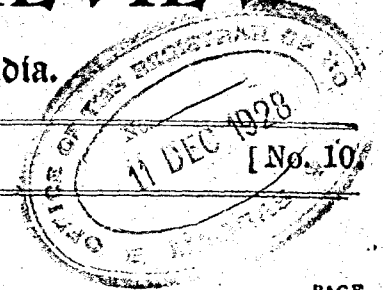


THE EDUCATIONAL REVIEW ²¹⁵⁶

A Monthly Record for India.

VOL. XXXIV.]

OCTOBER 1928.



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3. It will be issued in the present 21st edition and in all succeeding editions in two complete and independent parts written on the *Concentric System*, Part I being intended for Form I, and Part II for Forms II and III.

Contents of Part I.

Chapter I. Numeration and Notation. II. Arithmetical Tables. III. Lines: Right Angles Rectangles: Squares. IV. Graphic Representation of Numbers. V. The Fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and tenths. VI. Simple Addition. VII. Simple Subtraction. VIII. Measuring with the Tape. IX. Simple Multiplication. X. Simple Division. XI. Use of Brackets. XII. Expressions and Terms. XIII. Use of the Scale and Dividers. XIV. Averages. XV. Shortened Methods of Multiplication and Division. XVI. Problems on the Simple Rules. XVII. Use of the Set Square. XVIII. Areas of Rectangles and Squares. XIX. Cuboid and Cube. XX. Volumes of Rectangular Solids. XXI. Reduction. XXII. Compound Addition. XXIII. Compound Subtraction. XXIV. Compound Multiplication. XXV. Compound Division. XXVI. Problems on the Compound Rules. XXVII. Practice and Bazaar Transactions. XXVIII. Card-Board Modelling. XXIX. Odd, Even and Consecutive Numbers. XXX. Common Factors. XXXI. Division by Cancellation. XXXII. Use of Letters for Numbers. XXXIII. Unitary Method. XXXIV. Use of the Compasses. XXXV. Index Notation. XXXVI. Decimal Fractions. XXXVII. Straight Lines and Angles. XXXVIII. Metric Measures of Length. XXXIX. Use of the Protractor. XL. Resolution into Prime Factors. XLI. Measures and Multiples. XLII. Some Related Angles—(1) *Adjacent Angles*, (2) *Angles at a point*, (3) *Supplementary and Complementary Angles*. XLIII. Greatest Common Measure. XLIV. Least Common Multiple. XLV. Solids: Surfaces: Lines: Points. XLVI. Vulgar Fractions. XLVII. Drawing to Scale. XLVIII. Multiplication and Division of Compound Quantities by Fractions. XLIX. Reduction of Concrete Vulgar Fractions. L. Bisection of Lines and Angles. LI. Problems. LII. The Mariner's Compass. REVISION EXAMPLES.

SRINIVASA VARADACHARI & CO., 4, MOUNT ROAD, MADRAS.

PART II.—23rd Edition—In the Press.**Contents of Part II.****II FORM.**

Chapter I. Numeration and Notation (including *Roman Notation*). II. Revision of the Simple Rules:—1. *Proof of Addition by casting out nines*. 2. *Detailed Verification of Multiplication*. 3. *Multiplication by 11*. 4. *Combined Multiplication and Addition*. 5. *Subtraction by Complementary Addition*. 6. *Combined Multiplication and Subtraction*. 7. *Square root and Cube root*. 8. *Easy approximations (Integers)*. 9. *Rough estimate of results*. III. Reduction and the Compound Rules. IV. Decimals:—1. *Multiplication of Decimals by Decimals*. 2. *Division of Decimals by Decimals*. 3. *Multiplication of Decimals by Decimals (continued)*. 4. *Multiplication and Division of Decimals by a Decimal of the Standard Form*. V. Bisection of Straight Lines, Angles and Arcs. VI. Vulgar Fractions:—1. *Compound Vulgar Fractions*. 2. *The signs $\div$, $\times$, of, $+$, $-$* . 3. *Complex Vulgar Fractions*. VII. Interconversion of Decimals and Fractions. VIII. Reductions of Concrete Fractions. IX. Reduction of Concrete Decimals. X. Triangles: Their Classification and Properties (including the shortest distance from a point to a straight line). XI. Simple Practice. XII. Unitary Method. XIII. Use of Letters for Numbers (including symbolical representation and solution of Problems by using x). XIV. Ratio. XV. Proportion and Rule of Three. XVI. Square Measure. XVII. Drawing to Scale. XVIII. Cubic Measure. XIX. Averages. XX. Latitude and Longitude. XXI. Construction of Triangles including Intersection of Arcs. XXII. Problems:—1. *Division of Property*. 2. *Groups and Multiples*. 3. *Time and Work*. 4. *Fractional Parts*. 5. *Income-Tax*. 6. *Exchange and Barter*. 7. *Profit and Loss*. 8. *Revolution of Wheels*. 9. *The Clock and the Calendar*. 10. *Time and Distance*. REVISION EXAMPLES.

III FORM.

Chapter XXIII. Decimals—(continued):—1. *Simplification of Complex Decimal Fractions*. 2. *Approximation of Decimals*. 3. *Statistics*. 4. *Related Examples*. 5. *Remainder after Division by Decimals*. XXIV. Vulgar Fractions—(continued). XXIV-A. Complex Fractions involving Decimals. XXV. Construction of Triangles—(continued). XXVI. Reduction of Concrete Fractions—(continued). XXVII. Reduction of Concrete Decimals—(continued). XXVIII. Circumference of Circles and Cylinders. XXIX. Congruence of Triangles and Circles (including *similar Triangles*). XXX. Compound Practice. XXXI. Parallel Straight Lines and Parallelograms. XXXII. Compound Rule of Three. XXXIII. Some Regular Rectilinear Figures. XXXIV. Square Measure—(continued). XXXV. Cubic Measure—(continued). XXXVI. Symmetrical Figures. XXXVII. Simple Interest. XXXVIII. Pyramid: Tetrahedron: Prism. XXXIX. Percentages. XL. Positive and Negative Quantities. XLI. Simple and Compound Rule of Three. XLII. Angles of Elevation and Depression. XLIII. Problems:—1. *Division of Property*. 2. *Groups and Multiples*. 3. *Time and Work*. 4. *Fractional Parts*. 5. *Income-Tax and Expenses*. 6. *Exchange and Barter*. 7. *Profit and Loss*. 8. *The Calendar*. 9. *Time and Distance*. 10. *Longitude and Time*. XLIV. Removal and Insertion of Brackets. XLV. Equations and Equational Problems. REVISION EXAMPLES including *Mysore Lower Secondary Examination Papers*. **Answers.**

SRINIVASA VARADACHARI & CO., 4, MOUNT ROAD, MADRAS.

Approved as a Text-Book suitable for School use,
vide Fort St. George Gazette, Part I-B, p. 545, dated 1-11-27.
AN IMPORTANT NEW TAMIL PUBLICATION.

ஆரம்ப கணிதம்

(சென்னை வித்யா இலாகா அதிகாரிகளால் தொகுக்கப்பட்ட ஸீலபஸுக்கிணங்கத் தயாரிக்கப்பட்டது)
இஃது கும்பகோணம் கவர்ன்மெண்டு காலேஜ் பிரதம ஆசிரியராயிருந்த ராவ்பகதூர் P.V. சேஷு-
அய்யர், B.A., L.T. அவர்களாலும், சென்னை பச்சையப்பன் கலாசாலை ஹைஸ்கூல் பிரதம ஆசிரியர்
V. வெங்கடசுப்பய்யா, B.A., L.T. அவர்களாலும் ஆங்கிலத்தில் இயற்றப்பெற்ற
Elementary Mathematics, Part I இன் மொழி பெயர்ப்பு.

மொழி பெயர்ப்பாசிரியர் :
சேலம் முனிசிபல் காலேஜ் கணித போதகாசிரியர், S. சிவராமன், B.A., L.T.
சைதாப்பேட்டை டிசர்ஸ் காலேஜ் கணிதபோதகாசிரியர் S. பாலகிருஷ்ண அய்யர், B.A., L.T.,
அவர்களுடைய முன்னுரையுடன் கூடியது.

(முதல் பாகம்)

பொருளடக்கம்.

I. எண் மானும் எண் குறியும் :—எண்கள் ; இலக்கங்களால் எண்களைக் குறித்தல் ; எண்களின்
சுய மதிப்பும் ஸ்தான மதிப்பும் ; ரோமன் வழி. II. கோடுகளும் புள்ளிகளும் நீள அளவையும் :—கீழ்ப் ; ஸர்
பெஸ்கன் ; கோடுகள் ; புள்ளிகள் ; கோடுகளின் வகைகளும் நேர்கோடுகளைப் பரீட்சிக்கும் விதமும் ; புள்ளிகள்
குறித்தலும் கோடுகள் இழுத்தலும் ; நீள அளவு ; டிவீஷன்களின் உபயோகம் ; எண்களை நீளத்தால் குறித்தல்.
III. கூட்டல் :—கூட்டலின் அர்த்தமும் உபயோகமும் ; கூட்டலைப்பற்றிய ஓர் உண்மை ; கூட்டலைப் படத்
தால் காண்பித்தல் ; அடைப்புக் குறிகள் ; கூட்டல் ; பெரிய கணக்குகள் ; கழித்தல் ; கழித்தலைப் படத்தால்
காட்டுதல் ; பலவகை கழித்தல் வழிகள் ; கூட்டல் கழித்தலைப்பற்றிய சில விதிகள் ; கலப்புக் கூட்டலும் கழித்
தலும். IV. பெருக்கல் :—பெருக்கலைப் படத்தால் காண்பித்தல் ; ஒரு ஸ்தான எண்ணால் பெருக்கல் ; பாக்டர்
களால் பெருக்கல் ; எந்த எண்களைக் கொண்டும் பெருக்கல் ; பெருக்கலில் குறுக்கு வழிகள். V. வகுத்தல் :—
வகுத்தலைப் படத்தில் காட்டுதல் ; ஒரு ஸ்தானத்தால் வகுத்தல் ; பாக்டர்களால் வகுத்தல் ; 10, 100 முதலிய
வைகளால் வகுத்தல் ; நீள வகுத்தல் ; வகுத்தலின் இன்னொரு அர்த்தம் ; சில பெருக்கல் வகுத்தல் விதிகள் ;
பெருக்கல் வகுத்தலில் சில குறுக்கு வழிகள் ; ஒன்பதுகளை நீக்குதல். VI. பலவின் வெண்கள் :—அளவை
வாய்ப்பாடுகள் : காணாய அளவுகள் ; நீள அளவுகள் ; நீள அளவு ; பிடித்தல் அளவு ; கால அளவு ; கால
அளவு ; எண்ணிக்கை அளவு ; இனமாற்றத்தல் ; பலவின் வெண் கூட்டல் ; கழித்தல் ; பலவின்வெண்
பெருக்கல் ; பலவின் வெண் வகுத்தல். VII. கோணங்களும் அவற்றின் அளவும் :—திசை, திசைமாற்றம் ;
கோணம், கோணங்களை ஒப்பிட்டுப் பார்த்தல் ; நேர்கோணம் ; சதுரங்களும் ரெக்டாங்கிள்களும் ; வட்டங்கள் ;
கோணங்களின் அளவு ; கோணங்களின் வகைகள் ; ப்ரோட்டாக்டரைக் கொண்டு கோணங்களை வரைதல் ; ஒரு
புள்ளியிலிருந்து உண் கோணங்கள். VIII. டெஸிமல்கள் :—டெஸிமல்களின் அர்த்தம் ; டெஸிமல் குறிப்
பில் ஸ்தான மதிப்பு ; இரண்டாவது டெஸிமல் ஸ்தானம் ; டெஸிமல் குறிப்பு பொது விவரம் ; ஒரு டெஸிமல்
ஸ்தானமுள்ள எண்கள் ; டெஸிமல் கூட்டல் ; டெஸிமல் கழித்தல் ; எந்த எண்களையும் கழித்தல் ; 10, 100
முதலியவைகளால் பெருக்கல் ; ஒரு ஸ்தானமுள்ள முழு எண்ணால் பெருக்கல் ; ஒரு ஸ்தானமுள்ள முழு எண்
னால் வகுத்தல் ; பல ஸ்தான முழு எண்களால் பெருக்கல் ; பல ஸ்தான முழு எண்களால் வகுத்தல்.
IX. உயர்ந்த பொது அளவும் தாழ்ந்த பொது மடங்கும் :—அளவும் மடங்கும் ; பொது அளவும் மடங்கும் ;
உயர்ந்த பொது அளவும் தாழ்ந்த பொது மடங்கும் ; பாக்டர்களால் இரண்டு அல்லது இரண்டிற்கு மேற்பட்ட
எண்களின் உ. பொ. அ. உம், தா. பொ. ம. உம் கண்டுபிடிக்கும் வழி ; உ. பொ. அளவைக் கண்டுபிடிக்கும்
பொது வழியைப் படத்தாற் காட்டல் ; உ. பொ. அ. பொது வழி. X. சாதாரண பின்னங்கள் :—பலவின்
அளவுகளின் பின்னங்கள் ; ஒரு கான்கீட் அளவை இன்னொரு கான்கீட் அளவின் பின்னமாகச் சொல்லுதல் ;
சமமான பின்னங்கள் ; சமமான பின்னங்களைப் படத்தாற் காட்டுதல் ; பின்னங்களின் சமத்துவம் ; தாழ்ந்த

உறப்புகள் ; பின்னங்களை ஒப்பிடுதல் ; பின்னங்களின் கூட்டலும் கழித்தலும் ; ஒரு சாதாரண பின்னத்தை
ஒரு முழு எண்ணால் பெருக்கல் ; சாதாரண பின்னத்தை ஒரு முழு எண்ணால் வகுத்தல் ; ஒரு பின்னத்தால்
பெருக்கல் ; பின்னத்தின் பின்னம் ; ஒரு பின்னத்தால் வகுத்தல் ; ஒரு எண்ணை ஒரு குறிப்பிட்ட டிவிஷனே
ப் உள்படி மாற்றல் ; பின்னங்களைச் சீருக்கல். IX. வாடிக்கை முறை.—பலமாதிர்க் கணக்குகள்.
பரீட்சைக் கேள்விகள். விடைகள்.
முதல் பாகம் 5-வது வகுப்புக்கும் 1-வது பாரத்திற்கும், கிரௌன் 500 பக்கங்கள், விலை அணு 12.

Approved as a Text-Book suitable for School use,
vide Fort St. George Gazette, Part I-B, p. 546, dated 1-11-27.

(இரண்டாம் பாகம்)

பொருளடக்கம்.

பரீட்சைக் கேள்விகள். I. டெஸிமல்களின் பெருக்கலும் வகுத்தலும் : ஒரு ஸ்தான டெஸிமல்
எண்ணால் பெருக்கல் ; சமமான பரிசோதனை ; எந்த டெஸிமல் எண்ணாலும் பெருக்கல் ; டெஸிமல்களால்
வகுத்தல் ; சமாய்ச் சொல்லல் ; சாதாரண பின்னங்களை டெஸிமல்களாக மாற்றல் ; டெஸிமல்களை சாதாரண
பின்னங்களாக மாற்றல். II. சராசரி, போஷியோ முதலானவை : சராசரி ; ரேஷியோ ; மாறாத ரேஷியோ ;
ரேஷியோவின் உபயோகங்கள் ; ப்ரோபோஷன் ; லாப நஷ்டம் ; வருமான வரி ; கடன் மிகுதல். III. பாப்
பளவு ; பரப்பளவு ; ரெக்டாங்கிள் ; இங்கிலிஷ் பாப்பளவுகளும் ப்ரெஞ்சு பாப்பளவுகளும் ; பரப்பளவு வாய்ப்
பாடுகள் ; பிளான் வரைதல், அதாவது அமைப்புருவம் வரைதல் ; தரையின் பரப்பளவும் நாய்கவர்களின் பரப்
பளவும் ; கட்டக் காகித்தின் உபயோகம். IV. பொது எண் கணக்கு—சமீகரணங்கள் : அங்க கணிதமும்
பீஜ கணிதமும் ; சில பெயர் விளக்கங்கள் ; சமீகரணங்கள் ; இன அங்கங்கள் ; அடைப்புக் குறிகள் கீக்குதல்.
V. முக்கோணங்கள் : அவற்றின் பக்கங்களும் கோணங்களும் : முக்கோண விரிப்பு ; முக்கோணங்களின்
கோணங்கள் பக்கங்களுக்குள்ள சம்பந்தங்கள் ; ஒரு புள்ளியிலிருந்து நிற்ப்தனைக்கிணங்க மற்றொரு புள்ளி குறித்
தல் ; இரண்டு புள்ளிகளிலிருந்து நிற்ப்தனைகளுக்குக் கிணங்க மற்றொரு புள்ளி குறித்தல் ; கொடுக்கப்பட்ட அளவு
தல் ; இரண்டு முக்கோணம் வரைதல் ; வட்டங்களின் சில தன்மைகள் ; முக்கோணங்களின் வகைகள் ; ஓர்
களைக் கொண்டு முக்கோணம் வரைதல் ; வட்டங்களின் சில தன்மைகள் ; முக்கோணங்களையும் இருசமபாகங்
புள்ளியிலிருந்து ஓர் கோட்டிற்குப் பெர்பெண்டிகுலர். VI. கோடுகளையும் கோணங்களையும் இருசமபாகங்
களாக்கல் : இருசம பக்க முக்கோணங்களின் சில தன்மைகள் ; நேர் கோடுகளை இருசம பாகங்களாக்குதல் ;
கோணங்களை இருசம பாகங்களாக்குதல் ; கார்ட்டிளையும் வட்ட பாகங்களையும் இரண்டு சம பாகங்களாக்குதல் ;
பெர்பெண்டிகுலர்களை இழுத்தல் ; ஸிம்மெட்ரி. பலமாதிர்க் கணக்குகள் ; முதல் பாரப் பாடங்களில் புதிய
கணக்குகள் :—கூட்டல் கழித்தல் ; பெருக்கல் ; வகுத்தல் ; பலவின் எண்கள் ; கோணங்களும் வட்டங்களும் ;
டெஸிமல்கள் ; உயர்ந்தபொது அளவும் ; தாழ்ந்த பொது மடங்கும் ; சாதாரண பின்னங்கள் ; பலமாதிரி.
இரண்டாம் பாரப்பாடங்களில் பலமாதிரிக் கணக்குகள். பரீட்சைக் கேள்விகள். அறுபத்தாம். விடைகள்.
இரண்டாம் பாகம் 2-வது பாரத்திற்கு, கிரௌன் 208 பக்கங்கள். விலை அணு 10.

(மூன்றாம் பாகம்)

பொருளடக்கம்.

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The Educational Review

A Monthly Record for India.

VOL. XXXIV.]

OCTOBER 1928.

[No. 10.]

All literary contributions, books for review, newspapers or magazines, sent in exchange, &c., should be addressed to the Editor, No. 4, Mount Road, Madras. Articles and communications intended for publication in the succeeding issue should, as far as possible, reach the Editor not later than the 20th of the month. The Editor solicits contributions on all subjects of educational interest. Stamps should accompany the MS., if the writer wishes it returned, in case of non-acceptance. The Editor can in no case hold himself responsible for accidental loss.

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STUDIES IN SANGAM HISTORY

By Prof. V. RANGACHARYA, M.A.,
Presidency College, Madras.

(Continued from p. 513).

"THE SECOND SANGAM."

I.

THE commentary on *Iṭṭayanār-ahapporuḷ* summarises the traditions regarding the so-called Second Sangam in these words: "It is said that, in the intermediate (that is, the second) Sangam, there were 59 persons including Agattiyaṇār, Tolkāppiyaṇār, Karuṅḡōli of Irundaiyūr, Śīru-Pāṇḍaraṅga, Tiraiyan-māra, Tuvaraik-kōn and Kirandai. They say that, together with these, there were 3700 poets on the whole! It is said that the *Kali*, the *Kuru*, the *Veṇḍāl*, the *Viyālamālai-ahaval* and other works were composed by them. Their *nūḷ* (grammatical literature) was the *Agattiyaṁ*, the *Tol-kāppiyaṁ*, the *Māpurāṇam*, the *Isai-nūḷukkam*, and the *Bhūta-purāṇam*. They, it is said, formed the Academy

for 3700 years. Their patrons were the 59 (Pāṇḍyan) kings from Veṇḍār-chēliyan (Sans. चित्ररथ-पाण्ड्य) to Muḍat-tirumāra (Sans. मुदत-कुञ्ज-पाण्ड्य), of whom five were themselves recognized as poets (*śvīyār-ṭṭēṇṭṭi*). It is said that they met in Sangam and made researches in Tamil at Kapāṭapuram. The sea apparently swallowed the Pāṇḍya-nāḍu even that time." As the commentary says later on that the 'Third Sangam' had for its first patron Muḍattirumāra, it is clear that the destruction of Kapāṭapuram and the foundation of the third Academy at Madura took place in the same reign.

To this tradition may be added one or two details given by Aḍiyārkkku-nallār in his commentary on the *Śilappadhikāram*.^{*} He states clearly

^{*} See Mahāmahōpādhyāya Svaminatha Aiyar's Edition, 1927, pp. 7-8. This scholar also reproduces in the foot-note 3 of p. 7 the *Āsiriyaṇṇā*, a poem in Ahaval metre, embodying all the Sangam traditions. So far as the first two Sangams are concerned, the passage seems to be the simple versification of the passage in the *Iṭṭayanār-ahapporuḷ* and nothing more. Further, it is prob-

that the king Nilan-taru-tiru-viṇ-Pāṇḍya *alias* Mā-kirti was the sovereign in whose time the first Śāṅgam was destroyed by the sea at Dakṣiṇa-Madhura and the second Śāṅgam was established at Kapāṭapuram. Secondly, he says that, on the basis of the scientific works of the 'Second Academy,' was composed the *Udayaṇa-kadai* (the story of Udayaṇa). Now, elsewhere in his commentary, he calls this work, which he extensively quotes, by the name of *Peruikadai* (பெருக்கதை) or simply *Kadai* (கதை). It is clear from this that, according to Adiyārkkunallār, the *Peruikadai* was a work of the 'Second Academy.' We do not know on what authority Adiyārkkunallār based this additional information. But there is no doubt that he had as much authority as the commentator of the *Tirayāṇār-ahapporu* for all his statements. He was in no way an inferior authority when compared to the latter, though he lived much later. He would not have mentioned a specific fact like the composition of the *Udayaṇa-kadai* on the basis of the grammars of 'the Second Academy' unless traditions to that effect were strongly current in his day. He lived centuries later than the so-called Third Śāṅgam and yet he deliberately associated the Second Śāṅgam with the work under discussion. We have therefore to suppose that the *Peruikadai* was also traditionally a work of the so-called Second Academy, and in our discussion of the questions of the Śāṅgam chronology, we cannot ignore this fact.

II.

The above tradition enables us to make certain general inferences. First, there was no gap between the first and second Śāṅgams, the second being a continuation of the first though in a differ-

ably a late composition, besides being, as the Mahāmahāpādhyāya observes, untrustworthy in some respects. Though the poem is quoted widely, it should be merely regarded as a versified translation of the passage in the commentary referred to, and not a first-hand authority.

ent place. The same king lived at the termination of the one and the commencement of the other, and, among the scholars, Agastya and Tolkāppiya also are said to have been members of both the Śāṅgams! The absurdity of the synchrony of Agastya and Tolkāppiya has been already pointed out. The association of Tolkāppiya with this Śāṅgam can only mean that there was no real chronological gap between it and the body supposed to have preceded it. The second point to be noted is, the numerical figures given in the tradition about the kings, scholars and general duration are, as in the case of 'the first Śāṅgam,' absurd, incredible and inconsistent with known history. Thirdly, the names Pāṇḍaraṅga and Tavarikkōṇa (*i.e.*, Kṛṣṇa) sound too late and paurāṇic to have been current then. The names of some of the works again are crude and indicate archaism while others sound suspiciously late. The *Isainuṇṇakkam*, for instance, is said to have been composed by one Śikaṇḍi, also said * to be a disciple of Agastya, though he has not been mentioned as such in the traditions previously recorded. If Śikaṇḍi was Agastya's disciple, it is a mystery why he has not been put together with the twelve disciples of that sage already referred to. Further, the currency of his name in such an early period is open to suspicion, though one cannot be dogmatic about this. Again, he is said to have composed his musical treatise in order to teach a prince named Sārakumāra; and the story of this Sārakumāra is distinctly paurāṇic. Anākula Pāṇḍya of 'the middle Śāṅgam,' we are told, was on account of his divine powers going in his chariot in the heavens when he met Tīlōttamai the divine damsel and had by her a son named Sārakumāra, who is also said to have

* The authority for this is Adiyārkkunallār (see the commentary 'on' *Śilappadhikāram*, p. 10). He distinctly says that Śikaṇḍi was one of the twelve disciples of Agastya—which is inconsistent with the traditional list given already in the previous article.

been known as Jayantakumāra. This story could not have risen except in an age when the paurāṇic spirit was in full swing. The name Jayanta, in fact, reminds one of the early Pāṇḍya kings occurring in inscriptions and seems to indicate that the traditions were coined at a time when the name was, if not common, at least known to the Pāṇḍyan line and people. The names Veṇḍēr-cheliyan and Muḍattirumāran, again, appear, though in slightly different forms, in the Vēlvikkūḍi and Chinnamaṇūr inscriptions and give rise to the suspicion that the traditionists were later than the seventh or eighth century at least, and committed anachronisms. Being acquainted only with the names of the recent or ruling dynasty they attributed to their ancestors and supposed namesakes the various honours attributed to them in the legends. A distinct proof of this is also afforded by the fact that the *Peruikadai** is attributed to this 'Śāṅgam'. The story of the *Peruikadai* (Sans. पुरीकथा) was first put in a literary form by Guṇāḍhya in the Pāṇḍya dialect, in the first century A.D. according to some scholars and as late as the sixth century according to others. It was given a Sanskrit garb by King Avinita of the Gaṅga dynasty in the sixth century. It was on this that the Tamil work of *Koṅgu-Vēlir* was based. It seems to me that the author or translator of it into Tamil was some unknown scholar and that the expression *Koṅgu-Vēlir* must be applied to the Gaṅga sovereign himself and not to the translator; for the Gaṅgas of Talakāḍ in this period were also the rulers of Koṅgu or at any rate constantly engaged in reducing and ruling it and were known in those days as *Vēlirs* or 'feudatory chiefs.' Even the Chālukyas, it may be pointed out in this connection, were called *Vēlirs* by the Tamil kings and their literary admirers. But

* This monumental work has been edited by Mahāmahāpādhyāya Svaminatha Aiyar (1924). The introduction is of singular value.

even supposing that the Koṅgu-Vēlir who translated the *Bṛhad-kathā* into Tamil was a different individual who had his court at Vijayamaṅgalam, as the traditions concerning him say, we can easily see from the records of the district that Vijayamaṅgalam came to figure in history only after the seventh century and that the author of the Tamil poem can hardly be attributed to an earlier period. The story that he belonged to 'the Second Śāṅgam' and that he vanquished the Śāṅgam poets through his maid-servant, etc., should be discredited as myths. Adiyārkkunallār's expression இரண்டாம் ஊழிய தாமிர கபாடபுத்தின் உதயணன் கதை should be pronounced as historically baseless. It clearly indicates the unreliable nature of the traditions concerning the so-called 'Second Śāṅgam.'

III

But it may be asked: "Is there no evidence at all to indicate in any way the existence of the Academy?" Certainly, there is, though that evidence cannot be taken as an indication of it as a *separate* and distinct institution from an earlier one. That evidence is the reference to Kapāṭapuram. Now, this place is referred to in Kauṭilya's *Arthaśāstra* on the one hand and the *Rāmāyaṇa* on the other. With regard to the date of the former the opinions of scholars vary from circa 300 B.C. to the fifth century A.D. The majority of Indian scholars (and a few European scholars) prefer the earliest of these dates; a few European (practically no Indian) scholars prefer the last; and one at least of the Indian savants—the late Sir R. G. Bhandarkar—was for the intermediate date of the first or second century A.D. To make the reference in the *Arthaśāstra* therefore

† The inscriptions of the place (recorded in my *Topographical List*, Vol. II) belong mainly to late Chōla period. But Vijayamaṅgalam played an important part as a Jaina centre from a much earlier period. See the *Koṅgumāṇḍalasaṭakam* quoted by Svaminatha Aiyar in p. xxix of his introduction to the *Peruikadai*.

a basis for a chronological discussion would, in the face of such enormous differences of opinion, be hardly regarded as just. But even if the earliest date is accepted, it can only go to indicate that the cleavage between "the first two Śaṅgams" is a myth. Effort has been made to prove that the so-called first Śaṅgam can be taken only to about B.C. 300. If the Kauṣilyan reference is accepted as indicative of B.C. 300, it can only go to prove what is maintained in these pages, namely, the unreliability of the tradition that there was a second Academy distinct from it. The submergence of Kapāṭapuram under the sea would indicate the same inference in my opinion. The passage in the *Rāmāyaṇa* which refers to the *Kaṇṇū* of the Pāṇḍyas is generally regarded as a late interpolation at least as late as the first or second century A.D., though the late M. Srinivasa Aiyangar opined that it should be placed in the first century B.C. The only possible inference which can be drawn from this is that the Academy had a continuous life from its commencement to the second century A.D., so far as this distinct piece of evidence is concerned.

From all these facts it is clear that, if we are to attach any significance at all to the legends of the so-called 'second Śaṅgam,' it must be pronounced to have lasted from the third century B.C. to the second century A.D.—the *Bṛhadkatha* and other associations being clear anachronisms. Two results follow from this: first, there is no basis for dividing 'the Second Academy' from 'the First'; secondly, there is no basis for a 'Third Academy' distinct from the 'Second.' According to the legends Muḍattirun āraṇ is said to have witnessed the fall of the one (owing to the destruction of Kapāṭapuram by the sea) and the establishment of the other in modern Madura. If the same king founded a new Śaṅgam in a different place, there would have been only a change of place for the institution, not a new institution itself. Further, as both the first and

second Śaṅgams were in reality one institution which lasted during the centuries which followed the age of *Tolkūppiyam*, to attribute the origin of the so-called third Śaṅgam to the second century A.D. would be absurd. The evidences afforded by some of the Tamil classics generally associated with the traditional third Śaṅgam distinctly indicate the same chronology which we have assigned to the Academy thus far, besides giving a clue to times later than the second century A.D. The existence of a third Śaṅgam, in short, quite distinct from 'the second' is a myth. There was, throughout the centuries immediately before and after the Christian era, a continuous Academy which, though it might have changed its habitation occasionally, remained in entity and spirit one.

IV

The best demonstration of these contentions in my opinion is afforded by the traditions associated with that great genius, Tiruvalluvar, the author of the *Tirukkural*. Now, Tiruvalluvar is generally associated with the so-called 'third Śaṅgam'. He was, we are told, the son of a Brahman (named Bagavan) by a Pulaya woman (named Ādi); that this couple entered into wedlock on the curious condition of presenting away their progeny; that Tiruvalluvar was one of seven such off-spring; that his four elder sisters (Uppai, Uravai, Auvai and Valli) were respectively brought up by a washerman, a toddy-drawer (Sāṇṇi), a Pāṇa and a Kuṇava; that his two younger brothers (Adigamān and Kapilar) were respectively adopted by a chief of Vaṇji and a Brahman of Ālūr; and that he himself was adopted and brought up by a Valluva at Mylapore. We are told, Tiruvalluvar spent his days at Mylapore in the innocent occupation of weaving. As a man, a husband, a house-holder and a teacher, he is said to have set an ideal example to others. His saintliness was so siddhic in its powers that it could bring a

withering crop* to life or set a sinking ship at motion! His wife Vāsuki was the ideal housewife. Her skill could cook ground-nuts made of iron! Her chastity could overcome the law of nature and make a water-pot stand without support! Her love did not see the absurdity of fanning cold rice served to her lord! Her obedience carried out an order however absurd it might be! As a teacher, Tiruvalluvar was even more beloved and respected. His disciple Eḷaśiṅga was a very rich merchant and ship-owner, from whom he purchased the yarn necessary for his craft and further says that it was for the sake of his disciple's son that Tiruvalluvar wrote his *Tirukkural*. Taken to the Madura Śaṅgam, we are told, this great work was first opposed and eventually hailed by the 49 poets of the Academy as the first work of the age and as entitling the author to take the first place in their plank. Every one of them is now said to have uttered a verse in praise of the work. God Śiva Himself, in the guise of Iṇayanār compared Tiruvalluvar's tongue to the Kalpaka flower. Sarasvati claimed it to be her work! Ugra Pāṇḍya compared the author to Brahma. Śittalaichchāṭṭaṇār was for once genuinely happy and dubbed Tiruvalluvar *Poyyil-Pulavar*, 'the true scholar.' Similar panegyrics are said to have been uttered by Kapilar, Paraṇar, Nakkīrar, Māmūlar, Kallāḍar and Perundēvaṇār of the *Mahābhārata* fame. The collection of these panegyric verses is called the *Tiruvalluvar-mālai*. Tiruvalluvar is said to have died in *Māsi Uttara*. After death, his corpse, thanks to

his own request, became food to crows which, on eating it, changed from black to red!†

Such is the tradition concerning Tiruvalluvar. We shall see how far there is a basis of truth in this. In the first place, the story given in the *Kapilar-ahaval* is an incredibly silly and absurd jumble of lies. The utter incredibility of the story is seen not only in its intrinsic absurdity but in the clear anachronism it commits in making Tiruvalluvar a contemporary of Adigamān who, we are told, was the contemporary of Chēraman Perumāḷ and Bāṇabadra! The legends that Uppai was an avatar of Bhṛgu's wife and became deified in the name of Māri and that Uruvai married God Virabhadra at Tiruvāṇṇāḍa after an unsuccessful contest with Sabhānāyaka in dancing is quite in keeping with the rest of the tradition. The *Kapilar-ahaval* is a very late forgery fathered upon Kapilar who was supposed to be Tiruvalluvar's brother but who was not. The anti-Brahmanical prejudice, the curious acknowledgment of semi-Brahmanical parentage, the juxtaposition of men and women who lived in different times as brothers and sisters, the disregard for human nature and other features which characterise this tradition show that it was an invention of a silly forger who desired to bring the different literary

† It may be mentioned here that some attribute the work called *Gāṇa-veṭṭi* to Tiruvalluvar. But as Mr. Sadasiva Pandarattar points out in *Sen-Tamil*, Vol. XIV (1915-6), p. 171-5, it was evidently the work of a haughty and unscrupulous impostor who probably lived two or three centuries ago. In verse 1737 this writer openly claims to have written the *Kural*! He also makes silly and egotistic condemnation of Vyāsa's *Bhārata*, Kamba's *Rāmāyaṇa*, Ativira-Rāma-Pāṇḍya's *Naishada*, Māṇikkavāsaga's *Tiruvāṣagam* (verse 579), the *Deṇṇaram* and *Tiruvāṣagam* (verse 600.) By mentioning Ativira-Rāma-Pāṇḍya he betrays his own date. His hatred of Brahmans, Vēdas, etc., betrays his late existence. Sadasiva Pandarattar surmises that the author of *Gāṇa-veṭṭi* belonged to Tanjore coast and that he probably lived only about 200 years ago.

* Of the legend of Margasahāya of Kāvērip-pākkam whose crops were always withering before harvest and were for the first time saved by the saint. The achievement of setting a ship in motion is narrated in connection with a voyage of Eḷaśiṅga. The incident is claimed to have given rise to the popular notion that the utterance of the expression *ēlaiya* when heavy weights are lifted will give relief!

figures he knew and whom he regarded as contemporaries in some connection with one another. The fact was, by the time that this poem was composed, Tiruvalluvar was in popular tradition regarded as a Valluva or priest of the Paraya community. The story of Ādi was invented to give a basis to it. But the term *Tiruvalluvar* really means a nobleman, officer of state, a *Rājanya* to use the usual Sanskrit expression. The term *Valluva* means also *priest* and if it was given by a particular community to its priest, it does not mean that it was original or early. The term was adopted later on; and to make that the basis of birth among the Paraya community through an irregular union is patently absurd. That Tiruvalluvar was a high officer of the state is clearly seen in the practical wisdom and authoritativeness he displays in treating the political ideas and practices of the age.

Secondly, the tradition regarding Tiruvalluvar's life as a weaver at Mylapore remains to be confirmed by more substantial evidence in the light of the remarks just made. There is nothing inherently impossible in it; but the story does not sound genuine. The suggestion has been made on the basis of a verse (21) in the *Tiruvalluvar* that he was a native of Madura.

Thirdly, the stories connecting Tiruvalluvar with "the third Śaṅgam" are absurd myths. To make the Śaṅgam poets first refuse a place to Tiruvalluvar, be drowned in consequence and then repent and welcome the *Tirukkural* through the *Tiruvalluvar*, is not a credit to the Śaṅgam. Further, in the *Tiruvalluvar* we find verses said to be composed by poets (e.g., Perundēyaṇār) who, we definitely know, lived in very late times. The poem, like the *Kapilaraval*, is a forgery and should be discredited as a historical document.

Fourthly, the traditions concerning Tiruvalluvar's creed are equally speculative. Every

religion claims him. Even the Christians have taken part in this by claiming *Elēlaśinga*, the alleged patron of the poet, to be identical with St. Thomas! The Vaishnavas claim Tiruvalluvar to be a votary of Viṣṇu; for he uses the expression *அகர முதல வெழுத்தெல்லா மாதி பகவன் முதற்றே யலகு*, which is maintained to be the translation of the expression *अक्षरानामकारोऽस्मि* which occurs in the *Gīta*. Again, in stanza 1103 Tiruvalluvar speaks of the abode of Tāmaraikkāṇṇan, to which people go after death. The Śaivites represent him as a devotee of Śiva on the ground that he speaks of God as *En-guṇattān*. The Jains argue that Tiruvalluvar was a Jain. They interpret all the above epithets as those of the Jain Arhats. They say that the expression *மலர்மிசை யெக்கினுன்* which Tiruvalluvar uses in connection with God is Arha. Parimēlaḷahar, however, interprets this in general terms as "He who seats himself in the flower of the human heart." Similarly the epithets *Ainduvittāṇ* (literally the conqueror of the five senses) and *Aravali-aatanan* (literally one that wields the sacred law) are believed to be Jaina; but Parimēlaḷahar interprets them in more general ways. The reference to Indra and the curse upon him by a Rishi is quoted by some to indicate that he was a non-Jaina; but the worship of Indra was not excluded in Jainism, though it was done in a subordinate capacity. The Jains argue that Tiruvalluvar's fondness for the doctrine of *Ahimsā* shows him to be a Jain; but this doctrine was no Jaina monopoly and was common to every other creed. On the other hand the connection of Tiruvalluvar with Elāchārya who, according to Jaina tradition, was the same as Kundakunda and was further the *teacher* of Tiruvalluvar, favours the contention that the latter was a Jain. On the whole we must agree with the writer of the Kallādam that Tiruvalluvar "defined the four objects of human existence and dwelt on the ways of the world without following the path of

any one of the six religious creeds." If he was a Jain, he did not make his work a sectarian work. It was cosmopolitan and could be studied by every religionist without the least compunction. As a work of universal application it was a marvellous achievement. Tiruvalluvar might have been acquainted with the *Gīta*, with the cult of Bhagavān, with the *Arthasāstra*. Parimēlaḷahar saw this indebtedness; for he says that Tiruvalluvar was indebted to Vyāḷa and Velli, that is, Brhaspati and Śukra, by whom we have to mean not the authors of the works existing at present in their names but earlier authors referred to by Chāṇḍīya. Again the *Kural* could have been composed only after the popularisation, in the Tamil world, of the Āryan ideas of धर्म, अर्थ, काम and मोक्ष. The very divisions of Tiruvalluvar's work show this. Tiruvalluvar left the last subject undone probably because he would have to become sectarian in dealing with it.

V

All these facts seem to warrant our placing the author of the *Tirukkural* in the first century B.C. His acquaintance with the *Arthasāstra* and the *Gīta*, his adoption of the Sūtra style, his eclectic creed, his high regard for the Āryan conception of the *Purushārthas*, and above all his inspiration of many of the poets who are traditionally associated with "the third Śaṅgam" indicate a comparatively early period for him like the first century B.C. The works of the Śaṅgam poets are fully permeated by his spirit. His expressions are quoted by them. He is pre-supposed by them, thus disproving the legend of the third Śaṅgam and the composition of the *Tiruvalluvar*. The refined character of Tiruvalluvar, his abhorrence of flesh-eating, his high regard for Brahmins, his veneration for the Vēdas and sacrifices, indicate an age when, even if he was a Jaina, he was fully Brahmanical in sympathy and ideals.

It will be concluded from this that the career of Tiruvalluvar is another nail on the coffin of the theory of three separate Śaṅgams. A corroborative clue to this is afforded, in my opinion, by the Ceylon traditions. According to these, a Cēḷa nobleman named Alara—a corruption of *Elēla*—invaded the island, slew Aśōla the local ruler, usurped the crown, and ruled the country with great renown for exemplary justice for a period of 44 years from 144 to 101 B.C. We are told that he had a bell hung up at the head of his bed, to be rung by those who desired justice. The king's only son killed a calf by accidentally running his car over it. The cow rang the bell of justice and the king had his son beheaded in retaliation. This story is the same as that recorded in the *Peria-purāṇam* in regard to the Cēḷa Manu at Tiruvārūr. The *Śilappadhikāram* also refers to this. Perhaps we have to infer from this a migration of the story from the main-land to the island. The date of the first century B.C. gives a clue to the time at which this happened.

Another story connected with Alara is that he gave an equal weight of his flesh to save a dove from a hunter. In the *Purāṇas* this is connected with Śibi who is also regarded as one of the Cēḷas in their legends. It is very probable that both Śibi's and Manu-nīdi Cēḷa's stories had their origin in *Jātaka* tales and became popular first in Buddhist Ceylon and then in Purāṇic South India. Further, we are told, when Alara damaged a *sthūna* unwittingly by striking against it in the course of a drive he offered to pay the penalty by offering his head to be severed from the trunk by the wheel. This has a family resemblance to the story of a Pāṇḍyan king who cut off his right hand for knocking at the door of, and causing disturbance to, a loving pair. Another incident mentioned in the Ceylon chronicles is that an old woman brought a complaint before Alara to the effect that the paddy spread out by her to dry in the

sun was damaged by untimely rain. We are told that the king fasted in order to bring Indra to give only seasonal rains. This reminds us of the story of Ugra Pāṇḍya who compelled Indra by force of arms to send rain into the Pāṇḍya country and to relieve it from famine. It is clear from all this that there was a close connection between the main-land and the island in regard to culture. What is more important is, if the story is proved, Tiruvalluvar has to be attributed to the first century B. C. In this case, he would have been earlier than most of the poets generally assigned to "the second and third Śaṅgams." There is nothing impossible in this. The Śaṅgam literature, as has been already said, pre-supposes the *Kural*. The *Śilappadhikāram* quotes from it. Tiruvalluvar was apparently earlier than the literary luminaries with whom he is generally associated.

His figuring in the Ceylon legends of the first century B. C. is a clue to the activity of Tamil literature in that period.

VI

The Ceylon traditions do not only disprove the legends concerning the association of Tiruvalluvar "with the third Śaṅgam" but also show that many other persons and incidents referred to in the works of the so-called third Śaṅgam can be attributed to the first century B. C., and so the usual division into the ages of three Śaṅgams cannot be true. But before considering these, it is necessary to study the traditions connected with the 'third Śaṅgam' both as regards the literary men and the works. We shall therefore pass on, in the coming articles, to make such a study.

(To be continued.)

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SHORT NOTES ON DRAVIDIAN

By

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I. ACCENTUAL INFLUENCE AND INTERVOCAL PLOSIVES IN DRAVIDIAN.

General.

IN Tamil, inter-vocal plosives always, and inter-vocal fricatives sometimes, have voiced values; similarly the plosive and fricative elements of consonant groups formed of nasals and plosives, and of nasals and fricatives, are also voiced. In Telugu, Canarese, the Central Indian Dravidian dialects, and Tuḷu,* such a change is not universal; it is found mostly in root-syllables of native words. Malayalam literary dialect † does not allow it at all, while in some of the ruder dialects like Tōḍa and Kota, ‡ this convertibility of surds and sonants is very rare. Koḍagu shares the tendency to the extent to which it exists in Tuḷu, in so far as the root syllables of words are concerned, while in other syllables, the voicing of surds is very infrequent. The Dravidian dialects of North and Central India evidence such a change far less frequently than South Dravidian (see below for examples of Central and North Dravidian forms with pure inter-vocal surds in positions where Tamil has sonants). Can this tendency therefore, varying as it does so largely from the one extreme to the other, be described as characteristically Dravidian?

* See Brigel's observation on page 7, § 17 of his Tuḷu Grammar.

† Vide my paper on "Dravidian Plosives" in The Madras Journal of Oriental Research, Vol. I, Part IV.

‡ See the texts (accompanied by Gramophone records) published by the Madras Government recently.

It is a very striking fact that Tamil fights shy of inter-vocal surds to such an extent that borrowings of foreign words containing pure inter-vocal surds are assimilated in Tamil either through sonatisation or with the reduplication or doubling of surds. It is a significant fact that in a large number of instances the language-consciousness feels that the purity of the surd-value could be preserved only when it is brought out in a re-duplicated form. In cases where the pure inter-vocal surd has to be,—as in the pronunciation of foreign names like Patel, etc.—enounced in a pure state, the value given to it is that of a very thin and frail surd. The enunciation of a pure surd inter-vocally in Tamil is thus phonetically different from that in Tuḷu, Kannaḍa or Telugu; the time involved in the forming of the stoppage and the explosion of the surd is considerably less in Tamil, even while the breathed character remains unaltered. Compare, for instance, the Tamil pronunciation of *Paṭel*, a foreign proper noun, with that of Telugu or Kannaḍas. The Tamilian, desiring to preserve the purity of the inter-vocal surd, brings out a sound which is frailer (phonetically less tense and less long) than the Telugu or Kannaḍa enunciation, i.e., whenever it is desired—as occasionally happens—to bring out a pure surd value. The pure surd thus brought out is so frail that the Tamilian in course of time either sonatises it or gives it a longer value in instances that are completely assimilated in Tamil. Presumably this is to be ascribed to the extreme sonatising tendency of Tamil. The doubling in such cases does not necessarily mean that the sound is longer than the true single surd of Telugu; it only means that it is the longer sound of the frail Tamil surd referred to above.

It may be mentioned here that the frail pure surd—occasionally heard in the Tamil enunciation of unassimilated foreign words—falls under class IV or class V of Jespersen's classification, so far as the position of the vocal chords is concerned, the muscular tension, however, being probably a little lower.

Doubled Surd Symbols of Tamil.

Double symbols of surds occur in two main classes of words. The first class is constituted of an ancient stock of dimoristic words like *taṭṭu* (< *taḍ*), *kaṭṭu* (< *kaḍ*), *muṭṭu* (< *muḍ*), etc., and these are common to Tamil, Telugu and Kannaḍa.* Generally in such instances, both the syllables are short. The second class of words with double surd symbols is peculiar to Tamil and the surds are mostly found in formative syllables. It is with this class of forms that I am directly concerned in this essay. Is the doubling of inter-vocal surd symbols in this second class of words—a

prominent feature of Tamil phonology—based upon the need for the preservation of purity of the surd value? And if so, does this need indicate the existence of a certain amount of accentual influence on the surd, which initially at any rate, marked off the comparative semantic importance of the syllable containing the surd? An examination of the various instances of doubling of inter-vocal surds in Tamil and a comparison of these instances with corresponding cases in Telugu, Kannaḍa or Tulu and other Dravidian languages, tends to validate this supposition. That the absence of the protection afforded by a covering accent might lead to the voicing of the inter-vocal surds is a general linguistic rule, proved by (1) Verner's Law, (2) the elimination or reduction of unaccented syllables of inflectional portions in many languages, (3) the voicing of inter-vocal surds in the Apabrahamsa and Prakritic stages of the development of Indo-Aryan, etc.

<i>Tamil.</i>	<i>Telugu.</i>	<i>Kannaḍa.</i>
Doubling of Intervocal surds occur in :	(Surd appears singly)	(Surd appears singly)
1. Dative ending -ku, e.g., <i>gōvindaṇukku</i>	<i>cf. ramāku, Baliki vāniki</i>	<i>cf. Old Kannaḍa maroku</i>
2. Before declensional endings of roots terminating in surds, e.g., <i>pāṭṭei, marattāl, viṭṭukku</i>	<i>cf. pāṭunnu, pāṭuku</i>	<i>cf. pāṭada</i>
3. -tt-, -pp-, -kk- in Preterite, Future and Present endings added to certain roots: <i>paṭitt-, paṭipp, paṭikk</i>	<i>cf. Pret. āḍitini and Pres. base cheyutsu (ts < t)</i>	<i>cf. Pret. aritanu, present ending -utu, etc.</i>
4. Formative affixes as in <i>paḍukkei, nadattam, etc.</i>	<i>paḍuka, naḍata</i>	<i>paḍuke, nāchike, naḍate</i>
5. Combinations of words indicative of a transitional meaning: <i>Kāṭṭuppuli</i> (forest tiger); <i>iruppuppetṭi</i> (iron box); <i>murukkakkāy</i> (a kind of fruit)	<i>—inupapetṭi</i>	

* Kannaḍa shows doubled forms sometimes both of the breathed and voiced varieties. The ancient dimoristic forms with double surds at the end, common to Tamil, Telugu, Kannaḍa, etc., originally had only single final *halanta* surds which were duplicated when enunciative vowels were added.

<i>Tamil.</i>	<i>Telugu.</i>	<i>Kannaḍa.</i>
6. Derivative nouns from verbal themes (without suffix), e.g., <i>pōkku</i> (from <i>pōgu</i>); *; <i>āṭṭam</i> (from <i>āḍu</i>)	— <i>āṭa</i> (from <i>āḍu</i>)	<i>nōṭa</i> (from <i>nōḍu</i> , to look)
7. Transitives converted from intransitives, e.g., <i>viṭṭu</i> (from <i>viḷ</i> , to fall); <i>perukku</i> (from <i>perugu</i> , to increase); etc.	<i>perutsu</i> (ts < k)	old Kannaḍa <i>biṭṭu</i>
8. Causal verbs of some roots, e.g., <i>paḍippi, seyvippi</i> , etc.	<i>pilipintsu, paḍipintsu</i> , etc.	<i>cf. Kannaḍa causals like tirupu from tiru turn</i>
9. Adjectives formed from noun-themes, e.g., <i>nāṭṭu</i> (from <i>nāḍu</i>)	<i>nāṭi</i> (from <i>nāḍ</i>) <i>ōṭi</i> (from <i>ōḍ</i> , to leak)	
10. Inflectional increment -attu- of neuter nouns	Inflectional increment -t-	

Inter-vocal pure surds in the Ruder Dialects.

I. Amongst the lesser dialects, *Kui* offers a most interesting analogy to Tamil. Surds appear exactly as in Tamil in the transitives derived from intransitives as in *dikk* (to kill), < *dig* (to die); *grapp* (to teach), < *gramb* (to learn); *cf. also ass* (to frighten); < *aj* (to fear), *toss* (to show) < *tonj* (to appear); *tiss* (to feed), < *tin* (to eat) where the same principle operates though fricatives instead of plosives are involved. The principle works in a slightly different manner which sheds interesting light on my point. Wherever emphasis is sought to be laid on any particular syllable containing a sonant plosive, the latter immediately changes into a surd.

Friend-Pereira gives interesting examples:

Nāju (*nadu*) *gina* = let us *build* a village.
nāṭṭu *kkīna* = let us *found* a village.
Kama giva *tangi najutari arkamu*
 = call the villagers *to work*.

Kama gippka tangi, etc.

= call the villagers *for working and for working only*.

Similarly, the plural affix *nga* changes into *k*:

Kodiṅgāni *pehmu* (bullocks drive away)
 = drive away the bullocks.
uh! isingi kōḍiskani angina = Oh! these (wicked) bullocks how shall we manage!

In all the illustrations given above, according to Friend-Pereira, the surd alternating with the sonant, may be single or double; as we have seen above in the case of Tamil, possibly the double surd is used only to bring out the full value of a true pure surd.

The principle that Tamil inter-vocal pure surd, when as mentioned above, it is occasionally heard in a pure but frail state = shorter and thinner genuine surd is probably partly applicable to *Kui* also in similar circumstances.

* It has been postulated that the hardening of the plosives in such cases is due to an older -tu added on as a suffix. This, however, is untenable, because it fails to explain the change of other plosives than -ḍ-.

But this is only partly so, for in Kui we have genuine single surds with full value in :

- (a) Past tense forms : vatenju (came), etc.
- (b) Plural affix -ka
- (c) Formatives as in kogati (*small boy*), gipka (*to do or doing*)
- (d) Inflectional affixes : krāṇḍi-ti, oblique case of tiger
- (e) Root positions : oṭe (*again*), tak (*walk*), kōk (*sit*) kāk, (*laugh*), etc.

II. Gōṇḍi shows pure inter-vocal surds in

1. The Present tense forms like guhtātōna (I am seizing), tindātōna (I am eating), etc.
2. The Preterite forms, as in guhtān (I seized, etc.)
3. The Future, as in gubka (I shall seize), etc.

4. The root positions occasionally * as in wītāna (to sow—cf. Tamil *videi*), ētāna (to take), kēpāna (to guard < root kā), nākāna (to lick < nak), etc., etc.

III. Kurukh also shows an abundant number of inter-vocal surds in :

1. Root positions : orok (*bark*), nākḥ (*four*), ēk (*to walk*)
2. Inflectional terminations : ablative and locative -ti or -nti.

* It is interesting to observe that in a very large number of cases, Gōṇḍi shares the tendency of Tamil either to double the surd or to convert the surd into a sonant and give rise to a spontaneous nasal in the process : attāna (to carry), vattāna (to dry), handāna (to go), pundāna (to know) < pundr < putr < pur, tuṇḍāna (to touch, cf. Tamil (tōḍ) etc., etc.; side by side with these, single surds are also found inter-vocally. It is usual to dismiss these cases as exceptional and as being due to the influence of Indo-Aryan, but it will be seen from our discussion that these modern "exceptions" are in all likelihood only the remnants of an ancient "rule."

3. Adjectival termination -ti, e.g., kukkoti (*boyish*), mannti (*of the tree*), etc.

4. Past tense ending -k as in eskan, etc.

IV. Brāhūi shows inter-vocal surds in profusion :

1. Root positions : koṭ (to cut); lēṭ (to lie down); kām (head; cf. Southn. kaḍ).

2. Inflectional terminations :

Conjunctive -to, locative -ṭi, plural ending -t, dative of interest -ki, etc.

3. Declensional endings :

Future ending oṭ (< vu + uṭ), etc. Third Person Present ending -k, negative -p for the Present tense and -t for the Past tense.

V. Tulu shows pure surds in declensional terminations, formative affixes and certain inflectional endings.

VI. Koḍagu shows pure surds in inflectional endings : injatu (*existed*); palitatu (*shared*); editāṇḍu (*taking*); timbakillate (*having nothing to eat*), etc.

VII. Pombaḍa : tutu (*seeing*); kenatu (*hearing*), etc.

VIII. Tōḍa and Kōṭa are full of single pure surds not only in affixes but often in root syllables too.

Conclusion.

An examination of these instances would show that, apart from the large number of cases where inter-vocal pure surds are found in root positions in the various dialects :—

1. the surds, inter-vocally, are generally kept pure by being doubled in Tamil and by being retained singly in other dialects, in positions which carry with them a certain importance from the point of view of meaning and

2. that, further, as in many cases where Tamil forms show doubled surds, corresponding forms in Telugu, Canarese, etc., show single surds in a pure state, we shall not be wrong in postulating that the doubling of surds in these positions in Tamil was motivated by the desire to prevent the operation of the unusually strong tendency in Tamil to "sonatise" surds inter-vocally.

The rationale of the process which preserves the purity of the surd value (in Tamil by doubling, and in other languages by retaining the sound singly in a pure state) is that the higher semantic importance of the formative or derivative syllables or affixes evidently would have endowed them with a certain accent, at least in the inceptive stages, and that thus a protecting influence should have been exercised over the purity of the surds. (Compare, in this connection, the principle of Verner's Law in I. G.). Whether this accent was stress or intonation or both combined (which in my opinion is more plausible) there seems to be no doubt that instances like derivative āṭa (*play*) from āḍu (*to play*), pōkku (*to make to go*), from pōgu (*to go*) point to a stage in the history of the language when accentual influence should have played a strong part in marking off the derived forms from the old forms.

The following conclusions may therefore be tentatively formulated :—

(a) Inter-vocal surds were probably not voiced to such an extent in Primitive Dravidian as the condition of Modern Tamil warrants us to think (*vide* illustrations given above, and *vide* my article on "Plosives in Dravidian");

(b) The voicing of such surds took place with different intensities in different dialects ;

(c) Though the voicing of surds in root syllables occurred in some Dravidian dialects at a very early stage, this voicing did not universally affect the surds in formative, derivative and other distinctive affixes which may be presumed to have been introduced at a later stage ;

(d) That the maintenance of the purity of the surd value was due to a certain semantic importance which these syllables carried with them and which was distinguished by a higher accent at least in the earliest stages ; and

(e) That Tamil, more than any other of the Dravidian languages, conspicuously sought to achieve the preservation of the purity of the surd value especially in formative positions of derivative forms by doubling the symbol in accordance with its own peculiar genius, especially in view of the fact that, owing to the enormously large sonatising tendency of Tamil, the inter-vocal pure surd should have at an early stage become very frail and thin (*vide* above).

II. DRAVIDIAN EMPHATIC PARTICLE -m.

This termination appears mainly in the following contexts in Dravidian :—

(a) -am is the termination of neuter nouns in the nominative singular and all the plural forms in Tamil and Malayalam words : maram (*tree*) ; nilam (*ground*) ; etc.

(b) Old Kannada shows -am in the singular nominative and accusative of neuter nouns ; the plural forms do not show it. Maram (nom. and accu. singular) maragal, etc. (plural). Mod. Kannada has maravu for nom. singular, maranu (for accu. singular) and maragaḷu for plural.

(c) -um is the conjunctive or connective corresponding to "and," nānum niyumu (*I and*

you), etc. In Tamil, Kannaḍa, Telugu and Malayalam, -um also has the following significations: *also, too, even, indeed, together*, all of which are derived from the copulative sense.

(d) -m is used as an emphatic particle in connection with adjectival comparisons in Tamil: *adilum nalladu idu* (*this is better than that*).

(e) Tamil Honorific imperative shows -m as in *seyyum-gal*; future forms show -um: Tamil *seyyum*; old Kannaḍa *geyugum*.

(f) To denote a concessive clause, -um is used in Tamil, Kannaḍa, Telugu and Malayalam: *avan vandālum* (though he may come, etc. In Kannaḍa -um is added to past participles to bring out the concessive meaning: *bennīru kāyduṁ*, *mane suḍadu* (*howsoever water may become hot, the house will not take fire*).

(g) -m is used as a purely emphatic particle in Kurukh, Tamil, Malayalam, Kannaḍa, etc. In Kurukh it is found in the following cases:

1. Without any increment: *kukkom pariyanu* (*in my boyhood*); *baḱim barai, koi* (come at a run, child!); *irbarim janerum* (both persons).

2. With an increment -d- in *pello-d-im* (*girl*); *mukko-d-um* (*woman*); *khal-d-um* (*field*).

The -i- of -im found in certain Kurukh words as an emphatic particle is purely euphonic, as the nouns with terminal vowels show only -m.

Tamil shows it in *ellā-m* (*all*), in *ām* (< *āgām*); Malayalam: *oṭṭum*, etc.; Kannaḍa: *āṇam* as in *guṇam āṇam illa* (there is no merit whatsoever); *kaigal iraḍum* (both the hands)—compare similar use in all the

Southern Dravidian languages. Compare also Tamil-Malayalam-Kannaḍa *innam* (*yet*).

(h) In Tamil clauses like “*evanum vallei*” (nobody came) the -m is used to convert interrogatives into indefinite pronouns. A similar use exists in Kurukh also: *endrim*. Interrogatives are thus generally converted into indefinite pronouns in all the Southern languages and, amongst the Northern ones, in Kurukh.

Is -am, the neuter termination of Tamil-Malayalam and Kannaḍa shown in (a) and (b) above, an indigenous affix or a borrowing from Sanskrit? Caldwell suggests that it may be indigenous and may be a demonstrative corresponding to the Telugu interrogative *ēmi* (what). But its use as a demonstrative is nowhere seen in Tamil or Kannaḍa or for that matter in any Dravidian dialect. Moreover no Dravidian dialect shows -am as a neuter termination. So we should be justified in thinking that it was a borrowing from Sanskrit. Probably the borrowing was facilitated by the fact that Dravidian had a distinct liking for nasal sounds and further that Dravidian already possessed the monosyllabic -in (il) in inflectional terminations and the particle -m in emphatic positions. While Tamil incorporated -am in the nominative singular and all the plural forms, old Kannaḍa adopted it for the accusative singular, probably to replace the -n from an older accusative ending -an (common to many Dravidian dialects). The fact that the neuter ending -am appears only in some of the inflectional forms shows that the ending was borrowed on the principle of analogy from Sanskrit.

If -am was a borrowing in these cases, the other cases with particle -m mentioned above are surely *not* borrowings. (a) The

oldest use of the termination -m is preserved in Kurukh extensively as an emphatic particle as shown above. Instances occur in the South also: Tamil *ēvanum* and in Tamil adjectival comparisons (*vide* above). The use of -m in Tamil and old Kannaḍa future, the Tamil honorific future plural (*ṣeyyum-gal*) also point to the emphatic meaning. (b) The -m as a conjunctive to denote the meaning of “and,” etc., evidently arose from its use as an emphatic particle. (c) Similarly, -m also gave a concessive meaning to clauses in the Southern dialects just as “even” introduced before an “if clause” in English, would confer a concessive meaning.

It is very significant that the emphatic particle in Dravidian—presumably one of the most primitive in view of its varied uses to denote grammatical differences—should have been a *nasal*, a type of consonants for which Dravidian as a whole shows great favour.

III. ITERATION IN DRAVIDIAN.

The following instances are found in Dravidian:—

(a) *Plurality* indicative of different varieties in South Dravidian dialects: Kannaḍa: *mane manegalu oppidavu* (house after house shone); *tiṅga tiṅgalai* (month after month); *dina dina* (day after day); etc.

Tamil: *nalla nalla nāykal* (*good dogs*); *viḍu viḍa pōṇān* (he went from house to house).

(b) *Severality* in all Dravidian dialects:

Tamil: *eṭṭeṭṭu rūpāy* (*eight rupees each*); *eṅge eṅge pōṇāno* (*wherever he went*). Kurukh: *endran endran ānya* (whatever she said); *ullā ullā oṇṭa oṇṭa māk piṭā piṭā* (day by day one by one deer he kills, kills). Kannaḍa: *tara tarada* (*of several kinds*);

ēṇēnu (what different things); *bēre bēre* (various). Mal. *ennennu* (on what days); *etrayetra* (how much); etc.

(c) *Superlativity* in Kurukh, Gōṇḍi and the Southern languages also. Kurukh: *bes bes pup*, (*all the nicest flowers*); *Erpa ulla ulla* (*very well inside the house*); *ās jiyā jiyā ankas* (he said to himself in the depth of his soul). Tamil: *kīle kīle mūṇḡinān* (*he descended to the most profound depths*); intensity is also expressed in phrases like *vēgam vēgam varaṇum* (*hasten*) or the shorter *ṣraṣara* (with which cf. English *quick!* French *vite!* and German *schnell!*); in repetitions like *ōḍi ṍḍi* (*running continuously*), *iḍi iḍi enru iḍichchān* (*he beat him black and blue*); Kannaḍa: *tōra tōra muttugaḷu* (very large pearls).

(d) *Simple repetition* in all the Dravidian dialects: *ayyā ayyā enru kūppittān* (*he called Ayya, Ayya!*).

(e) *Continuity* is expressed in all Dravidian languages: Tamil: *aḷaḷendru aḷaḷān* (he went on weeping), etc.; Kurukh: *jōkhas mund mund kalālagyas* (*the servant was going on ahead*); etc.

(f) Indication of a thing not known particularly: Tamil: *ōrōru kālattiḷ* (at a certain time). cf. Kannaḍa: *ondodu* and Telugu *okānoka*, having the same meaning.

(g) Mental excitement and hurry are expressed by reiteration in Dravidian: Tamil: *eppōveppō* (when, when?); Kannaḍa: *enten-televu? maguḷdu pēḷu* (how? how? tell it again). Compare in this connection Pāṇini's sūtra where repetition of nouns in Sanskrit has been described as conveying *asūya* (envy), *sammāti* (approval), *kṛpā* (anger), *kutsana* (reproach) and *bhartsana* (menace). In Kurukh we have instances like *eksan*

ekṣan īrkai ra'adai (where on earth did you put it, say quick!)

Iteration is common in Sanskrit; it is prominent as a grammatical category in reduplicative and frequentative verbs, and it serves the purpose of denoting severality or plurality (as in *grihe grihe*), or reciprocity (as in *anyonyam*, *parasparam*, etc.), or various feelings of the mind (Panini's sutra about "Vakyādār āmantridasya"), etc. Iteration is not uncommon in modern European languages also, though its use has become greatly restricted.

How far could the use of iteration be regarded as a sign of the "primitivity" of a language? It is a device which should have

originated at a very primitive stage in the development of language, and it may be asked whether the growth of thought should not oust this clumsy device and replace it by other newly-developed independent forms and whether, therefore, the extensive employment of this old device in a language does not point to a comparative stagnancy in the evolution of the language. Such a view is rendered untenable, however, by the existence of iteration in such a highly-evolved language as Sanskrit and further by the fact that even in languages like Dravidian where its use is extensive, shades of meaning are conveyed, which could not be rendered without periphrasis by other languages, as for instance, English or German.

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A PLEA FOR PRIVATE MUNIFICENCE IN EDUCATION *

THE Ashram has been working for fourteen years now, and as the annual report tells us how popular it is, it indicates also the place and importance the Ashram occupies in the education of the young of the Lingayat community. There are now one hundred scholars fed and lodged free in this institution, and I shall not repeat other statistics from the annual report of this and the previous years. On this occasion one's thoughts go naturally to the noble founder of this Ashram, His Holiness of the Murgi Mutt in Chitaldrug, to whom no less a person than our late Dewan Sir Albion paid a compliment some years ago. Replying to the Address that His Holiness presented him in August 1922, the Dewan Sahib said:

"I have heard a great deal about your Holiness and your erudite scholarship in Sanskrit learning and the enlightened principles by which you administer your holy office as well as the keen interest you take in the religious, moral and educational advancement of the large and influential community who owe you their allegiance as their religious head. I have heard," Sir Albion proceeded to say, "with very great satisfaction the interest you take in matters educational, specially the establishment of hostels, schools, scholarships, libraries, etc. All these go to prove your liberal-mindedness and also your wide culture."

Indeed there could not be a more eloquent monument of this interest and liberality than his pile of buildings standing in His Holiness' name. This provokes me to say a few words on the subject of the need for private munificence in Modern Education.

* Being an Address delivered by Mr. S. Srinivasan, B.A. (Hons.), B.L., Munsiff-Magistrate, on the occasion of the Anniversary of the Sri Jagadguru Jayadeva Muregha Rajendra Mahaswami's Veerasaiva Ashram, Tiptur, Namkur District, on 28-9-1928.

XXXIV—77

Friends, I need not recapitulate how from ancient times we in India have looked on Education as the greatest of wealths — "prachanna guptam dhanam." We have sung in praise of it as we learnt Bhartruhari by heart in our younger days. Bhartruhari was not idealising but only putting in verse the ancient wisdom. The expressions of Guru, Sishya, Gurudakshina, which we come across in our Sanskrit literature, have a connotation which we might easily miss in trying to gather the same from the educational conditions of to-day. In ancient days as well as in the more recent times of the great Universities of Taxilla and Nalanda, *vidya* was not an article of sale as now. Under the stress of political events we have moved from that position and it is to-day a proposition in finance. Here in this land of ours, where there is still some vestige of the old Dharma, we believe in the greatness of education as a gift. We are yet familiar with the practice of feeding scholars who are too poor to find an everyday meal for themselves. The *vara* boy is yet an institution and this Ashram which His Holiness has founded is really, as observed in the report, a mighty gift of education for the poor and the needy of the Lingayat community.

A feature of the present day conditions is that while we are growing poorer in wealth every day, the cost of education is leaping up in inverse ratio. It looks as if, at this rate, as times advance, there will be fewer yet receiving the benefits of education. That is an evolution which must be stopped at once or to meet which private munificence must organise and organize strongly. Poor as we are, we may still achieve much by united effort.

There is a second reason yet why private effort must be organized if education is not to be a failure that it threatens to be. It is said, in the first place, that education as imparted in our Schools, Colleges and Universities falls much

short of what education really ought to be. A thoughtful writer raised the question once of the aim of education, when he asked: "Is Education to serve a spiritual purpose or to be dominated by the desire of increasing material goods?" This is the question, he said, which challenges modern civilization. There are different theories, as you may know, of the aims of education. Locke expounds that education aims at enlightenment. Huxley defined it to much the same effect, when he said that education was "the instruction of the intellect in the laws of nature." The German theory is one carried to the farthest point yet reached of logical completeness. It holds that by means of education "a whole people should be brought to conform with an ideal of national effort and duty." After examining these three doctrines, the same writer puts forward his view thus: "The supreme benefit which education can bestow comes from a right attitude of mind and heart to the truths which are waiting to be seen and received. Its reception is followed by the acceptance of a way of life. Its criterion is peace of mind. It manifests itself in conduct, in human relationships, in the spirit of service and self-surrender, in courageous protest against what is at enmity with the moral law." It was apparently education of this kind that reigned in ancient times in this land and has left us as inheritors of philosophies and arts which are to this day a wonder of the world. It was much to the same purpose that a Professor in the Chicago University was driving when he put the following as the tests of the degree of education:—

"Has education given you any sympathy with all the good causes and made you espouse them? Has it made you public-spirited? Has it made you a brother to the weak? Have you learnt how to make friends and keep them? Can you be high-minded and happy in the drudgeries of life?" There are some other questions of a similar nature but none, dealing with knowledge in

regard to History, Science, Mathematics and the like. It would appear that one can have learning and yet not be "truly educated," which some people do not quite realize.

Judged by these concepts of education, can it be said that there is no need for implementing what is imparted in our colleges and schools? I shall not pause to give an answer nor shall I say how according to the authority of Prof. Slater the education of our boys is still too-bookish. That bookishness is not, it appears, on the same authority, confined to Indian education—if that is any consolation to us at all. Prof. Slater wrote once that it was the same in England also. Of course, eminent educationists are daily and hourly at work to minimize the unrel, unimaginative, bookish quality in education, but what I would urge is that this lacuna in our education should be made good by private munificence coming forward to put up more and more institutions like this Ashram where it would be possible to take young boys into care and give them a training and discipline that will give a fillip to the education outside. One feature, for example, of this Ashram is the imparting of Sanskrit to Lingayat boys. Sanskrit culture and knowledge are known to give a finish and polish to education in general that every Hindu ought to have it if he can. It is possible similarly to introduce features of training in private institutions like this which public schools and colleges in India standing to cater to all castes and creeds can never hope to undertake. It is for this I would strongly enter my plea. If it were possible under modern conditions of life to adopt, I should plead also for the creation of something of that atmosphere in education which, according to Prof. Dr. Shama Sastry, prevailed in days of yore—

"The hermitages of ancient Brahmins were invariably situated in an extensive forest tract on the banks of one or other perennial river, congenial to growth of flowers, fruits, roots and wild rice. They were a sort of University full of professors ready to teach and students eager to

VALUATION OF ANSWER-PAPERS IN ELEMENTARY MATHEMATICS

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learn. They were each an asylum for the afflicted, either in body or mind or both, who, for the alleviation of their physical or mental infirmities, sought remedies at the hands of the sages in the hermitages."

It ought to be possible at all events to introduce some of those bright features of the Public Schools of England that undoubtedly have contributed to instal the Englishman in the high position that he holds to-day. We might try to Etonise our School Education. We read of the life there—

"The school life is free and homely, the boys being boarded together in houses each under the direction of a master. The authority and responsibility for maintenance of discipline is in the hands of the first fifteen boys in the school as monitors with powers of personal chastisement for violation of rules and for offences such as smoking, etc. The first sixty boys in the school have the privilege of employing fags, or servants, all pupils below the fifth form being liable to act in this capacity. Fagging generally consists in bringing up breakfast and tea to the sixth form boys and in carrying away the dishes afterwards; in stopping and running after balls in Cricket, etc. Football and Cricket are compulsory, the rivalry with Eton being very keen; rackets, jumping, swimming and shooting are also much practised."

Surely it is only in private and sectarian institutions that we can try to introduce with any measure of safety schemes for training of the young on similar lines—schemes that will make for discipline, respect for authority and regard for one's superiors. That means there must be more and more of private munificence coming forward to found hostels and institutions. In the land of dollars you know there is an unceasing golden shower for these purposes. A poor country like ours cannot hope to count Rockfellers with endowments running to millions of dollars, but in this land where, of all gifts, we prize that of *vidya* as the highest, there surely are more men who can set the example of the founder of this institution—His Holiness of the Murgi Mutt.

NOT the least part of a teacher's attention in the preparation of students for examinations is to be paid to the proper and just valuation of answer-papers in school leading to candidates' methodical and correct work in examinations. Indifference to minor faults and superficial correction at school encourages careless work on the part of pupils which in annual or public examinations tells against them. Though differences in marking are not comparatively great in regard to Mathematics, it is none the less true that lack of standardisation and uniformity of judgment would positively affect badly those on the border; conditions are made worse, for the principles of correction which ought to guide us are not the same all over, nor are properly understood and applied in all cases. Looking over the work of several friends one really feels that 'marking' in schools must be more systematised on the lines followed in public examinations. To facilitate clearness of understanding on the subject underneath are given rules and principles which will be useful to follow. These are my personal views, and I do not presume to commit anybody to my individual opinion. At the same time, it is suggested that before the correction of answers is started, the questions may be worked in full and in all the several methods possible, that this will facilitate quick decision as to the correctness of all the steps in the pupils' work, and also the award of marks for right procedure up to the several stages in each question when the final answer

is wrong. This is emphasised, as without them slight mistakes are overlooked altogether, and slackness upsets the progress towards perfect answers in examinations; besides, the proper ideal is not even set before the pupils. It is amusing to find some teachers giving full marks for obviously wrong answers where only half marks may be given, and so on.

Supposing we have to value answers to last year's questions in Elementary Mathematics, we shall see what rules will be good guidance for us.

(1) Marks may be given only for four questions in each part—the best four in case more were attempted. This is a concession to the erring few who have not read the instructions properly. Strictly speaking, the fifth question (in the same part) that is done by the boy ought not to be taken into account.

(2) Unless it is stated to the contrary any method of solution—arithmetical or algebraical—should be accepted.

(3) Use of wrong tables, wrong pointing of decimals, wrong formulæ, incorrect and unsatisfactory methods or insufficient data wholly discount the answer, and no marks are to be given in these cases.

(4) Where the answer is wrong due to one mistake only in the working, *e.g.*, a slip in the four rules of addition, subtraction, multiplication and division or due to wrong copying of the data set forth in the question, half the marks due to the whole question may be given. In case there are two such mistakes, no marks may be given. If a mistake has been committed and the steps are not clear as to where it is committed, marks should not be given at all.

(5) For wrong specification of units, wrong correction to required number of decimal places, giving the answer in fractions for decimals or *vice versa*, giving more or less than the required number of decimal places, omitting to mention the units, Rs., etc., or putting them where not proper, three marks must be deducted.

(6) Notwithstanding the above instructions, marks may be given to questions with wrong answers *provided* definite stages of the answers are right; details regarding this will be found below. In such cases we may take into account the whole answer for the question or the correct part answer alone, whichever will fetch the boy more marks, judged according to the foregoing rules.

(7) For omitting to show details of working, for lack of clearness and procedure step by step, for imperfect or wrong use of the signs, $\therefore$, $\therefore$, $=$, $+$, $-$, $\times$, $\div$, etc., and for neatness, marks up to five out of a total of one hundred may be deducted *on the whole* and not from each individual question.

(8) Where formulæ are applied, they must be given and the symbols explained, else two marks may be deducted for each such failure.

S. S. L. C. Examination Paper, 1928.

I. 12 marks.

In this question, if the boy has a long division because of not following the easier method, common sense requires that contracted methods of division should be used (in $\frac{22222}{17775}$). If it was not used, two marks are to be deducted. If the boy arrived at the above fraction, six marks may be awarded.

II. 12 marks.

If the equation $\left(e = \frac{3(a-2) + 4(c-1)}{b+d}\right)$ alone is correct, 8 marks may be given; but if the brackets are omitted, none at all. If e is found out independently of the equation, no marks are to be given for this part. The answer for e is 3 and not 3 Rs.

III. 12 marks.

If the pupil has arrived at $P = \frac{1786.4375}{1.157625}$ or found the amount on Rs. 100 correctly, six marks may be awarded. Pupils must be taught when to use approximations and when not. Introduction of approximations is meaningless as in any case the principal must be found correct to a pie—if it appears in the answer at all. Such use will involve a deduction of six marks.

IV. 12 marks.

If the equation is found correctly, 6 marks may be given. If the answer is not properly written down, *e.g.*, 68 miles for train or 144 miles by river, 3 marks may be deducted.

V. 12 marks.

The figure may be drawn in two ways—either by starting with the base getting the centre of the circumscribing circle and then this circle, or at once starting with the circle and stepping off arcs. To me the former method is the more pertinent especially as the question could not be done in any other way if the base is given in position. Two marks may be deducted in case the second method is followed.

The area may be obtained by calculation or by measurement of the perpendicular from the centre to the side and calculations later. If the latter method is followed, a range from 5.6 to 6 square inches may be taken as correct.

For the figure and construction alone, seven marks may be awarded; for figure and area alone six marks; but none at all for figure or area or construction alone.

VI. 13 marks.

For finding the cost in the first case (in Rs.), three marks may be awarded; for the days and cost in the second case, four marks and two marks respectively.

VII. 13 marks.

If the breadth is correctly found, eight marks may be given.

VIII. 13 marks.

For the total cost price alone, three marks may be given; for the selling price five marks.

IX. 13 marks.

If the volume of water is found correctly in cubic feet, five marks may be awarded; for finding cross-section only, 3 marks.

X. 13 marks.

Two marks each may be deducted for omitting to mention the scale and wrong numbering on the axes. If the first graph alone is done, seven marks may be given. Answers ranging from 10.25—10.35 A.M. and 6.25—6.35 A.M. may be accepted. In several cases the graph paper that is not correctly divided may lead to wrong answers. Pupils should not be penalised for what is no fault of theirs. Care should be taken to wholly discredit graphs evidently obtained by arithmetical calculation and subsequent drawing; also graphs with wrong plotting.

PHYSICAL EDUCATION IN SCHOOLS

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THE idea of appearing in print on the subject of "Physical Education" was suggested to me after a perusal of the resolutions passed at the Physical Education Conference held in Madura on September 15th, as reported in the *Hindu*, dated 18-9-1928. It may be worth while to place before the thinking public a few thoughts on the subject.

Does not physical education include drill and allied physical exercises that boys do under Drill Instructors in schools, and the games provided on the play-ground at the present day? I presume that the Conference was dissatisfied with the one or two periods per week for each class set apart for drill and the perfunctory attendance at playground games, and would rather have daily exercises for the whole school dividing the pupils into teams of 100 and providing physical instruction for all at the same hour. To make such an arrangement possible, the Conference proposes that more than one teacher on the staff be trained to instruct in physical education. Probably the Drill Instructor too will be among these select few. It is far from the nature or purpose of the present writer to impugn the credentials of those who met in Conference. But before proposing a costly change it seems to me that there are certain pertinent questions that call for sympathetic consideration. Can it be said with certainty that the existing system of Drill Masters and their instruction has been given a fair trial before it is proposed, as now, to be replaced? Is it not rather nearer the truth to confess

that this system has not received the support it must have from the powers that be in schools. Drill Masters are perhaps the lowest paid members on the staff and almost abandoned into the hands of the boys who view them with scant respect and give little heed to their cries. If Headmasters stayed behind and supervised Drill classes in their schools, there would not be room left for the complaints made now that the physique of boys deteriorates through lack of instruction.

The new scheme proposed, viewed in all its bearings, would wipe out the host of Drill Instructors existing at present. Has the fate of these men been borne in mind? May not these men be enabled to discharge their duties more efficiently by giving them better facilities?

Is it not the fact that the greater number of pupils attending Town and Village High Schools, except the small numbers residing in hostels on the compound, submit to active physical exercise having to tread a long distance to and from school? Aren't there great numbers in every school who can't bear more physical exercise than that? Is lack of physical exercise the chief cause of deterioration of physique in their cases? Are not over-burdened syllabuses and mal- and insufficient nutrition the root causes? Most pupils come of families subsisting on a single meal a day. Home exercises have to be done and lessons have to be prepared, old and new, in such heaps that pupils do not get enough time for physical and mental recreation. It will be borne out by teachers in village schools that many of their pupils are not only ill-fed and over-worked, as argued above, but are also under the cruel necessity to share work with their parents at home, carrying wood, manure, etc., to fields, digging

there and so on. To them life during the period of schooling is made twice miserable.

Granting that schools work from 8 A.M. to 11 A.M. and from 2-30 P.M. to 4-45 P.M., as the Conference has resolved, will any hour between 8 A.M. and 4 P.M. be recommended as suitable for physical exercise of any kind? The present practice in most schools is to hold the drill class before 7 A.M. or about 4 P.M. Will it be possible to get on the ground the "few select teachers" to give instruction in physical education in those hours? Is it not a matter of common knowledge that the only Physical Instructor, as he is, in many schools, turns up late or leaves early, and misses his class or only engages it for part-time? May be, he has distance to plead, or discontent which he does not deem wise to express.

Will village boys, whose help is needed at home, gather regularly and cheerfully at odd hours fixed by authority?

Don't the games now provided on school grounds on a well-ordered basis attract all the pupils who are free to join them? Is it not the experience of the staffs of schools that more interest is roused in boys and larger numbers are continuously drawn by their own presence among the children, even if they do not join in the games? I do not believe that everything that may be done has been done, and therefore do not believe in any urgent need for a change.

It may be mentioned too that the complaint of deteriorated physique is not so true of pupils drawn from the middle class as of those of the upper classes, comparatively speaking. Given full meals, the former class of pupils find enough exercise to their bodies in their present environment. They are hardy and healthy and free from many an ill noticed

in children of the upper classes. As for these latter class of pupils, those hailing from the upper class of Indian society, there are the school-games and the playground.

Another chief cause of physical deterioration is the unnatural and unscientific attitude many poor pupils are obliged to adopt during home-study for want of adequate light and seating accommodation. The present writer has been forced, very reluctantly though, to refuse permission to many Day-boys of his school to sit along with the Hostel students for night-study for the simple reason that they cannot be accommodated for want of funds for lighting and hands for supervision.

To be brief, the main causes of deterioration of physique seem to be poverty and over-burdened syllabuses. It will be doing real good to suffering humanity in our schools if the burdens of heavy fees and heavy syllabuses are lightened for them. As for physical instruction, the last benefit that may be derived from existing facilities has not been sought yet, and therefore, there is no need to change from the present day drill classes and their complement, the Indian and the European games which are provided on the playing-field.

It may be suggested too that earnest attempts be made to move the Department of Education to increase the grant on the purchase of games materials from 50 to 75 per cent. or more, for such help will be invaluable to poor schools so as to enable them to provide an interesting variety of games.

One thing more. It will not be seriously disputed that there are Drill Instructors in High and Middle Schools at the present day who are enthusiasts and highly qualified men. But it is also true that there is room for

improvement on the part of many teachers of this cadre. It will be beneficial to insist upon higher qualifications for Drill Instructors, enabling them, at the same time, to qualify at a cheap cost, and putting them on a higher scale with more liberal financial assistance from Government.

It will not be irrelevant to mention, in this connection, the unenviable lot of teachers as a whole. The sympathetic Government offers now and then special grants for increasing the salaries of the staffs of aided schools. But the condition that insists on a proportionate contribution from the management cancels the benefit as some managements are unable to find the money. It will be a great day for education, physical instruction included also, when Government realises that an efficient Secondary School abiding by the rules for State-aided educational institutions is entitled to receive the whole net cost from Government revenues. Until such a millennium dawns upon us, won't it be proper to ask the Government to enable managements to raise the salaries of teachers by offering larger grants unfettered by impossible conditions and earmarked for the aforesaid purpose? Only then will the wish be realised that teachers would live in longer contact with students and be their interested friends on the play-ground also. When this much-desired reform is accomplished, and the burden of heavy fees and over-weighted syllabuses is lightened, the bane of deteriorated physique is bound to vanish.

PRESIDENCY COLLEGE, CALCUTTA.

A PEEP INTO ITS SOCIAL LIFE.

By ACADEMICUS.

CORPORATE life in Indian Colleges is of comparatively recent origin. In many institutions it is still conspicuous by its absence. Even in the Presidency College of Calcutta where the *alumni* have maintained a uniformly high record in academic distinctions for a series of years, a sense of team-spirit was indeed a long time in coming.

About the beginning of the present century some Societies and Clubs appear to have sprung into existence in the Presidency College. Principal P. K. Ray tried to blend them into a Central Union in 1905. But the project that he devised proved short-lived; and it does not appear to have created a sense of *esprit de corps* or a desire for spontaneous compliance with discipline. During his Principalship of nearly nine years, Mr. James tried, with conspicuous success, to create and foster real love and comradeship among the *alumni* of the College. A College Magazine was started (or rather, successfully revived) in 1914; the Founders' Day, inaugurated in 1913, was first celebrated in 1915; and, in September 1913, Mr. James created a Students' Consultative Committee. It consisted of representative students elected by the different classes, who met the Principal periodically in a Conference and thus put him "into closer touch with the opinions and wants of the general body of students." The Committee was believed at first to be of great promise; and rendered some service in organising a First Aid Class in 1915. Unfortunately, however, before it had passed out of its third year, it was found to be—as if by an irony of fate—not only

useless, but a positive hindrance to authority in time of difficulty. "The attitude which this body adopted during the recent troubles," remarked Principal Wordsworth in 1916, "accentuated the complexities of the situation; and there is some reason for belief that here was the fomenting influence."

The earliest bud that bid fair, in course of time, to blossom forth into real corporate life in the Presidency College thus inevitably faded away. Not only was the Students' Consultative Committee not revived later on, but even the Founders' Day celebration was suspended; the Centenary celebration of the establishment of the Hindu College was observed, to quote Mr. Wordsworth's words, "quietly." The Presidency College Union was indeed revived in 1917 and was so named in order that it might have a literary as well as a social aspect. The meetings of the first session are reported to have aroused interest and to have been well attended. But the enthusiasm of the members very soon waned, and the Union became defunct within a few years. Although Mr. Wordsworth applauded in 1921 the manifestation of a "College consciousness" which responded, by undertaking most of the Census work in its own ward, it appears to have been of a transitory kind. The Editor of the "Presidency College Magazine," in its issue of December, lamented "a sad lack of *esprit de corps* among us. Our corporate sense seems to be extremely dull." In April of the next year it was observed that "the College Union was in a state of suspended animation," although a Code of Union Rules had been framed at a general meeting of students held on the 7th September 1921.

After some three years of lifeless existence, the Union again acquired something like

new life. The Founders' Day Re-Union was revived on a small scale in 1922, after a long interval; and the Union arranged a series of lectures to be delivered in the College by eminent Professors of the University. Even as it was, however, there was considerable room for improvement. On coming to take up the Principalship of the College in July 1924, Mr. Stapleton was struck with the absence of a "corporate desire for the constant springing up of every form of healthy activity." He set himself to work in right earnest in re-organising and rejuvenating "many a branch which needed refreshing, many an activity which had been in a state of suspended animation," and in inspiring the members of the College with what may be called the 'team-spirit.' "College education," Mr. Stapleton observed, "should look to a realisation of the supreme necessity of intellectual and social co-operation in the building up of national life; a steady striving against the innate human desire to dominate and dictate, and the encouragement in its place of the desire to serve." For the realisation of the above-named ideal, Mr. Stapleton confidently relied "on the cordial co-operation both of students and staff."

With a view to encompassing the ends described above, one of the earliest measures that the new Principal took was the introduction of a system of tutorials—a small group of students being placed under the tutelage of a single Professor. An Arts Department Professor took charge of Science students under this system, and *vice versa*. It was hoped that one of the results of this system would be the effective removal of the grave and long-standing defect of the students of one branch not knowing the

Professors of the complementary branches of knowledge. The new tutorial system was also calculated to produce close relationship between the teacher and the taught. "We trust," observed Mr. Stapleton in the course of a speech, "that before many years have elapsed.....the old students, when they look back on their College days, will remember not only the lectures and the games, but more vividly and gratefully, the informal fellowship and guidance of tutorial hours."

It was generally acknowledged that the new Principal had infused fresh life into all the activities of the College. The Presidency College Union was stirred into a new life: its activities were unbounded. Sir Rabindranath Tagore was invited to pay a visit to the College on the eve of his embarkation for Spain. A fresh accession of team-spirit was to be seen in every direction; and not a week passed but there were "meetings, lecturings and debates, and sometimes acting too." The Union met altogether nine times during the autumn of 1924. The dramatic performance of Tagore's *Arup Ratan* at the Autumn Social of the College deserves special mention. It is also worth noting that a condolence meeting having been held in the College on the 4th July (1924) to express profound sorrow at the deaths of Sir Asutosh Mukherji and Sir Asutosh Chaudhuri—both distinguished ex-students of the College—Mr. Stapleton issued an appeal on the 5th August for starting a Memorial Fund. Another eminent ex-student, Mr. Bhupendra Nath Basu, having been removed by the cold hands of death, his loss was fitly mourned in a meeting of the College Union.

The absence of some organisation which would weld together the past and the present students of the College was noticed by Prin-

cipal James many years ago. The same defect struck Mr. Stapleton as a large void in the collective life of the institution. "Hitherto there has been no organisation," he remarked, "to keep the old students in touch with the College, or to make available for their *alma mater* their support, advice or loyalty": and he launched (or, rather revived) the scheme of an Old Boys' Association, fully sanguine that great things would issue out of it. This Association was started on the 13th January 1925.

At the Founders' Day Re-Union of 1925, H. E. Lord Lytton, Governor of Bengal and Visitor of the Presidency College, presided. Although a section of politically-minded students kept aloof, the celebration was, from every point of view, a remarkable success. As for the number of distinguished guests present, it was a record gathering in the annals of the College Union. The speech of Lord Lytton was extremely appreciative: "Whatever future form the College may take, whatever changes may happen in its constitution and administration, I am glad to know that it is doing work in the present. I have heard with special interest that you are starting an Old Boys' Society....I wish the new venture all success. I also hope that the new system of tutorial guidance promoted so energetically by Mr. Stapleton will bear the fruit expected of it in comradeship and collaboration between staff and students which is such a real need for young men at the formative period of their lives." And His Excellency concluded by assuring the audience that they might rely on him "for support in all that makes for the efficiency, well-being and development of Presidency College." This assurance, it may be remarked by the way, materialised in allotting, at no distant date, a sum of two

lakhs in the Budget of 1926-27 for rounding off the Presidency College area. His Excellency's appreciation of the then College Union was conveyed by the Private Secretary in a letter addressed to the Secretary of the Union in these terms: "His Excellency recognises the important part that such a Union can play in organising and correlating the activities of a College, and he feels that your Union has made a valuable contribution towards such an end: he wishes the Union all success."

Meanwhile the dissenting section of students appear to have busied themselves in arranging to break up the Union. The academic atmosphere of the College was palpably vitiated by the political excitement then prevailing in the country. An extraordinary general meeting of the Union was held on the 25th February 1925, and a resolution expressing no confidence in the Secretary was carried by a large majority. As the Union Committee identified themselves with the policy of the Secretary, all the members resigned. The constitution of the Union was, as a matter of course, suspended; because "an institution like the Union can only exist as a *social* body, and once it ceases to function as such its whole object is defeated." The question of the future of the Union was referred to a Committee of elected class representatives for consideration. But a provisional Secretary nominated by the President of the Union continued to carry on its many-sided activities. The debates continued to be held as usual. On the demise of Mr. C. R. Das, a Memorial Committee collected subscriptions and prepared a portrait of the illustrious deceased, the balance being made over to the Poor Fund of the College. The staging of Tagore's *Muktadhara* at the Autumn Social was an unprecedented success.

The rehearsals were supervised by the members of the Tagore family, and Sir Rabindranath himself gave a reading of the piece at his place.

The Founders' Day celebration of 1926 "eclipsed all previous records." The number of guests exceeded those of former years; and "the occasion was utilised to unveil the portraits of three most distinguished ex-students of this College—Sir Asutosh Mukherji, Sir Asutosh Chaudhuri and Mr. C. R. Das—all of whom had died during the two previous years. The portraits were unveiled by Sir Ewart Greaves, Vice-Chancellor of the Calcutta University."

Another noteworthy achievement of Principal Stapleton was the successful issue of a College Register prefaced by an historical introduction—probably the first of its kind in this country. It reveals to the present generation of students "something of the richness and glory of the inheritance into which they have entered, and it may help to evoke that spirit of College loyalty and fellowship which is so little developed in Bengal." As a preliminary to the compilation of the Register of Ex-students, a remarkable gathering was held in the College premises on the 20th of March 1926, when old Presidency College students, who had graduated at least fifty years ago (that is, before January 1876) met at an afternoon party to which the Vice-Chancellor, the Member-in-charge of Education, the Educational Secretary and the Director of Public Instruction were also invited.

The College Union took about a year in re-constituting; and it was transformed into a federation of all the existing College societies, academic and athletic: the revised

rules were published in March 1926 and unanimously accepted.

Even after Mr. Stapleton had gone up to act as the Director of Public Instruction in June 1926, the activities of the Union went on undiminished under the guidance of Mr. Sterling; and it is no exaggeration to state that the years 1924—1927 saw a genuine accession of fellowship and co-operation among the students and the staff. "The Union arranged socials, invited scholars of distinction to address its meetings, held condolence meetings to mourn the deaths of distinguished *alumni* of the College, and did its level best for ameliorating the distress of afflicted humanity." A large number of debates were also successfully held under the amended constitution, and the Magazine maintained a high level of excellence. In the sphere of athletics too, a general improvement was discernible. Details regarding all these are to be found in the pages of the "Presidency College Magazine." And this all-sided improvement was to be traced to the unflagging enthusiasm of Mr. Stapleton.

It seems, however, that the spirit of comradeship and the sense of corporate life in the College were not destined to attain easy and uninterrupted expansion. Ill-feeling and petty jealousies seem to have entered into the hearts of some members quite unobserved. The Autumn Social of 1927 had to be given up in consequence. When the Durbar holiday (the 12th December) was proposed to be devoted to a picnic, a section of the boys made up their mind to boycott the function, and threatening letters were addressed anonymously to members of the staff and even to the guests. The Founders' Day Re-Union of 1928, though it came off

all right in the end, was also sought to be marred by a handful of designing members.

As regards the lamentable occurrences of February last, a section of the local press opened its columns to all sorts of half-truths, untruths, and to pure fabrications. It is fervently to be wished that responsible organs of public opinion had been less indulgent in extending their patronage to the reports evidently supplied by interested parties, and before seeing them in print, had tested their veracity. The personal attacks they launched forth were, to say the least, quite unmerited: and the political motive behind them was in some cases ill-concealed.

In the galaxy of the past Principals of the premier institution of Bengal, an impartial historian of the present day will pick out two who, apart from the routine work of lecturing to students, devoted themselves wholeheartedly to its well-being: Mr. Sutcliffe, for having found for the College a permanent local habitation by means of repeated appeals; and Mr. James, for having not only laid the foundation of actual and possible extension of accommodation, but also sown the germ of corporate college life. It can be confidently prophesied that the annalist of fifty years hence will point his finger to a third Principal who, besides carrying into speedy execution some original projects of his own, transformed into realities the fond visions of his illustrious predecessors; and that third figure will be that of Mr. Stapleton.

THE REFORM OF CALCUTTA UNIVERSITY.

By

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NEARLY ten years have passed since the Calcutta University Commission issued its comprehensive report; but, though some of its proposals have been adopted in other parts of India, and Dacca University has been established, the University of Calcutta remains constitutionally unchanged. This fact is the less surprising, as though the Commission recognized that the main difficulties of Calcutta University were due to its complexity and excessive size, the reforms proposed would have greatly added to the complexity of its organization, and would not have prevented its continued increase in size. According to many Indian educationalists, the Indian Universities were started on altogether wrong lines; those lines, it appears to me, were the best available, and the gigantic growth of the Universities indicates their suitability to the Indian conditions of their time. The greatest legislative blunder in the history of the Indian Universities was that the Curzon Commission of 1902-4 failed to use its unique opportunity. Calcutta University was then 45 years old; it had grown too large, and was yet inadequate. Its examinations were hampering the best of the teachers, and were an ineffective check on the less efficient. Its Colleges needed reform and expansion. Unfortunately, instead of improving the examination system and setting up a teaching University which could have provided the Colleges with an adequate supply of well-trained teachers, the Curzon Commission piled further responsibilities and duties on the

already overburdened University organization. The Universities Act of 1904 applied throughout India, but the troubles due to it were most serious in Bengal; for the success of Calcutta University and its progress with schemes for the higher branches of work gave the opportunities for greater internal friction. The conclusion on which the Calcutta University Commission of 1917-19 under Sir Michael Sadler was most united and emphatic was the need for drastic reform, and for reduction in the scope of the University's work.

In 1918 Calcutta University had a larger number of students than any other University in the world. It had 28,400 students, and the number has since risen to over 34,000. It has been exceeded by Columbia University, New York, with its 34,247 in 1924-5, which I am informed, has been surpassed by the Federal University of California. The huge European and American Universities have two advantages over those of India; they are fed by better schools and can rely on a larger expert educational *posse comitatus* for service on the governing bodies and Committees. Dimensions that may be tolerable in Europe and the United States may be unworkable in India.

Calcutta University, with its 51 colleges, and 28,400 students, and its jurisdiction over 288,000 students* has become both too large and complex for satisfactory management by any unpaid Board. If the East Indian Railway were to replace its Directors and highest officials by an unpaid Committee of 100 eminent citizens, its trains would probably be less punctual than they are. One method

* The numbers for 1917 are given by Richey, 8th Quinqu. Rev., Vol. I, p. 49, as 58 colleges and 28,618 students.

of reducing the size of the University would be by depriving many of the colleges of their University status. This course has been recommended on the ground that the numbers of University students and colleges are in excess of the requirements of Bengal; but any policy that involved the abolition for many of the colleges of their University connexion would be strenuously resisted. That resistance would, I think, be inspired by a sound and creditable instinct. The belief in higher education is especially ardent in Bengal, and ambition to obtain a University training is particularly to be encouraged in a poor crowded community where the brain-power of the people is the most valuable asset. The objection that the Universities train more men for degrees than there are posts for them to occupy applies to other countries besides India. We hear in Scotland of graduates making their fiftieth unsuccessful application for a post, and of others who, recognising the conditions, make no attempt to secure employment in their Honours subject. Sweden has recently established an organization to find work for its unemployed graduates, and a similar scheme has been proposed in England. Nevertheless the University degree is steadily strengthening its position and, during the past 20 years, has beaten the technical college diploma out of the market.

The reduction in the size of Calcutta University by depriving the provincial mofussil colleges of their University status would crowd more students into Calcutta, where educational concentration is already excessive. The mofussil colleges should be encouraged and strengthened, and not weakened by the threatened loss of their University rank.

A second method of the reduction of Calcutta University would be by the separation of individual provincial colleges as independent Universities; but as the Sadler Commission recognized, with the exception of Dacca, there is no provincial college in Bengal which is likely to be qualified as a unitary University for many decades to come.

At the date of the Calcutta University Commission most Indian educational authorities were in favour of the unitary in preference to the federal University, and they considered that British opinion was predominantly the same. India received the report of the Haldane Commission on London University (March 1913) as the supreme educational revelation. That Commission did not like examining Universities, and hoped that the side of London University which examined external students would in time be discontinued. Its report has since been officially set aside in this country as of no account. Lord Haldane himself has since recommended the maintenance in Wales of the Federal Examining University. A Commission upon the University of Wales, with Lord Haldane as Chairman, was appointed, with the object—according to one of its leading members—of replacing that federal University by three independent unitary Universities. I was therefore amazed to find, when in India during the session of the Calcutta University Commission, from an advanced proof of the Welsh University Report, that the federal system, instead of being swept out of Wales, was to be confirmed and extended. Its extension was duly enacted.

During the past 15 years there has been a strong reaction in Britain in favour of the federal University system. Glasgow University ceased to be unitary in 1913, when it led

the way in the policy which has rendered unnecessary the establishment of technological Universities, by its affiliation of the Royal Technical College, and of the Agricultural College of the West of Scotland. London University, by its recent decision to accept the internal examinations of the Imperial College of Science at South Kensington as qualifying for the University degrees, has practically adopted the federal system as regards one of its colleges. "Nature," formerly one of the most influential critics of the Examining University of London, has in recent years recognized that its examining side is indispensable in the educational system of the British Isles, and is an important Imperial asset.

That the trend of University development in India is also towards faith in the Examining University is shown by the changes in the United Provinces. In accordance with the predominant opinion of a couple of decades ago, Allahabad University was converted from an examining to a teaching University, and was left in control of some affiliated colleges. The Act of 1926 separated those colleges from Allahabad University, and with the unanimous approval of all the institutions concerned. Agra University was inaugurated in 1927 as an examining University for the United Provinces.

The former hostility to federal Universities was due to the distrust of examinations, and it was believed in India that the University which gave degrees to external students upon examinations would soon be a thing of the past. Examinations themselves had been in extreme disfavour. They are naturally unpopular among both teachers and pupils, for they hamper the good teachers, reveal the deficiencies of the inefficient, and punish

the lazy student. The indispensable help of properly-conducted examinations has, however, been generally recognised in recent years. Examinations enable a few experts to control and guide the teaching over the larger area than they could influence by inspection. Examiners can see that the teachers pay due attention to the essential parts of a subject, and do not devote too much time to the easier sections and the fairy tales of science. Examinations show which teachers know their subject and can teach it. They enable inaccurate and out of date text-books to be suppressed, or lead to the correction of their errors. Examinations moreover test the student's character, morale and nerve, as success generally goes to those who have the self-discipline and foresight to work steadily throughout their course, and who are sufficiently quick-witted to apply their knowledge. Students who are flustered in an examination room would probably fail in an emergency in after-life. So improved is the reputation of examinations that during the last alteration of the Constitution of London University, special regulations to safeguard its external examining side were regarded as unnecessary, as no one of any authority held the obsolete view that it would be possible to dispense with that branch of the University work.

So long as the external examination is necessary in the educational system of the British Isles, it can hardly be dispensed with in India. As Sir Henry Sharp predicted in his address on the Development of Indian Universities to the Society of Arts (J. R. Soc. Arts, Vol. 73, 1925, p. 524), "The affiliating University has still a long life before it in India." J. A. Richey goes further when he declares in the last Quinquennial Review of

the Progress of Education in India (Vol. I, p. 64), "There will always be in India a need for Universities of the affiliating type."

The sub-division of Calcutta University into separate teaching and examining institutions was practically impossible in 1918 owing to the feeling in Calcutta in favour of the unity of the University, and the desire of the mofussil colleges to retain their connection with Calcutta. Bengal was proud of its University, and wished it to remain the largest in the world. The Principals of the mofussil colleges feared that if it were sub-divided, the change would deprive many of those institutions of their University rank.

The urgent need for reform of the University, and the obvious impossibility at that time of establishing an independent teaching University in Calcutta, led the Commission to adopt a compromise. The whole Commission recommended the relegation of the lower classes of the colleges to "Intermediate Colleges" which would be pre-University in grade; the transfer of the recognition of schools to a Secondary Education Board; and a fundamental change in the constitution of the University. The majority recommended a scheme to enable the University to cope with the varied and enormous activities that would be left to it, as it would remain in charge of all higher education in Bengal except at Dacca. But the scheme proposed was so elaborate and costly that the failure to adopt it is not surprising.

As regards the government of the mofussil colleges, the Commission adopted a compromise based on their being placed under a special Board which might either disappear in time or be separated as a University of "a federal or combined federal and affiliating

type." (Report, Vol. IV, p. 349). I assented to this compromise owing to the impracticability at that time of establishing two separate Universities, but I predicted that the separation of the teaching and examining functions of the University would be welcomed in ten years' time. The Board of Mofussil Colleges could then be separated as a Federal Examining University for all the colleges in Bengal except those that were constituents of the teaching Universities of Calcutta and Dacca.

The fact that there has been no attempt in Calcutta to enact the elaborate scheme proposed by the majority of the Commission shows that there is little prospect of its adoption. Progress might now be possible on the alternative policy, which was to strike at the root of the trouble by the separation of the teaching and examining work of the University. Some of the colleges, such as the Presidency College, the Medical College, the College of Science, Sibpur Engineering College, and perhaps some others, might be united as a teaching University in Calcutta, while the rest might be combined as an examining federal University. The government of this federal University should include a Board containing a representative of each of the colleges of which more than a certain number of students graduate at the University.

Any sub-division of Calcutta University would meet with opposition and would be regretted by many who might accept it. For that University has aroused amongst its graduates an unusual degree of pride and affection. Few institutions are prepared to welcome their own dismemberment. But the graduates and staff should feel the just pride of a parent in the growth into independence

of a lusty son, and may be reconciled to the change by realizing that continued yoking of the examining and teaching sides of the University is detrimental to its progress and to the educational interests of Bengal.

If the reluctance of the University to give up any of its present work—a feeling that is largely sentimental—could be overcome, it might be relatively easy to allay other opposition; for the reform on this plan would not involve the difficulties that have proved insuperable with the full Commission scheme. That may be fairly described as revolutionary, as it required so many drastic changes to be made concurrently. Recognition of this fact led to the proposal that a temporary Commission should be appointed with arbitrary powers. If the University were sub-divided into a teaching and an examining organization, each part might develop on more vigorous and progressive lines. The difficulties of finance would not be serious. The federal University would obtain large funds from examination fees, while some of the constituents of the teaching University would carry on with their present incomes; and the teaching University might reasonably hope for such supplementary Government assistance as would be needed.

Fundamental changes in the constitution of the University would be unnecessary. The Senate and Syndicate might remain in charge of all the work left in the federal University and the chief advantages of the proposed Mofussil Board could be obtained by the existing Government powers of appointment. Some representatives of the mofussil colleges should be on the governing authority of the examining University, so that it would be

federal and affiliating, and not only an Examination Board for external students.

The institution of the Intermediate colleges would be a matter that would primarily concern the federal affiliating University. It might secure their establishment as soon as an adequate supply of teachers for them were available, and the conditions would enable those colleges to fulfil expectations.

The two Universities would have such different functions that friction between them should be avoidable, and they should co-operate, the students of the one University passing on to the post-graduate courses in the other, just as students interchange in the higher courses among British Universities.

The objections raised in 1918 on behalf of the mofussil colleges would not apply to the separation of a teaching University from Calcutta University. Those colleges would retain their rights and their connection with Calcutta. They would be given a stimulus to develop, since as soon as any of them was strong enough, it could apply for a charter as an independent unitary teaching University. The colleges would have easier relations with Calcutta than when competing with such powerful and well-equipped institutions as the Presidency and Medical Colleges.

Instead of the sub-division of Calcutta University, three other courses may be suggested:

1. The adoption of the proposals in the majority report of the Calcutta University Commission. As nine years have elapsed without progress on those lines, they are not likely to be followed now, especially as the conditions have been so greatly altered by

the Indian Reform Act of 1919 and by other changes.

2. To make no important constitutional changes but let the University quietly reform itself. The experience of the last few years shows that no adequate reforms are likely to be secured by this policy, and though the University may endure for years, although too heavy for its constitutional frame-work, some of its departments will assuredly reach a condition of inefficiency which may lead to the enforcement of drastic changes from without.

3. That the objections formerly advanced to the proposed University of Bengal are valid to a University composed of the mofussil and some of the Calcutta colleges.

The main objection in 1918 was that the mofussil colleges felt that they might lose their University status if the University were sub-divided into a teaching and an examining body. If the changes would not involve the loss of their affiliation with the University of Calcutta, their interest would be to support its sub-division.

If a central teaching University in Calcutta were based on some of the Calcutta colleges, and the rest of them were left as a distinct University, it might be suggested that the name of the University of Bengal would be appropriate for the examining University, as it would include colleges in both Calcutta and the mofussil. That name would appear to be in accordance with precedents in the United States and Canada; but in those cases there is one University for a whole State. The existence of the separate Universities in Calcutta and Dacca would render this name inappropriate. The same objection would apply to the term Presidency Uni-

versity for the teaching University; for though the name Presidency is suitable for the premier college of Bengal, it would not be for the University if restricted to one city, and there included only part of the University work.

To entitle the teaching institution, the University of Calcutta would transfer the name from an organization which was still carrying on its original and main work to a new body, and to work that was not part of the original functions of the Calcutta University.

It would be fully in accordance with general practice for a University, even though it has a wide sphere of operations, to be named after a capital city. It would therefore be historically more suitable for the examining University to retain the name of the University of Calcutta.

It would be equally in accordance with precedent for a centralized teaching University to be named after an individual. The rival names suggested for the proposed teaching University in London were Gresham and Albert. The Leland-Stanford of California is an American example. The teaching University in Calcutta might be associated with the name of Asutosh Mookerjee, who secured for the University the munificent Tarak Nath Palit and Rash Behari Ghose endowments, who founded the great Post-Graduate College, who did so much to inspire the present enthusiasm for higher education in Bengal, and reiterated his conviction (e.g. in his Convocation Address for 1912) that "what we require are Universities teaching rather than examining." He proclaimed the importance of a centralized teaching University in Calcutta, which

would be readily adaptable to the fast changing conditions in India. He realized that the University under its present constitution was not developing as well as he desired. He regretfully deplored "that our Indian Universities have so far failed conspicuously to come up to the standard of the Western Universities." "The Indian Universities," he added, "may be said to have acted as faithful guardians of the sacred flame, but they have done nothing to make it burn brighter and higher so as to dispel in an ever-widening circumference the darkness which surrounds human intelligence."

There appears to have been growing recognition in Calcutta during the past ten years that despite the general progress and brilliant achievements connected with the University, the drift into inefficiency of some departments is a growing danger to the whole institution. The establishment of a teaching University in Calcutta would be an appropriate memorial to Sir Asutosh Mookerjee and would secure for its research institutions those powers of illumination which he thought they should possess, and which are restricted while they are hampered by inclusion in a primarily examining University.—*The Calcutta Review*, October 1928.

Approved as a Text-Book suitable for School use,

vide *Fort St. George Gazette*, Part I-B, p. 547, dated 1-11-1927.

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MODERN LITERARY VALUES, ENGLISH AND FRENCH (REVIEWS).

By Mr. L. V. RAMASWAMI AIYAR, M.A., B.L.,
Maharaja's College, Ernakulam (Cochin).

PANORAMA DE LA LITTÉRATURE ANGLAISE CONTEMPORAINE, BY RENE' LALOU. (PUBLISHED BY KRA, EDITEUR, PARIS). Price 13 frs. 50 cent.

Mons. Lalou's book, covering as it does the last fifty years, takes a wider sweep and therefore a less detailed view. M. Lalou is writing for Frenchmen and his object is to give a panoramic survey. He has succeeded admirably well in this object. M. Lalou's is practically the only book in the French language dealing exclusively with contemporary English Literature.

"Victorianism" is a term which M. Lalou scouts. Says he:—"The contribution of the Victorian age cannot be fairly judged before the middle of the twentieth century. The term *Victorian* has to-day acquired a pejorative meaning. We forget too much that a literary epoch extending over more than half a century (approximately from 1830 to 1890) embraces at least two generations of strongly contrasted writers and has revealed conflicting tendencies. Viewed from a distance, the Victorian era may appear to be characterised by *bourgeois* self-complacency and obstinate dogmatism, but on closer examination it attests a restless agitation." We can agree with M. Lalou in his view that a hard and fast formula of Victorianism which will take in all the tendencies of the period, may be impossible, but we can scarcely help noting, amidst the conflicting tendencies of the time, an undertone of Self-Trust and Faith in Authority common to the large majority of the writers of the time. The fact was that even those whom some critics (and presumably M. Lalou would be among them) will be inclined to regard as anti-Victorians on account of certain rebellious tendencies of theirs, were basically Victorian. Ruskin (in spite of all his

Jeremiah-like denunciations), Matthew Arnold (despite his hatred of the sick hurry of materialism), and even Meredith (notwithstanding his satire and striving to a nobler end) had too much of the Victorian Faith in them to easily escape from the general definition. As Mr. Ward observes, "some of the rebel Victorians were probably more Victorian than rebel." A few real rebels there were like Hardy and Butler, but they appear towards the end of the period and, strictly speaking, belong to the 20th century in spirit.

M. Lalou, however, despairing (in our view unnecessarily) of a classification on this basis, adopts a different grouping altogether. The first chapter entitled "The Victorian Heritage" deals with Carlyle, Newman, Arnold, Ruskin, Spencer, Darwin, Tennyson, the Rossettis and Browning; the second under the caption "Triumph of Individualities" treats about George Eliot, Meredith, Butler, Stevenson, Thomson, Hardy and the *Æsthetics*—i.e., all those who, unlike *les porteurs des messages*, showed themselves, in M. Lalou's opinion, more prudent and less ambitious, and contented themselves with cultivating their personal originality instead of trying to establish equilibrium through vigorous affirmations; the third chapter deals with the 'Collectivists' in a very wide sense, including as the term does, the imperialist-minded Kipling and the Little Englander Wells, the Catholic Revivalists, Francis Thompson and Chesterton, and the Fabian Socialist, G. B. S.; the fourth chapter discusses the Irish Renaissance; and the last chapter concerns itself with the Cosmopolitanism of Conrad, the social criticism of Galsworthy, the Regionalism of Bennet and the rise of the new drama and Georgian poetry. There is no doubt that this classification is original, but there are a few strange incongruities like the clubbing together of Kipling and Wells, of the Catholic Revival and of Fabian Socialism.

Small as the compass of M. Lalou's book is, he packs into its pages a wealth of abundant

material; and all this material he has arranged, analysed and weighed with a critical acumen, which will do credit to the greatest masters of criticism. The discussion of the moral basis of Carlyle's religious ideas and political theories; the description of Newman as a very supple and refined personality evidencing a charm which is not purely English but probably inherited from his French grandmother; the clear perception that Matthew Arnold was after all only a Hebraist at the core; the appreciation of Rossetti's "House of Life" as giving satisfaction to "soul and body by its canticle of mystic and sensuous love" and as combining art, nature and thought into a pagan glorification of beauty in which modern melancholy is not forgotten; the recognition that the "ideal hero" of Meredith still carried with him the stamp of Victorianism; these and similar things testify to the sureness of touch with which M. Lalou, Frenchman though he is, has been able to appraise the worth of a foreign literature. In M. Lalou's opinion, there has arisen no sun yet on the literary firmament of present-day England but he is full of hope for the future: "Never were the times more favourable; amid this anarchy, room is equally free for a new Shakespeare or another Keats; the epoch cries aloud instantly for the great artist who could deploy in vast epic dramas the renovations of an original race or could pack into a few incorruptible songs the pure essence of the race's genius."

ANTHOLOGIE DE LA NOUVELLE PROSE FRANÇAISE.
(PUBLISHED BY SIMON KRA, PARIS). Price 25 frs.

The Interrogatory attitude of this century is not peculiar to England or English literature, but is common to the literatures of all European lands. The Publisher, Mons. Kra (of Paris), has brought out an anthology of contemporary French prose which excellently illustrates the aspects which the note of Interrogation has assumed in that land. All the twenty-five authors who are represented in this Anthology are conspicuous for their in-

dividualistic tendencies and rebellious introspection modified, however, by the peculiar genius of the French race.

We are told that the most popular literary form in the post-war France of to-day is the novel. The rage for the novel has been so phenomenal that philosophers, critics, dramatists, poets, humorists and aesthetes have all taken to novel-writing in deference to public taste. Thus it has come about that the ideas, attitudes, vocabulary and style of present-day French Prose are as various as the workers in the field. Another factor which has contributed to this diversity is (we are told) the enormous passion for reading translations of foreign novels (especially English and Russian) which are so much in vogue in France to-day.

The diversity, however, is not without an underlying unity which has a two-fold aspect: the rebellious note and a deliberate search for ordered beauty. The latter forms the immemorial heritage of the Gallic race, while the former is an outcome of the Twentieth century attitude.

Introspection in French literature usually never goes beyond a certain limit; the most radical tendencies are often seen working within the boundaries, extensive as these may be, of a certain tradition laying stress on reality. Even in the region of Intuition, the technique of reasoning hardly disappears, the virtues of clarity, precision and order are never lost of. No! the French mind never goes on "chewing the cud." Says Romain Rolland than whom no writer in France could be described as more introspective: "No enemy is more fatal to true idealism than its false counterpart; true idealism observes things as they are, and is capable of loving them as they are; it finds the ideal in a blade of grass and in humble and simple beings; it does not substitute for what it observes, for the dear transient life—so dear because it is transient—the proud death of its intellectual formulas..... False idealism which dispenses with observation and work is only idleness and vanity, satisfied with drunken rhetoric..."

Let us have no trust in the idealism which is not in continual and intimate communion with reality. Let us beware of the idealistic poison!" Rolland wrote these words at a time when he was alarmed by the prospect of an invasion of German Wagnerianism. But Wagnerianism could never strike deep root in French soil. The French genius is much too analytical and precise to be overwhelmed by such foreign influences. And this is evident from an examination of the selections in this anthology: we find Andre Gide working on the principle that "perception commences with change of sensation," Proust analytically dissecting the physical charms of the sleeping Gisele, Valery Larbaud widening and deepening his observation by travel and Jules Romains finding equal pleasure in scientific research and dramatic criticism.

Each of the sections in the volume under review is introduced by a brief but vivid sketch of the life of the writer accompanied in some cases by an estimate of the writer by himself (written, of course, at the instance of the Publisher). Well-known writers like Andre Gide (the translator of *Gitanjali* into French), Marcel Proust, Paul Valery, J. R. Bloch, Panait Istrati and Jules Romains with whom our Indian public may be familiar, are here. "To see her sleep" is a piece in which the Proustian *diablerie* is haunting; George Duhamel's overflowing sympathy with man is evident in his "Death of Mercier;" Panait Istrati, the "Vagabond" writer, discovered to the world by Romain Rolland, is represented by two of his passages exhalting a semi-oriental charm; Valery Larbaud's satire is keen and cutting in his story "The Poor Tailor;" and Jolinon whose realistic depiction of war-time scenes of love and intrigue is familiar to readers of "Europe," is also represented here.

Of Gide, one of the most provoking of contemporary French writers, the editor says: "He was the first among the moderns to fore-scent all the aspects of the terrible conflict, in the depths

of the heart, of what we are agreed in calling good and evil....." Not only has Gide been a success in celebrating this marriage of heaven and hell in the human soul, but he has won equal reputation in objectifying external things accurately and analytically: "He is not among those who have eyes and yet do not see, who have ears and yet do not hear." Unfortunately, of the two selections from his works, included in the anthology, the second alone, depicting a dramatic interview of Lacadio with his love, gives us some idea of the author's powers, and even this cutting is much too short to give us a complete view.

Amongst the other selections, we may single out a few. Andre Salmon's short story "Cannibalism" is a piece of bizarre realism satirising old ladies, "mischievous, stupid and misanthropic to the extent of being sadistic;" the story relates to a sailor, returned from his travels, pretending to his rich old aunt to be an anthropophage, and terrifying her to gradual death in order to inherit her money sooner and thus be enabled to marry his sweet-heart as early as possible.

There is autobiography in Duhamel's "Portrait of Salarin by himself." Here is Duhamel's religious *Credo*: "I am convinced that if God exists, if he is really good and delicate, if he is not blinded by egoism and pride, if he is not giddied by the selfish praise of his worshippers, if he is sufficiently free and agrees to listen to me, I am sure that he approves, at least *in petto*, of my view that it is not religious fervour but human conduct that makes a man a saint."

The world of Panait Istrati is not exactly Oriental in the full sense. Omar Khayyam and the *Arabian Nights* are often erroneously identified by some Westerners with the true spirit of the Orient. What can be more muddling than to say that frenzy of desire, self-surrender to feelings and the enjoyment of the moment are of the essence of the Oriental outlook? Panait Istrati has glorified these traits in some of his works but it is scarcely correct to describe him as Oriental in

spirit for this reason. We can agree with the estimate that he has brought to the French language an Oriental (or rather a semi-oriental) fluidity and spontaneity such as are found only in the Russian language, we can certainly admit that he has popularised new view-points in France, and made to French literature contributions of great value and artistic worth; but we demur to the opinion that he is typically Oriental in spirit. Nevertheless, his Graeco-Rumanian origin and his adventurous life in the Near Eastern countries have endowed him with sufficient sympathy to envisage truly Oriental ideals; one of his recent-most volumes, "Mikhail," is an exaltation of what we in India know as the great principle of abnegation and self-suffering.

Joseph Delteil's "On the Bridges of Paris" gives us a picture of what Paris stands for;

"Paris is undoubtedly the only city in the world where the sense of life is the sense of love. The final cause of all things in Paris is love. In other places, people work, reflect and strive; here people revel in love,—nothing but that!"

There is also a dramatic passage from the same writer's "Joan of Arc" in which the horror of the sight of the woman burning on the stake, provides occasion for the author to indulge in vivid and sometimes riotously gruesome realism.

We have enjoyed the reading of the book and we are sure that we have gained a deeper knowledge of contemporary France from this volume than from many a political tract and many a pretentious history of literature.

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A TEXT-BOOK OF ELEMENTARY MATHEMATICS FOR HIGH SCHOOLS, by V. VENKATASUBBAYYA, B.A., I.T. VOL. I. TAMIL. (MACMILLAN & CO LTD., MADRAS). Price: 1-8-0.

The usefulness of the publication in English might have already been known to High Schools. The present rendering is in consistence with the movement to adopt Tamil as the medium of instruction in Elementary Mathematics.

The get-up is good. The translators, Messrs. M. S. Sundareswara Ayyar, M.A., L.T., and S. Sundaresa Ayyar, B.A. (Hons.), L.T., appear to have taken immense pains at the production. Here and there, the order of topics has been deviated from the original, and the method of presentation curtailed, probably to avoid the translation getting bulky. The language used is mostly clear.

The book may find a fitting place in High Schools.

AN INTERMEDIATE LOGIC, by JAMES WELTON AND A. J. MONAHAN. REVISED BY E. M. WHETNELL. 3RD EDITION. (UNIVERSITY TUTORIAL PRESS, LONDON). Pp. 508. Price 10s. 6d.

Bosanquet remarks:—"For those who care to understand, to trace the connecting principles and functions that permeate our intellectual world, there is indeed an interest of a peculiar kind" in the study of Logic. Among the many authors on the subject, Welton reveals the rare knack of presenting abstruse and difficult problems in a simple readable language. This 'Intermediate Logic' owes not a little to Welton's Manual of Logic. Dealing, as it does, with the development of all the main logical problems, the book is at once a useful companion to the beginner and the advanced student.

The present edition, which has just been revised for the third time by Mr. Whetnell of Cambridge, shows many useful changes. The chapters on the general method of knowledge and postulate of

Induction, for example, have been given a new presentation as it were, and the reader is now in a better position to appreciate intelligently the principles of uniformity and unity of Nature, the theories of causation and the scientific method of explanation. Not the least merit of the treatment consists in bridging the popular artificial gulf between the logic of formal consistency and that of material truth and convincingly showing that the syllogistic doctrine far from being "merely an archaeological monument of perverted ingenuity" is a necessary step in the evolution of logical thought.

The usual charge that a course in Logic is dull and uninteresting on account of the lack of "stimulus to sense-perception" is to a great extent met by the authors of this book by a rich crop of examples, selected from diverse fields of scientific investigation and human experience, capable of arousing the desired human interest in the study of logical problems.

The very clear exposition of all the prominent logical topics is bound to make the book attractive and useful to candidates preparing for University examinations. The choice questions and exercises appended towards the close will certainly help the student in appreciating the practical aspect of the science of reasoning and a 'struggle' with them will undoubtedly afford a lot of exercise to the mind, though perhaps, it may not make him a master of the subject as the authors hopefully suggest.

The nice get-up and the decent type are only in keeping with the well-thought-out plan and orderly treatment of its contents.

PHILIP'S NEW SCHOOL ATLAS OF UNIVERSAL HISTORY, by RAMSAY MUIR AND GEORGE PHILIP. 10TH EDITION, REVISED AND GREATLY ENLARGED. 1928. (GEORGE PHILIP AND SON, LTD. LONDON). Price 5s.

This is a greatly improved and enlarged edition of Philip's New School Atlas of Modern History

originally published in 1910 and greatly added to in 1920. In this book it has been thought desirable to extend the scope of the maps so as to take in Ancient History also from the days of Egypt and Babylon of the 2nd millennium B.C. to the fall of the Roman Empire; and some of the improvements of the Publishers' recently-revised *Historical Atlas, Mediaeval and Modern*, have been introduced with much substantial re-arrangement. 11 plates are devoted to the illustration of the growth of Europe from the epoch of the Barbarian invasions to the eve of the Great War; while the recently-attained European linguistic divisions and political frontiers are very incisively indicated in a separate plate. Great Britain and Ireland are treated historically in 12 plates, while the world-expansion of European nations since the beginning of the 16th century comes last with its share of 15 plates. The Introduction illustrating the various maps in the different sections with explanatory and descriptive notes is enriched with supplementary maps and diagrams in black and white, of battle-sites, water-ways, village plans, campaign-areas, etc., which could not well be included in the body of plates. In the last section the object of tracing the expansion of the power and influence of European civilisation over the non-European world is clearly and intelligently achieved. The growth of British India has been treated in 3 maps. The index is rich and exhaustive; and this well-got-up atlas which is cheap at its price should be in the hands of everyone of our History students in the colleges.

"FOURTEEN EXPERIMENTS IN RURAL EDUCATION," EDITED BY A. B. VAN DOREN. (ASSOCIATION PRESS: Y. M. C. A., CALCUTTA). Price: Paper, Rs. 1-4-0; Cloth, Rs. 2.

For a long time education had grown up hampered by tradition. It was the opinion of the man in the street that had governed education. 'Experiment in Education' was a thing which he could not understand. This fact had made it difficult to

try experiments on new lines. But we believe that in education at this present moment it is experiment that we do most urgently need. Education is in a state of flux to-day and he would be a bold man who would attempt to lay down what the ideal lines and future and permanent development of education will be.

We all know that the type of rural education that is obtaining now is very disappointing and unsatisfactory. Yet to discover what to teach in a rural school is a problem that for long has been baffling educational thinkers. The 'Fourteen Experiments' described in this book are real investigations into the needs of rural education. Most of the schools are new and are still experimenting. They have not arrived at any definite conclusions. But they all indicate a way—a process of training pupils for life, in life and by life. They are an emphatic protest against the dominant type of literary education which does not meet the urgent need of the masses. These schools look to the evolution of a new type of education for the rural population of India which can lead to something that is really useful, true and beautiful in the very conditions of the rural area. For the aim of rural education is to create a happy countryside. The needs and pursuits of village life are different from those of the town. Any system of rural education which neglects this central point is doomed to failure. The uniform curriculum both for town and country alike is educationally useless. Rural instruction which fails to utilise the wealth of its local knowledge and local history will never give reality to the whole of school life. Yet rural education is governed by the city. Education is regarded from the point of view of the University people. It will be better if we look at education from the point of view of the needs of the people. Also these schools point to a great fact that it is the life-needs of the primary pupils that should be a basic consideration in determining the educational policy for any people rather than the demands of University dominated Secondary Schools.

The most interesting of all the experiments described is the one connected with the adult education of Kuravas in Attur Taluq. This experiment represents adult education in its broadest and deepest sense. That the work of educating these Kuravas is painfully slow is illustrated in the following lines:—

"We need dynamite to blast and to explode the strongly inherited and deep-rooted habits and character of these people. Nothing but dynamite can bring about a change."

There is one important point that should be remembered in connection with the work of these schools. To carry on better schools it is necessary to provide for teachers of the new type—teachers who have a new vision of their calling. The one essential factor for the success of these schools is the recognition and realisation of the principle that the most essential part of the school is the teacher. It is a mistake to suppose that a first-class teacher is wasted in an elementary school. On the other hand, an elementary school controlled and directed by a highly-qualified and trained man will grow from power to power. This is an educational maxim which has not yet been understood in India.

We are sure that out of these experiments will come valuable information and instruction which will enable us to apply the fruits of the experiments over a much wider field.

This book deserves to be placed in the hands of every secondary-grade training student.

We are asked to publish the following:—

XX MADRAS PROVINCIAL EDUCATIONAL CONFERENCE AND EXHIBITION, CHIDAMBARAM.

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1. An Exhibition will be held during the Conference and it will be opened on the 27th December 1928 at about 4 p.m.

2. The Conference will last for 2 days—28th and 29th December 1928.

3. The Executive Committee of the Reception Committee—28 strong with power to co-opt—have been entrusted with the arrangements of the details of the Conference and Exhibition. The following are the chief office-bearers:—

1. Mr. K. A. Nilakanta Sastri ... Chairman of the Reception Committee
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3. Mr. S. R. Balasubrahmanyam ... General Secretary
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5. Mr. G. Srinivasa Iyer ... Conference Secretary

To be assisted by Messrs. A. Aravamudan Iyengar and R. Kalyanasundaram Iyer.

6. Mr. A. S. Balasubrahmanya Iyer... Exhibition Secretary

To be assisted by Messrs. G. A. Krishnamurthy Iyer and C. S. Ranganadha Iyengar.

7. An "Hospitality Committee" has been formed consisting of Messrs. V. G. Ramakrishna Iyer O. Thirunavukkarasu Pillai, P. Dharmalingam Pillai and G. A. Krishnamurthy Iyer.

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The Educational Review.

We congratulate Sir Annamalai Chetti and all concerned on the passing of the necessary legislation for inaugurating the University at Chidambaram which has been rendered possible by the generosity of this great merchant prince. It is less than six months since Sir Annamalai made his generous offer of twenty lakhs of rupees and the existing site, buildings and equipment of the Sri Minakshi College, Chidambaram, for the starting of a Unitary and Residential University, and the legislation is an accomplished fact already. We had a suspicion that action would not perhaps be so prompt on the part of the Ministry of Education in Madras, nor distinguished for any ability and energy, but we are agreeably surprised at the rapidity with which work has been transacted in this connection. The members of the Council of all sections showed a commendable spirit of union and harmony in helping the passage of the Bill without raising discussions on trivial points. It only remains now for Sir Annamalai to make the University a success, by the selection of a suitable staff and by the offering of facilities which will ensure high-class and efficient work. The idea of Unitary and Residential Universities has been very familiar for some time in Northern India and it might be an advantage for Sir Annamalai, if he can prevail upon somebody with experience of North Indian Universities to take charge of the proposed institution. It is hoped that in

the choice of the staff, there will be no communal considerations or stinting of salaries. The endeavour must be to secure the best persons available, so that the University may soon acquire a name among the centres of learning in India. Sir Annamalai has now an act of generosity to his credit which will hand down his name to posterity with affection and gratitude. We hope that before the beginning of the next academic year, the University will have been formally inaugurated.

Lala Lajpat Rai, the well-known publicist of the Punjab, has done a piece of public service in drawing attention to the very unsatisfactory state of affairs existing in the Punjab regarding Text-Book Committees and Boards of Studies. Membership on these bodies seems to be looked upon only as an opportunity for grabbing patronage with regard to books, and once you get on to them, you seem to succeed in getting your books prescribed however worthless they may be, and you also keep out even the best books available in the subject which may happen to have been written and published by others. The works prescribed are chosen, not on their own merits, but on their relationship to the members of the Committee. It is time something was done to remedy this state of affairs, and pupils got the benefit of the best and the cheapest books available in the market. If the following facts are true, they are not at all creditable to our profession and an authoritative enquiry

Text-Book
Committees
in the Punjab.

undoubtedly seems called for. We take the following from the *People* :—

Lalaji's denunciation, strong as it was, was well deserved. The evil is much worse than he described it to be. Some of the so-called authors are not even compilers. Ability to write a book is considered of no importance. You may get a book written by some one who is better qualified to write a book, but less fortunate than yourself in not being able to see it through. Or you may lend your name as joint author to a book written by someone else. He writes the book and you see it through the various stages, until it is prescribed as a text-book. This is not always very easy. But the resourcefulness of publishers and the enterprise of authors can succeed in clearing all difficulties. Well, there are so many ways of doing this. You know the other fellow's weak point. Perhaps he is interested in some other book. You promise to scratch his back and induce him to scratch yours. Again there are friendships and group loyalties which can be exploited. Sometimes you have to work on the maxim that every man has his price. The price may be paid in lump-sum, or by a promise of a share in the profits of the book. There are also cleverer ways of doing this. A strong man whose opposition is dangerous may be paid a thousand rupees or so for *revising* the book. The revision may take him a few hours. But he can satisfy his conscience and keep the thousand rupees as money earned by the sweat of his brow. And, his opposition is hushed up.

There are perhaps several honest men who do not approve of, or help in this state of affairs. But the fact that these things have been going on for a number of years, without any voice of protest being raised, shows that either the number of such honest men is hopelessly small or they do not exert themselves or they have no influence. The press and the public cannot have definite

material on which to build definite charges. The law of libel may protect the big guns of this dirty show. But surely these things are not unknown to the powers that be. It is high time a check was put to *this crime against students*—(The italics are ours—Ed., *E.R.*)—because the students are the greatest victims of these malpractices. A public enquiry by an independent Committee will disclose facts so horrible as to put several leading luminaries of the honourable profession of teaching to utter shame.

The use of pictures in education has not yet been realised very much in India. We are therefore particularly pleased with a new enterprise on the part of the proprietors of the *Times of India* who have announced the impending publication of a monthly journal called *Pictorial Education*, a specimen number of which has already been issued. The idea underlying it is said to be two-fold. Primarily, it will provide the school-master with a means of imparting education pictorially ; of giving a complete lesson in history, geography, architecture, science, religion or other appropriate subject based upon the selected picture. The secondary idea underlying the publication is the provision of a monthly series of twenty selected photographs, many of them taken specially for this publication which will, it is believed, prove attractive to the general public. The specimen number contains a collection of valuable pictures of real educational value and of high-class workmanship, worthy of being framed and hung on school-walls. The Kutb-Minar, the Western Ghats, the snows of the Himalayas on the Tibetan

Pictures in Education.

road, the Taj Mahal from the Jasmine Tower, Mount Abu, India from an aeroplane, North-West Frontier Passes—the list is as varied as any teacher of geography could wish. We would like to suggest to the proprietors of the *Times of India* that they may well consider the desirability of issuing the journal at a cheaper price than one rupee per number. The majority of Indian schools are so poor that there is not much chance of the journal being popular in the country, unless it is made available at about half the price. It should be possible, even if it means some slight reduction in the quality of technical finish of the pictures.

The Fourth Session of the annual Conference of the All-India Teachers' Federation is to meet in the Cowasji

Jehangir Hall, Bombay, on the 4th, 5th and 6th November of this year, under the presidency of Mr. George S. Arundale, whose educational experience as the Principal of the Central Hindu College, Benares, and in many other capacities is well-known to the teaching world in India. The delegates will be welcomed by Principal P. Seshadri, the Chairman of the Executive Council of the Federation, who will act as the President of the Reception Committee. Special interest will attach itself to the ensuing session as it is the first time that a session of the Federation is held anywhere other than in Northern India. It will be remembered that the All-India Teachers' Federation was inaugurated in Calcutta in December 1925 ; the next session was at Patna in

1926, while the third was in Calcutta under the presidency of the well-known Indian scientist, Dr. C. V. Raman, in December 1927. We are glad to find that the Federation is gaining strength every year, and the Bombay session promises to be a greater success than any of its predecessors. A special feature of this year's Conference will be the holding of a number of sectional conferences for the special study of particular questions. It will be noticed from the programme, published in our last issue, that the papers at the Conference will deal with Elementary and Adult education, High School and University education and the education of Defectives. We hope that teachers from Southern India will attend the Conference in large numbers and benefit by the valuable experience of coming into contact with teachers from various parts of the country.

We have never countenanced communalism of any kind in education and have always stood for equal opportunities for all, and we therefore rejoice that the Corporation of Bombay has resolved upon throwing open all schools for the depressed classes and abolishing, as a necessary consequence, schools set apart for them. It is only fair that children, to whatever caste they belong, should have ample opportunities for the benefits of the free education provided by the Corporation. But the orthodox world of Bombay has been thrown into a ferment, by another decision of the authorities against making

Enforced Social Reform.

provision for separate pots of drinking water for different castes. To any observant student of Indian affairs, it is clear the caste system is dissolving, but it does seem hard to deny children of certain classes the privilege of drinking the kind of water which they want, however unreasonable it may appear that anybody should object to a water-pot being touched by people of certain castes. We are afraid this step will cause considerable inconvenience and an agitation has already been started against the measure. As it is undesirable that such excitement should invade the peaceful atmosphere which should exist in educational institutions and social reform cannot be forced down the throats of people in this manner, we hope that the authorities of the Bombay Corporation will revise this decision and not attempt to over-hurry the pace of social reform. In fact, this zeal for reform may even rouse a reaction in orthodox circles and harm the good cause for which the Corporation of Bombay is so anxious to work.

A great point would have been achieved in the progress of Indian education, if parents were sufficiently enlightened to take an interest in the education of their children and they actually took the trouble of doing so. The following account of a Parents' Association in England will interest readers in India—it would be an inestimable advantage if similar institutions could be started in large numbers in this country:—

The institution, though it bears the rather un-instructive name of "The Parents' Association," has very laudable objects. It will assist parents who have children at school by trying to broaden the basis of education especially in the earlier stages, and will insist on better instruction in modern languages.

The Association especially concerns itself with public, private and preparatory schools, and in order to further its aims, conferences are arranged, and meetings held open to all members, at which parents, schoolmasters and other educationists discuss their varied problems and suggest means of solving them.

There is no doubt that opinions of parents collectively carry more weight than if individually expressed, and that schools listen more readily to representations of an association of parents than to isolated requests of individuals.

The institution is not connected with any other educational association, and does not advocate any particular method of education, but works for the adoption of a wider curriculum with less specialisation, particularly where younger children are concerned.

Situated at Manchester-street, Mayfair, the institution has already done useful work. Parents and others interested in education can, by payment of the minimum subscription of 10s. a year, become members of an institution, whose services will be available in the cause of their children's education.

We have come across a few Parents' Associations in India started in connection with some High Schools and they have been able to achieve valuable results. The practice deserves further extension all over the country and every school should have its Parents' Association, meeting periodically at the institu-

tion to represent matters to the authorities from their own standpoint.

We wonder if something cannot be done for expediting the publication of Government Reports, as it is not

Indian Education.
1925-1926.

very encouraging to get reports long after the period to which they refer, when some of the points have probably lost interest and other things have happened more worthy of attention. The latest report on the progress of education in India is only for 1925-26, though we see no reason why with more energy at the educational head-quarters, reports could not have already appeared for 1926-27 and even 1927-28. The details in the report draw attention, once more, to the slow progress of Indian education and unless some drastic measures are adopted, there is precious little chance of India taking her place among the advanced nations of the world in the near future. It is distressing to read that there was a rise of only 0.5 per cent. in the number of males under instruction in relation to the total population, from 6.0% in 1924-25 to 6.5% in 1925-26, while the percentage of rise for women was only from 1.2 of the previous year to 1.3 of the year under review. We do not share the complacency of the official report which observes that the percentage of the male population in schools "compares favourably with the figure for ten years ago which was only 4.7." Going on at this rate, one may calculate the length of time which will be taken for bringing all children of school-going age into some school or

other. Calculating on the usual basis of the school-going population being 15% of the total number, it should take another seventeen years in the case of boys and another 137 years in the case of girls to bring children of the school-going age within the benefits of education. In other words, only about 6 out of 15 boys and 1 out of 15 girls who ought to be at school are actually at school.

It will gratify people in this Presidency to know that in some matters, Madras has shown larger progress than other parts of India. Out of a total increase of 9,362 institutions for all India, Madras showed an increase of 3,550. There was similar superiority in the number of scholars also, the Madras Presidency showing an increase of 156,121 in one year closely followed by the Punjab with 140,250.

The Director of Public Instruction in the Punjab draws attention to the evils introduced into the educational system by the starting of communal schools. He writes:

"The state of affairs is most dispiriting and reveals the unhealthy atmosphere in which a large proportion of the rising generation is receiving its training. Much has been said and written in recent years on the subject of communal tension, but it is peculiar that the problem of communal schools has not been subjected to a closer scrutiny. Conditions in the Punjab being what they are, it is at least open to question, whether it is advisable for boys to be trained in a narrowly

communal environment from the cradle to early manhood."

The Government of Travancore apparently believes in making its reports available in England before the

Indian public get a chance of knowing about them. It is otherwise difficult to account for the fact that the *Educational Supplement* to the *London Times* received recently contains a review of the report while we have not seen it discussed in India. It cannot be said that the recommendations are particularly original or even very helpful, but attention may be drawn to them as the problem is so acute all over India and any guidance is welcome. The Committee observes: "While the teacher attempts to develop grit, self-respect and a sense of responsibility in his pupils, traditional ideas of caste obligations and institutions, such as the joint family, encourage parasitism and unashamed dependence on relatives or friends. Those who denounce the Western system of education in unmeasured language ought also to remember that the defects which they notice are not inherent in the system and are by no means conspicuous in the West." Relying therefore on a change in social outlook rather than on any thing else, the Committee has not any definite recommendations of great value to make and is content with an appeal to the educated middle classes "to assist the overthrow of the caste system which is bound to die however slowly and to accelerate the pace of modern Latin." Among

specific recommendations, however, is the suggestion that Government should consider the feasibility of an organized scheme of emigration to the highland regions of the State, and explore the facilities for emigration outside the State. Another suggestion is that Government should consider the advisability of providing scope for the service of educated Hindu young men of high intellect and character in the temples and other religious institutions. The temple endowments of Travancore are very wealthy and we wonder if the Government cannot consider some scheme for the spiritual ministration of the Hindus through these institutions which are the centres of their religious life. The selection of suitable Hindu youths who may preach the lessons of Hinduism in the temples may provide for an ecclesiastical service capable of absorbing several educated young men. We should like to note what action the Travancore Durbar will take on the report.

The Modern Review has drawn attention to an interesting fact in the latest report of the University of Rangoon (1927-1928). The percentage of successful students was much larger among girls than among men at almost all the University examinations. On an examination of the report itself, we find the following percentages of passes for men and women:—

Examination	Men	Women
B.A. (Hons.)	87.5%	100 %
B. Sc. (Hons.)	100 %	100 %
B.A. (Pass)	65.5%	75 %
B. Sc. (Pass)	38.3%	33.3%
Intermediate	38 %	48.1%
Teaching	53.3%	75 %

While we should deprecate any attempt at claims of the superiority of men to women in intellectual power, we should; at the same time, point out that it would be extremely incorrect to infer from these figures that women are superior to men.

It is well-known that in the present social conditions of India and even Burma, it is only those girls who are very keen on collegiate education that go to the Universities and they are bound to do better than the men. Another serious handicap for the men is the large number of distractions they usually have from studies which may be necessary for general education, but have a tendency to interfere with the highest success in examinations. Girls have less distractions and have more opportunities for concentrating on work for examinations!

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OPINION.

The South Indian Teacher: Oct. 1928:—We have great pleasure in reviewing this very useful book on High School Geometry, printed and neatly got-up by the well-known Publishers, Messrs. Srinivasa Varadachari & Co. The price of Rs. 1-4-0 is within the easy reach of every High School boy, and the get-up being particularly good, makes the book really cheap.

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Price—Rs. 2.**OPINIONS****The Madras Mail, Friday, October 31, 1924:**

Books which deal with the problems of educational psychology from the Indian point of view are too few and we, therefore, welcome most cordially one which makes such a study and makes it well. Miss Gordon's contribution to this field is one which ought to be read carefully and digested thoroughly by all those who have to do with the education of children, whether teachers or parents.

The value of Child Study is first twofold, from the point of view of theoretical psychology, and second of education. Education along with psychology has much to learn from the science of biology which suggests to both of these sciences the unit for study, viz., a reaction which is a response to a stimulus. The mental life ought to be viewed as is the physical from this point of view. Further, biological science is showing the usefulness both as to method and content of the observation of development. The study of child-nature is in accord with the genetic method which characterises all the biological sciences. Educationally we have more to do with children than with adults in our schools and so from the practical point of view also the more that we can learn about the natures of educands the better for our work. Miss Gordon's book is thus a real contribution to our literature, for it considers these questions with special reference to conditions in South India.

One of the most important of modern developments in this science is that made through the observation of individual differences. Although education is a social process and children are social in nature, yet we cannot deal with them too much in groups without doing great injustice to matters in which they are unlike. Studies made in Europe and America have their value for Indian teachers, but observations made in India, as Miss Gordon's have been, are of great value in enabling us to ascertain the similarities and differences with children of other countries, and the differences among groups and individuals here. Miss Gordon has not only given the result of her own observations but—what is even more important—she has shown teachers and others how they may observe for themselves.

The book surveys the more important problems connected with the study of child-nature. It deals with the stage of child development, with the processes of sense-perception, with play, hand-work, and fatigue, with exceptional children, both sub-normal and supra-normal, with measurements of intelligence, and with the application of the Kindergarten system to the Indian system. It is one of the books which the Academic Council on the recommendation of the Board of Studies in Teaching has declared as suitable for candidates for the L. T. degree. We hope that it may have a wide circulation as its influence is sure to be for good.

Education (Allahabad), March 1925.

The distinguished author of the book under review is one of the few enthusiasts in India who have taken to a systematic study of child-nature. The book embodies the results of close study by the author, not merely of the existing literature on the subject, but of the actual, mental and physical growths of children, as witnessed by her in several schools in Britain and India where she has had the opportunity to work. Within a brief space of 200 pages, the author has contrived, in her plain, matter of fact, and at the same time, engaging style, to elucidate the various topics connected with child life such as the sense perception, play, the service of Hand in Mental Development, fatigue, exceptional children, measurement of Intelligence and the Kindergarten system; touching the various theories on these topics and supplementing them by her own views based on personal study and investigation. We would especially commend to our readers the beautiful and inspiring chapter on the Kindergarten system in which without going into technical detail, the author has surveyed the basic principles of the system and pleaded in accordance with these principles for the indianisation of Indian education. We are sure that this

little book will prove an excellent handbook for teachers as well as parents and others interested in the subject and kindle in them a deeper interest therein. It has been already recommended by the Academic Council of the Madras University as a suitable text-book for the students appearing for the L. T. Examination and we hope that other Universities will soon follow suit. We congratulate both the author and the publishers on this valuable publication and recommend every teacher to secure a copy thereof.

The Madras Christian College Magazine, January 1925.

The study of child-nature is exceedingly important for both of the sciences of Psychology and Education. Its importance for Psychology is from the genetic point of view. In the child one is able to observe in simpler forms many of the processes at work which in adult experience become so complex as to make them difficult of analysis. Its importance for Education is too obvious to need extended notice, and yet there are some who are so short-sighted as to neglect it. Here in South India there are a great number of schools in charge of teachers who do not know the elementary facts about child-nature. But with the progress of education the time will surely come when it will be considered as dangerous to employ a teacher who is ignorant of child-nature as it is to employ a man for a physician who knows nothing of anatomy and physiology. Such a book as that which Miss Gordon has written will serve a useful purpose in hastening that day by putting teachers in possession of a primer which contains the fundamentals of the subject in a readable style. It is the type of book which we would like to see translated into our South Indian vernaculars, because it not only includes the principles of the science, but states them with special reference to the needs of Indian teachers.

A personality is the outcome of forces which are both hereditary and environmental so that child study must take account of both sets of factors. Much more is to be gained by teachers through the study of children for themselves than the mere perusal of books on the subject, however authoritative they may be. The trouble with so many students of other things as well as of child-nature is the evident desire to be spoon-fed. They desire to get their information at second-hand rather than take the trouble to study for themselves. In many instances teachers have not the technique necessary to observe intelligently. Very valuable, then, is Miss Gordon's chapter on 'How to Study a Child,' particularly for those who are beginners in child study, and it is a matter of vital concern as much for the parent as for the teacher.

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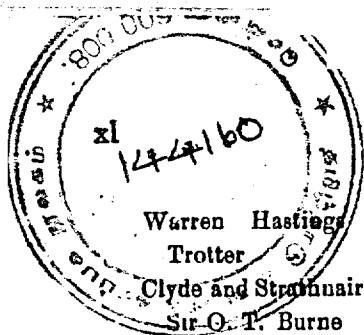
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Approved as a Text-Book suitable for School use,
vide Fort St. George Gazette, Part I-B, p. 545, dated 1.11.27.

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ఆరంభ గణితము

being the TELUGU EDITION OF ELEMENTARY MATHEMATICS, Part I, adapted and translated by
A. Jayaram Rao, B.A., L.T., and S. Krishna Rao, B.A., L.T., Board High School, Kavali.

Part I for Form I. Price As. 12.

Part II for Form II. Price As. 10.

Part III for Form III. In the Press..

Contents same as in the Tamil Edition.

SRINIVASA VARADACHARI & CO., 4, MOUNT ROAD, MADRAS.

Printed and published by Srinivasa Varadachari & Co., No. 4, Mount Road, Madras—22.11.1928.