

Journal of the
Nathan Geographical Association
- VI. no. 3. - ~~October 1926~~
January 1927



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THE : : :
MADRAS : : :
GEOGRAPHICAL : : :
ASSOCIATION : : :



VOL 1. ISSUE NO. 3.

PUBLISHED BY
THE M. G. ASSOCIATION,
Y. M. C. A.
VEPERY, : : : MADRAS.
Price Rs. 2/-

THE MADRAS GEOGRAPHICAL ASSOCIATION

RULES.

1. The name of the Association shall be 'The Madras Geographical Association.'

Objects.

2. The objects of the Association shall be :—

- (A) To promote geographical knowledge ;
- (B) To secure for geography its proper place in the High School, the University and its constituent and affiliated colleges ;
- (C) To help to improve the methods of teaching geography ;
- (D) To work for a school of geography being started ;
- (E) To promote studies about South India from various standpoints.

3. These objects shall be secured by :—

- (A) Holding meetings and conferences, and publishing periodicals and occasional bulletins ;
- (B) Organizing geographical exhibitions and excursions ;
- (C) Helping in the preparation of geography books in the languages current in the Presidency ;
- (D) Forming a central library of geographical literature, and collecting maps, charts, plans, models, slides and instruments ;
- (E) Providing for circulation to members, of books, periodicals, and other collections ;
- (F) And by such other ways as are deemed necessary to effectuate the objects of the Association.

Membership.

4. The membership of the Association shall be open to all those who are interested in the promotion of geographical knowledge or in the teaching of geography.

5. There shall be two classes of members, honorary and ordinary.

6. Honorary members are those who shall be so elected by the council by the majority thereof present at its meeting. They shall be exempt from liability to pay subscription, and shall have all the privileges of ordinary members, except voting.

Continued on Page 3 of the Wrapper.



The Madras Geographical Association

THE FIRST ANNUAL REPORT

THE MADRAS GEOGRAPHICAL ASSOCIATION.

THE FIRST ANNUAL REPORT.

The Council has the honour to present its Report for the year 1926.

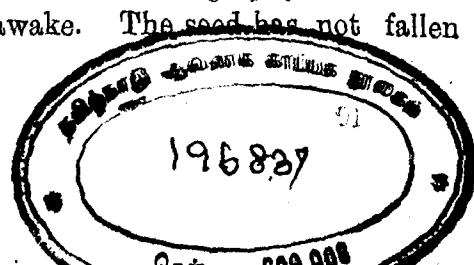
In India, infant mortality is appallingly high for men and institutions; and it is a matter for congratulation that this Association has lived an active first year and has entered on its second year. The Association is now lustily crying for more members and more funds.

The members are 155 strong, of whom one is an honorary member. The subscription from members is Rs. 308, of which Rs. 225 or 73 per cent. has been collected and received. This, again, is a matter for congratulation.

The Council has prepared a full and informing Memorandum on the place of Modern Geography and has sown it broadcast. It has drawn the attention of the Academic Council of the Madras University to the need as well as the importance of a School of Modern Geography. But, then, there are wheels within wheels in the university and it may take a long time before any progressive activity in this direction can be registered by that august body.

The Association will be glad to find that it has been instrumental in quickening geographical thought in Madras and Moffusil. The schools are all astir. The Colleges do not look on Geography with contempt. The University, too, has not gone backwards. A negative result, but still a considerable achievement. Several earnest members of it have realised the necessity of Modern Geography in Modern Education and are wide awake. The seed has not fallen altogether on a rocky soil.

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In the short term, the Inaugural Address was delivered by Dr. J. H. Cousins under the presidency of Sir C. P. Ramaswami Aiyar.

Four meetings were held in the long term. Miss. E. D. Birdseye led the way with her paper on "The Geography of the Madras Region." Mr. H. Narayana Rao came up with the next paper on "The Geographical Evolution of the Madras Region". Mr. M. S. Sabhesan followed with his paper on "The Plants of the Madras Region." In November, the Association had the honour of inviting the Marquess of Linlithgow and the Members of the Royal Commission on Agriculture to the Lantern Lecture on "The Planter's Crops" by Mr. R. D. Anstead.

The Council issued an appeal for a Magazine, and the response has enabled it to start a journal. Two numbers have been issued. The subscription of Rs. 2 for ordinary membership covers but the bare expenses of the Association, and no member is compelled to take the Magazine. The Magazine rests on the basis of voluntary subscriptions.

The financial bye-laws, framed by the Working Council have been published in the first Bulletin in which were included the Inaugural Address of Dr. Cousins and the Memorandum on a School of Geography in the Madras University.

Appendix A is the balance sheet, and Appendix B is the list of members.

In fine, the Council hopes that more funds and more members will be forthcoming and enable the Association to show in the second year more activity and more work.

(By Order)

Y. M. G. A., VEPERY, }

14th January, 1927. }

N. SUBRAHMANYAM,

Secretary.

APPEN
THE MADRAS GEOGRAPHICAL ASSO
Statement of Cash receipts and expenditure for March, July &

RECEIPT.

	Rs.	A.	P.	Rs.	A.	P.
By collections from ordinary subscription						
members ...	225	0	0			
„ in advance for 1927 „ ...	8	0	0			
„ from Magazine „ ...	76	0	0			
„ Special Donation ...	18	0	0			
„ General Donation	6	0	0			
„ Temporary Loan and ad- vance ...	138	0	0			
„ for V. P. P. Charge ...	0	3	0			
„ Bank Interest ...	0	2	4			
				466	5	4
				466	5	4

Income and Expenditure for 14

EXPENDITURE.

	Rs.	A.	P.	Rs.	A.	P.
To Postage ...	95	8	6			
„ Printing Charges ...	136	7	6			
„ Stationery ...	48	12	0			
„ Miscellaneous ...	15	14	6			
„ Electric power and 5 lights for meet- ing, Museum Theatre ...	10	4	0			
„ Bank Commission for cashing Cheque	0	4	0			
Block for Magazine ...	12	10	6			
				319	8	0
„ Balance being excess income over expenditure for 14 months ending 31st December 1926.						
„ Carried to Balance sheet ...				480	18	4
				750	5	4

DIX A.
CIATION, Y. M. C. A., VEPERY, MADRAS.
September 1925 & from February to December 1926.

EXPENDITURE

	Rs.	A.	P.	Rs.	A.	P.
To Temporary Loan and advance return.	5	0	0			
„ R. V. Gopalasawmy Naidu advance for Printing Magazine ...	100	0	0			
„ Postage ...	95	3	6			
„ Printing Charges ...	136	7	6			
„ Stationery ...	48	12	0			
„ Miscellaneous ...	15	14	6			
„ Electric power and 5 lights for meet- ing, Museum Theatre ...	10	4	0			
„ Bank Commission ...	0	4	0			
„ Block for Magazine ...	12	10	6	424	8	0
Stamp account— On hand ...	5	8	0	5	8	0
Cash account— On hand with Treasurer ...	6	3	0			
Imprest a/c „ ...	12	4	0			
Indian Bank Fixed Deposit ...	5	0	1			
Indian Bank Madras ...	12	14	3			
				36	5	4
				Rs.	466	5 4

months ending 31st December 1926:

	Income.
By ordinary subscriptions ...	308 0 0
„ Magazine Subscription ...	412 0 0
„ Special Donation ...	24 0 0
„ General Donation ...	6 0 0
„ V. P. Charges ...	0 3 0
„ Bank interest ...	0 2 4
	750 5 4
	Rs. 750 5 4

BALANCE SHEET FOR 14 MONTHS

LIABILITIES.

Creditors.

	RS. A. P.	RS. A. P.	RS. A. P.
Ordinary subscription pre-paid in advance for 1927 ...			8 0 0

Temporary Loan and Advance.

Mr N. Subrahmanyam ...		100 0 0	
„ M. Subramaniam ...	35 0 0		
Less amount paid ...	5 0 0		
		30 0 0	
„ D. W. Wolfinden ...		3 0 0	
			133 0 0

The Madras Geographical Association Fund accumulated assets.

Surplus income for 14 months ended 31st December 1926 as per Income and Expenditure accounts ...			430 13 4
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Rs. 571 13 4

I have examined the accounts of the Madras Geographical Association for the year ended 31st December 1926, of which the above is an extract, and compared them with the vouchers and instructions thereof, and I find the whole to be correctly stated and sufficiently vouched and instructed.

Purasawalkam, Madras. }
14 January, 1927.

M. P. Venugopaul Naidu,
Public Accountant and Auditor.

AS AT 31st DECEMBER 1926.

ASSETS.

RS. A. P. RS. A. P. RS. A. P.

Outstanding Subscription.

Ordinary Subscription due			
from members ...	308 0 0		
Less collected ...	225 0 0		
		83 0 0	
Magazine subscription due			
from members ...	412 0 0		
Less collected ...	76 0 0		
		336 0 0	
Special donation ...	24 0 0		
Less collected ...	13 0 0		
		11 0 0	
			430 0 0

Fixed Deposit account.

Indian Bank of Madras ...			5 0 1
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Advance account.

R. V. Gopalasamy Naidu for printing charges ...			100 0 0
Stamp account on hand ...			5 8 0

Cash account.

On hand with Treasurer ...		6 3 0	
Imprest account on hand ...		12 4 0	
The Indian Bank Madras ...		12 14 3	31 5 3

Rs. 571 13 4

APPENDIX B.

Aaron, Mr. Appadurai, B.A., L.T., Secretary, Y. M. C. A., Nilgiris.
(Member, Working Council).

Abdul Khyoom, Mr. Syed, B.A., L.T., Headmaster,
Government Muhammadan High School, Guntur.

Abraham, Mr. K. M., M.A., B.D., under training,
Teachers' College, Saidapet.

Aiman, Mr. G. E., B.A., Teacher, Mission Street, Mangalore.

Alemander, Mr. M., B.A., under training, Teachers' College, Saidapet.

Ameeruddin, Mr. Syed, B.A., L.T., Headmaster,
Municipal Muhammadan Secondary School, Nandyal.

Ananthanarayanan, Mr. R., B.A., Teacher, Municipal High School,
Palni.

Anatanarayanan, Mr. T. S., B.A., L.T., History Assistant,
Board High School, Lalgudy.

Anstead, Mr. R. D., M.A., C.I.E., Director of Agriculture, Madras.

Appadorai, Mr. A., M.A., Teacher, The Ramkrishna Students' Home,
Mylapore, Madras.

Baker, Miss F. A., Principal, Ewart School, Vepery, Madras.

Barrie, Miss M. W., M.A., Lecturer, Lady Willingdon
Training College, Triplicane, Madras.

Birdseye, Miss E. D., B. Sc., Dip. Geo., Lecturer in Geography, St.
Christopher's Training College, Nungambakkam, (Vice-President).

Champion, Mr. H., M.A., Principal, Teachers' College, Saidapet.

Chenchusubbiah, Mr. G., Headmaster, A. B. M. Middle School,
Kanigiri.

Cousins, Dr. J. H., M.A., D. Litt., Principal,
Brahma Vidya Ashramam, Adyar, Madras.

Dann, Mr. R., Director of Town-Planning, Madras.

Dann, Mrs. R., Victoria Crescent, Egmore, Madras.

Darling, Miss P. S., Missionary, Mylapore, Madras.

David, Mr. A. K., B.A., under training, Teachers' College, Saidapet.

Davud, Mr. P. S., The Home Industrial Research Bureau, Mylapore,
Madras.

Devadasan, Mr. A., Headmistress, Wesleyan Mission Hindu
Girls' School, Pudupakkam, Madras.

Dinker, Miss F., B.A., Headmistress, Government Middle School
for Girls, Kurnool.

Duraiswami Aiyangar, Mr. C. N., B.A., Teacher, Salem.

Duraiswami Ayyar, Mr. T. K., M.A., L.T., University Professor of
Indian Economics, Madras.

Duraiswami, Mr. W., Manager, Messrs. Longmans, Green and Co.

Ebenezer, Mr. P. S., B.A., under training, Teachers' College, Saidapet.

Ekambaram, Mr. C. S., B.A., B.L., Advocate, Rangoon.

Ekambaram, Dr. T., M.A., L.T., Ph. D., Lecturer in Natural Science,
Teachers' College, Saidapet.

Ekambara Mudaliar, Mr. C. N., M.A., L.T., Lecturer in History,
Teachers' College, Madras.

Fyson, Mr. P. F., M.A., Principal, The Presidency College, Madras.

Ganesier, Mr. K., B.A., under training, Teachers' College,
Saidapet.

Gerrard, Miss J. M., M.A., Principal, Lady Willingdon
Training College, Madras.

Gnanachariam, Mr. S., B.A., L.T., Teacher, Christian College
High School, Madras.

Gopalakrishna Rao, Mr. N., B.A., L.T., Assistant Master,
Board High School, Puttur, South Canara.

Gopalaswami Naidu, Mr. R. V., Artist, Purasawakkam, Madras.

Gordon, Miss C., B. Ed., Lecturer in Kindergarten,
Teachers' College, Saidapet.

Green, Mr. E. W., Principal, Government Muhammadan College,
Madras.

Heiberg, Rev. K., B.A., B.D., Danish Mission, Madras.

Howard, Miss R. E., Principal, Sarah Tucker College, Palamcottah.

Jayaram Rao, Mr. A., B.A., L.T., Headmaster, Board High School,
Kavali.

Jogayya, Mr. K., Representative, Messrs. R. Venkateshwar and Co.

Kachapeswara Aiyar, Mr. V., B.A., B.L., High Court Vakil, Madras.

Kalyanaraman, Mr. V., B.A., L.T., Assistant,
Government Institute of Commerce, Madras.

Karunakara Nair, Mr. K., B.A., L.T., Teacher, Chittur High School,
Cochin State.

Kasiketharam, Mr. R., B.A., under training,
Teachers' College, Saidapet.

Krishna Rao Bhonsle, M. R. Ry. Rao Saheb R.,
Secretary to the Commissioner for Government Examinations,
Madras

Krishnan, Mr. S. V., B.A., L.T., Teacher,
The Ganapat High School, Chalapuram, Calicut.

Krishnaswami Sastri, Mr. C., B.A., B.L., 1st Grade Pleader, Arni.

Krishna Ayyar, Mr. K. V., M.A., L.T., Lecturer in History, Zamorin's
College, Calicut.

Krishna Rao, Mr. V. N., M.A., B.L., High Court Vakil, Chittoor.

Krishna Rao, Mr. B. V., B.A., B.L., Pleader, Rajahmundry.

Krishnaswami, Aiyar, Mr. K., M.A., B.L., Chief Interpreter,
High Court, Madras.

Krishnaswami, Mr. S. S., B.A., under training,
Teachers' College, Saidapet.

Krishnamachari, Mr. N., B.A., Teacher, T. T. V. High School,
Madras.

Kunhi Kannan Nambiyar, Mr. P., B.A., Teacher, Thottada,
Kadachira, North Malabar.

Kunhiraman, Mrs. Savithri, B.A., L.T., Assistant,
Lady Willingdon Training College, Madras.

Lakshmana Iyer, Mr. S., B.A., L.T., Emeritus Lecturer in Geography,
Teachers' College, Saidapet (Vice-President).

Lakshminarayanan, Mr. C., M.A., Senior Lecturer in Zoology,
Christian College, Madras.

Lowe, Miss I. H., M. Sc., F.G.S., F.R.G.S.,
Deputy Directress of Public Instruction, Madras.

Mahadeva Sastri, Mr. V. K., B.A., B.L., High Court Vakil, Madras.

Mahadevayya, Mr. G., B.A., L.T., Assistant Master,
H. T. High School, Madras.

Manuel, Mr. D., B.A., L.T., Teacher, Lutheran Mission, Ponnagaram,
Madura.

Michael, Mr. D., B.A., L.T., Assistant Master, Mission High School,
Tiruvallore.

Muthukrishnan, Mr. S., M.A., L.T., Headmaster,
Secondary Training Section, Teachers' College, Saidapet.

Muthuswami, Mr. T. N., M.A., L.T., Assistant Instructor in Science,
College of Engineering, Guindy.

Narayanan, Mr. T. S., B.A. (Hons.), under training,
Teachers' College, Saidapet.

Narayana Aiyar, Mr. V. R., B.A., Teacher, Christian College,
High School, Madras.

Narayana Iyer, Mr. C. V., M.A., L.T., Assistant Professor of History,
The Presidency College, Madras.

Narayana Rao, Mr. V. N., B.A., Pleader, Vellore.

Narayana Rao, M. R. Ry. Rao Bahadur H., M.A.,
Emeritus Professor of Geology, Presidency College, Madras,
(President.)

Narayanaswami Aiyar, Mr. B., B.A., L.T., Senior Science Assistant,
Town High School, Kumbakonam.

Narasimha Aiyangar, Mr. N. S., M.A., B.L., Research Scholar,
University of Madras.

Narasinga Rao, Mr. T. V., M.A., L.T., Assistant Professor in Botany,
The Presidency College, Madras.

Narasinga Rao, Mr. K., B.A., L.T., Kanarese Pandit,
Christian College High School, Madras.

Natarajan, Mr. S., B.A., L.T., Science Assistant,
St. Gabriel's High School, Madras.

Natesa Iyer, Mr. P., B.A., Assistant Engineer, Hydro-electric Surveys,
Madras.

Palit, Babu Indra Mohan, B.A., Deputy Inspector of Schools, Jeypore.

Palocaren, Rev. J., M.A., Principal, St. Thomas College, Trichur.

Parameswaran, Mr. T. M., B.A., under training,
Teachers' College, Saidapet.

Raghavacharya, Mr. K. K., B.A., Government Secretariat, Madras.

Raghava Iyer, Mr. A., B.A., Pleader, Vellore.

Rahmathullah, Mr. Shaikh Muhammad, B.A., L.T., Headmaster,
Government Muhammadan Training School, Guntur.

Rajagopalachari, Mr. S., B.A., Retired Schoolmaster, Madras.

Rajagopalachari, Mr. P., B.A., B.L., District Munsiff, Gudur.

Rajaratnam, Mr. S., B.A., L.T., Assistant Master, London Mission
High School, Coimbatore.

Ramachandra Rao, Mr. B., M.A., L.T., Headmaster, Town High School,
Guntur.

Ramakrishnan, Mr. K.C., M.A., University Lecturer in Economics,
Madras.

Ramachandra Sastri, Mr. T.A., B.A., Superintendent, Statistical
Section, Office of Director of Agriculture, Madras.

Ramamurthi, Dr. C., B.A., M.B. B.S., B.Sc., Professor of Hygiene and
Bacteriology, Medical College, Vizagapatam.

Ramanatha Rao, Mr. A., B.A., under training, Teachers' College, Saidapet.

Ramanatha Rao, Mr. V.N., B.A., B.L., District Munsiff,
Ramachandrapur.

Ramani, Mr. N., M.A., L.T., Assistant Professor, The Presidency
College, Madras.

Ramanujachari, Mr. K. N. B.A., B.T., Headmaster,
Government Nampally High School, Hyderabad (Deccan).

Ramaswami Aiyar, The Hon'ble Sir C.P., B.A., B.L., KT., C.I.E.,
Member, Executive Council, Madras ;
The Grove, Teynampet, Madras (*Vice-Patron*).

Ramaswami Ayyangar, Mr. N., B.A., L.T., Assistant Master,
T. T. V. High School, Madras.

Ramaswami Iyer, Mr. T. S., Dubash, Messrs. Best & Co., Madras.

Ramaswami, Mr. K., B.A., L.T., Teppakulam, Trichinopoly.

Ramaswami Sastri, Mr. K. S., B.A., B.L., Subordinate Judge, Tanjore.

Rangacharry, M. R. Ry. Dewan Bahadur K.,
Retired Professor of Botany, Agricultural College, Coimbatore.

Rangacharya, Mr. V., M.A., L.T., Chief Lecturer in History,
Government College, Kumbakonam.

Rangaswami Ayyangar, Mr. K., B.A., L.T., Lecturer in Geography,
St. Joseph's College, Trichinopoly.

Rangaswami Ayyangar, Mr. C. S., B.A., L.T., Headmaster,
Municipal High School, Villupuram.

Sabhesan, Mr. M. S., B.A., Lecturer in Botany, Christian College,
Madras, (Member, Working Council).

Sanjiva Rao, Mr. B., B.A., L.T., Teacher, Vepery, Madras.

Sathasiva Ayyar, Mr. T. S. B.A., L.T., Headmaster,
Tirthapathi High School, Ambasamudram.

Satyanarayana, Mr. K., Geography Teacher,
Rajah's College High School, Parlakimidi.

Savariroyan, Mr. W., B.A., under training, Teachers' College, Saidapet.

Schwartz, Mr. A. N., B.A., L.T., Assistant Master,
St. Paul's High School, Madras.

Seshagiri Rao, Mr. R., Chief Educational Representative,
Messrs. Macmillan & Co., Madras.

Sitarama Iyer, Mr. P.R. B.A., 1st Grade Pleader and President,
District Educational Council, North Arcot, Vellore.

Singh, Mr. Y. S., M.A., L.T., Assistant Professor of Geology,
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Smailes, Rev. R., M.A., Principal, Findlay College, Mannargudi.

Sourirajan, Mr. V. K., M.A., L.T., Assistant Master, Hindu High School,
Triplicane, Madras.

Srinivasachari, Mr. C. S., M.A., Professor of History,
Pachaiyappa's College, Madras.

Statham, Mr. R. M., M.A., Deputy Director of Public Instruction,
Madras.

Subba Rao, Mr. N., Assistant Master, Municipal High School,
Walajapet.

Subba Rao, Mr. R., M.A., L.T., Lecturer in History,
Government Arts College, Rajahmundry.

Subba Rao, Mr. G. V., M.A., Principal, Theosophical College, Adyar.

Subrahmanya Ayyar, Mr. K., Assistant Engineer,
Department of Public Works, Nellore.

Subramania Ayyar, Mr. T. S., M.A., L.T., Principal,
Government Training College, Rajahmundry.

Subrahmanya Iyah, Mr. P., B.A., L.T., Lecturer in English,
Pachaiyappab's College, Madras.

Subrahmanya Ayyar, Mr. S. A., B.A., L.T., Assistant Master,
St. Joseph's College High School, Trichinopoly.

Subramaniam, Mr. M., B.A., B.L., High Court Vakil, Madras,
(Member, Working Council).

Subrahmanyam, Mr. N., M.A., L.T., Lecturer in Geography,
Teachers' College, Saidapet (Secretary).

Sundaram Ayyar, Mr. T.S., B.A., Geography Assistant, Tirthapathi
High School, Ambasamudram.

Sundararaja Rao, Mr. T.K., B.A., L.T., Teacher, The Kellett High
School, Triplicane, Madras.

Sundararama Aiyar, Mr. M., Assistant Master, Sri Mahant Devasthanam
High School, Vellore.

Sundaresan, Mr. A.V., B.A., under training, Teachers' College, Saidapet.

Sundaresan, Mr. L.R., M.A., L.T., Geography Assistant, Model School,
Teachers' College, Saidapet.

Suryanarayana, Mr. K., B.A., L.T., Assistant Professor of Chemistry
Pachaiyappah's College, Madras.

Swamikannu, Miss. M.M., B.A., Inspectress of Municipal Girls' Schools,
Madras.

Swaminatha Ayyar, Mr. A., B.A., Retired Deputy Collector, Madras.

Thambusawmi, Mr. D., B.A., L.T., Assistant Master, Kellett High
School, Triplicane, Madras.

Tucker, Mr. D.G., B.A., under training, Teachers' College, Saidapet.

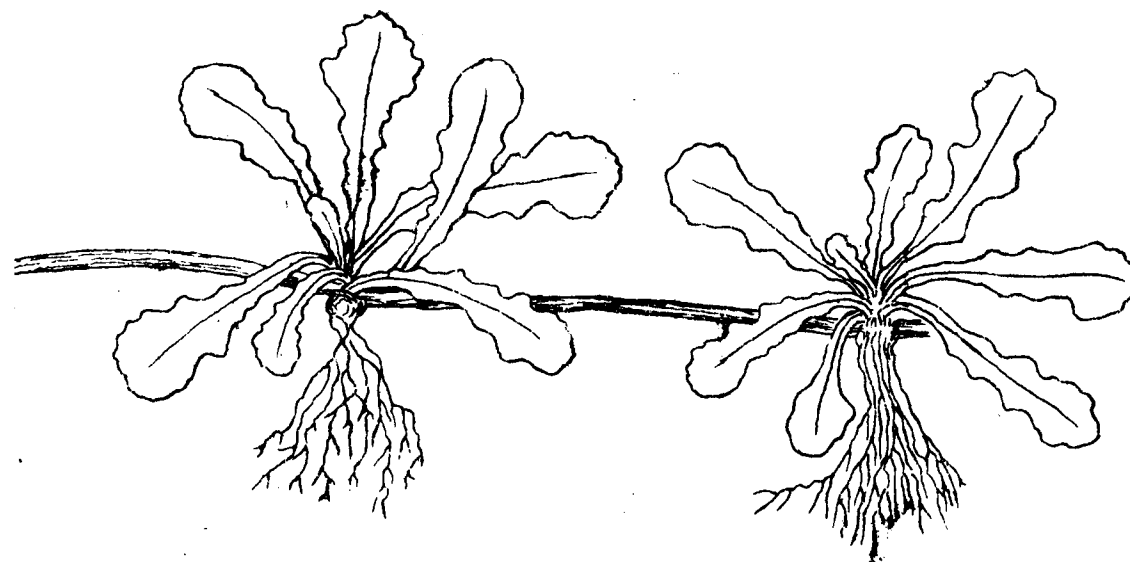
Tyagarajan, Mr. A.V., M.A., L.T., Headmaster, Government Training
School, Erode.

Usman, Mr. Syed, B.A., Physics Assistant, Government Muhammadan
High School, Guntur.

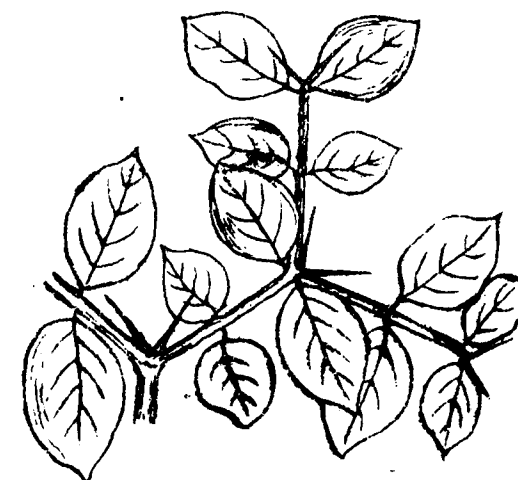
- Varadacharry, Mr. R., B.A., L.T., Assistant, St. Gabriel's High School,
Madras.
- Vasudeva Poduval, Mr. R., B.A., Professor of English,
National Theosophical College, Adyar.
- Vellodi, Mr. M. V., B.A.,
Personal Assistant to the Director of Agriculture, Madras.
- Venkatarama Iyer, Mr. N., B.A., under training,
Teacher's College, Saidapet.
- Venkatarama Sastri, Mr. V., B.A., L.T., Assistant Master,
Board High School, Kovur.
- Venkatarama Ayyar, Mr. A. V., M.A., L.T.,
Additional Professor of Economics, The Presidency College,
Madras.
- Venkatraman, Mr. T. S., M.A., Lecturer in Mathematics,
Union Christian College, Alwaye.
- Venkatachalam Chetty, Mr. Sami, M.L.C., Merchant, Madras.
- Venkatarama Iyer, Mr. V., M.A., L.T., Assistant Professor of History,
The Presidency College, Madras.
- Venkata Rao, Mr. D., M.A., L.T., Lecturer in History,
Ceded Districts College, Anantapur.
- Venkatarama Iyer, Mr. K., B.A., Teacher, Board Secondary School,
Ponneri.
- Venkatadri Iyer, Mr. T. S., Teacher, Maharajah's College High School,
Ernakulam, Cochin State.
- Venkatacharya, Mr. S., M.A., L.T., Assistant Professor of History,
The Presidency College, Madras.
- Viraraghava Ayyangar, Mr. R., Deputy Inspector of Schools,
Ponneri.
- Viraswami Aiyar, Mr. A. S., B.A., B.L., District Munsiff, Nellore.
- Visvanatha Rao, Mr. V. N., M.A., B.L.,
Deputy Collector & Statistical Assistant to the Director of Agriculture,
Madras.
- Vittal Prabhu, Mr. V., B.A., L.T., Junior Geography Assistant,
Ganpat High School, Calicut.
- Watkins**, Mr. G.D., B.Sc., F.R.G.S., F. R. Econ. S., Professor,
Christian College, Madras.
- William, Mr. G.P., B.A., L.T., Teacher, Mission High School,
Pasumalai, Madura.
- Williams, Miss. I. A., B.A., L.T., Teacher, St. Thomas Mount.
- Wolfenden**, Mr. D. W., B.A., L.T., Assistant Master,
Bishop Corrie's School, Madras, and Warden, Y. M. C. A.,
Vepery, (Treasurer).



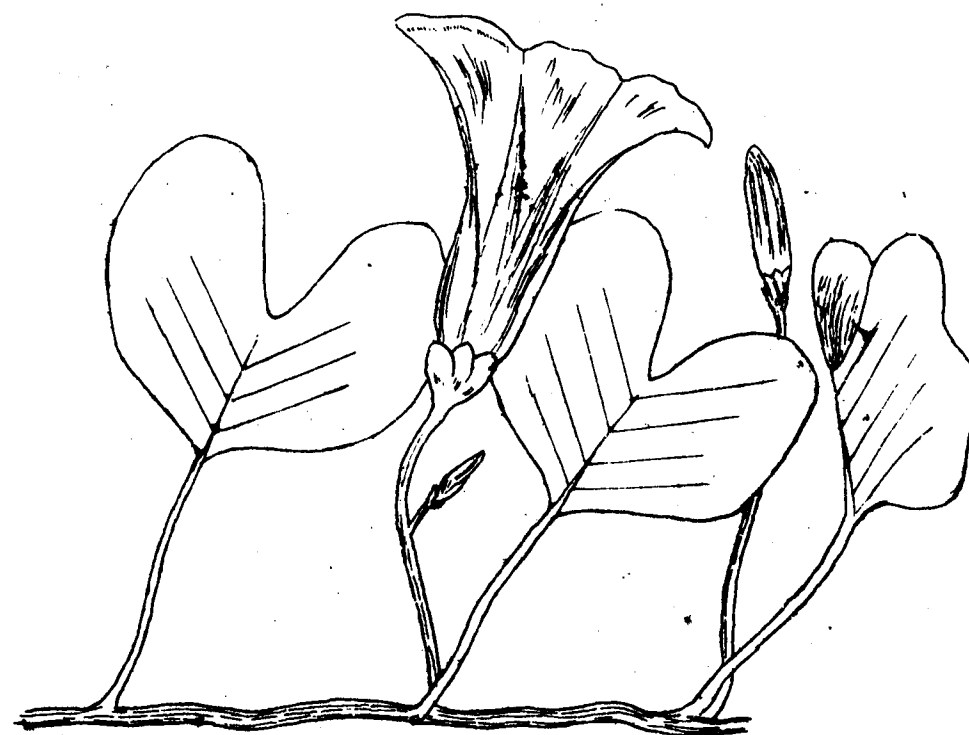
SPINIFEX
FIG. 1.



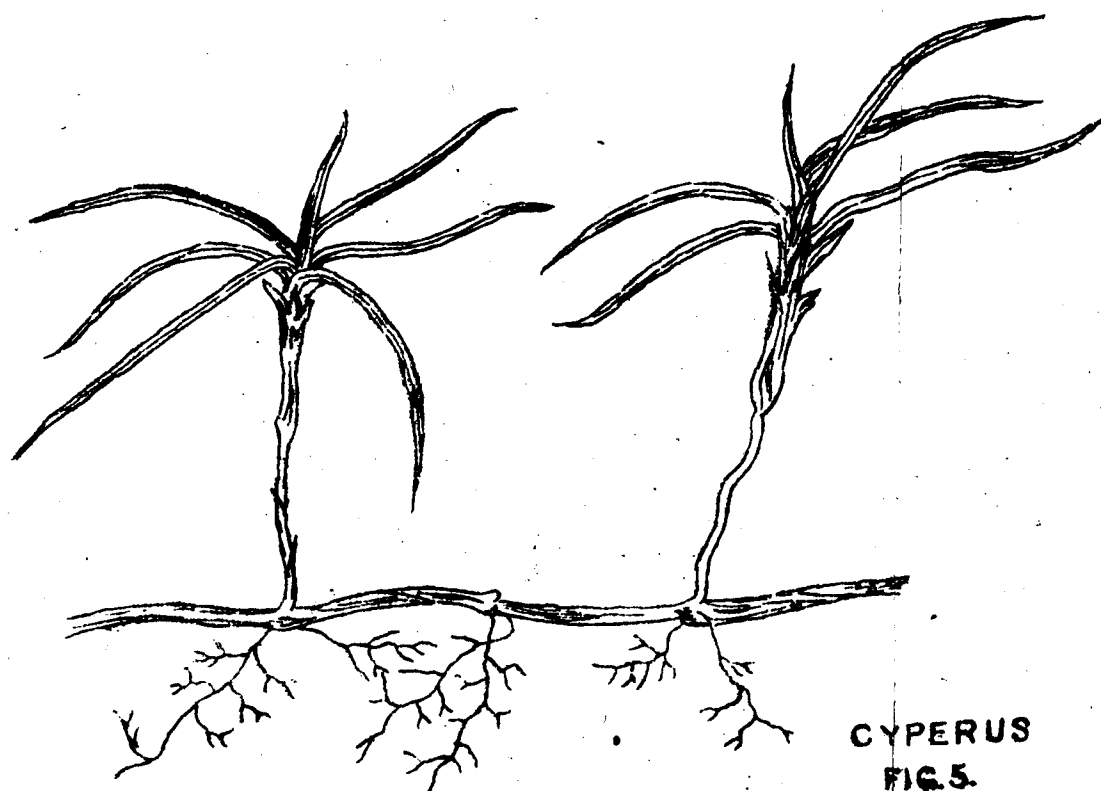
LAUNEA
FIG. 2.



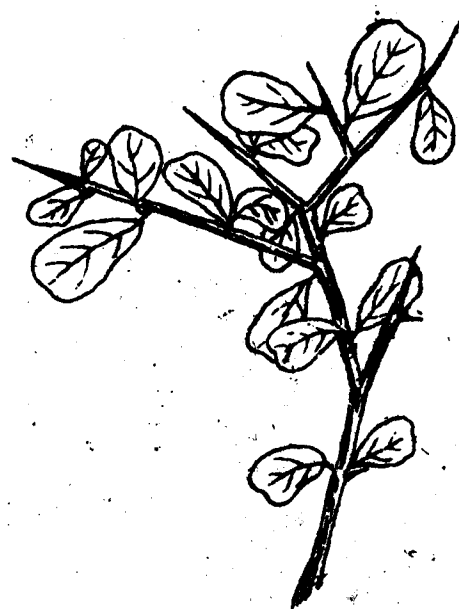
CARISSA
FIG. 3.



IPOMEABILOBA
FIG. 4.



CYPERUS
FIG. 5.



FLUEGGIA
FIG. 6.



HYDROPHYLLAX
FIG. 7.

The Flora of Madras and its Environs.

An account of the Flora of 'Madras and its Environs' is really an account of the Flora of the Coromandel, the narrow strip of low-land between the Eastern Ghats and the sea. This region, which forms a fairly fertile tract in the Presidency of Madras, is described by Mr. T. H. Holdich as follows:—"Everywhere there is the same humid and enervating atmosphere but faintly relieved by the freshness of the sea; the same narrow strip of sandy foreshore, leading up to a wide vista of green rice-crops and palm growth; the same back-ground of forest-clad hills now receding into the misty distance, now breaking the dead monotony of the surf-bound coast with bleak headlands. At intervals there occur broken edges in ancient coast-line, where large lagoons or lakes range themselves in a formation not unlike that of the backwaters of Malabar." The Coromandel gets the benefit of the North-east Monsoon and the region experiences a period of prolonged hot and dry season from February to October. Many of the herbs present a burnt-up appearance during the hot weather. The hills of this area are rather low like the Pallavaram and Vandaloor hills; but the Kambakkam hills on the northern border of Chingleput and the Nagari hills rise to over 2000 feet.

The soil in this area is somewhat varied. A large part of the area is alluvial; but, here and there it is gravelly, as in Avadi, Guindy, Thambaram, etc. The beach is sandy and the banks of the Cooum and Adyar are saline and swampy.

The growth of plants is influenced to a considerable extent by external factors such as temperature, humidity, rainfall, altitude, soil etc. It is not always possible to estimate the exact degree to which the growth of a plant is influenced by each of the above-mentioned factors. Vegetation on the surface of the earth is by no means uniform, and this differentiation of vegetation is, according to Schimper, primarily controlled by three factors: 'Heat, atmospheric precipitations (including winds), and soil.' How far climate and soil can leave their impress upon vegetation has been explained by Schimper thus:—"Whilst every formation is, in its floristic and

oecological character, a product of climate and soil, yet the influence of the several climatic and edaphic factors is not equal. The influence of the soil is always subordinate to that of climatic temperature, whereas under certain conditions that are merely local, it neutralises that of the atmospheric precipitation." It is, therefore, possible to notice here and there different local formations in the midst of a more or less uniform type of vegetation. In the region under consideration, the differences in climate, humidity, temperature, and rainfall are not so well-marked as to bring about a diversity in the vegetation. Such differentiation in the vegetation as is noticed in this area is more the outcome of differences in the nature of the soil. An attempt is made in this paper to give an account of the different local types of vegetation occurring in this region and to indicate their striking features.

It is not possible to give a real insight into the differentiation of vegetation unless the importance of water in the economy of plant-life is rightly understood. Water is needed for the activities of protoplasm and it is also needed as food material. It is, moreover, indispensable as the medium through which the mineral salts can be absorbed. A view is being constantly expressed that plants are driven to the necessity of absorbing a large volume of water in order to get the necessary quantity of mineral salts. Water is also needed for the vigorous growth of plant organs and for maintaining their rigidity. A large quantity of water is sent out as vapour into the atmosphere through the millions of minute holes or "stomata," occurring on the epidermis, especially on the lower epidermis. This loss of water from the plant-body may not be a matter of any consequence in the case of plants growing on a soil with good water capacity. If the water capacity of the soil is poor, the plants growing on it can manage to thrive only if they have devices to minimise the loss of water. Differences in the water capacity may induce remarkable structural differences.

Plants are usually spoken of as Hygrophytes and Xerophytes. Hygrophytes are plants that grow in places, where plenty of water is available, and the danger of desiccation is very remote. Xerophytes are forms that happen to grow in areas where the soil is very dry, and danger from desiccation is imminent. The soil may be dry owing to the low water capacity, or it may prove to be "physiologically

dry," owing to the large percentage of common salt in the water. Plants growing in saline "physiologically dry" regions are called by the special name of "Halophytes." But the Halophytes agree with the Xerophytes in the structural peculiarities. In the case of Hygrophytes, there may be occasions when water may have to be got rid of as early as possible. The long-drawn-out tips of blades, forming the drip-tips in the leaves of tropical plants like the pipal tree and the cocoa are very useful for removing the rain water rapidly from the leaf. Xerophytes, on the other hand, show structural devices, which will, on the whole, minimise the loss of water from the body. Reduction of leaves, reduction of the transpiring surface in general, a covering of hairs, a coating of wax, the lack of inter-cellular spaces in the tissues, the presence of stomata in pits or grooves etc., are some of the chief features associated with plants growing in dry areas. In certain cases, the tissues of the leaf or the stem may be able to store a large quantity of water, so that the leaves or the stem will be succulent.

Now for the different types of vegetation that are met with in the area under consideration: the following types are common in this area:—

1. The scrub-jungle type.
2. The prostrate type on the beach.
3. The mangrove type on the banks of the Cooum and the Adyar.
4. The aquatic type in tanks and pools.
5. The hill type in Vandaloor, Pallavaram, Kambakkam and Nagari Hills.

1. *The scrub-jungle*:—The scrub-jungle is a very common feature in this area, and it is seen particularly in those parts where the soil is gravelly. The vegetation in Pallavaram and Vandaloor hills is also in the nature of the scrub-jungle, and the foot of the Kambakkam and Nagari Hills can be reached only through scrub-jungles. The scrub-jungle is generally more or less open, and plants appear scattered in small little groups. Each group has one or two woody shrubs or small trees in the centre. These shrubs present

a spread-out appearance and their branches are crooked. Close to the central shrubs and surrounding them may be seen a few herbs and smaller shrubs. Very often a few climbers spread over the shrub and display their flowers. The leaves of the shrub are usually small and thick and in many cases tomentose. A general characteristic of these shrubs is the presence of fairly stout thorns. Seldom does one find a shrub which has not got thorns, which in many cases represent branches whose growth has been arrested. The plants that form the central shrubs are *Carissa Carandas*, *Canthium Parviflorum*, *Zizyphus Xylopyrus*, *Gymnosporia Emarginata*, and *Dichrostachys Cineria*. Among the climbers that commonly occur on the shrubs should be mentioned two species of *Capparis* with recurve prickles, *Rivea* with large white flowers, three species of *Vitis* with simple or branched tendrils, *Pterolobium Indicum*, *Hergonia* with monads, and *Sarcostemma* with leafless green slender stems and white flowers in umbels. A twiner of biological interest, which is also common, is the parasitic *Cassytha*, whose yellowish string-like stem is spread over the shrub in the form of a tangle. Among the smaller spineless shrubs that are scattered throughout the scrub-jungle, I may mention *Dodonea Viscosa* with varnished leaves and winged fruits, *Cassia Auriculata* with leafy stipules, *Memecylon Edule* with nice little blue flowers and thick leaves, *Webera* with resinous secretion for the protection of the bud, and three species of *Greura*. *Euphorbia Antiquorum*, which is also seen here and there, is a big shrub with large succulent leafless angular stems, and it secretes milky juice. On the Vandaloor hills, the vegetation is dense in certain parts, which may even become impenetrable, owing to the stout thorns of *Plecosperrum* and to the numerous annoying recurved prickles of *Acacia* and *Pterolobium*. *Barleria Aristida*, *Oldenlandia Umbellata*, *Icimum*, *Andropogon Heylandia*, *Lepidagallus* etc., are some of the common herbs, scattered in those parts.

2. *The Vegetation on the Beach*:—This is monotonous and distinctly open. The forms are perennial prostrate herbs, which send long taproots into the soil and which carry numerous long-trailing shoots in a tuft. The trailing stems very often strike roots at the nodes. The leaves are invariably thick and the inter-cellular spaces are very few. In some cases, as in *Cyperus Anenarius* and *Spinifex Squarrosus*, the leaves are narrow and almost cylindrical, whereby

the transpiring surface is considerably reduced. Some of the forms like *Iponea Biloba* are found to be efficient sand—binders, since the numerous adventitious roots form a compact network through the repeated branching beneath the soil. All long the beach can be seen *Iponea Biloba*, *Hydrophyllax Maritima* with small thick leaves, *Lannea Pinnatipida* with thick leaves and long runners, *Pupalia* or *Biculata* with fruits adapted for dispersal by animals, and *Cyperus Anenarius* with long slender rhiconics. On the sand dunes at Madras and also at Ennore may be seen in a dense cluster *Spinifex Squarrosus* which shows in the stem and in the leaf a waxy coating and which possesses big fruits that hop with currents of wind. The trailing shoots of several of these plants on the beach wither during the hot weather and the stout tap-root with the reduced part of the stem at its base persists beneath the soil. New shoots develop rapidly when the season turns favourable. These shoots happen now and then to be covered with sand, but they are able to come up to the surface and spread rapidly.

3. *The Vegetation on the banks of the Cooum and the Adyar*:—This is different in composition, but shows xerophytic features. Nearer the water and washed by it is to be seen all along the bank *Avicennia Officialis* - the mangrove type. Many are the negatively geotropic roots which are seen to rise around the stem, and these project beyond the surface of water. They have openings known as lenticels, which facilitate the exchange of gases. The seeds of *Avicennia* have no seed-coat, and the germination is begun even when they are inside the fruits. A point of special interest in the seed is the presence of a dense cluster of sticky hairs around the radicle and around the plumule. Very early, numerous rudiments of adventitious roots make their appearance and it is possible for the seedling to be fixed to the substratum by means of hairs and adventitious roots. Many seedlings of *Avicennia* may be seen to be stranded on the beach after a storm. Along the banks of the Adyar river is to be seen still another plant *Exoecaria Agalloche* with thick leaves secreting latex. A little higher up along the banks is growing abundantly *Suaeda Maritima* which has short thick narrow glaucous leaves with few inter-cellular spaces. Small herbs that are also common on this side are *Heliotropium Currasavicum*, *Sisuvium Portulacastrum*, and a little sticky convolvulaceous plant *Cressa Cretica*.

4. *There are several tanks and small pools in this area:—*and these are stocked in general with the same forms. There are forms like *Nymphae* and *Nelumbium*, which strike root into the bed of the tank and send up their leaves to the surface of water. Forms like *Ceratophyllum* *Elodea* are submerged and floating and they occur in masses. Plants like *Oxelia* *Alismoides*, *Vallisneria* *Spathium* are taking root into the soil and submerged. Some forms like *Jussiae* and *Neptunia* *Oleraceae* are free and they are floating on the surface. These two latter forms show devices for floating and aeration. In *Neptunia* particularly, the outer portion of the stem is differentiated into a white spongy sheath with large air-spaces. Large air-spaces are a common feature with aquatic plants, and they help aeration. The leaves of submerged forms are somewhat narrow and long as in *Ceratophyllum*, but in special forms which are partly submerged and partly aerial like *Limnophylla* the submerged leaves are cut up into a whorl of fine long narrow segments, while the aerial leaves are simple and show a toothed blade. The male flowers of the submerged forms break away and come up to the surface, and the female flowers even in some forms other than *Vallisneria* rise to the surface by the uncoiling of the spirally coiled pedicel. The anther in certain forms as in *Elodea* is explosive. The heads of flowers of *Neptunia* are interesting since the stamens of the older flowers are transformed into attractive petaloid staminodes.

5. *The vegetation on the hills:—*This is not without special interest though the hills do not rise to great heights. The foot and the lower part of the Kambakkam and Nagari Hills form scrub-jungles wherein the same forms mentioned already are to be seen. The Nagari Hills support only scrub-jungle, and plants like *Carulluma* and *Boncerosia* with leafless green stems are seen to occur in the crevices of rocks. Bamboos are abundant in the Nagari Hills. The Kambakkam Hills are more interesting from the botanical standpoint. Even at the foot we get some forms which are more abundant than in the scrub-jungles of Vandaloer, such as two species of *Gardenia*, *Terminalia* *Pallida*, *Buchanania* *Augustifolia*. All along, *Strychnus* *Nux Vomica* is seen in plenty. *Terminalia* *Chebula* is largely grown and its fruits form along with *Nux Vomica* the chief forest produce. On the hills can be seen here and there *Helicteres* *Isova* with twisted

capsules, *Isomandra* *Villoza* specially mentioned by Mr. Fisher as occurring in Kambakkam, *Pterospermum* *Heyneanum*, *Atalants* *Monophylla* and *Allophyllus* *Serratus*. *Clyas* is found abundantly in a particular spot. The vegetation along the course of the hill-streams differs in density and luxuriant growth from that on hills. The plants seen along the course of the streams are confined to this part and cannot be seen away from the stream. All along the course *Gleichenia* a huge fern with large leaves can be seen to grow into an extensive formation. Close to this may be seen the climbing ferns *Lygodummi* and *Melastoma* with thick tomentose leaves. In the crevices of the rocks along the course of the stream may also be seen a few interesting Liverworts belonging to the group of *Jungermanniales* (*Aneura*). The body is a flat simple undifferentiated branched thallus. A few mosses are also seen along with the liverwort. In sheltered spots can be seen a fine *Lycopodium*. In the midst of the pebbles near the streams is to be seen *Drosera* with tentacles on the leaves. *Utricularia* with numerous little bladders is commonly seen everywhere along the streams on rocks. What difference the assured supply of water can bring about in vegetation is obvious from a comparison of the vegetation along the hill-streams with that on the hill.

About sixty forms seem to have been introduced into this area recently and these have succeeded in settling themselves here. Some of these like *Kigelia*, *Lantana*, and *Heliotropium* *Curassavium* seem to have been introduced long ago. *Flaneria*, a herbaceous compositae, and a *Gomphena*, looking like an ill-nourished form have been introduced recently and *omphena* is becoming wild.

M. S. SABHESAN, M.A.

The Flora of Madras and its Environs.

A meeting of the Association was held on 1—11—1926 at the Presidency College, Madras. Mr. P. F. Fyson M.A., Principal of the Presidency College took the chair. Mr. M. S. Sabhesam, M.A., Lecturer in Botany, Madras Christian College read a paper on the Flora of Madras and its Environs.

The paper was followed by a discussion. Dewan Bahadur M. R. Ry. K. Rangachari, Ethnological Assistant in the Madras

Museum, referred to the changes that had taken place in the vegetation in Madras during the last thirty years as the result of changes in climatic conditions and by the removal of forests for cultivating the land or for the erection of buildings.

Mr. R. D. Anstead, Director of Agriculture described in the course of his speech how plants adapted themselves to local conditions and how their appearances changed according to the difference in the degrees of temperature or moisture available. There were some plants which could live through a wide range of climatic conditions while some others were unable to do so. When it was known what a place was like it was possible to name certain species of plants that could be met there and when few types were given they ought to suggest also some others that might be existing side by side with them. This was a subject that the Geographical Association might inquire into and develop.

The Chairman pointed out the influence of man and the animals he bred on vegetation. He said he was struck by the difference he once noticed between the plants which grew on the area fenced in for the Wireless Station into which cattle could not go and the plants on the maidan outside. In many places slopes of hills had been denuded of their forests. This was a great misfortune. When trees were cut down and only the bare earth or rocks were left, the rivers that flew over them brought down a large quantity of sand and consequently the rivers were choked and could not be perennial. Vegetation had changed as trees had been cut down for getting timber and fire wood or for carrying on agricultural operations. Madras had been saved in this respect by the casuarina plantations. But for them Madras would have been stripped bare for fire wood. The Chairman next dealt with different kinds of plants associated with particular kinds of soils and other physical features.

The meeting came to a close with a vote of thanks to the Chairman and the Lecturer.

Regional Surveys—I.

A regional survey is a complete and scientific survey of an area in relation to some centre, and in relation to the outer world. The idea was originally sociological, but it nevertheless offers an opportunity for obtaining direct study of the home region, which is all to the good from the standpoint of method. The original idea came from a sociologist in France known as Leplay, who was an engineer interested in places and people. As a result of his observations he came at length to a great generalisation that there was a definite relation between a district and the people living there. This relation he enunciated as his famous formula "*Lieu, Travail, Famille*" (place, work and people). Amongst his disciples, the Geographers generally work from *place* and the Sociologists work from the idea of *folk*.

Professor Patrick Geddes was responsible for popularising the movement, which is comparatively young, having been commenced in 1914, just before the War made progress for the time being impossible. A Regional Association, to co-ordinate the various surveys that were being made, was formed at Edinburgh, and one stalwart in the work was Herbertson, who had been trained by Geddes, in such a way that he guided Geography into safe waters when he himself became a leading geographer. That briefly is the outline of the origins from which modern regional surveys have come, but one or two warnings are necessary.

Regional survey is not a new subject, and it is not merely a branch of local geography. Regional survey is far more than merely a branch even of geography itself. As for its novelty, I think it is fairly obvious that the study of environment is as old as the human race and it was for a long time the only education that man knew. The hunter had to know his forest and streams or he died of hunger. The shepherd had always been expert in finding water and pasture for his flock, just as his knowledge of his flock has always been without equal. All primitive peoples studied their environments and they were in a sense regional surveyors; but the more specialised the occupation becomes the narrower is the environment. This education in environment is the first essential

in education, and as civilization has advanced the opportunities for education have become more and more limited. Now as a counter to the bookish cloistered literary education of the past we find education opening out gradually to the idea that the work of the school-room must be put in touch with the outside world, and that the whole trend of modern education is to that end, to get away from the cramping environment of the desk and the school-room. Unfortunately teachers are, as a class, bound by the fetters of conservatism, and there is perhaps no occupation more conservative than that of the schoolmaster.

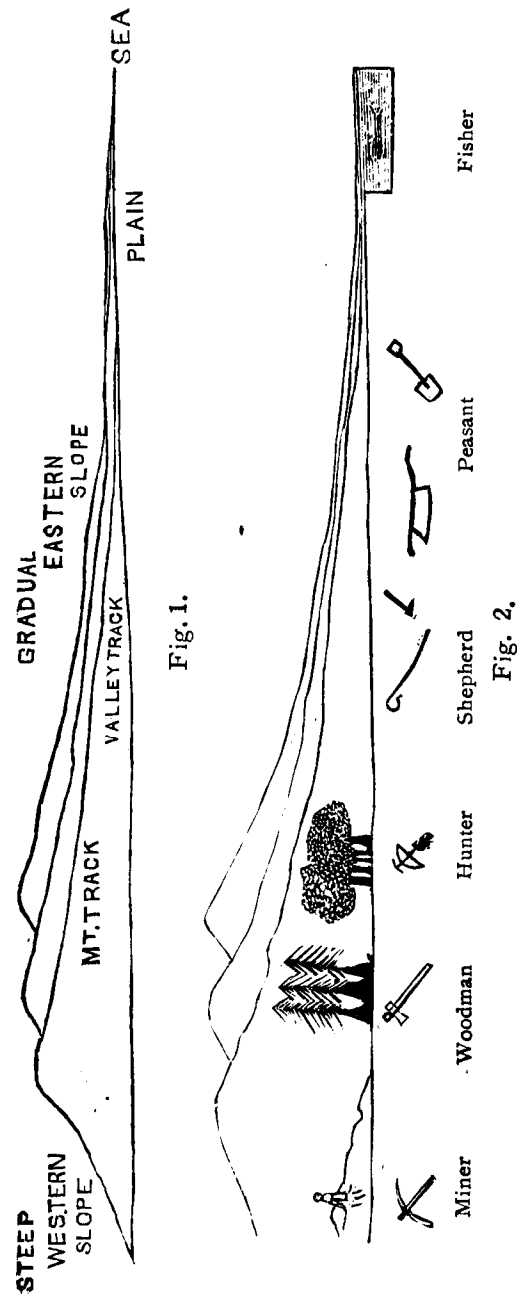
But the need for the external regional contact is more pressing than ever. Professor Geddes has stated that true education results in "efficiency at any moment at any point of the valley section." We will explain the reference to the "valley section" a little later, but use the quotation here as an indictment of our present system of education. Does our present system make efficient workers who fit in to their environment? I think we must confess that it does not and the reason will be evident when we remember that our educational system to-day is one that does not supply that experience of the environment, that will enable the child to respond adequately to changing conditions in later life. Only by some system of correlation can we obtain the time in our studies that is necessary to place the children in contact with actuality and to teach them to respond to the changing stimuli of changing environment. Regional survey will furnish the necessary correlations and in the hands of an enthusiastic teacher will furnish the contact and stimuli required.

The use of the word "regional" contributes at the same time to the incipient renewal of pride and tradition of locality. The immediate object is to cultivate the regional outlook. The first step is to look-at one's own region; to look into it as into an ancient mirror reflecting the epitome of human effort. In the region we find that man's occupations are determined by the environment; but they are complex and to understand them we must determine how he has come to his present state of civilization. This leads us to the historical survey, the evidences of his occupations and the historical growth of the community in the past. We must look for evidence of his activities in old buildings, earthworks, fortifications; we must look up records in books and pictures and we must use our imagination in restoring the life of the past community.

So we find ourselves where Leplay was when he enunciated his famous formula. A glance at the relief map of Scotland, of the Scandinavian Peninsula, of Central Europe, of South America and of either coast, but especially the east coast, of South India shows that a section from west to east would make a diagram similar to the one upon which Leplay founded his work. (*Vide* Fig. 1.)

We have here one of the most characteristic pieces of earth structure. The river valley may be taken as the typical geographical region but the linked river valleys on the opposite sides of a low water parting may often be a more comprehensive and fully representative area for regional study. Such valley sections are the elemental diagrams of regional survey.

But the regionalist sees the world not merely as landscape. In his survey, the river valley appears next clothed with characteristic vegetation, varying with soil and sub-soil, with contour and slope with rainfall and sunshine, and with man's influence above all. When one valley is compared with another and their plant associations studied, an ideal or typical linked valley section can be built up. On the steeper western slopes mineral bearing rocks are found on the lower ground and forests on the high ground. Barren hill-tops mark the divide; and down the gentler east slopes, woods with their wild life, the upland sheep pastures, then poorer arable lands and finally the richer plain through which the river meanders. Within each belt of natural products, the suitable human occupation appears, and with this localised type of worker his characteristic family life. Thus in succession from west to east, there emerges in the typical valley, or linked pair of these, the miner, the woodman, the hunter, the shepherd on the higher levels; then the poor peasant or crofter with his agriculture of the thin soil next to the permanent pasture, then the prosperous farmer with his deep plough and rich grain on the richer soils; and finally adjacent to the city, where the river widens to the estuary or the sea, the busy gardener with his spade. At the mouth of the river the fisher with his net completes this series of main regional occupations. This succession may be shown diagrammatically (*Vide* Fig. 2.) There is good reason in each case for the localisation of industry. The miner works in a region that is inhospitable in most cases for agriculture, and where deposition of the mineral deposits of the higher slopes has resulted in an accumulation of a certain mineral in one



place. This is mostly true of coal and iron mining. Lower down the slopes than the bare peaks, the forests give an opportunity for hunting and lumbering, and yet lower still on the foothills the shepherd can graze his flocks on the soil that is drier than the plain can provide. In the plain itself we find agriculture of two kinds, the large scale farming of the open country, and small scale market gardening of the suburbs of a big city. On the margin of the sea, fishing is the natural occupation. This sevenfold classification of rustic labour is very useful, for it can be seen to obtain afterwards, in a modified way even in the towns. Unfortunately the towns draw off the best of the country-life and these seldom return, but take up types of work corresponding to the work in the country.

The peasant becomes a small shopkeeper.

The shepherd becomes a teacher or a priest.

The woodman becomes a craftsman.

The miner becomes an engineer, making big noises.

The hunter becomes a man of the army, generally an officer.

So in surveying our *civic* life, the formula "place, work and folk" must be reversed in order, which now becomes "Folk, work and place," for the city "is the hinge on which man turns from creature to creator."

We hope that we have said enough to show that for those who are looking for something to widen the interests of life, that shall bring the spirit of quest and zest and conquest into the experience of their young folk, the Regional Outlook is one to be coveted and cultivated.

Only thus can we hope that some day we shall regain the ideal state of "efficiency at any moment at any point of the valley section." Let us next discuss the *modus operandi* of a Regional Survey.

G. D. WATKINS, B. Sc., F. R. G. S., F. R. Econ., S.

The Modus Operandi of Regional Survey—II.

The survey when finished must appeal to the eye and therefore it will be necessary to make a series of maps. The most useful of these are the Ordnance Survey Maps, but for detailed work in places it may even be necessary to use a 6" map.

The place is the setting for the human drama we are to portray, and so first of all we must draw a small scale map to show the relation of the area under survey to a larger area. A civic survey might need to show the city in its relation to the district or province, and this is easily done showing routes for transport to and from the city, and such other detail that may be useful to showing relationship of the smaller area to the larger.

Having done that we can now concentrate on the area itself. A relief map is obviously required first of all, and this will show physical features, relief and drainage which have determined routes and communications. A map showing drainage areas might be a useful addition here, and throughout it is a good thing to confine the information of each map to one particular type of phenomenon, rather than risk crowding the map with too much detail.

A structure map is necessary now since it is so useful in determining human geography, especially if it indicates minerals of economic interest and value. Following on from the structural aspect, we find the vegetation maps, showing the natural plant-associations of the district and also the cultivated crops, if any, are natural corollaries. With this series of maps before us we can often determine industries carried on in the region and also trace the origin of many of the place-names. A wonderful discovery we are often likely to make is that the names of the people in the district often coincide with the industries carried on.

The next step is a series of maps to show the growth of the district throughout the ages, beginning in early geological times and tracing this development through the various eras to the present day. Often we can see from these maps alterations that ought to be made in the district and what is more important perhaps, what

ought to be preserved. This is especially important in the case of South India, where so many important links with the past are in danger of being lost.

In this way we shall attempt to develop a civic sense in the pupils we teach and this is a truly political aim, for as the word political means, coming as it does from "polis," (a city community or the common weal) the working for the common welfare, we should strive to make our students think politically. Accompanying these maps, it is necessary to use pictorial surveys, which will serve to illustrate the more scientific knowledge shown in the maps. For a pictorial survey it is good policy to use as many people as possible, as the work is very great. In Durham it was found that the pictorial survey must come first in order to give clues for the maps, and about two hundred photographs, pictures and drawings were collected showing Durham from the very earliest times with suggestions for improvement and alterations to-day. It was found here, as is generally the case in other places too that the sites of springs usually marked settlements made in early times. The name Durham itself was found to have come from such a circumstance, for the original name of the place was *Dunelm* meaning *Water-Village*.

But to teachers the question always turns in these matters to the vital problem of how this method can be utilised in the teaching of school subjects. It has been shown already how the method of regional surveys co-ordinates the school work of many subjects, and how for the success of the survey it is necessary that every subject should give of its utmost and best. It might be well therefore to outline here a practical scheme of work for a school such as we have in Madras.

In starting a Regional Survey scheme nearly everything depends on how students can be dealt with at one time. Regional Survey work is always best done as individual work, and it is impossible to work well on the observation side, with groups of more than 9 or 10 at a time.

Whatever the numbers to be dealt with, it will be found most useful to commence work simultaneously along the following lines:—

1. *Collection of Materials.*—This is an activity in which every student included in the scheme might take part. The object should be to collect all kinds of materials which give information about the town and district. These would include pictures, postcards, original photographs, cuttings from newspapers, pamphlets issued locally, advertisements giving pictures of the town or parts of it, particulars of the work of local authorities in the district, etc. All teachers who have tried getting students to collect such material say that they are surprised at the variety and interest of the results.

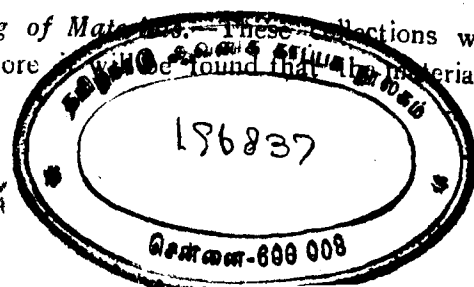
It will probably be found that in addition to the paper materials above mentioned, students will bring specimens (shells, flowers, etc.) This is not to be discouraged but such things are not easily preserved, unless the school has a School Museum.

2. *Arrangement of Materials.*—As soon as the collections have grown to any size, the question of arrangement will have to be faced, and for this purpose it may be best to appoint one or two Librarians or Record-keepers from the most responsible students. Such work again should always be shared among boys and girls where possible. These Librarians would be responsible for seeing to the arranging of all materials that came in.

It has been found that a loose-leaf system of mounting and filing is best for Regional Survey purposes. There is no need to go in for any of the expensive patent methods; single sheets of plain foolscap paper, and some simple form of jacket to hold these, should be quite sufficient.

Generally speaking it has been found best in Town Survey Collections to make a separate file for each important building or class of buildings, and each important Association or Social grouping—thus the various religions and their buildings might have a file of their own; there might be a file for Schools, another for Scout and Guide Troops and similar juvenile organisations, another for sellers of particular goods (brassware, pottery and cloths, etc.) In each case all the materials collected (Postcards, photos, newspaper cuttings, etc.) would be neatly mounted and placed in the file. In time of course a card index of the files would be required for reference.

3. *Supplementing of Materials.*—These collections will not have proceeded far before



came hap-hazard must be completed by others specially obtained. This means detailing individuals or small groups to take photographs or make drawings and sketches of buildings, etc., not shown in the collection. Further, if there is no Museum, it is well to have drawings or photographs made of any Museum specimens, which the students bring in, and add them to the files, thus making it possible to dispense with specimens when you have no space for them.

4. *Training in Systematic Methods of Survey.* Collections on the lines indicated are necessarily of course hap-hazard affairs, and it is necessary to train students in the more systematic methods of Survey. Such training should include, as far as possible, a Survey of both Urban and Rural Life, i.e., the Nature Study, Geography, History, and Civics of the surroundings. It will probably be found easy to mark out a Survey Area, including both the city and if possible the surrounding country for a radius of a mile or two. It is well to have a definite area and to set before the students the idea of discovering all that there is to know about it.

5. *Methods of Organization.*—It is not easy to suggest in detail how to organize this business of getting to know all about the area while in ignorance of the number to be dealt with. It is best to experiment with two methods at first.

(a) *Group Excursions.*—Here it is best to select a small group of boys or girls (never more than 9 or 10) and take them on a well defined and prepared excursion, or voyage of discovery, pointing out everything that seemed of interest on the way, showing what questions such things raise, and encouraging every-one to make records and notes by the way. It is best to select a different group next time, and so on, so as to work through the whole of your pupils in the course of a term or two.

(b) *Individual Work.*—As a second method definite tasks might be allotted to individuals or small groups of 2, 3 or 4 members: the latter only in cases where there is reason to think that the groups would make a good working combination. The problems to be set to such individuals or groups would be of the following kind:—

i. Discover, make a list of, and mark on the map all post offices, shops, trees, places of amusement and recreation grounds, or any of a thousand other things, in the Survey Area.

ii. Make a map showing the crops growing in each field in a definite part of the Rural Area surrounding the town.

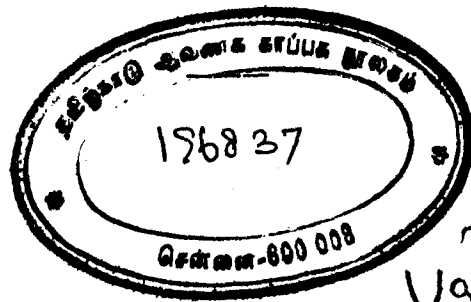
iii. Make a record of, count, and classify the traffic passing a point on a particular road or street at a particular time.

iv. Make a drawing or photograph of the front of each shop or office belonging to a particular class (e.g., Banks) and see whether it is possible to classify the results in any way.

v. Note every house in the Town with a date on the outside, sketch or photograph the outside of each, and see whether you can classify the results.

It will at once be clear that it is possible to be seen that the number of problems that can be set out is inexhaustible and it will not be necessary to proceed very far with activity on the lines just indicated before problems of a general character will arrive, and the proper field of the Survey will be entered. Next time we hope to outline a scheme of work for a typical Boys' school in Madras.

G. D. WATKINS, B. SC., F. R. G. S., F. R. ECON. S.



Ugm 211, N26M9
N26.1.3

7. A person shall become an ordinary member upon the proposal by a member, the seconding by another member and approval of the council by the majority thereof present at its meeting. He shall pay an annual subscription of rupees *two* payable in one instalment or in two equal half-yearly instalments at his option.

8. Those who pay an amount of hundred rupees in two years become LIFE MEMBERS, and they shall be exempt from payment of any further subscriptions.

Officers.

9. There shall be the following officers for the Association :—

Patrons, Vice-Patrons, President, one or more Vice-Presidents, Secretary and Treasurer.

Management.

10. The management of the Association shall vest in a working Council, which shall consist of the president, the vice-presidents, the secretary and the treasurer as ex-officio members, and four others elected by the general body, one at least of whom shall be from amongst the mofussil members.

11. The *Quorum* for a meeting of the working council shall be three.

The Powers and Duties of the Working Council.

12. The duties of the Working Council shall be:—

- (A) To receive and approve all applications for membership;
- (B) To arrange for the annual and other meetings of the Association;
- (C) To provide for the custody and utilisation of the funds and other property of the Association;
- (D) To appoint committees and assign duties to them;
- (E) To act in all respects on behalf of and with the powers of the general body, except when it is actually sitting.

13. The working council shall have the powers, subject to the veto of the general body, to issue, modify or rescind bye-laws, for the regulation of the work and activities of the Association.

Miscellaneous.

14. The official year of the Association shall be from 1st January to 31st December, and shall be divided into two sessions.

15. The Annual Meeting of the Association shall be held in December, when the officers for the coming year shall be elected.

16. All life membership subscriptions, all unspecified donations and one-third of all ordinary subscriptions shall be carried to the capital fund of the Association.

THE MADRAS GEOGRAPHICAL ASSOCIATION, MADRAS.

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ao Bahadur M. R. Ry. H. Narayana Rao, Avergal,
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All remittances should be sent to—

The Treasurer,
The Madras Geographical Association,
Y. M. C. A., Vepery, Madras.

All communications should be addressed to—

The Secretary,
The Madras Geographical Association,
Y. M. C. A., Vepery, Madras.