations given by them in support of their conclusions. In the following pages, only such examples are cited as have been noticed in a large number of cases, and as such they are typical, although particular.

B. FUNDAMENTAL NOTIONS AND TECHNICAL TERMS

B-1. ERRORS

(1) Meanings (fundamental ideas)

e.g. Confusion between number and quantity (magnitude), abstract and concrete numbers, unit and measure. Pupils fail to understand that letters used to represent numbers are just as abstract as the numbers 4, $3\frac{1}{2}$, etc. Hence such faulty statements as 'Let x be the length of the wire.' 'If a debt of Rs. 50 be represented by x , what will $-2x$ represent?' - (from a text-book).

(2) Confusion of meanings

e.g. as between index and coefficient, equation and expression, multiple and product; offering whole terms when coefficients are required, and *vice versa*.

(3) Inadequate or wrong definitions

e.g. "The parts of an expression connected by the signs + and - are called its terms." Accordingly a , $5b$, $2c$ are called the terms of $a - 5b + 2c$. This point of view would suffice if a , b , c denote signless numbers, but not if the number system includes directed numbers.

B-2. DEFECTS AND DEFICIENCIES

(1) Incomplete appreciations

e.g. Pupils fail to see that a letter a denotes not only a number but also a member of a class, in other words, they are, for example, unable to see the difference between an absolute constant like 5 and an arbitrary constant like a in $ax + 5$.

(2) Most of the text-books in elementary algebra contain a great deal of loose statements. Exact meanings are dodged. Some authors think that putting a technical term in italics serves the purpose of a definition or an explanation. Difficulties are often shirked by the use of vague, ambiguous phrases.

e.g. "If two integral expressions are *identical*, they differ only in *appearance*, and not in *substance*".

C. SYMBOLS AND SYMBOLIC EXPRESSION

C I. Symbols and Abbreviations

C I-1. ERRORS

(1) Confusion

e.g. as between $\therefore$ (therefore) and $\because$ (because); $>$ (greater than) and $<$ (less than).

(2) Meaningless use of the sign of equality

e.g. The average of x and $y = x + y = \frac{x+y}{2}$.

(3) Failure to use the symbol $\equiv$ consistently to denote *represents*, *stands for*, *is identically equal to*.

(4) Indiscriminate use of the capital and the small letters

(i) in the same expression, e.g. $3a - 5B + 2c$; (ii) in the simplification of expressions in successive stages.

C I-2. DEFECTS AND DEFICIENCIES

(1) Ignorance of meaning and scope

e.g. of $\pm$, $>$, $<$, as also of conventions.

(2) Confusion and errors due to defective shapes of letters used

e.g. x , n , r ; n , u ; b , 6 .

C II. Symbolic Expressions and Generalized Statements

C II-1. ERRORS

(1) Mistakes in generalised assumptions

e.g. Taking x as the general form of an odd or even number. Ages of three brothers born at intervals of 2 years taken as x , $3x$, $5x$.

(2) Wrong forms for specified numbers

e.g. Offering abc as the number whose digits are a , b , c in order (due to wrong analogy with 345, for example).

(3) Errors in reduction

e.g. x as. y ps. $= 12 \times x$ as. y ps.

(4) Mistakes in evaluation

e.g. wrong substitution of numerical values; data values incorrectly taken down.

C II-2. DEFECTS AND DEFICIENCIES

(1) Inability—

(i) to express numbers in general forms

e.g. inability to write the number whose digits are a , b , c in order as $100a + 10b + c$, or as $10^2a + 10b + c$; to set down 5 consecutive even numbers as $2n$, $2n + 2$, $2n + 4$, $2n + 6$, $2n + 8$, or in more convenient forms like $2n - 4$, $2n - 2$, $2n$, $2n + 2$, $2n + 4$.

(ii) to express verbal statements in symbolic form

e.g. The sum of the squares of two pos. numbers is less than the square of their sum. Twice the square of a is greater than three times the cube of b by four times c .

(iii) to offer symbolic settings to rules, laws, etc.

e.g. (1) For the rule of procedure in adding $\frac{a}{p}$ and $\frac{b}{q}$ indicated by

$$\frac{a \times q + b \times p}{p \times q}$$

- (2) For the laws of equivalence of fractions, as

$$\frac{a}{b} = \frac{ma}{mb} = \frac{a \div m}{b \div m}$$

- (iv) to recognize underlying laws

e.g. that the numerators in $\frac{1}{1} + \frac{4}{4} + \frac{9}{9} + \frac{16}{16} + \dots$ are squares of natural numbers.

- (v) to see similarity of form

e.g. as between $3465 (= 3 \times 10^3 + 4 \times 10^2 + 6 \times 10 + 5)$ and $ax^3 + bx^2 + cx + d$.

- (vi) to supply particular examples to generalised statements

- (2) Want of skill and facility to work with symbols

e.g. If problems are proposed with letters standing for numbers, pupils fail to recall relevant procedures. They succeed however if arithmetical numbers take the place of letters.

- (3) Confusion due to the use of subscripts

e.g. If instead of using three different letters x, y, z , they are made to use x_1, x_2, x_3 , they are unable to think of these letters as independent, because of the presence of the letter x in all of them.

D. DIRECTED NUMBERS

D-1. ERRORS

- (1) Confusion of meanings

e.g. as between signless (natural) numbers and directed numbers; between absolute and relative values.

- (2) Incomplete knowledge

e.g. Giving negative numbers only as examples of directed numbers.

- (3) Inadequate specifications

e.g. "A number written with a plus (+) sign before it is a positive number."

This is only partially true. For example, $+5$ is positive, but $+a$ is not positive unless a stands for a positive number.

Any arithmetical number is taken (wrongly) as a positively directed number with the $+$ sign understood before it.

- (4) Loose statements

e.g. "Zero is the greatest negative number but the least positive number." "Zero is the limit of positive and negative quantities."

"A number which has the sign $-$ attached to it is called a negative number"—(from a text-book.) The implication is that if 4 is preceded by $-$, then 4, and not -4 , is a negative number.

- (5) Failure to understand the extended meanings of **greater than** and **less than**, as applied to magnitude (natural number) in the first instance, and then to order (as with directed numbers).

e.g. saying $-8 > -5$, since $8 > 5$.

- (6) Wrong approach to meanings

e.g. An example from a text-book:—

$-3 > -4$ because $-3 - (-4) = -3 + 4 = +1$, a positive result.

And $-5 < -2$ because $-5 - (-2) = -5 + 2 = -3$, a negative result.

- (7) Gaps in writing down series

e.g. $+3, +2, +1, -1, -2, -3, \dots$ Note the omission of zero.

- (8) Taking that certain quantities are intrinsically positive or negative, without reference to an origin from which they are taken one way or the other.

- (9) Errors in graphical representations

e.g. (i) wrong signs for the co-ordinates in the various quadrants

(ii) wrong plotting of points with the help of their co-ordinates.

D-2. DEFECTS AND DEFICIENCIES

- (1) Over-statements

e.g. -10 degrees South latitude for 10 degrees North latitude; -35 B.C. for 35 A.D.

- (2) Inability—

(i) to understand the conventions involved in the study of directed numbers.

(ii) to give examples from life and the sciences of pairs of oppositely directed correlates.

(iii) to realize the effect on the nature and size of a set of directed numbers due to a shift in the origin or standard of reference.

(iv) to rewrite a set of directed numbers giving effect to such a change.

(v) to furnish examples of sets of directed numbers best suited, naturally and from the common sense point of view, to representation along a horizontal axis; along a vertical axis; along either axis (as a matter of convention).

- (3) Want of appreciation of limitations

e.g. If $a : b = c : d$, and if $a > b$, then $c > d$. [Examine this with reference to $+6 : -3 = -10 : +5$.]

E. FUNDAMENTAL OPERATIONS WITH MONOMIALS

E I. Addition of Monomials

E I—1. ERRORS

(1) *Errors of convention*

e.g. The sum of a and b is ab .

(2) *Zero difficulties*

e.g. $a + 0 = 0$, $0 + a = 0$.

(3) *Errors re. fundamental principles*

e.g. Let x stand for £ 1 and y for 1 sh.

Then $5x + 2y = £ 5 \ 2 \text{ sh.}$ (ii) $x + 5x + 7x = 3x + 13$.

(4) *Wrong and improper statements*

e.g. Examples from a recent text-book:—

" $6 + (-2)$ indicates the operation of *adding* the negative number 2 to the positive number 6." "Since a positive quantity always produces an increase, to add a positive quantity is the same as to add its absolute value." A similar statement for adding a negative quantity.

E I—2. DEFECTS AND DEFICIENCIES

(1) *Extension of the Order Law*

Assuming (without demonstration or proof) that the order law of addition originally learnt with natural numbers holds good in the case of directed numbers also.

(2) *Lack of real understanding*

Due to mechanical teaching by rule, e.g. "For addition, place the term with its sign unchanged after the term to which it is to be added."

(3) *Inability to appreciate the difference between the use of + as an operational sign and as a qualifying sign.*

E II. Subtraction of Monomials

E II—1. ERRORS

(1) *Zero difficulties*

e.g. $a - 0 = 0$, $0 - a = 0$.

(2) *Subtracting unlike terms*(3) *Pointless, improper statements*

e.g. From a recent text-book: "To subtract a positive quantity, we subtract its absolute value, and to subtract a negative quantity we add its absolute value."

(4) *Confusion between arithmetical sum and algebraic sum*(5) *Indiscriminate use of remainder and difference as synonymous.*
e.g. From a text-book: "Subtract $1 - 2x$ from unity and find the value of the difference when $x = 1$."(6) *Not using the sign of difference ~ when it is indicated by an ambiguity.*

e.g. Q.: What remains when the difference between a and b is taken from 1? Ans. $1 - (a - b)$.

(7) *Failure to change the sign of the subtrahend before adding it to the minuend.*(8) *Omission of brackets*

e.g. giving $+a - +b$ as the result of subtracting $+b$ from $+a$.

(9) *Omission of significant parts*

e.g. $\frac{1}{4}x - \frac{3}{4}x = \frac{1}{8}x$ (thinking that x is gone in the subtraction.)

(10) *Taking the order law to hold good in subtraction*

e.g. $a - b = b - a$.

(11) *Language errors*

e.g. "I minussed a and b and got $a - b$."

E II—2. DEFECTS AND DEFICIENCIES

(1) *Lack of real understanding due to mechanical teaching and rule of thumb methods.*

e.g. from a recent text-book: "For the subtraction of any term, place it with its sign changed after the term from which it is to be subtracted, and proceed as in addition."

(2) *Inability to appreciate the difference between the use of - as an operational sign and as a qualifying sign.*

E III. Multiplication of Monomials

E III—1. ERRORS

(1) *Incorrect definitions*

e.g. A text-book has: "To multiply one number by a second is to do to the first what is done to unity to obtain the second."

This statement is unfortunately fairly common. An example will show the absurdity: I get $\frac{3}{4}$ from 1 by subtracting $\frac{1}{4}$ from 1. So to multiply $\frac{3}{8}$ by $\frac{3}{4}$, I should subtract $\frac{1}{4}$ from $\frac{3}{8}$. Thus $\frac{3}{8} \times \frac{3}{4}$ is the same as $\frac{3}{8} - \frac{1}{4}$.

(2) *Errors of convention*

e.g. Saying that ab is the sum of a and b ; that $a - b$ is the product a multiplied by $-b$ (due to juxtaposition and omission of $\times$ sign and wrong analogy with ab); a multiplied by 5 is $a5$.

(3) *Wrong products*

e.g. $3x \times 4y = 7xy$; gt^2 as obtained by multiplying g by t and then squaring.

- (4) *Confusion between dots* as symbols for multiplication and dots used as decimal points.
- (5) *Zero difficulties*
e.g. $0 \times a = a$, $a \times 0 = a$.
- (6) *Illogical extensions*
e.g. (i) Tacitly assuming the order law $a \times b = b \times a$ as holding good when one of the factors is zero. Thus $0 \times a$ which is $0 + 0 + 0 + \dots a$ times, is taken as equal to $a \times 0$, and then concluding $a \times 0 = 0$, because $0 \times a$ is zero. Very few text-books treat this topic properly.
- (ii) " $4 \times 3 = 3 \times 4$, $\frac{3}{4} \times \frac{4}{3} = \frac{4}{3} \times \frac{3}{4}$. In the same way, $ab = ba$, $abc = bca = cab \dots$ " The last statement about the product of three factors cannot be regarded as obvious. It must be proved with the help of the distributive law.
- (7) *Wrong explanations*
e.g. $(+4) \times (+4) = +4$ taken 4 times, *since 4 means +4*. Note the confusion between $+4$ and 4. Again, since $+4$ multiplied by -5 is -20 , so -4 multiplied by -5 must be $+20$.
- (8) *Loose statements*
e.g. Two minuses make a plus; $- \times - = +$. Like signs give $+$, and unlike signs give $-$.
- (9) *Wrong notion that "multiplication always increases the value" holds good for directed numbers.* See below.
- (10) *Failure to understand limitations of axioms*
e.g. "If $a > b$, then $ac > bc$ " is taken as universally true $[-8 < -5, \therefore (-8) \times (+2) < (-5) \times (+2), \text{ but } (-8) \times (-2) > (-5) \times (-2)]$
- (11) *Errors of sign in the continued products of directed numbers.*

E III-2. DEFECTS AND DEFICIENCIES

- (1) *Inability to obtain sets of related quantities which may be used to illustrate the laws of signs in multiplication, and to use them for the purpose.*
e.g. Distance = speed $\times$ time, moment = force $\times$ distance etc.
- (2) *Inability to get at the laws by using such sets*

(To be continued.)

THE EIGHTEENTH ALL-INDIA EDUCATIONAL CONFERENCE, INDORE—DECEMBER 1942.

BY

C. RANGANATHA IYENGAR, M.A. L.T.

The extent to which nationalism should be cultivated in the education of the young with a view to promote international spirit was the main theme of the address which was delivered by the Right Honourable M. R. Jayakar, who presided over the 18th All-India Educational Conference held at Indore from the 27th to the 30th December 1942. The Maharajah of Dewas (Senior), president of the Indore Cabinet, delivered the inaugural address and Mr. Richardson, Education Minister of Indore, welcomed the delegates.

The Conference, inspite of the war conditions resulting in travel restrictions and withdrawal of fare concessions was well attended by delegates from all parts of British India and the Indian States, with the exception of Bengal and Behar whose representatives were badly missed this year owing to disturbed conditions in those provinces.

Wartime Education and Educational Administration and Financing were the main subjects of symposia both at the general session and sectional meetings of the Conference.

A special feature of this year's Conference is the prominence given to Adult Education and the addition of a new section, *viz.*, 'Education of the Aborigines' sponsored by Messrs. J. B. Raju, Principal of the Holkar College, Indore, A. G. Sharma, retired Accountant-General, Indore State, and Princess Savitri Bai, sister of the Ex-Maharajah of Indore.

Among the resolutions passed at the general sessions of the Conference two may be prominently mentioned, namely the resolution approving of the scheme of national education adumbrated by a sub-committee of the Federation and the resolution recommending the "Teachers' Charter" framed by the Bombay Provincial Teachers' Association.

The Council of the Federation also appointed a sub-committee consisting of Messrs. K. T. Shah (Bombay), S. P. Kaparde (Alwar), and C. Ranganatha Iyengar (Gooty, Madras) to consider and recommend a scheme of insurance for teachers.

There was a tea-party given by the State to meet the delegates. This afforded an opportunity for all the delegates and the local members of the Reception Committee and the officials of the state to meet and get acquainted with each other.

The newly elected Executive Committee of the Federation met on the 30th forenoon and fixed up Bombay for the next council meeting to determine the programme of the next year's conference which is invited to Jaipur.

Messrs. N. Subramania Iyer, N. Kuppuswamy Iyengar, and C. Ranganatha Iyengar were among the South Indian delegates who were actively connected with the proceedings of the conference.

The South Indian delegates had a pleasant evening at the 'At Home' organised by the South Indian Residents of Indore City at the residence of Dr. Srinivasan, at which prominent South Indian Officials of the state, Messrs. V. R. S. Iyer, Professor of Law, A. G. Sharma, J. B. Raju, and J. J. Anukulam of the Training College, were present. The mantle of the Presidentship of the Federation which was so ably occupied by the late P. Seshadri for over 16 years ever since its inauguration, has fallen on the present incumbent Mr. Amarnath Jah, Vice-Chancellor of the Allahabad University. It is hoped that the Federation, under the able guidance of the new President will really prove an All India one and provide the forum of expression for the teachers of the country.

I appeal to the teachers of South India to take greater interest in the Federation and attend the annual conferences in larger numbers, so that better representation may be had on the Council and the Executive of the Federation than at present.

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THE SCHOOL CHILD—POST-PRIMARY

The following fifteen recommendations were accepted by this Commission at the conclusion of their discussions:

(i) That all post-primary education should be brought into a unified system, and administered by a single code of regulations.

(ii) That equality of opportunity is an essential aim, and shall be taken to mean that all children are enabled to receive the type of education best suited to their needs and abilities, without regard to their place of residence or to the financial or social status of their parents.

(iii) That all schools, however different in type, should have parity of status and esteem, with equivalent standards of accommodation, staffing and equipment, and that teachers in all stages of education should be equally well trained and paid.

(iv) That the multilateral principle should be applied in the reconstruction of post-primary education. This multilateral principle to mean in practice that the various types of secondary education would be provided either in different departments of the same school, or by means of grouping together different schools with some form of common direction to ensure ease of transfer.

It was suggested that the second part of this recommendation should be accepted as a transitional stage only, and that the whole recommendation was intended to approve the multilateral principle and no more.

(v) That whatever the age of transfer to secondary education, the period from 11-13 years should be regarded as diagnostic, in order to decide at 13 to what further education the child is suited. During these diagnostic years education should be on a common basis with necessary variations to suit rates of development and ranges of intelligence. This education should not be of the same nature as the present academic schooling.

(vi) That diagnosis to decide the type of education suitable for each child after the age of 13 should depend on:

(a) Cumulative school records carried on from the Primary School, which will include the child's medical history.

(b) Wide and varied diagnostic tests under the guidance of a member, or members, of the school staff specially trained for the purpose.

(c) Consultation with the parents.

(vii) That the minimum age for discontinuing full-time schooling should be raised to 16 years, and that there should be compulsory part-time education until the age of 18.

(viii) That the Public Schools and other independent schools should not be subsidised out of public money under any condition except complete participation in the state school system.

(ix) That no private school must be permitted without a licence from the Board of Education and periodical inspection.

(x) That it should be part of the duties of the Board of Education to encourage educational experiments and research inside as well as outside the schools, and to make special grants for this purpose where necessary.

(xi) That all secondary education in the state schools should be free, and that there should be adequate maintenance allowances to cover the extended period of education up to any age which, in the opinion of the educational authority, is beneficial to the child.

(xii) That the post-primary school curriculum should be based on a central core of essential subject matter necessary for all children, but varying in standard according to ability and to the age of leaving school.

Studies and activities of this central core must include,

- (a) The English language, including literature and drama.
- (b) Social studies, consisting of an integrated course of history, geography and civics. The objective of such a course is to develop individuals who are aware of the kinds of society in which they and other peoples of the world live, and who are able to take their parts as effective citizens of a democracy. To this end it is important that the school society should be permeated with democratic values, which should be illustrated by some measure of self-government, providing situations for solving problems on democratic lines, and ensuring that those who have to obey the rules should have some hand in framing them.
- (c) General Science.
- (d) Elementary mathematics with everyday life applications.
- (e) Practical activity involving skill with the hands.
- (f) The arts. Some form of activity and appreciation to be expected of each child.
- (g) Physical Education.

On the question of providing some form of Christian education the Commission was equally divided for and against with some members not voting.

(xiii) That in addition to this core of basic studies and activities more specialized subjects of both an academic and technical kind should be provided at different stages, from which a choice could be made according to the type of education required by each individual. Specialization would

increase with the years, and the central core decrease, but we would suggest that the common core should never entirely disappear.

The different stages should be as follows :

- (a) 11-13 years. The diagnostic years. Work should be based on the common core subjects, with additional subjects, *e.g.* a foreign language, for those people with necessary ability.
- (b) 13-16 years. The normal academic subjects would be provided for pupils continuing full-time schooling to 18 years.

In addition there would be courses of the same nature as those now followed in the Junior Technical Schools, expanding and increasing the scope and broadening the meaning of technical education to include new subjects, *e.g.*, agriculture.

- (c) 16-18 years. Courses preparing for entrance to the universities, and higher instruction in technology and art. University or equivalent higher education to be made more widely available. An increased number of courses of the kind now given in Senior Technical Colleges with such additions as the increased scope of this education will require.

(xiv) That a school leaving certificate as a record of courses followed and standards achieved should be given by each school, and there should not be a general external examination like the present School Certificate. This internal school certificate should include the results of standard proficiency tests in the particular technical and vocational subjects studied.

Entrance to the university should be determined at about the age of entry by the university entrance examination in conjunction with school records.

(xv) That the entire school life must be thought of in terms of the needs of the pupils at differing stages of maturity. Each stage must justify itself in terms of the contribution it makes to the development and life of the child at that stage, and not only as a preparation for some future stage.

[A very large number of reports on post-war Education Plans have been published in the last few months—A clear proof that the general ferment moving in Society is at work too in the educational sphere. Realising the need for examining the recommendations contained in these reports and for making definite proposals at once acceptable to all and necessary in the interests of sound education the English Section of the New Education Fellowship undertook such an examination. It set up six commissions—The pre-School child—the primary school child, the post primary school child, the young person, the adult and a separate commission on administration. The extract published above is the report of the Commission on The Post Primary School child. A. K. C. Ottoway was the Chairman of the Commission and Mrs. P. Dennis its Secretary. This is reprinted from the Sep., Oct., Number of the New Era, (the official organ of the New Education Fellowship, London) which inspite of overwhelmingly adverse circumstances continues its useful activity.—Edr. S.I.T.]

POST-WAR EDUCATION

At the last meeting of the Executive of the South India Teachers' Union a sub-committee was constituted to formulate the views of the South India Teachers' Union on Educational Reorganisation. The sub-committee has formulated as hereunder the several aspects of Post-war Education, for consideration by members of the Union and others interested in the problem. They are requested to send to the Convener (Sri. S. T. Ramanuja Iyengar, B.A., L.T., E. R. High School, Teppakulam, Trichinopoly) short notes on any or all of the topics, on or before the 28th February. It is hoped the final report of the Committee will be available at the time of the Provincial Conference for consideration and adoption at the Conference.

I. Educational Policy

- (a) Responsibility for Public Instruction.—(i) Government, (ii) Local bodies, (iii) Private managements.
- (b) State responsibility in regard to (i) Finance, (ii) administration, direction and control, (iii) legislation, (iv) educational publicity, (v) Teacher-training, (vi) Coordination of educational efforts and activities.
- (c) Measure of state control.
- (d) Measure of freedom in internal organisation.
- (e) Public education and public service.

II. Objectives

- (a) Objectives of public education in general.
- (b) „ in relation to national and individual efficiency.
- (c) „ in relation of International goodwill.
- (d) The articulation of the educational system and the objectives of
 - (i) Elementary education, (ii) Secondary or post-primary education, (iii) University education, (iv) Technical education, (v) Mass education, (vi) Adult education, (vii) Education of the gifted, the backward and the handicapped.

III. Finance

- (a) State—proportion of expenditure on education in relation to general revenues at home and abroad—Educational finance—Central—Local.
- (b) Planning a progressive scale of expenditure on educational policy.
- (c) Proportion of allotments to different grades—Elementary, Secondary, etc.
- (d) State-Aided educational system—Principles of the grant-in-aid.
- (e) Government obligations to the several agencies in the field of education.
- (f) Educational needs—e.g., Equipment, Buildings, Playgrounds, Library, Extra-curricular activities, midday meals, Transport etc.
- (g) Physical education, Medical inspection and care.

IV. Agency

- (a) General. Suitability and desirability or otherwise of 1. direct management by government (state schools), 2. management by local bodies, 3. management by aided agencies.
- (b) Elementary education 1. Management—(i) Government, (ii) Local bodies, (iii) Aided agencies. 2. A Local Education Authority.

(c) Secondary Education. (Post-Primary education).

- 1. Management. 2. Coordination of educational efforts for a district or a region. 3. Industrial and Technical schools—

(i) Management, (ii) Coordination with factories and workshops.

- (d) Collegiate and University education.—(i) Relation between government and universities, (ii) Relation between colleges and universities, (iii) Grants to universities, (iv) Universities and educational research, (v) Colleges—management—control, etc.

V. Curriculum

- 1. Curriculum coordination with general and special objectives.
- 2. Medium of instruction.
- 3. Standards in relation to age and level.
- 4. Diversified curriculum plans for boys and girls for the different grades in the educational system.
- 5. Courses for each grade well-balanced between literary and vocational.
- 6. Activity programme—Arts and Crafts.
- 7. Rural and Urban—regional plans.

VI. Teachers

- 1. Recruitment. 2. Pre-service and In-service training. 3. A professional code for teachers. 4. Service conditions of teachers—Tenure, leave rules, scales of salaries, retirement and pension or provident fund. 5. Teachers' registry.

VII. Text Books

- (a) Preparation of text books—Responsibility for books for
 - (i) Elementary schools, (ii) Secondary and post-primary, (iii) Colleges, (iv) Teachers, (v) Adults, (vi) General.
- (b) Approval of books.
- (c) Prescription of books.

VIII. A Children's Charter

- (i) Educational objectives and the needs of the child.
- (ii) The child's right for proper nourishment, clothing and shelter.
- (iii) Medical care and treatment.
- (iv) Equality of opportunity to the stores of knowledge.
- (v) Religious training.

MADRAS UNIVERSITY ELECTION.

Mr. E. H. PARAMESWARAN, M.A., L.T., Headmaster, Tirthapathi High School, Ambasamudram, and member of the Executive Board of the South India Teachers' Union, Madras, seeks re-election to the Senate of the Madras University from the Headmasters' Constituency and solicits the support of all Headmasters and Headmistresses.

FROM OUR ASSOCIATIONS

The Salem District Teachers' Guild

AUDIT REPORT FOR THE YEAR 1942

The Audit Report with the Statement of Receipts and Charges for the year 1942 is herewith presented.

At the beginning of 1942 there were 14 Associations attached to the Secondary Schools and 5 Elementary School Teachers' Unions. There was one individual member. Four Unions have joined the Guild during the year.

All arrears of subscription for 1941 were paid. One Association, one Union and the individual member did not pay the subscription for 1942.

At the end of the year there were 14 Associations, 9 Unions and one individual member. (1,359 members.)

The year opened with a balance of Rs. 134-14-5. The receipts by way of subscriptions from the Associations and Unions (current and arrears) amount to Rs. 193-8-0. Total expenses came to Rs. 164-0-6, leaving a closing balance of Rs. 164-5-11.

The accounts are well maintained. All items of expenditure have been sanctioned and are supported by vouchers.

The Guild owns a teak wood almirah.

STATEMENT OF RECEIPTS AND CHARGES, 1942

RECEIPTS			CHARGES		
	Rs.	A. P.		Rs.	A. P.
1. Opening Balance ...	134	14 5	Subscription S.I.T.U. ...	43	4 0
2. Subscription 1941 Associations ...	35	0 0	Do. Journals ...	7	0 0
3. Do. 1942 do. ...	137	8 0	Donation to S.I.T.U. ...	5	0 0
4. Do. From Unions. ...	9	0 0	Travelling Expenses ...	50	12 0
5. Do. do. (New) ...	12	0 0	Typing, Printing, Binding etc. ...	31	6 0
Total ...	328	6 5	Postal Expenses and M.O.C. ...	26	10 6
			Closing Balance ...	164	5 11
			Total ...	328	6 5

KRISHNAGIRI, }
14-1-1943. }

(Sd.) B. A. SUBRAMANIAM,

(True Copy)

Auditor.

KAVERIPATNAM, }
15-1-1943. }

K. S. CHENGALROYA AYYAR,

Secretary.

Kurnool Teachers' Guild

A meeting was held in the Coles High School on the 13th instant, Mr. N. Muhammad Anwar, M.A., L.T., District Educational Officer, Kurnool, presiding. Mr. P. Raju, B.A., L.T., Guild President, spoke on the aims and objects of the Week and the work of the Guild during the last 12 years in this connection.

Sri H. Krishnamurthi, Assistant, Municipal High School, Kurnool, gave a recital from Shakespeare's "Richard III."

Mr. Mahaboob Ali Sahib, M.A., L.T., Head Master, Government Mahomadan High School, spoke on "Some Aspect of Moslem Education." He deplored that Moslems, in general, and particularly in Kurnool District, were not sufficiently progressive educationally, due to a lack of proper home influence and the general illiteracy and poverty of parents.

Sri K. N. Pasupati, B.A., L.T., spoke on "Post-War Educational Reconstruction." He said that the present War had opened the eyes of statesmen and thinkers throughout the world to the great need for reconstructing education so as to obviate in future such catastrophies. The present conflict in the world indicated the approaching end of an era and the ushering in of a new world order in the field of education just as much as in other spheres of life. In post-war society, the principle of democracy and the mutual interdependence of man must be fully recognised in actual practice without any discrimination against any group or minority of men. Education had a great part to play in creating such a society. Every citizen of the future should have social and economic equality in whatever part of the globe and should be assured of equal civic and political rights. The speaker then stressed on the need for incorporating craft-education in harmony with a sound liberal education. The promotion of national health and physical efficiency must receive due attention.

The President observed that racial-superiority-complex was the bane of modern civilisation. Germany, intoxicated with such a racial complex, trammelled over the rights and liberties of vast numbers of human beings. Democracy alone could vouchsafe security for all, and hence it behoved all to support the democratic countries in putting down the power that opposed liberty and freedom.

With a vote of thanks by Mr. Pasupathi, Guild Secretary, the function ended.

THE TEACHERS' BOOK-SHELF

Indiak-kathai-Thirattu—Vol. I

(A Collection of Best Indian Short Stories in Tamil)

Compiled and translated by S. Guruswamy, B.A., L.T., Foreword by Dr. P. Subbarayan—Publishers: The Alliance Company, Mylapore, Madras.

Price Rs. 2-4.

One story from each language contributes its best place to this collection of Indian Short Stories brought into Tamil. Marathi, Bengali, Hindi, Gujarati, Urdu, Assamese, Telugu, Canerese and Malayalam take their respective parts and a humorous story of the translator is suffixed to the end. The first story from Marathi depicts the nature of pure love. The second by Sarat Chandra Chatterji adds to his credit more love, than he has already earned. The third and the fourth stories help a great deal in visualising an ideal monarchy. The Guzerati story stamps a permanent impression in our mind with the sad end of the beggar-maid Meena. Abbukhan's goat is already famous for its simplicity and high place in Urdu story-literature. The Assamese story is pathetic and the Telugu one is

humorous. The lady in the Canarese story, as an embodiment of Indian womanhood, shows us clearly the difficulties to which women are put to in the world of today. Thus one passes on through the whole region of India from Himalayas to Cape Comorin, while reading the stories and has the satisfaction of completing a holy pilgrimage. The translation is lucid and expressive. The get-up of the book needs special mention for its neatness and remarkability.

Simple Mathematics (A Revision course for R.A.F. Selection Board Candidates) by R.C. Smith—Published by Macmillan & Co., Ltd., 54 pp. Price Re. 1-2.

This is a neatly got up little book containing a number of worked-out examples and a series of exercises of an elementary nature in Decimals, Square Roots, Graphs, Equations etc. This is prepared with a view to taking boys to the beginning of Arithmetic and giving them the practice needed to rub up the fundamental Mathematical knowledge of their early school course. The treatment is simple, the style conversational and direct and the explanations are easy and to the point. We have no doubt the boys making use of the book will find themselves well equipped for the examination for which the book is intended to be a guide. A Typical Test Paper (R.A.F. Aviation candidates Selection Board) together with 6 Practice Papers is given in the end.

V. A.

More Oxford Pamphlets on Indian Affairs.

No. 6. *Ceylon*. H. A. J. Hulugalle—Price As. 4.

In a few pages the author has given a very comprehensive account of Ceylon. The book, due to its topical value will be widely read to-day when there is so much talk about Indo-Ceylon relations. After giving an account of the Island—its Geography, its trade and its population, the author states in an impartial way the problem of Indians in Ceylon. His analysis of the course leading to the anti-Indian feelings and his final conclusion that "Ceylon must in the long run look to India in the future as she has done in the past, for a permanent anchorage. She has no future apart from India and India should show that there is a place for her consistent with her dignity and independence in the union or federation of Greater India" is well worth serious consideration of all in India and Ceylon. A realisation of this fundamental fact, must help to bring about a proper friendly understanding between India and Ceylon.

No. 7. *Social Problems* by S. Natarajan.

In 32 pages Mr. S. Natarajan has pressed a lot of interesting matter regarding the Social problems that confront the India of to-day. The problem of Social life in India has been the task of Synthesis—of working out the harmonious blending of the three ways of life and the three streams of culture—the Hindu, the Moslem and the European. Mr. S. Natarajan describes the cramping influence of British rule on our Social life, the liberalising effect of English Education and literature and of the impetus that the Christian Missions have given to Social service. The author describes how the changing times are having their effect on the two characteristic features of Indian Social life, the caste system and the institution of the joint family. Other problems such as the status of women, Inheritance and monogamy, Divorce, Birth control, Prostitution, Temperance the Beggar problem etc. are also surveyed. The Social reform movement has now merged into the national movement and rightly therefore the author concludes that real social progress cannot be achieved without political power and may we hope the author is right when he says "And power in the political sense is not far distant from us."

No. 8. *The food supply*. Radhakunal Mukerjee.

Price as. 4.

This very interesting booklet lays bare the many defects in the Policy of the Government in India Central and Local that have resulted to-day in India's food production being woefully inadequate. It is a common criticism that the Indian agriculturist is too conservative and would not adopt any progressive and scientific method of cultivation. But if it is known that out of 1005 million acres only 281 millions were under cultivation in our India when out of a total population of 388 millions, 73.7, depend upon agriculture, any one would ask why should over 700 million acres be kept uncultivated. Of these only 58 million acres are shown as follow. It is indeed regrettable to note that while the staple grains are rice and wheat, there has been only a 3.5% and 4.2% increase in the output of these grains while the less nutritious Jowar and Barley have increased by 109% and 51.7%. Again in Japan with not a quite favourable climate for rice, the yield per acre is 3070 lbs. Indian lands yield only 988 lbs. per acre. The author pleads for a more forward food policy, a co-ordination of nutrition research and agriculture, and a wise and systematic crop and food planning region by region.

The Indian Journal of Adult Education: Vol. 4. No. 1. December 1942.

With this issue, the journal begins its 4th year. It has been the chief aim of this journal to place before its readers modern educational developments with particular reference to Adult Education. The Journal has been of invaluable help to adult Education Workers and it has been recording the good work done in this field in various parts of India. With the growing complexity of modern life the need for an educated adult community is becoming increasingly felt. There is thus a great field of service creative and constructive open to the Indian Journal of education. In the present number Mr. S. R. Qidwai's description of an experiment in adult Education work and Brigadir C. G. Maude's description of Educating the army are two interesting articles.

The reports of the Bombay adult Education Committee, the adult Education work of the Bombay Social Service League and of the adult Education work in various parts of India are also included. Prof. Mathew's article on Life's Eventide is very illuminating.

The Northern India Observer.

We welcome this new periodical. It is not wedded to any particular subject but is a magazine of general interest.

It is attractively got up. Dr. M. S. Patel, M. Sc., writes on Side Lights on India's Deficiencies. It brings out clearly the causes for the backwardness of India both as an agricultural and Industrial country. J. M. Kumarappa's article on scouting and Education is an article of interest to teachers. Wahida Aziz writes on The Literature of Persia. There are also many other articles and notes of a lighter vein and Pothan Joshi's, As you were in very interesting reading.

A garland of Tamil verse and Prose: Books 1 and 2. (இலக்கியப் பூக்கூரை)—compiled by P. N. Appuswami—Oxford University Press.

Sri P. N. Appuswami, who has, for some years past, been serving the public by his essays in Tamil on Scientific subjects, has now tried his hand at compiling Prose and Poetical selections in Tamil for Forms 4 and 5. In the arrangement and classification of the sections, he has generally followed the model of the S.S.L.C. Tamil Text-book. The selections are made with care. In their number and variety they are bound to satisfy various tastes, as all aspects are adequately represented.

Copious notes are added to help the interpretations of poems. Well thought out questions on subject-matter are also given. An attempt is made to draw pointed attention to grammatical peculiarities.

However, it is incumbent on us to offer a few comments. 'To be seriously concerned whether the mother-tongue is healthy or diseased, and whether it is habitually used with propriety is no trifling matter.' We are afraid that a detailed study of lessons such as 'பாழடைந்த பங்களா', 'கஜப்புகு' and 'பொஞ்செட்டி', however good they may be as short stories, may result in the essential rightness of the language falling into disrepute.

We do not object to the borrowing of English and Sanskrit words where they are unavoidable. But a few pieces, selected, contain too many words and phrases from foreign languages. Words such as 'அவ்யாஜமான', 'கிருதார்த்தம்', 'ஜாஜ்வல்யமாக' from Sanskrit and 'கேஸ்', 'ஆக்ளிஜன்', and 'டின்னர்' from English, should in our opinion, have been avoided. A word, like 'குளறுபடி கேஷன்', should have no place in a language text. It may be understood by all but does it not lower the dignity of the language?

The text-books are generally free from what are called Printers' mistakes. We do not know whether 'அமைகுறை' for 'அரைகுறை' and 'தருவாய்' for 'நலுவாய்' could be classed as such. Such inaccuracies as 'பரிபாடல்' being classified as 'புறம்', 'கிளை' and 'உறை' parsed as 'வினைத்தொகை', 'அவதாரம்' as 'ஆகுபெயர்', should have been avoided. Villi Bharatam consists of 4339 stanzas. We do not know why the notes should mention it as roughly 5000. The author of 'இன்ன நாற்பது' is 'கடலன்'. This is correctly given in the notes. We fail to understand why in the contents, he should be made 'கடல தேவர்', an entirely different poet.

There may be nothing wrong in splitting Sandhis for easy grasp of the meaning of a stanza. But, we are inclined to the view that such splitting mars the rhythmical cadence of a stanza. Particularly, to split 'எழுந்தருள்க', a compound-word expressing a polite form of request, into 'எழுந்து அருள்க', is certainly wrong. We are doubtful if the following lines are correctly edited: Book 2—'குளாமணி'—5th stanza, line 2, and 'அரிச்சந்திர புராணம்', 11th stanza, line 2.

It is however due to the compiler to say that, in spite of the few inaccuracies pointed out, his attempt is a step forward in the production of suitable text-books in Tamil Prose and Poetry for High School Forms. We commend these books to the attention of teachers.

The books are neatly got up. English publishers have generally been shy of publishing Tamil Text-books for literary study. The Oxford University Press deserves to be congratulated on their having overcome their shyness. We have no doubt that their entry into this field marks the beginning of a new era for Tamil text-books.

R. S.

EDITORIAL

Good News:

Teachers and Managers of aided secondary schools in the affected areas like Madras, Vizagapatam and Cochin have reason to be grateful to the Government for its decision to compensate managements of schools in these areas 'for extra expenditure which they may have incurred by not discharging teachers though the fall in numbers would normally have justified such discharges.' It is well known that the sudden panic which seized the coastal areas like Madras in April last accelerated the exodus of pupils from the schools in these areas, which had commenced even with the Japanese attack on Rangoon early in December 1941. This exodus resulted in considerable fall in strength in most schools, and managements were really faced with a serious situation. The fall in strength and the fall in fee income even in the period January to March 1942 was considerable and the prospect of the schools reopening in June 1942 appeared somewhat uncertain. The schools really faced a crisis. The managements were most anxious not to take any step that may at once cause untold hardship to their employees and demolish the fine tradition that had been built up. At such a critical hour, Sir R. M. Statham, with his generous offer of liberal financial assistance expressed his wish that schools should carry on. This assurance of the D. P. I. helped the managements in not taking the course of action they were very apprehensive of. Advance grants were paid to the schools affected early in May or June 1942 to enable them to pay the salaries of their teachers for the vacation months. But still, the problem was very acute to most managements for the schools reopened with considerably reduced strength. The income from endowments also decreased and the managements had no idea when and how much help they could expect from the Government. Sir R. M. Statham realising full well the difficulties of the managements and the necessity of retaining in service all the teachers did his best by giving such help as was immediately necessary. But at the same time he pressed upon Government the case of these institutions for compensation of loss which no body could have foreseen; we are glad that the government have accepted the necessity for making such a compensation. Managers of schools and teachers must therefore be profoundly grateful to the Government and particularly to Mr. T. Austin, the adviser in charge of Education and to Sir R. M. Statham.

This step should be welcomed not merely because it helps to ease a very difficult situation but more because it is an indication of the acceptance of a greater measure of responsibility for aided education than what is contemplated in the inadequate grant-in-aid code. Managements of Aided Secondary Schools have been relieving government of a great share of their financial burden in running these schools. Several large

institutions received no teaching grant at all as they were able to manage with their own incomes, but, all that was possible in normal times. But during these abnormal days, it is the duty of the Government to shoulder the entire burden of the schools in the affected areas. We are particularly glad that the Government have come forward to bear that responsibility.

We understand that the order contemplates compensating managements for loss only up to the end of March 1943. But we believe and sincerely hope that this restrictive clause is due to a hope which we all share and pray devoutly for realisation, that when the schools reopen in June 1943, they will do so with their normal or pre-crisis strength.

New Year Honours :

We hasten to offer our hearty felicitations to our Upadhyaya Sangha Karya Praveena Rao Bahadur Sri S. K. Yegnanarayana Iyer on the title of Rao Bahadur conferred on him on New Year's day. His valuable services to the cause of education as Professor, as member of the Senate and as President of the South India Teachers' Union are very well known. His active interest in Cooperation has contributed not a little to the success of the movement. It is indeed a fitting recognition of his great services and our readers and members of the South India Teachers' Union can justly be proud that our S. K. Y. has been so honoured.

Another esteemed friend honoured on New Year's day is Sri R. M. Savur, Divisional Inspector of Schools, on whom the M. B. E. has been conferred. He is so well-known and we are sure all will agree that it is a well-merited distinction. We offer him our hearty congratulations.

The Food Front :

'Conscience' writing on 'the Food Front' gives an interesting piece of information regarding the increase in food prices. In England during the first 15 months of the war the increase was 50 per cent while as a result of the introduction of a scheme of subsidies and control the increase in 1942 was only 5½ per cent. The Board of Trade index number rose only by 3½ per cent in 1942. But what do we have in India? The official statement showing the index number of wholesale prices of commodities in Madras City is given below. The prices which prevailed in the pre-war week of August 1939 have been taken as 100.

Months.	Food articles.			All articles.			
	1940	1941	1942	1940	1941	1942	
August	...	113	122	189	144	144	207
October	...	115	123	206	116	148	221
December	...	111	133	234	118	158	246

It needs no comment. Government have woefully neglected this problem and allowed it to worsen to a serious extent. It is no use

attributing it all to hoarding. Those who can study the problem can realise, that the actual yield of all grains will not be sufficient to provide even one pound a day to all people of India. Dr. M. S. Patel writing in the *Northern India Observer* calculates that on that inadequate 1 lb. per capita allotment we will still require 65 million tons of grain material per year. The situation therefore calls for immediate action.

The Care for Dearness Allowance :

But before prices could be controlled effectively and adequate supplies secured, the position of all salaried employees requires urgent consideration. The recent action of the Government of India in enhancing the rates of dearness allowance payable to their lowpaid employees and the decision of the Government of Madras to follow the example of the Central Government clearly show that Government are aware of the serious difficulties of this class of employees. The relief offered, though not adequate, is most helpful in mitigating their hardship. But what about the teachers in aided and local body schools? It appears that Government consider that it is a matter for the respective managements and local bodies. District Boards and Municipalities have only a limited field of income by way of rates and taxes and they depend very largely on the Provincial Government for subsidies, compensation, etc. In the case of managements of aided schools, the working of the grant-in-aid code throws a great burden on the managements. Thus it is evident that unless the Government assist these bodies with liberal grants it may not be possible for teachers to get any relief. In peace time the normal budget would not allow of any increased help to the teachers in non-government schools. In war time the case of the schools for more liberal help is never sufficiently heard. The hardship which the teachers are now undergoing consequent on the enormous increase in prices is very serious and calls for immediate help. We are sure managements realise the difficulties of the teachers in their employ and we believe they consider their claim for a dearness allowance both just and necessary. May we request them to urge on the government for the award of a special grant towards this purpose? Teachers' associations have formulated their requests to government. Their efforts need strengthening. Will the managements render them their help? If the teacher is saved from anxiety his work will grow in efficiency.

Education for War and Peace :

"Nor must we as a nation neglect the education of the children now in the Schools. Repair to material damage can wait. It is possible to repair, in the future, a building so that it is stronger and more beautiful. But neglect, or damage done now to the living child is a very different matter. That will be very difficult, if not impossible, to repair in the future."

In these telling words William Griffith, the president of the National Union of Teachers, England, calls attention to the imperative

need of caring for the children and of providing them with adequate facilities for Education. The cost of war is great but far greater will be the cost of peace if the children are neglected now. It is therefore a matter for satisfaction that the three great countries America, China and Great Britain, deeply involved in this war, are giving very earnest consideration to keep their educational service unaffected by the demands of war. They are preparing plans for a post war education which will help the children not merely to earn peace but retain permanently peaceful conditions. Nay, the schools are now adapted so that they may serve the immediate needs of war too. As the president of the American Federation of Teachers put it—the task of the teacher is no less important than that of the soldier, the farmer, or the defence worker. It is a unique responsibility of the teacher to harness the forces of education to the winning of both the war and the peace. It is necessary that the teacher must undertake the responsibility 'of leading in the struggle to maintain and extend public education during these days of war.' The Curriculum of the school when necessary and desirable should be changed to the furthering of the war effort, while being ready to shape educational programme to meet the needs of social readjustments and reconstruction following the war. That the Department of Education of the U.S.A. and the teachers of America are alive to these responsibilities is evident from the reports of the conventions that were held recently. Their purpose was 'winning the war and establishing peace.' The Curriculum of certain Secondary Schools has been modified to provide for a basic training that may be absolutely necessary for those who will actively share in the task of winning the war.

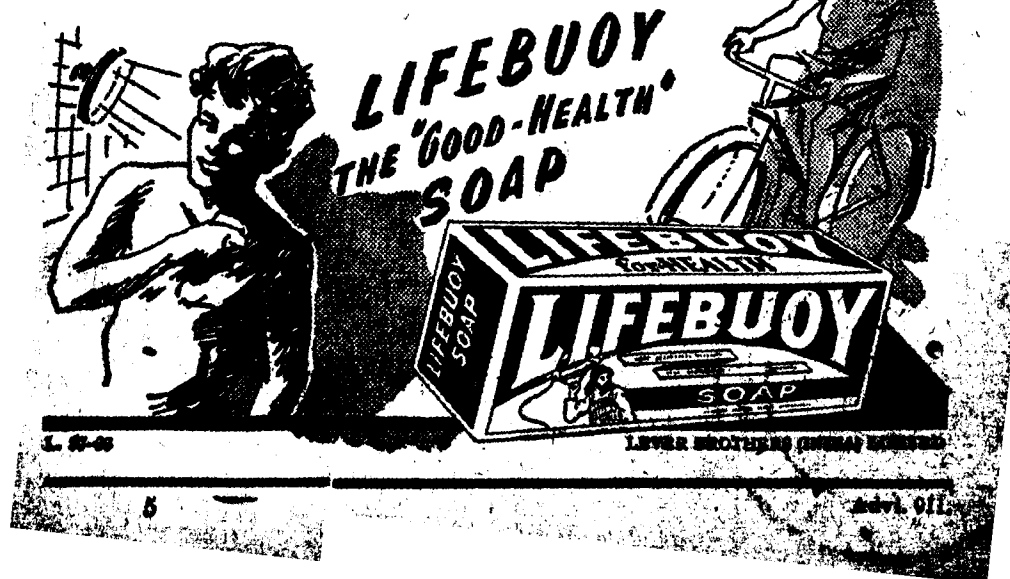
But what do we have in India? Even before the war broke out the need for educational re-organisation based on an adequate conception of education was felt and our Madras Government was one of the first provincial governments to issue a communique on the subject. They arrived at tentative decisions on the subject. But the out-break of war delayed the giving effect to the proposals.

But Mr. T. Austin, opening the conference of European School Teachers recently announced that the Government have decided to introduce in the new academic year far reaching changes in the Indian Secondary School programme by the inauguration of practical courses or Pre-Vocational courses. On enquiry we find that Government propose to introduce in a few select Schools (about 40) in the presidency, courses designed to train pupils for lower division clerkships. One wonders whether South India's contribution to winning the War is only in the production of lower division clerks. The defence force needs technicians, skilled workers, aviators, sailors etc. Every day our schools are flooded with pamphlets displaying the needs of our Army, Navy and Air force and inviting our school pupils of the V or VI Form standards too to apply. They are promised attractive salaries and free rations. If such be the needs of our defence forces will it not be better to choose a few schools which may provide the basic training needed for these services? We are therefore



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unable to appreciate the move of Government to introduce only the Secretarial courses. It neither helps the immediate requirements nor promises a desirable reform in Education. A comprehensive scheme of pre-vocational education has to be drawn up containing courses which will distinctly help in the training of the hand and eye and at the same time supply the basic training for a Technical career. We hope Government will pass no hasty orders. Reform in education is urgent but it must be well-planned and not introduced in a hap-hazard manner, for that will lead to chaos.

Election.

The elections to the University bodies are coming off. Many members of the Union have announced their candidature. We appeal to all members of the Union who are entitled to vote to record their highest preferences to such members of the teaching profession who are also Union members.

Our Great Loss :

As we go to the press we learn of the sad and sudden demise of our good friend, Sri N. Subrahmanya Iyer, M.A., L.T., F.R.G.S. on Friday the 29th January after an illness of only a few days. It was only recently that he had been to the office of the Union when he appeared to be in good health. He was a very devoted member of the Union and the Protection Fund, and an ardent, enthusiastic and tireless worker. He represented the Union at the All-India Educational Conference held in Indore in December 1942. Thanks to his strenuous efforts, Geography, instead of being the Cinderella of school subjects, has become an important subject. By his zeal and enthusiasm the Madras Geographical Association has become an All-India Organization. At his initiative, a geography section has been organised under the auspices of the Science Congress. By organising a series of refresher courses and summer schools he contributed not a little to the improvement in the efficiency of Geography teaching in all our schools. So great had been his contribution in this regard that he is familiarly known as Geography Subrahmanya Iyer. He has been the mainstay of the Madras Geographical Journal founded and edited by him for the past 16 years and which has now been made the All-India Geographical Journal. His death at the age of 57 years had left a deep void difficult to fill and has cast a dark gloom which may not be easy to dispel. We assure his two young sons and his younger daughters that all teachers in this province and elsewhere share in their sorrow and offer them our heartfelt condolences at their bereavement, sad and irreparable.

ELECTION TO THE SENATE BY THE REGISTERED GRADUATES

"Education is the only Hope for Mankind"

N. KUPPUSWAMI, M.A., L.T., Retired Lecturer, Training College, Trivandrum; member of the Managing Committee of the National College, Trichinopoly and that of the Board of Indian Association for Educational Research; Secretary, Educational Research Section, All-India Federation of Educational Associations; and President, Vaduvur First Grade Elementary School Committee, requests the support of the Registered Graduates in the ensuing elections to the Senate.

The senseless waste and destruction of human labour and life that is now going on is, he has no doubt, due to MISEDUCATION. Proper Education is the only hope for mankind.

The Wardha System of basic education was devised purposely for changing the present competitive social order to a cooperative one. The All-India Federation of Educational Associations has recommended a National Scheme of Education coordinating Higher Education with the Wardha System.

It is his object to work for University Reform on these lines which will train men not only to accept the New Cooperative Social Order as a desirable one but also for leadership in working earnestly for it.

He requests that he may be helped in this endeavour especially by teachers by giving him their FIRST PREFERENCES or as high a preference as possible.

Ballot Papers may be sent to him direct by ordinary post or better for the sake of SAFETY, 'NOTPAID' or 'UNDERPAID' to the address, 67, Mowbray's Road, Alwarpet, Mylapore, Madras.

Ballot Papers will be posted to the voters on 22-2-43

Teachers of South India!

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of

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V. SRINIVASAN
Secretary

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Printed by K. Sadagopachariar, at the Liberty Press,
10, Lingha Chetty Street, G.T., Madras. Edited & Published by M. S. Sabhesan, M.A.,
for the S. I. T. U., at 520, High Road, Triplicane, Madras.