

<i>Karnataka Construction Co. Ltd.</i> ENGINEERS & CONTRACTORS SHIMOGA UNDERTAKES ALL CLASSES OF CONSTRUCTION WORKS UNDER THE SUPERVISION OF QUALIFIED ENGINEERS.	FOR FURNITURE Visit : The Madras Furnishing House 18-E, Broadway :: MADRAS.
WATER DIVINER For sinking new wells and deepening old ones <i>please consult</i> N. SAMBASIVAN Water Diviner SETTIGUNTA, M.S.M. (Cuddapah Dt.)	ORDER THE BUILDING GAZETTE REGULARLY AND AVOID DISAPPOINTMENT
Phone: 2760 Telegram: "LUX" LAKSHMI RATANS LIMITED 316, Thambu Chetty Street, G.T., MADRAS CARRY STOCKS OF SANITARY-WARE, MANHOLE COVERS, TILES, STONE-WARE PIPES, AND ELECTRICAL GOODS. SANITARY INSTALLATIONS AND BUILDING CONSTRUCTION UNDERTAKEN	EMPLOYMENT EXCHANGES Open to All The Proprietors of "The Building Gazette" have placed this space at the disposal of the Employment Exchange, Government of India. The Employment Exchange has on the Register a large number of ex-servicemen of various qualifications, and the Director would be very thankful if Employers would kindly notify to the local office of the Exchange particulars of any vacancy they may have available.

All our Work is obtained by Merit.

K. C. DUM & CO.,
ENGINEERS & CONTRACTORS
MERCARA

Tel.: "Timpost."

Phone: 2848

MADRAS TIMBER TRADING CO.,
76, SYDENHAM'S ROAD,
MADRAS-3.

OFFERS

TIMBER AND MANGO PLANKS
GLASS TILES & PLYWOOD.

BOOKS

An up-to-date list of books
on
Architecture, Engineering, and
Town Planning

★

WILL BE SENT POST FREE

on application to:

BUILDING INFORMATION CENTRE
Post Box 288
G.T., MADRAS

* REGISTERED STOCK-HOLDERS OF IRON AND STEEL IN THE MADRAS PRESIDENCY

Applications for iron and steel for building purposes should be made to the Director of Controlled Commodities, Madras, through Tahsildars with detailed estimates and approved plan. Applications for pipes should be made out in the prescribed form and should be submitted through the Collectors.—ED.

BELLARY DISTRICT

Abdul Karim & Bros., Bellary.
Vattam Narayana Chetty & Bros., Bellary.

GOIMBATORE DISTRICT

V. K. Gowriah Chetty, Bhavani.
A. Ahmedally & Co., Coimbatore.
S. Narasimhan, Coimbatore.
N.M.S. Manickam Pillai, Coimbatore.
Overseas Representations, Coimbatore.

EAST GODAVARI DISTRICT

Chittoory Rangiah & Sons, Cocanada.
Chittoory Swamy, Cocanada.
Chittoory Thirupathiah & Sons, Cocanada.
Mandavalli Ramanna & Sons, Cocanada.
Mandavalli Satyalinham, Cocanada.

GUNTUR DISTRICT

Sanka Kamiah, Kota Kotiah, Guntur.
Kali Trunk Factory, Guntur.
Venamma Appanna & Sons, Guntur.
Thatha Venkataswamy Shresthi & Sons, Ongole.
Thatha Veeraraaghavalu & Sons, Ongole.

KISTNA DISTRICT

Bayana Abbiah, Bezwada.
Chebroly Bapanayya, Bezwada.
Chinduri Venkata Nagabushanam & Co., Bezwada.
Dasy Venkata Subbarao, Bezwada.
Gelli Krishnamurthi Bros., Bezwada.

MADRAS DISTRICT

H. Abbasbuoy Ahmedally & Co., 288, Linga Chetty Street.
Abdul Hussaini Salebhoy & Co., 28, Perianna Maistry Street.

Ahmedally, Hussainally & Co., 4/153, Broadway.
S. Akberally Hydarally & Co., 27, Linga Chetty Street.

A. Ali Hussain & Co., 287, Linga Chetty Street.
N. Arumuga Chetty, 265, Rasappa Chetty Street.
A. M. Badruddin & Co., 23, Linga Chetty Street.
C. S. Bangaru Chetty, 630, Narayanamudaly Street.

A. Bhaqat & Co., 26, Perianna Maistry Street.
G. R. Dakshinamurthy Chetty, 216, Rasappa Chetty Street.

Fakriddin & Co., 307, Linga Chetty Street.
A. M. Goolamally & Co., 20, Errabalu Chetty Street.

Gulamali Abdul Hussain & Co., 28/9, Linga Chetty Street.

H. Hassan & Co., 8, Sembudoss Street.
A. H. Hassanally & Co., 34, Linga Chetty Street.
M. Hateem & Co., 30, Perianna Maistry Street.
M. M. Hussain & Co., 90, Armenian Street.
P. M. Kalathi Chetty, 151, Nainiappa Naicken Street.

Kali Natesa Chetty, 260, Rasappa Chetty Street.
P. K. Kandaswamy Chetty & Co., 233/4, Rasappa Chetty Street.

V. Kanakiah Chetty & Co., 148, Nainiappa Naicken Street.

K. T. Kovikawala & Co., 11, Vanier Street.

* The First list appeared in our September Issue. The remaining names will be published in our subsequent issues.

SOIL CLASSIFICATION AND COMPACTION PUBLIC WORKS DEPARTMENT

METHODS OF TEST

The British Standards Institution has recently published as B.S. 1377 a series of standard tests for soil classification and compaction. Although the preparation of this British Standard arose in the first instance from consideration of standard methods of test for stabilized soils, the scope of the work was subsequently extended to cover the whole field of soil mechanics. It is believed, therefore, that the document will fulfil an important function, since it is appropriate to all types of civil engineering construction and not only to the road engineering industry from which the proposal originated.

The standard is divided into four parts, the first containing a glossary of terms and a list of symbols, the second the preparation of samples, and the third and fourth parts soil classification and soil compaction tests respectively.

A large number of tests were examined before the final selection was made. Many of the tests adopted have already been standardized in the U.S.A., and the Foreword to the British Standard includes an acknowledgement to the American Society for Testing

Materials and the American Association of State Highway Officials.

For certain tests, the standard includes a laboratory method and alternative methods more appropriate to the field, and the latter should be of considerable value in the control of construction work.

In preparing the document full advantage has been taken of the extensive experience of agricultural scientists in soil testing.

An appendix is included giving typical data and calculation forms and although these are not a mandatory part of the specification, they should be of considerable assistance in providing an indication of how adequate records can best be kept. It is appreciated that the detailed layout of the forms will need modification in accordance with the requirements of the particular job, but the suggested forms clearly indicate the general principle involved.

Copies of the new British Standard can be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W. 1, price 7/6 post free.

COLLEGE NEWS

(Continued from page 15)

India has full of resources, but what was required was a proper and co-ordinated planning to get the best out of these resources for the benefit of the common man, he added.

In the case of schemes which had already been either sanctioned or ready to be sanctioned, there was dearth of technical personnel to execute them, he observed.

Concluding, he said: "As engineers you have greater responsibilities than others to take India forward from adversity to prosperity so that she may live with honour in future. Unless you apply your minds in a spirit of sacrifice, enthusiasm and zeal to the productive tasks ahead our cherished dream will never be realised."

BAN ON ARCHITECTURAL COMPETITIONS

The Practice Committee of the Indian Institute of Architects have banned a few cases of Architectural Competitions and is in correspondence with—

1. Poona Municipality, regarding the Design of Municipal Building at Poona.
2. Bastar State, E.I.R., regarding the Design of a Palace, and
3. The Insurance of India Ltd., Calcutta, regarding their Office Buildings.

At present these competitions are banned by the Institute to the

The Madras Retrenchment and Reorganization Committee agreeing with the views of the Chief Engineer (Buildings and Irrigation) has recommended not to reduce the strength of Superintending Engineers, seven in number, who are now doing irrigation work.

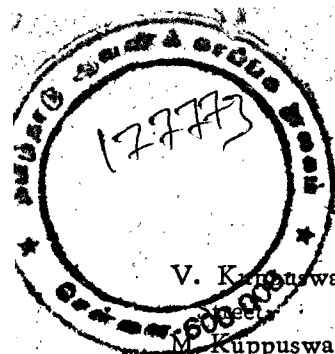
In the case of Highways, the committee is of opinion that the work of the Superintending Engineers for Highways is not so technical as in the Irrigation Department except in the case of bridges. The committee considers that the posts of Regional Superintending Engineers (Highways) as unnecessary but suggests to retain the post of Superintending Engineer for Bridges. For inspection of roads, scrutiny of estimates, etc., the committee recommends that the Chief Engineer may be given the help of two Superintending Engineers at the headquarters, one of whom may be in charge of the Andhra districts and the other in charge of the other districts.

Among other things, the transfer of Minor Irrigation works from the Revenue to the Public Works Department; to constitute a separate Public Health Engineering Service for the execution of water-supply and drainage schemes are recommended.

Members, and Members will be informed in time if the promoters are agreeable to Institute's conditions governing competitions.

The New Hospital Committee of Indore have now decided not to hold an open Architectural Competition for the Design of an Hospital Building, as they have appointed an architect to carry out the work.

The Committee is in communication with the Government of India, and have offered the Institute's services in conducting a competition for the proposed Memorial for late Mahatma Gandhi at Delhi.



(Continued from page 30)

V. K. Kuppuswamy Chetty, 262, Rasappa Chetty

Kuppuswamy Naicker, 15, Sembudoss Street.
Mayuranathan & Co., 271, Rasappa Chetty Street.
M. M. Moradali, 29, Moor Street.

Muhamadally Sarafally & Co., 10, Sembudoss Street.

A. Mohammed & Co., 310/11, Linza Chetty Street.

Murlimal Santaram & Co., 13, Sembudoss Street.
V. M. Periaswamy Chetty & Co., 89, Rasappa Chetty Street.

A. F. Noman & Co., 2/11, Perianna Maistry Street.

A. V. Muthukumaraswamy Chetty, 268, Rasappa Chetty Street.

MALABAR DISTRICT

B. S. Narayana Purushottam Shambho & Bros., Calicut.

K. V. Sheik Rowther, Palghat.

MADURA DISTRICT

A. G. Vana Nadar Sons, Dindigul.
A. V. G. Arunaigiri Nadar, Madura.
M. A. A. Chidambara Nadar, Madura.
M. K. N. Mukuntha Nadar, Madura.
V. Muthuswamiar Sons, Madura.

NELLORE DISTRICT

Chunduru Ramiah Chetty, Nellore.
Illucha Narasimhaswamy Chetty, Kavali.
Challuvadi Kondiah Chetty & Bros, Kavali.
M. Penchallayya Chetty & Bros., Santhapet.
Bringamalla Subbaramiah Chetty, Venkatagiri.

NORTH ARCOT DISTRICT

D. Ramaswamy Mudaliar, Arcot.

NILGIRIS DISTRICT

Nilgiris Trading Co., Ootacamund.
M. K. Perry & Sons, Ootacamund.
N. K. Noor Mohamed & Co., Coonoor.

RAMNAD DISTRICT

S. S. K. Rathnasabapathy Nadar, Sivaiganza.
S. A. Muthu Nadar & Sons, Aruppukottai.
V. P. S. N. Md. Abdul Khader, Karaikudi.
N. P. S. N. Sankaralinga Nadar, Rajapalayam.
M. A. C. Muthumanicka Nadar, Rajapalayam.

SALEM DISTRICT

C. Manicka Chetty & Sons, Shevapet.
K. V. Narayan Chetty, Salem.

TANJORE DISTRICT

P. Govinda Pillai & Sons, Kumbakonam.
Srimathi Gnanasundaramatchi, Kumbakonam.
Hajee T. Md. Ibrahim Saheb, Mannargudi.

TINNEVELLY DISTRICT

Rao Saheb K. A. M. A. Kaliappa Nadar & Sons, Tinnevely.

M. A. C. Nataraja Nadar, Tuticorin.

Rao Saheb K. A. M. A. Kaliappa Nadar, Tuticorin.

V. A. Krishna Nadar, Tuticorin.

M. K. N. Sivanandhi Nadar & Co., Tuticorin.

TRICHY DISTRICT

S. Khader Ibrahim Rowther, Trichinopoly.

Rao Saheb K. A. M. A. Kaliappa Nadar, Trichy.

A. K. Sharfuddin, Trichy.

South India Corporation Ltd., Trichy.

S. Syed Md. Rowther, Trichy.

VIZAGAPATAM DISTRICT

Beharelal Channa Patnaik & Sons, Amadavalasa.
Hajee Jamal Noor Mohamed, Amadavalasa.
Haji Abdur Rahman Haji Abdullah, Amadavalasa.
Mancherla Venkatasubbarao, Chicacole.
Nagalapalli Narasimhamurthy & Bros., Chicacole.

WEST GODAVARI DISTRICT

Monte Satyanarayanamurthy Nookala Peraswamy, Bhimavaram.

Sree Veerabadreswara Steel Trunk and Bucket Company, Palacol.

Nilla Subbanna, Penugonda.

PUDUKOTTAH

Messrs. Nuw & Co., Pudukottah.

M. S. Ganapathi Pillai & Bros., Pudukottah.

HERE THEY ARE TO SOLVE YOUR WATER PROBLEMS

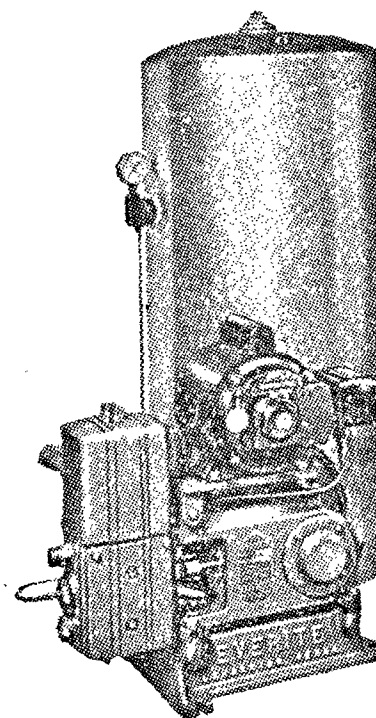
AMERICAN MADE
SHALLOW-WELL DOMESTIC
PUMPS WITH & WITHOUT
PRESSURE TANKS

IN
VARIOUS SIZES

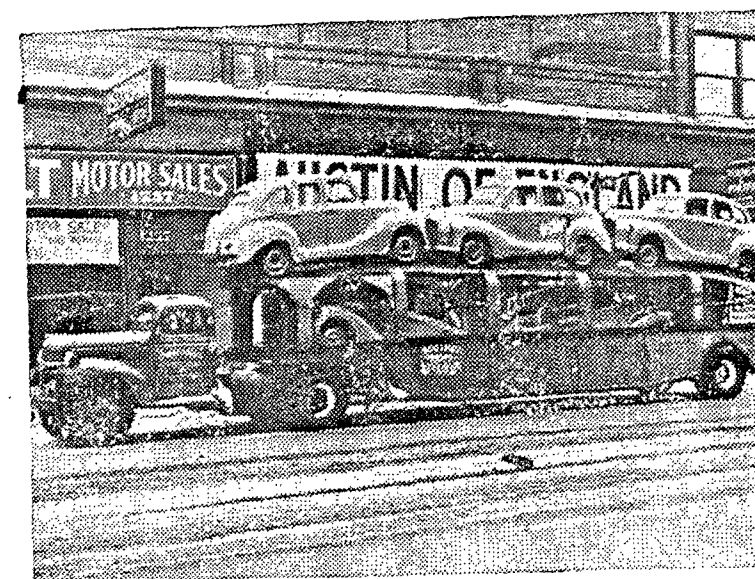
For full particulars:

Contact:

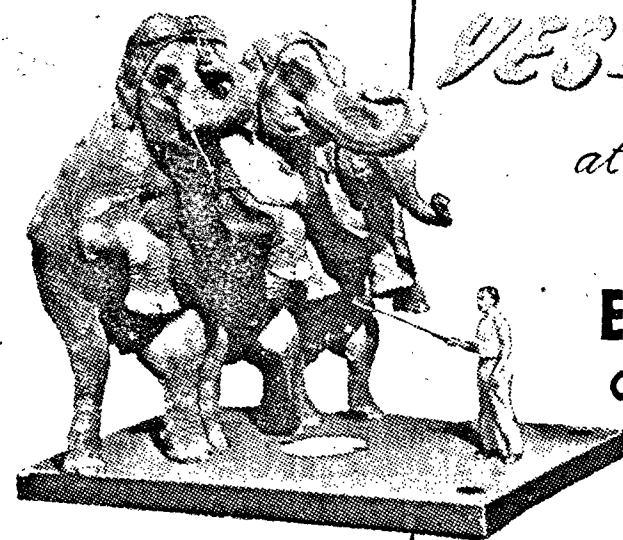
HOME APPLIANCE CO.,
1/27, General Patters Road,
MADRAS-2.



DO THE JOB THOROUGHLY—INVEST IN AN AUSTIN



AUSTIN COMMERCIAL VEHICLES

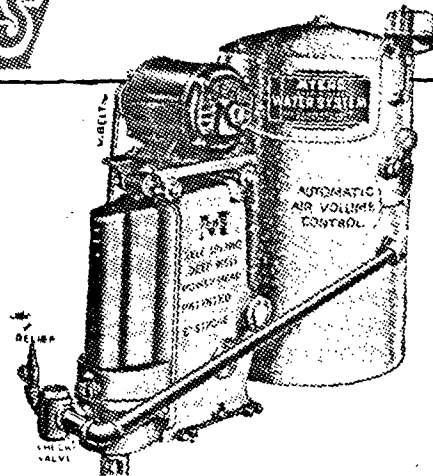


YES—but only **A FEW** can
command this
at the point of a wand
WHEREAS
EVERY ONE of you can
command the deep waters
at the turn of the tap!

WITH MYERS

Automatic Water Systems—Non-automatic
Pumps for pumping water into overhead tanks
from any depth—to any height . . .

Allow us to choose a suitable type to suit
your requirements.



MYERS PUMPS

SOLE AGENTS

WATER SUPPLY SPECIALISTS LTD. MADRAS!

W.S.S.

23-24, SECOND LINE BEACH

EDITED BY T. N. SUBRAMANIAM, A.F.S. (ENGLAND), PRINTED BY K. N. DESIKAN AT THE GORDON PRESS, MADRAS-5 AND PUBLISHED BY
T. RAJARAM FOR THE ASSOCIATED BROTHERS LIMITED, MADRAS.

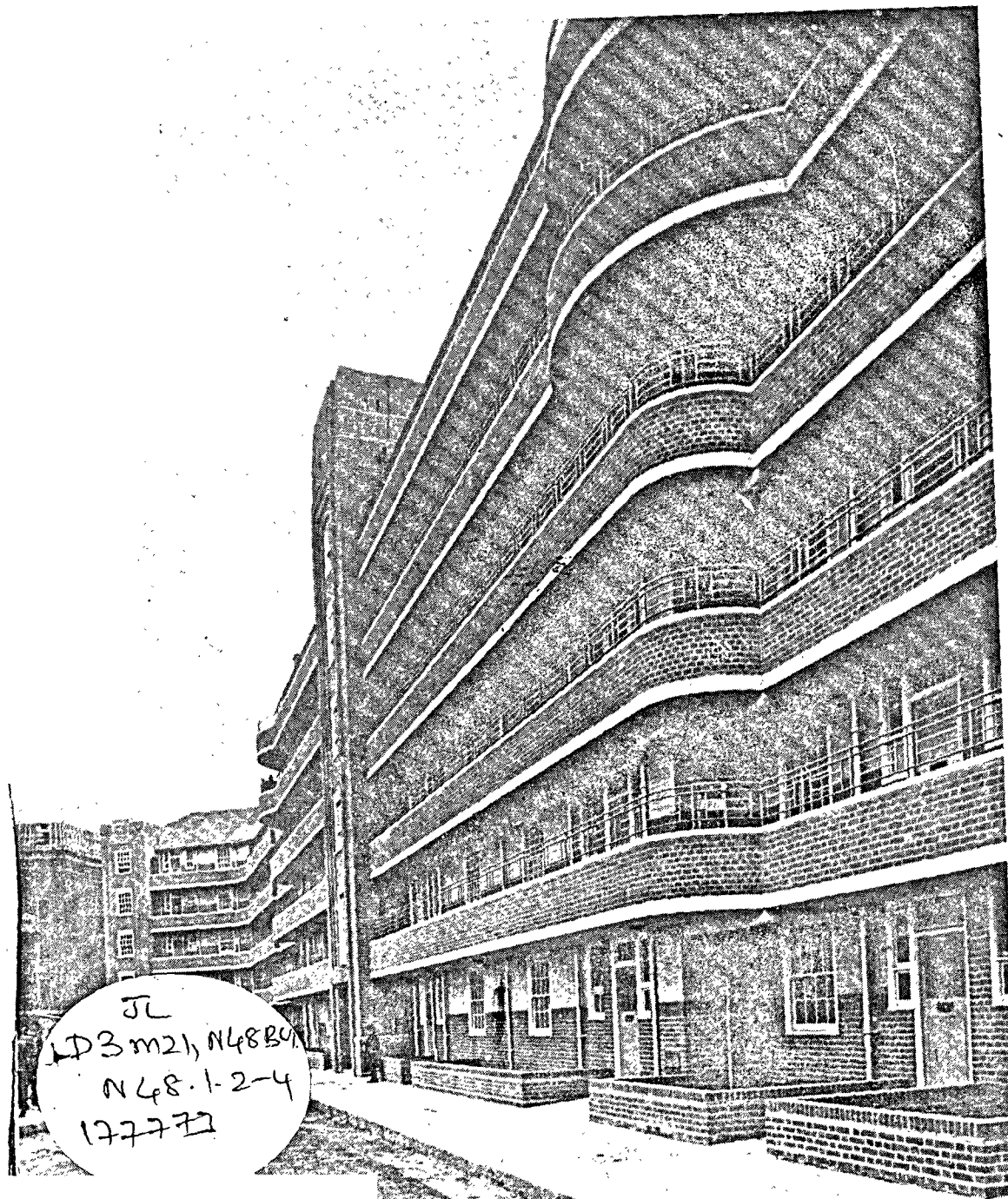
THE
88

BUILDING GAZETTE

VOLUME I •

NOVEMBER 15, 1948

NUMBER 3



JL
LD3 m21, N48B4
N48.1-2-4
17777

HOME OF
FIFTY-SIX FAMILIES

AN ACCEPTED FEATURE
OF THE
CONTEMPORARY ROOFING
IS
TILES

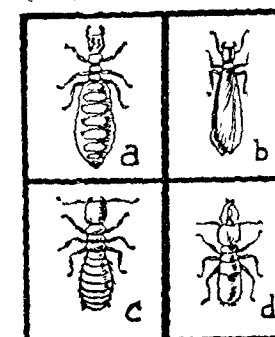
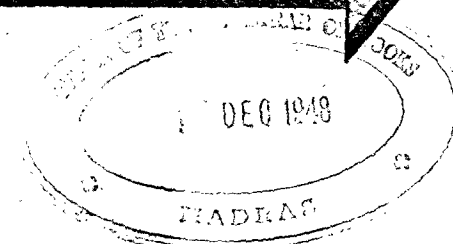
YOU CAN ALWAYS OBTAIN
THE BEST MALABAR TILES
FOR ROOFING FROM—

K. A. FRANCIS TILE WORKS
KARUVANNOOR P.O. — COCHIN STATE

You **HAVE SEEN THIS**

- IN YOUR HOME
 - IN YOUR BARN
- WHITE-ANTED!**

But it is too late when you see it. If you are planning a new house, new stables, woolshed, dairy or other structure it is an easy job to render your timber immune to attack by termites with HARDIPROOF. HARDIPROOF also protects against dry-rot. We manufacture HARDIPROOF (Green) and HARDIPROOF Clear.



Left: The White Ant family of destroyers.
(a) Queen. (b) Male.
(c) Worker. (d) Soldier.



... and **YOU'VE SEEN THIS!**



- IN YOUR STACK COVERS
- IN YOUR TARPAULINS

YOU CANNOT AFFORD LOSS FROM THIS SOURCE!

★ HARDIPROOF (Green) and HARDIPROOF Clear can be safely applied to all types of textile fabrics, and renders them immune to fungus attack. You can readily apply HARDIPROOF (Green) or HARDIPROOF Clear to canvas, tarpaulin ropes, jute goods, tents, sails and nets.

HARDIPROOF (Green) is guaranteed to contain 20% Copper Naphthenate and can be dipped, brushed, or sprayed. It is insoluble in water and does not leach out like other preservatives.

HARDIPROOF

ONE GALLON OF HARDIPROOF WILL COVER
APPROXIMATELY 320 SQ. FEET

is Manufactured by

Addisons Paints & Chemicals Ltd.

MADRAS

Distributed by

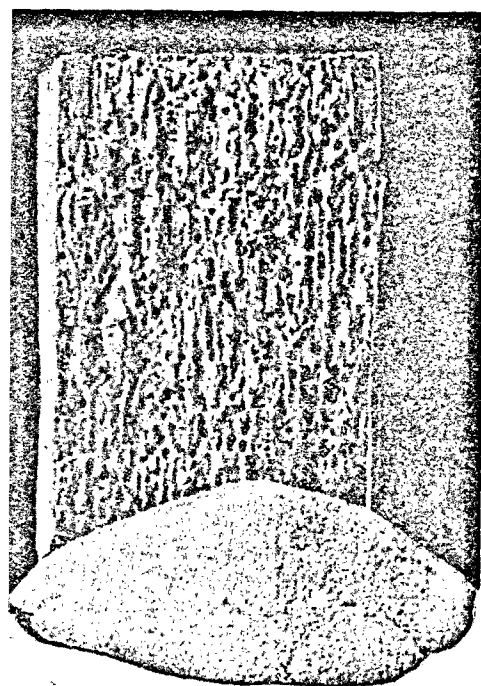
You HAVE SEEN THIS

- IN YOUR FENCING POSTS
- IN YOUR BARN FLOORS

DRY ROT!

All due to fungus attack. It starts generally where wood is in contact with earth or masonry—where ventilation is lacking. Pre-treatment with HARDIPROOF renders timber immune. Treatment with HARDIPROOF is simple and cheap. We manufacture HARDIPROOF (Green) and HARDIPROOF Clear.

... and YOU'VE SEEN THIS !



- IN YOUR FURNITURE. . .
- IN YOUR GARDEN SEATS

Just a small patch of fine powder at the foot of a cupboard or piece of furniture—a sign that borers are at work. Examination will show the tiny holes from which it comes. An application of HARDIPROOF (Green) or HARDIPROOF Clear will prevent reinfestation with the next life cycle of the borer.

You are being Robbed !

Each year Australian farmers and householders incur great loss because of the ravages of these pests. If you are wise you will take the simple precaution of using HARDIPROOF (Green) or HARDIPROOF Clear to counter this loss.

HARDIPROOF (Green) is guaranteed to contain 20% of Copper Naphthenate and can be dipped, brushed or sprayed. It is insoluble in water and does not leach out like other preservatives.

HARDIPROOF

ONE GALLON OF HARDIPROOF WILL COVER
APPROXIMATELY 320 SQ. FEET

is Manufactured by
Addisons Paints & Chemicals Limited

MADRAS

Distributed by



THE BUILDING GAZETTE, NOVEMBER 15, 1948

GANNON, DUNKERLEY & Co., (MADRAS) Ltd.

CIVIL, SANITARY AND CONSTRUCTIONAL ENGINEERS.

Specialists in Design and Construction of R.C.C.
Structures, Bridges, Buildings, Water Supply and
Drainage Schemes, Sanitary Installations, etc.

Registered Office: 14, BOAG ROAD, MADRAS-17.

Telephone: 88316.

Telegrams: "VITOPUS"

MILLARS' MACHINERY

Concrete Mixers—Tilting and Non-Tilting Types.

Asphalt Mixers—for Hot and Cold Mix.

Roller Pan Mixers for Mortar.

Diaphragm Suction Pumps for effective lift up to 25 ft.

Self-Priming Pumps for handling Seepage at lowest possible cost.

Tower Hoists for speedy construction.

Complete Wellpoint Pumping Equipment

for dewatering—the only successful method of combating
running sand.

TIMBER

Hardwoods - Softwoods - Plywoods - Box Shooks.

Millars' Timber and Trading Company Ltd.

(Incorporated in England)

Victoria House, Victoria Road, BOMBAY 27.

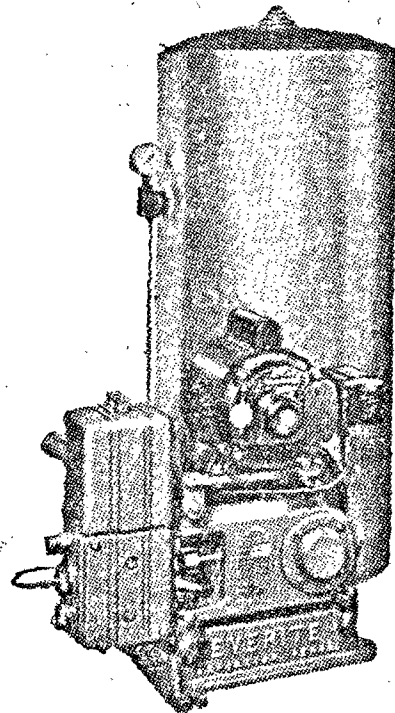
Telephone: 41077

::

::

Telegrams: JARRAH

HERE THEY ARE
TO SOLVE YOUR
WATER PROBLEMS



★
AMERICAN MADE
SHALLOW-WELL DOMESTIC
PUMPS WITH & WITHOUT
PRESSURE TANKS

IN
VARIOUS SIZES

For full particulars:

Contact:

HOME APPLIANCE CO.,

1/27, General Patters Road,
MADRAS-2.

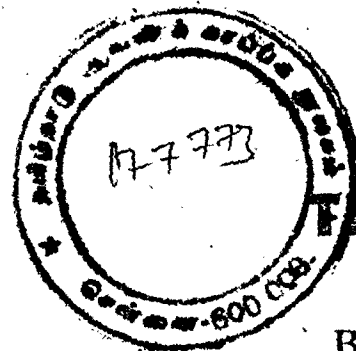
" AS SAFE AS A HOUSE "

To Illustrate

A GOOD BRICK

You must have

A GOOD BLOCK



THE GORDON PRESS

HAVE BEEN MAKING

BLOCKS OF BRICKS
AND PRINTING TO TASTE

AT 750, HIGH ROAD, TRIPPLICANE, MADRAS 5.

THE BUILDING GAZETTE

AN INDEPENDENT MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF BUILDING INDUSTRY

VOLUME I

NOVEMBER 15, 1948

NUMBER 3

Articles, photographs, and drawings with a view to publication will be carefully considered. All such articles and illustration should bear the name and address of the sender, and postage should be sent to cover their return if desired in the event of non-acceptance. All communications on Editorial matters should be addressed to the Editor, and all those pertaining to Advertisements to the Manager, THE BUILDING GAZETTE, 1/11, Mukker Nallamuthu Street, G.T., Madras.

EDITED BY T. N. SUBRAMANIAM

Associate, Faculty of Surveyors of England

PRINCIPAL CONTENTS

- 5 PLANNING FOR PROGRESS
- 6 NOTES AND TOPICS
- 8 MASTER PLAN FOR GREATER BOMBAY
- 10 SOUND ABSORPTION OF PLASTER
- 11 BUILDING RESEARCH
- 14 PLAN OF A HOUSE
- 15 BUILDING A STEEL MILL
- 17 LAW REPORT
- 20 STRESS GRADING OF TIMBER
- 21 AEROPLANE HANGAR DESIGN
- 23 SPECIFICATION
- 24 CONTRACTS OPEN
- 25 FOR DISCUSSION
- 25 PROPOSED NEW WORKS
- 26 RESULTS OF TENDERS
- 26 EDUCATIONAL
- 27 CURRENT PRICES FOR MEASURED WORK
- 31 LIST OF STOCK-HOLDERS

THE BUILDING GAZETTE is published on the 15th of each month. Subscription rate in India, Pakistan, Burma and Ceylon is Rs. 6 per annum. Single copies As. 9 each. Post free.

Complete copy instructions and Blocks for Advertisements must reach the Office not later than the 28th of the month preceding that in which the advertisement is to appear.

THE BUILDING GAZETTE,
1/11, MUKKER NALLAMUTHU STREET,
G.T., MADRAS.

BANKS AND BANKING

INTRODUCED THROUGH THE BUILDING GAZETTE

Figures indicate the current rates per cent of interest to new investors. Investors are advised to communicate direct with the Bank of their choice so that they may obtain full details of any special advantages which are available.

IN THEIR OWN INTERESTS BANKS ARE REQUESTED TO ENSURE THAT THE JOURNAL IS ADVISED OF ALTERATIONS OF RATES OR CONDITIONS AS AND WHEN THEY OCCUR.

* = Particulars obtainable only on application to the Bank.
— = Investments not received or temporarily suspended.

BHARATHA LAKSHMI BANK: Madras.—RAJAH OF BOBBILI, *Chairman*, 2½ to 3½.

CALCUTTA NATIONAL BANK: Madras.—S. M. BHATTACHARYA, *Chairman*, 6 months—; 1 year 2½; 2 years—.

DINDIGUL SRI KANNIKA PARAMESWARI BANK, Kodambakkam, Madras.—K. V. MUTHUKRISHNA CHETTIAR, *Managing Director*, 6 months 3½; 1 year 4; 2 years 4½.

EGMORE BENEFIT SOCIETY: Madras.—T. R. VARADARAJA PILLAI, *Secretary*, 1 year 3½.

HINDU BANK: Karur.—K. S. ANANTHA RAO, *Manager*, 6 months 3½; 1 year 4; 2 years 4½.

INDO-COMMERCIAL BANK: Madras.—S. N. N. SANKARALINGA IYER, *Managing Director*, 6 months—; 1 year 2½; 2 years 3.

KARUR VYSYA BANK: Karur.—M. LAKSHMINARAYANAN, B.A., B.L., *Secretary*, 6 months 3½; 1 year 4½; 2 years 4.

MADRAS MUTUAL BENEFIT PERMANENT FUND: 69, Big Street, Madras 5.—V. THIRUMALAI IYENGAR, *Secretary*, 1 year 4; 2 years 4½.

MADURA MERCANTILE BANK: Madras.—K. M. S. LAKSHMANIER, *Chairman*, 6 months—; 1 year 3; 2 years 3½.

MAHALUXMI BANK: Madras.—G. C. PAL, M.L.A., *Managing Director*, 6 months 3; 1 year 3½; 2 years 4.

KUMBAKONAM BANK: Kumbakonam.—S. MAHALINGA IYER, B.A., B.L., *Managing Director*, 6 months 3; 1 year 3; 2 years 3½.

SOUTH INDIA BANK: Tinnevely.—6 months 2½; 1 year 2½; 2 years 3.

TRAVANCORE BANK: Trivandrum.—Dr. LUDWIK ARONSON, *Managing Director*, 6 months*; 1 year*; 2 years—.

BUYERS' GUIDE

FOR	SEE PAGE
BOOKS	28
CONTRACTORS	29
DRAINAGE	1
ELECTRICAL GOODS	28
EMPLOYMENT EXCHANGE	30
ENGINEERS	1
FURNITURE	30
GLASS TILES	28
HARDWARE	29
MACHINERY SUPPLIES	1
MALABAR TILES	Inside Cover
MANHOLE COVERS	28
PLYWOOD	28
PRINTING	2
PUMPS	2
SANITARYWARE	28
SCHOOL OF PLANNING	26
STATIONERY	30
STONEWARE PIPES	28
TIMBER	1 & 28

PLANNING FOR PROGRESS

An idea of the vast quantity of rebuilding required for the reconstruction of the overgrown and outworn first city is given in the "Master Plan for Greater Bombay".

Mr. N. V. Modak, the Special Engineer of the Bombay Municipality, assisted by two American experts, have analysed the problems which face the citizens of Bombay under a proposed fifty years' plan.

That there has been uncontrolled and nasty developments in many of our cities and towns, none will deny. Landowners, local authorities, builders, all have some share in this sort of development (which is now in the guise of slums), but surely, the root cause was the absence of a 'Master Plan', the responsibility of the Government.

Municipal Councils have been functioning without a building code or blueprint and many, if not most of the Chairmen, when newly elected, used to announce a pet scheme of his own to make his city beautiful. What portion of such pet schemes are carried out is also of a questionable quantum.

At a certain stage of the development of Local Government the Town Planning Act was passed; and at another the City Improvement Trust Act. In fact these two Acts are in essence planning Acts which ought to be worked out as part of the planning by Municipal Councils. Only very recently the Chairman of the Bombay Improvement Trust rightly sounded a note to amalgamate that body with the City Corporation. In any case a definite and agreed policy is wanted of these two bodies. We appreciate the suggestion of Mr. Modak to institute a powerful planning body or commission which will, we hope, work within the frame-work of the Municipal Organization.

How many of our Municipalities are thinking today for preparing a Plan? No doubt it is costly to set up Planning Departments for every Municipality. Certainly the Municipal Councils can engage within their limited means the valuable knowledge, experience and service of Engineers and Town Planners who are practising as Consultants on piece-work basis. And towards positive planning it is most opportune now to cause considerable saving in cost if the local bodies place a questionnaire with the Census Commissioner to obtain the necessary data.

Obviously there are many advantages in planning a City as a whole, particularly from an administrative point of view. The importance of Mr. Modak's survey lies not so much in its effect on experts, but in its plea for enlightenment among the thinking public of urban areas. We have the means but we have not yet the common will; for it needs an exertion of social force to achieve the ends.

Engineering is not created for engineers only, but for the public; and the public ought to stir itself into some useful activity than that of grumbling when it is too late for anything to be done. That atmosphere will, we hope, be provided by the local bodies.

NOTES & TOPICS

Contractors' Association.

About 200 delegates representing the various districts of Mysore State met recently at a conference in Bangalore and resolved to form a Contractors' Association. Office-bearers were elected and a committee was formed to frame rules and bye-laws of the Association. The object of the Conference was to find ways and means of removing the various disabilities of the contractors and to establish cordial relations between them and the Government.

Development Plans.

"Go slow rather than abandon development projects" seems to be the key-note of the proposals submitted by the C.P. and Berar Government to the Central Government vis-a-vis the latter's directive. According to the C.P. scheme, the execution of a development plan, it is hinted, may be spread over two years instead of one.

Rural Reconstruction: A Scottish Example.

Scotland is planning an interesting experiment. The proto-type of a modern township is to be built in an isolated district of the Scottish countryside. The object of this scheme is to develop the rural areas in Scotland. It will comprise shops, schools, amenity centres and will support small industries. There are also to be facilities for forestry, agriculture and fishing.

Specification for this test township has been drawn up as a guide to architects and builders. A competition is also to be launched for the design and lay-out.

By developing rural areas through the establishment of new self-sufficient communities of this type it is hoped to stimulate migration from towns to the countryside.

Orissa Engineering Congress.

The Premier of Orissa inaugurated the Orissa Engineering Congress at Cuttack on October 23. Mr. R. R. Handa, Chief Engineer to the Government of Orissa, is its first President. The aim of the Congress is the dissemination of engineering knowledge by providing a platform for discussion of technical subjects once a year. The Government has made a grant of Rs. 5,000 a year till such time as the finances of the Congress enable it to be self-supporting.

Cement Production.

Cement production for the quarter April-June was 374,000 tons and for July-September 356,000 tons. The fall is attributed to "lack of adequate transport facilities."

Forthcoming Activities.

The 13th Annual Exhibition of the Academy of Fine Arts, Calcutta, will be held in December next at the Indian Museum, 27, Chowringhee, Calcutta.

The Bombay Society of Model Engineers are holding their fifth annual Model Builders' Exhibition at the B.E.S.T. Conference Hall at Colaba, Bombay. The exhibition will be opened by H.E. Raja Maharaj Singh, the Governor of Bombay, on Monday, December 6, 1948. Competitors who desire to send models to be displayed are advised to get in touch with the Secretary of the Society in Nobel Chambers, Parsi Bazaar Street, Fort, Bombay.

Competition News.

Designs are invited from competent engineers and building

designers for standard model quarters for labourers in industrial areas in U.P. Prizes will be offered for the three best entries. First prize Rs. 1,000, second prize Rs. 500 and third prize Rs. 250. Designs should have following minimum specifications: two rooms (240 sq. ft.) with shelves; one kitchen; one bathroom; one lavatory; 7 ft. verandas in front and back; and a courtyard; minimum height 10 ft.; cost should not exceed Rs. 4,000 each and average life to be at least 30 years. Designs should reach Additional Deputy Secretary to Government, U.P. Labour Department, Civil Secretariat, Lucknow, by November 30, 1948 at the latest.

Iron and Steel Today.

The total quantity of steel produced in India during the quarter July-September, 1948, was 211,050 tons. The production figures for the first two quarters of the year were 224,600 tons and 201,700 tons, respectively. The decline in the two quarters is attributed to breakdown in SCOB's machinery, which has resumed normal production from September. The estimated production for this year is 825,000 tons, a figure which compares unfavourably with the production figure for 1947 (a year of universal under-production), which was 868,580 tons.

The need existing in India at present is for 2½ million tons of steel or double the country's present production capacity, and treble the actual production.

The bulk of India's requirements of rails is being obtained from Canada. India has placed orders for 130,000 tons of rails from that country, of which about 82,000 tons are expected to arrive before the end of this year. The allocation made to this country from the U.S.A. was in the neighbourhood of 40,000 tons, the reason for this short supply being the U.S.A.'s present preoccupation with the Marshall Plan. The Board of Trade in the U.K. have calculated that India can be allocated 30,000 tons of steel from that country, but steps are being taken to secure

an increased tonnage. India has imported about 12,000 tons of steel from Belgium up to August 1948, but negotiations are at present being conducted to secure more substantial quantities, though the prices of Belgium steel are regarded prohibitive.

The Tariff Board is considering the question of steel prices. A problem for the Government of India in this connection arises from the fact that foreign steel has to be imported at a higher price than the Indian-made product. With a view to enabling an equitable distribution of all available steel at a single equalized price the Government have formulated a definite policy. All steel, whether imported by Government or on Government account or through importers, will be pooled and sold at the equalized price, i.e., at the price at which indigenous steel is sold. Importers, who are for this purpose regarded as additional controlled stock-holders, are paid the difference between the imported price and the equalized price from an Equalization Fund. They are obliged to sell at the price fixed for sale by controlled stockists and follow the direction of the Iron and Steel Controller in regard to distribution.

At the same time, import licences are issued to genuine consumers for their own use and not for resale, in which case the price of steel so imported is not equalized.

Licences are granted to importers, other than consumers, provided they receive firm offers and the rates are reasonable, preference being given to applicants whose offers are from mills or from the principal exporting houses.

Mysore Project.

The Lakkavalli Project, a big irrigation undertaking in Mysore, costing about Rs. 10 crores, is expected to bring under cultivation when completed 180,000 acres of land in parts of Shimoga and Chitaldru Districts of the State. The project, which will be to dam the river Bhadra, will take about 10 years to complete.

A Public Appointment.

An advertisement of the Assam Public Service Commission for the post of an Architect to the P.W.D. has evoked some comment in architectural circles. In the announcement no mention of architectural degrees and diplomas is made and instead emphasis is given for engineering degrees.

Bhakra Dam Scheme.

Investigations are being carried out to determine the feasibility of building a higher dam at Bhakra than originally proposed and seven engineers have been sent to the U.S.A. to prepare a revised plan. If the higher dam is found feasible it would provide water to all irrigable areas within East Punjab and the East Punjab States.

Indian Institute of Architects.

Addressing the annual gathering at the Indian Institute of Architects recently, the new President Prof. S. S. Reuben, F.R.I.B.A., A.I.I.A., gave a blue print plan for the current year.

He said firstly, the Constitution of the Institute required to be altered. Secondly, it was necessary that people should know more about the profession than they do. He would like to commence architectural propaganda work with a view to educate public opinion by a systematic programme as also to educate the general public to use and appreciate its architects. Thirdly, he would like to organise a Building Trades Exhibition. In addition to the above there were other matters which were foremost in his mind. They were the question of professional fees, increasing the finances of the Institute, publishing books and pamphlets, holding of examinations by the Institute and keeping a register of arbitrators and assessors in competitions for the guidance of the public and local authorities.

Engineering Profession in America.

There are today about 300,000 people in the United States who

classify themselves to the census taker as being in the engineering profession. Of these, about 90,000 have passed the qualification requirements of the professional engineering societies.

Civil, Mechanical and Electrical Engineers each with about 25 per cent of the total, constitute the bulk of the engineering profession. Chemical, Mining, Ceramic and others make up the small remainder.

30 per cent of them are in administrative positions and are not engineers in the popularly accepted concept of the word. 15 per cent are in design and these can be graded as true technical engineers. The third group, 12 per cent, are in development and research.

Civil engineers form the large percentage that are employed by governmental agencies. In other branches of engineering only 20 per cent are employed by governmental agencies, while in civil engineering almost half find their livelihood in working for governmental units.

Andhra Scientists' Association.

Inaugurating the Andhra Scientists' Association on October 30, at Madras, Sir S. V. Ramamurti said that the main bottle neck of industrial development was the need for preparing blue prints of schemes which were convincing and could be put into immediate execution. Their Association should, he suggested, provide for groups of experts who could do both field and laboratory examination of schemes both on the scientific and economic sides, and demonstrate that schemes could be taken up by industrialists.

In order that the work of the Association might be compact and effective, he continued, it was desirable to seek ultimate objectives through limited concrete channels. He suggested, therefore, that the Association should direct its attention to the application of science, to economic development.

MASTER PLAN FOR GREATER BOMBAY

N. V. MODAK, B.E., M.I.C.E., M.I.E., F.R.S.I.

Present Picture.

Bombay City has an area of 26 sq. miles and today, it has a population of about 30 lakhs as against a pre-war population of about 15 lakhs. Its public utility services, designed for this population are groaning under the strain imposed by this 100 per cent increase in population, and are at a breaking point. Its transport system of buses, trams and local railway trains are strained to the limit. The plight of the population as regards housing is no better. There has practically been no building activity worth the name during the last eight years. Consequently, there are more than four lakhs of people in Bombay today, whose only home is the footpath, the shop otla or the awning in front of the shop, and more than double that number are living in temporary make-shift accommodation. To allow such deterioration of civic amenities any further would be to say the least, tantamount to utter disregard to human misery.

What is provided for in the Master Plan.

But fortunately, the Bombay Municipality and the Government of Bombay have realised the seriousness of the situation and have prepared a 'Master Plan for Greater Bombay,' which is probably the first plan of its kind in India. It has been prepared by the Special Engineer of the Bombay Municipality in collaboration with two American Town Planning Experts and it looks ahead into the future over a period of 50 years. All the various amenities essential to provide a full measure of civic life to all the citizens are taken care of in the Plan. These include an up-to-date road system, parks, residential,



Mr. N. V. Modak

business and industrial areas, housing for the working classes, shopping centres, etc. The Plan thus aims at an orderly development of the whole region of Greater Bombay and the correct use of every acre of land.

Extent and Population proposed for Greater Bombay.

The area of Greater Bombay will extend up to Bassein Creek and will also include Thana, thus adding an area of 197.50 sq. miles to the existing city area. Further, sites for three satellite towns have been earmarked in the region beyond. All this new area is intended to provide healthy living conditions for a population of about 37 lakhs, which is proposed to be distributed in the following manner: Approximately 13 lakhs on Bombay Island, 18 lakhs in the Suburban areas up to Bassein Creek including Thana, and 5 to 6 lakhs in the new satellite towns beyond. The densities proposed are 175 persons, falling down to about 140 persons per acre in Bombay Island and

50 persons per acre in Greater Bombay, including local shopping centres, schools, local parks and local roads.

How these densities and population figures are proposed to be achieved.

This proposed distribution simply means that a substantial number of the present city population will have to be shifted to the Suburbs and in the Region beyond. It is proposed to achieve this by decentralization of the industry and the shifting of the working class population near its place of work to the new industrial and residential areas in the Greater Bombay Region. The middle class population of office workers who are today living in none too decent quarters in the City are expected to migrate to the well-planned residential neighbourhood units in the region beyond. A substantial part of the refugee population, at present putting up in make-shift accommodation, camps and with relatives and what not, is also expected to move beyond the city limits to the various new residential centres. The removal of milch cattle stables from the City to the new Dairy Farm Colony near Goregaon is also anticipated to help materially in the reduction of the excess population from the City. All these, and many other factors combined, will, it is hoped, help materially to bring down the city population to the recommended figure. The cause of slum clearance and redevelopment of slum areas is also expected to be given a much needed impetus by this reduction of city population, because the slum areas vacated and cleared in these operations are proposed to be left as open spaces so badly lacking in the City at present. It

is needless to point out, that all this decentralization of the industry and the reduction of the city population will help materially to ease the present strain on railways and other means of transport and other public utility services.

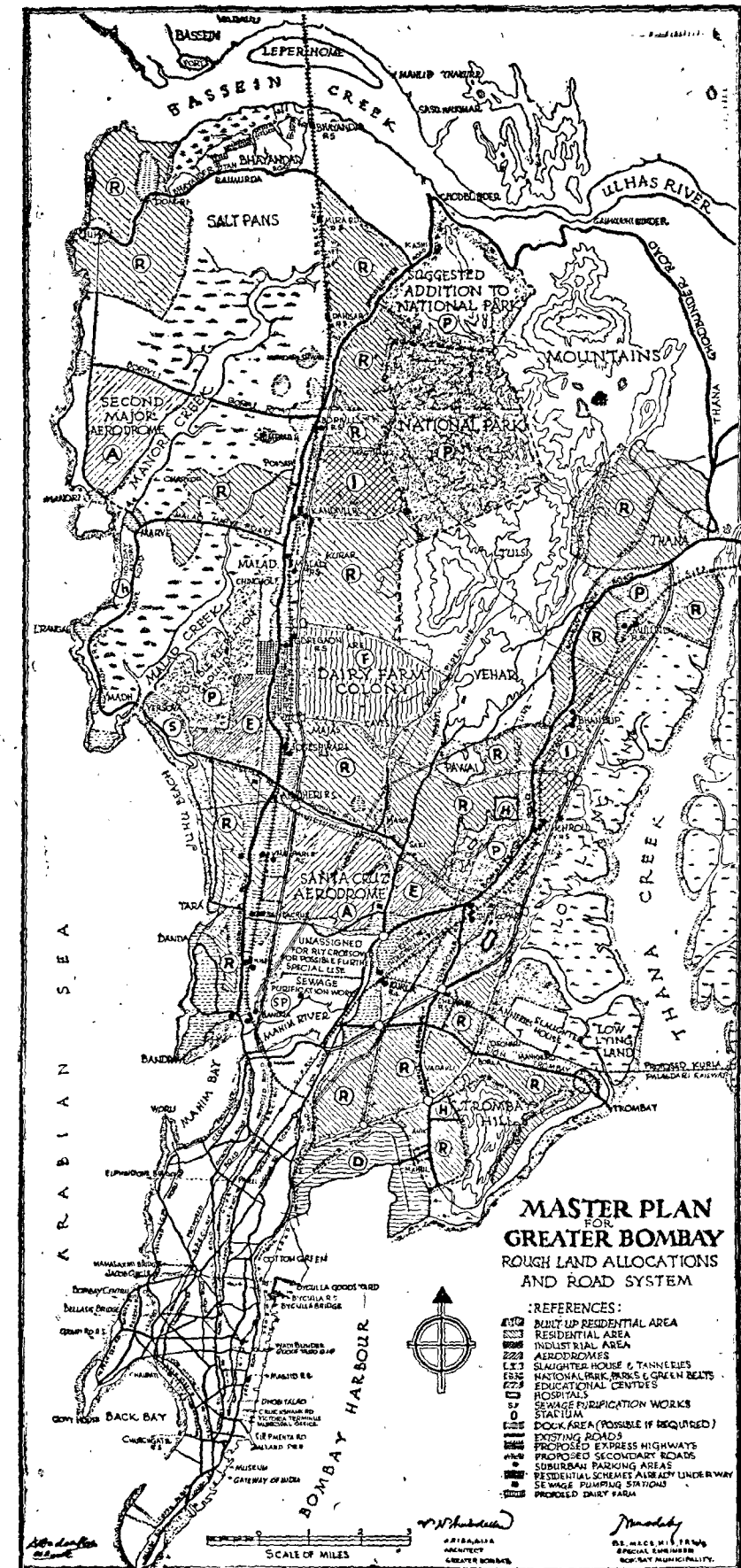
Shifting of the Industry to the New Industrial Areas outside the City.

For the decentralization of the industry, new industrial areas have been located along both the railways. On the G.I.P. Railway side the area extends approximately from Ghatkopar to Bhandup and on the B.B. & C.I. Railway side approximately from Kandivli to Borivli. Because of the worn-out condition of the plant and machinery of many textile mills and other industries, which would need renewal and the cramped working conditions obtaining in most of the industrial concerns in the City, it should not be altogether impossible to expect a certain amount of voluntary exodus of the industry to the new sites, particularly, when communications, water-supply and power are provided. In fact, a few industrialists are already planning for moving to the new industrial areas.

In the City itself, apart from a small percentage of light industry, the only other industries that are proposed to be permitted will be limited to those, essential for the daily needs of the population. This will be limited to bakeries, laundries, automobile repair shops and the like.

There is no place for heavy industry in Greater Bombay Region. It will be located in the industrial area at Ambernath where a nucleus has already been established, the development of which will be encouraged for this purpose. Noxious trades and industries such as the tanneries and the slaughterhouses are proposed to be shifted to Trombay or other suitable site away from the City and the aerodrome. They will be insulated from the other zones by a deep green belt.

(Continued on page 18)



SOUND ABSORPTION OF PLASTER

The following is an abstract of inquiry submitted to the Building Research Station.* The information given in the reply quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the reply might be supplemented or modified.

An architect required information regarding plasters for walls and ceilings of a new office building to afford a moderate degree of sound absorption. It was stated that he was inclined to regard hard plaster finishes as undesirably noisy.

REPLY.—The reverberation time of a room is one of the criteria of comfort, and in the present instance it appeared that the architect was prepared to devote special attention to its adjustment.

The reverberation time of any room is chiefly dependent on two factors: (a) the volume of the room; (b) the sound absorption coefficient of the materials which line the boundaries and of the furnishings.

Assuming a constant volume for any single room, then the reverberation time will decrease with an increase in the amount of absorption. As the furnishings and floor finish can in this case be regarded as a fixed quantity, it remains to consider what treatment is appropriate for the walls and ceiling.

The ordinary types of wall plaster, from the soft lime finishes up to Keenes Cement and other hard finishes, have absorption values ranging from 1 to 3 per cent (open window representing 100 per cent

absorption) and, in rooms with the normal content of furnishings, increase in total sound absorption due to the use of a soft lime plaster in place of a harder finish is virtually negligible. To obtain an appreciable effect by treatment of wall and ceiling surfaces it is usually necessary to have recourse to special acoustic absorbents with absorption values ranging from 20 per cent upwards. It is suggested that in the present instance

BUILDING RESEARCH

The Building Research Station in England is one of the establishments under the Department of Scientific and Industrial Research. Every essential aspect of the building industry is the subject of detailed scientific studies, the results of which are now available to the readers of THE BUILDING GAZETTE through their kind courtesy.

Researches are grouped under three headings:—(a) Problems relating to the chemical and physical properties of materials; (b) Problems associated with the mechanical and other properties of the structure; (c) Problems associated with the efficiency of the building in use.

Illustrations in the pages following show the staff at work—Ed.

the problem could be dealt with in one of two ways:—

(a) To use a moderate 'area of acoustic plaster, or (b) to use an alternative type of material such as wall board.

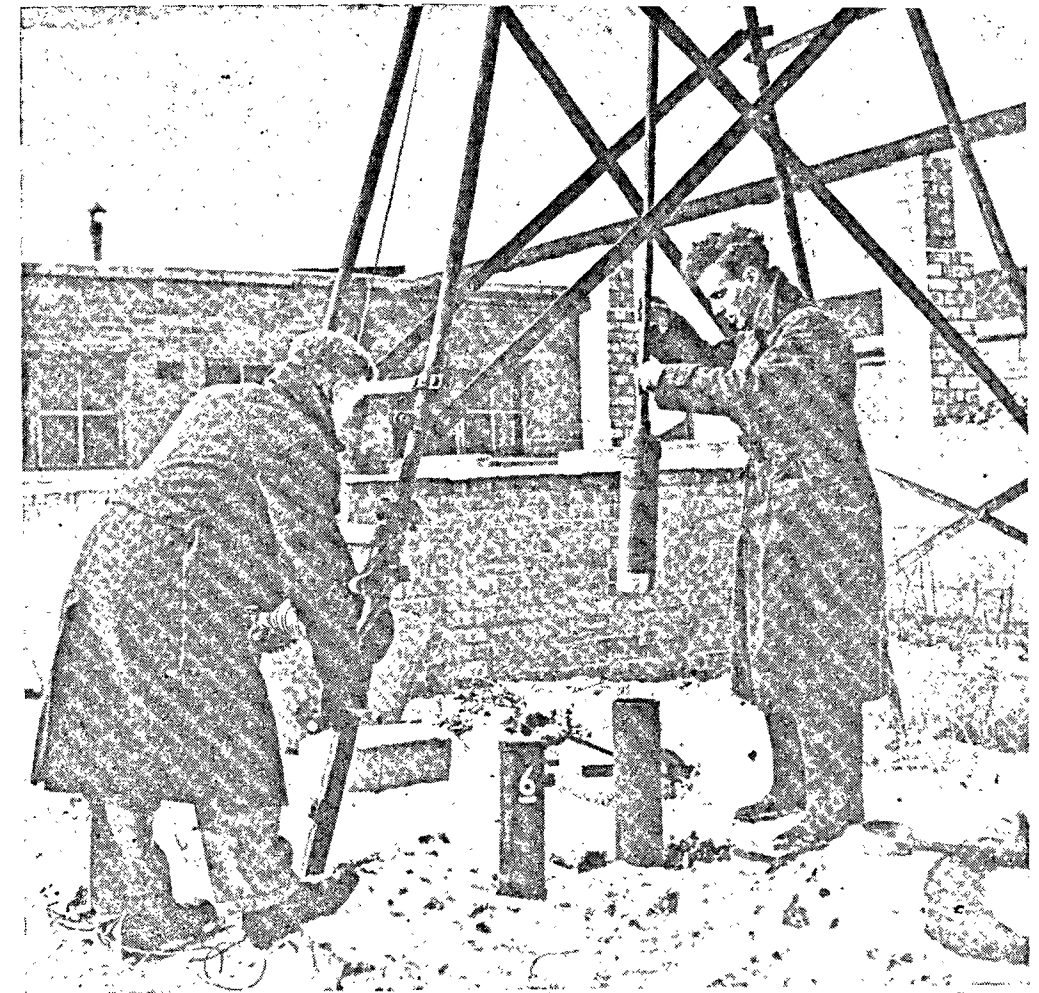
There are two objections to covering the walls and ceiling

entirely with acoustic plaster. The room might change from an extreme of too much noise to an extreme of too much quiet. In the latter condition, not normally experienced small noises might become as annoying as the larger noises were previously, and there is a sensation of being confined in a small space, which is unpleasant. The other objection is that due to the friable nature of absorbent plasters, their use on walls is often undesirable, at any rate up to shoulder height. A satisfactory solution for smaller rooms is to cover the ceiling with a moderately absorbent acoustic plaster, and to use hard plaster or any other suitable material for the walls. An inherent advantage in this method of treatment is that traffic noises coming through the windows from below impinge directly on the absorbent and lose appreciably in loudness.

Acoustic plasters can be supplied white, or in a coloured mix. Their surface finish is quite pleasant, but decoration applied to them must be carefully done. Distempering or painting will at once reduce them to the effectiveness of hard wall plasters, by sealing the pores. Stippling and staining can be done to some degree, and the manufacturers will usually supply directions.

The other alternative to achieve quietness in small rooms is to use fibrous wall boards, wood-paneling, or similar materials. Over-correction is not likely to occur with these materials, and they can replace plaster entirely. Any of them having a fair value of sound absorption must be decorated in accordance with the makers' directions if the absorption is to be retained, although their additional mode of absorption by resonance will afford some advantage over hard plaster finishes under any conditions.

Soil Mechanics: A tube having been sunk to the required depth by a large mechanical auger, a cylindrical specimen of the soil, in an undisturbed state is brought up for subsequent testing of its deformation characteristics.



Cement and Concrete: A wide range of differently constituted mortars are made up into brickettes for testing. Each constituent—sand, cement, water—is measured with very great accuracy and the mixture poured into the small metal moulds shown in the foreground. Errors exceeding one part in five hundred in the relative proportion of each ingredient are not permitted.

* Crown copyright reserved.

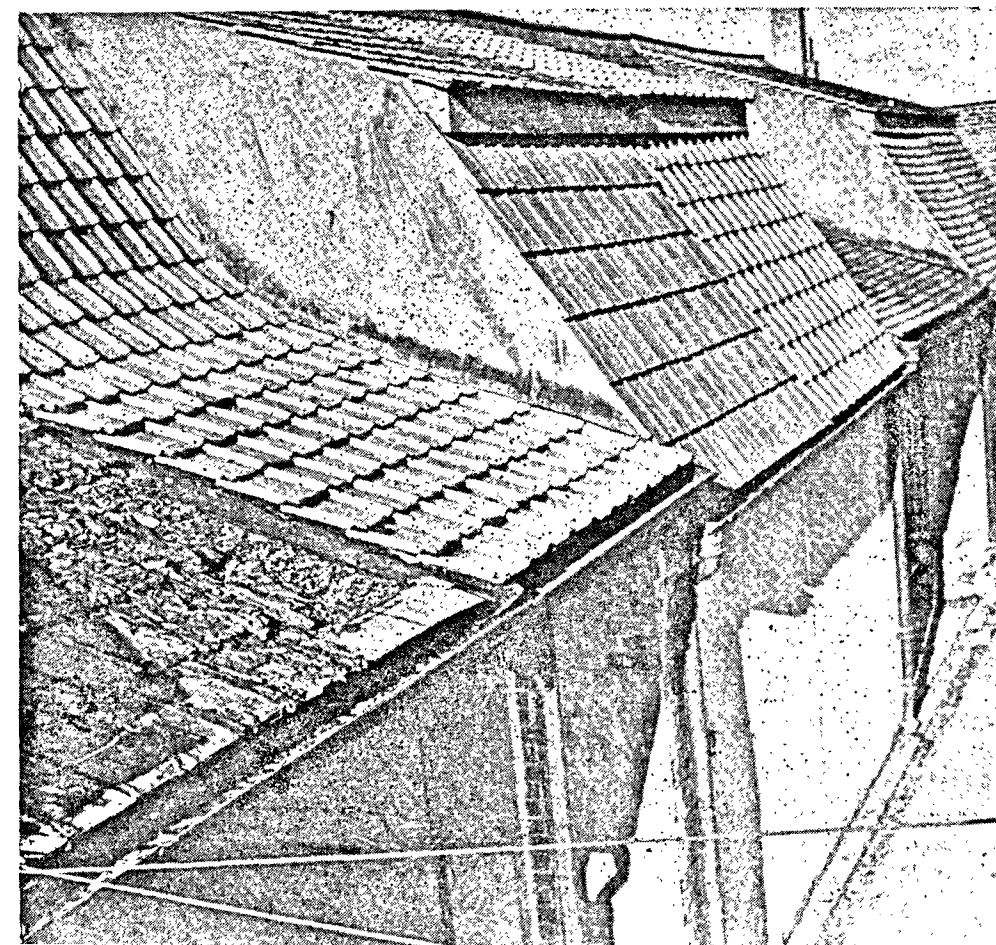


Cement and Concrete: An apparatus designed to measure the shrinkage of concrete. The shrinkage of specimens of standard size (in this case a type of concrete made without sand) can be measured with a degree of accuracy of .001 inch.

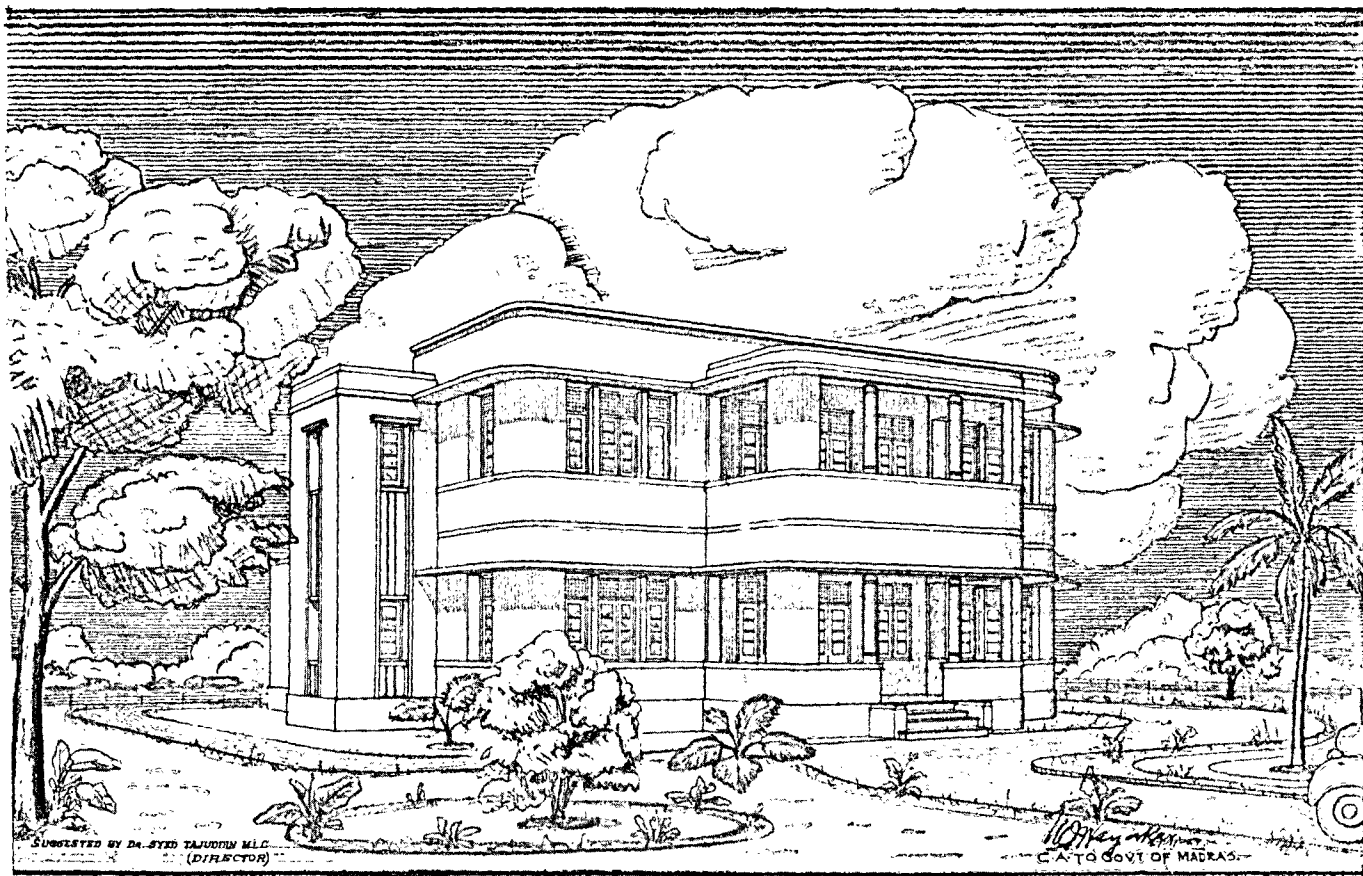
Certain chemical substances, called efflorescences, are derived from bricks and brought to the surface by moisture. Some of such substances cause damage and for that reason their composition needs to be studied. In this picture the operator is taking a sample of efflorescence for chemical micro-analysis.



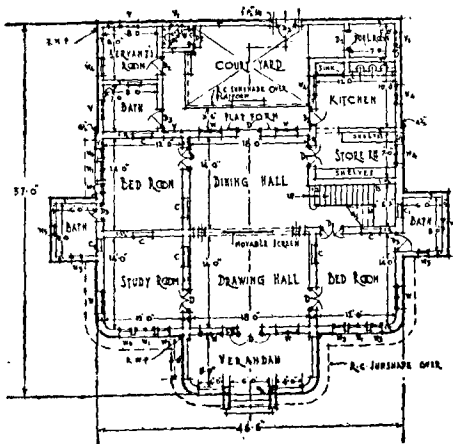
A careful check is maintained on changes occurring in brick walls and similar structures. Steel balls built into the wall are used to provide very accurate measuring points for the determination of shrinkage.



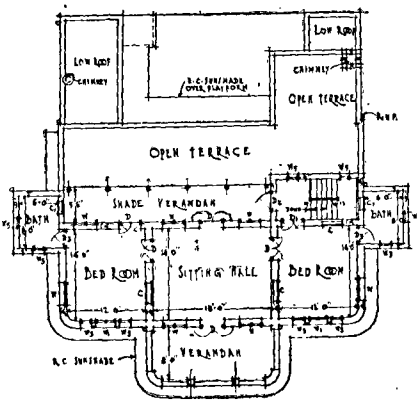
Scores of different types of tiles and other roofing materials are tested on this experimental roof. Variations of angle and aspect, combined with length of time of the test, provide very valuable data. Some of the roofs have been under test for more than 25 years.



PROPOSED HOUSE AT ADYAR, MADRAS
FOR THE MADRAS
CO-OPERATIVE HOUSING
SOCIETY



PLAN OF GROUND FLOOR



PLAN OF FIRST FLOOR

ARCHITECT
N. E. JAMBULINGA NAICKER,
F.R.S.A., A.I.A.A.

BUILDING A STEEL MILL

The most impressive contribution to the reconstruction of British industry is now taking place in South Wales. The Steel Company of Wales is enlarging its existing works at Port Talbot, and near Margam Abbey it is erecting a completely new strip-mill. The project, which includes a new cold reduction and tinplate plant at Trostre, near Llanelli, will cost about Rs. 79,50,00,000. Over 3,000 men, are toiling night and day on the first stage of this giant five-year plan for the modernisa-

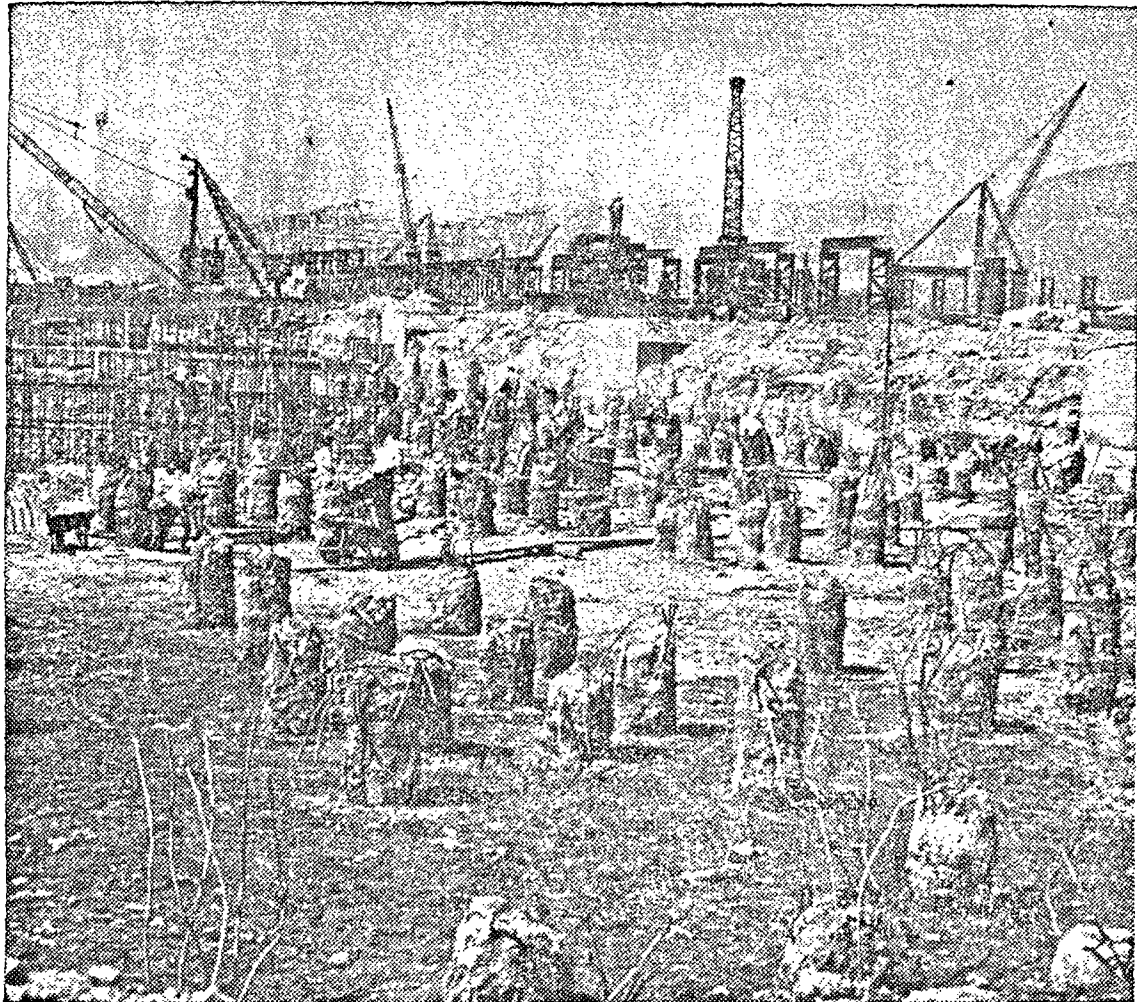
tion of the tinplate and steel sheet industry of Wales.

Because the natural level of the sand is too low, at the site, four-and-a-half million cubic yards of filling is required to bring it to the necessary level. Slag from the existing plant and sand are being used for this purpose.

One novel method is used for moving the sand. Mixed with water, it is pumped through pipes to the required position. The

water then drains off and leaves an even sand surface. This method moves sand at the rate of 400 tons per hour, thus effecting a considerable saving in time and replacing bulldozers and lorries which would be normally used for this purpose. The pipeline in operation is over 1,000 yards long.

Because of the nature of the land, some 25,000 piles have to be driven into the soil so that heavy furnaces and mill machinery when finally installed, will not sink.



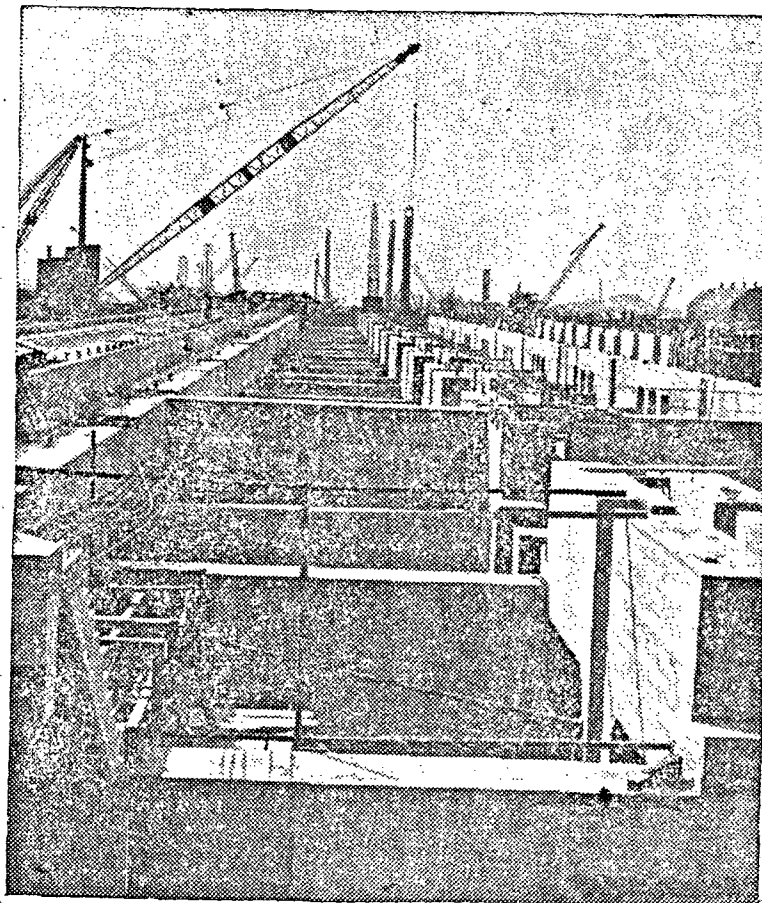
Pile Foundation in progress at Abbey Works.

The decision to modernise the industry is based on the technical superiority of the modern strip-mill—as regards uniformity and economy of operation—over the Welsh pack mills, which produce 70 per cent of the nation's tinplate.

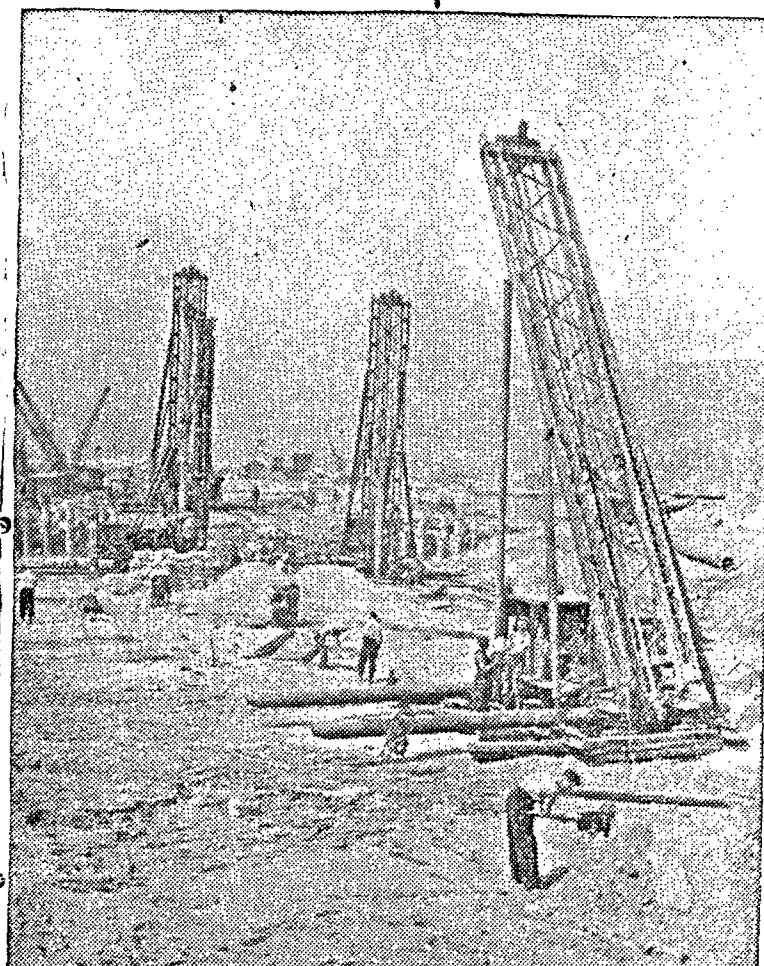
Present building plans cover an area of approximately 550 acres of undulating sand-hills crossed by two streams, but the whole area has to be filled and levelled before building work can commence. Sir Percy Thomas is the architect for this huge enterprise.

The new works, including extensions to the existing plant, will produce some 16,000 tons of pig-iron and 29,000 tons of steel ingots per week. The Steel Company of Wales will provide all its own limestone needs from its own quarry.

The wharf and dock at Margam are also to be enlarged to allow easier handling of ore required for the increased production. A new coal-handling and washing plant, capable of handling 250 to 300 tons per hour, is to be installed and an additional 90 coke ovens are to be



The construction of a soaking pit at Abbey Work. Left.—Work in progress on the foundations of new coke ovens at Margam Works.



used at Margam. A by-product plant will also be attached for recovery of crude benzol and other by-products. Two blast furnaces are being dismantled at Margam, but two new ones being built will have a hearth diameter of 25 ft. 9 ins., and a height of 106 ft.

The Steel Company of Wales have already broken many production records in their existing plant, and when the gigantic project is completed and in full production, it will have a great effect on the industrial future.

LAW REPORT

Levy of Special Sanitary Cess by Municipality

Bombay High Court.

*Before Sir Norman Macleod, Kt.,
Chief Justice and Mr. Justice
Heaton*

*Ahmedabad Municipality v.
Gujarat G. & M. Co. Ltd.*

The case, in which plaintiffs were a mill company who owned premises alongside a public road in the city of Ahmedabad, is that along the road in question, the Municipality of Ahmedabad had constructed the main sewer with manholes.

On the premises owned by the plaintiffs there were private latrines which were used by operatives employed in the mills. At first, the plaintiffs used to cleanse the privies by manual labour. Later they converted the privies to the flushing system, and carried the work of connecting the latrines with the main sewers. Thus the sewage from the latrines was flushed through the pipe line into the main sewer.

The Municipality of Ahmedabad levied a special sanitary cess from the plaintiffs for the above use, and recovered the amount for four years. The plaintiffs sued to recover back the amount from the Municipality.

The case for the plaintiff is that the company is not liable to pay the special sanitary cess as the costs connecting the privies with the Municipal sewer have been defrayed by the company. It is further contended here that the latrines are not "cleansed by municipal agency" as the plaintiff pays for the water

required for flushing the latrines and for the men employed to keep the latrines clear. The Municipality in effect contend that under Sec. 59, cl. (vi), read with prov. (b) (i) they have made provision for conducting or receiving the sewage of the latrines into the Municipal sewers and that when they have done that the latrines are 'cleansed by Municipal agency' within the meaning of cl. (vi) and that they are entitled to levy the cess.

The Chief Justice observed that one must look first to (d) (vi) of Sec. 59 in order to determine when the Municipality can in the first instance levy the special sanitary cess. It was argued that (d) (vi) shows that it cannot be levied upon private latrines or premises or compounds unless they were cleansed by Municipal agency, still the cess cannot be levied unless the Municipality has made provision for the cleansing of private latrines or premises by manual labour, or for conducting or receiving the sewage thereof into the Municipal sewers. It is true that by another tax the plaintiff pays for the Municipal water which carried the sewage along the connecting pipe down to the sewer, but it cannot be said that these private latrines are cleansed, not by Municipal Agency, but by the agency of the owner. It was, said His Lordship, the intention of the Act that if the Municipality provides the sewer for receiving the sewage, and the owner of private latrines connects them with the sewer and then the Municipality provides the water, although it may be at an additional cost to the owner, for carrying the sewage from the latrines to the sewer, the latrines are being cleansed by Municipal agency, and the Municipality are entitled to levy a special sanitary cess.

Concluding, he said: "In my opinion, therefore, the plaintiff's suits should be dismissed with cost."

Mr. N. K. Mehta appeared for the Ahmedabad Municipality and Mr. B. J. Desai with Mr. G. N. Thakar for the Respondent Mill.

LETTERS TO THE EDITOR

Builders' Association

Sir,—In connection with Builders' Association I may inform you that Mysore as usual has gone ahead of Madras, not that Madras lacks engineering talent or enterprise, but someone must get together those interested there for such an organization by convening a meeting and you may if I might suggest make the "Building Gazette" its official organ.

It was said at the Bangalore Meeting when I was present that there are four thousand Contractors in Mysore and there must be much more in the Madras Presidency.

Yours truly,

V. K. RATNASABAPATHY,
*Chairman, The Mysore Granites Ltd.,
Bangalore.*

Building Practice

Sir,—I have always been looking forward with eyes of eagerness to be enlightened more about the current thoughts and elaborate details of Building Practice and there has been till now, hardly one Indian Journal which would have displaced this bare necessity. I am sure, you have struck the right note in having come forward to render this great service to our country in the right time, when India awaits a thorough reorganization and great schemes in the Engineering field.

Yours faithfully,
R. J. SUNDAR SINGH.

Madras.

STAINLESS STEELS

It was in 1913 that stainless steel was first produced, the discovery being made by Mr. Harry Brearley at the Firth-Brown Research Laboratories, Sheffield. Brearley's stainless steel contained about 0.2 per cent carbon and 14 per cent chromium, and was used in the hardened and tempered condition. This material is ideal for cutlery. It is also used for turbine blades, aero-engine valves, and for the seatings of steam valves because of its resistance to the corrosive and erosive action of steam.

MASTER PLAN FOR GREATER BOMBAY

(Continued from page 9)

Road Communications.

There are at present two main road approaches to the City, viz., the Bombay-Agra and Dhod-bunder Roads. Both of these are inadequate to serve the needs of the traffic they carry and pass through many residential localities. To widen these roads would be neither desirable nor possible, except at heavy cost and loss of safety to the pedestrians and inhabitants of built-up localities. It is therefore proposed to create two new expressways for fast-moving traffic running approximately parallel and to the east of the G.I.P. and B.B. & C.I. Railways respectively. The Eastern Expressway will start from Sion and terminate at Thana where it will join the Bombay-Agra Road and the Western Expressway will start in continuation with the Tulsi Pipe Line Road in the City and continue to run as far as Borivli. There will be grade separation (which simply means difference in levels for cross traffic) for these roads at important road intersections. Speed and complete safety will thus be assured to the users of these expressways. They will be 250' wide inclusive of green borders on either side and there will be patches of green areas at intervals for relaxation and pleasure with benches and other road furniture.

Both these two expressways are proposed to be carried out further south in the City proper by means of arterial roads, one on the west and the other on the east. This will establish a quick, fast and direct link by road from the Greater Bombay region, as far as the south of the City proper.

The inadequacy of East to West roads in the region is also sought to be corrected by the provision of a number of cross-roads.

New Railway Link-up.

A railway link-up between Ghatkopar on the G.I.P. Railway and the Andheri Station on B.B. & C.I. Railways is proposed, to cater

to the needs of the large residential areas located to the north of the Andheri-Marol Road. This will also carry the traffic to and from the Santacruz Aerodrome and the Educational Centre near Ghatkopar. The urgency of the Kurla-Palasdhari proposal of the G.I.P. Railway is stressed highly, not because of the saving of the time it will effect in the journey to Poona, but more so because it will enable the development of the region between Kalyan and Panvel which has remained undeveloped all these years for lack of good communications.

Tube Railway for the City.

Congestion on the City roads is proposed to be minimised by a number of clever ideas, foremost of which the provision of a tube railway starting from Bombay Central and serving the southern area as far as the Fort. This will help materially to solve the pedestrian traffic problem in the central and southern parts of the City. Bombay Central is proposed to be retained only as a Suburban Terminus. The Victoria Terminus is to cater as a main line terminus for both the railways.

Site for Additional Aerodrome and Expansion of Docks.

In view of the rapid strides made in civil aviation and because of the strategic importance of the airfields, one more site has been earmarked for an additional major aerodrome near Manori Creek.

The expansion of the Docks is not neglected and the southern portion of Trombay is reserved for this purpose.

Development of New Residential Areas on the Lines of Neighbourhood Units.

Coming now to the residential localities proposed to be created, it is very happy to find them so placed as to be near industrial areas, so as to enable the working class population to cut down needless travel. Indirectly, this is expected to help in the clearance of city slums, provision of open

spaces and recreation grounds, reduction of strain over the road and rail transport system and the city services. Other residential areas for the middle and higher class population are well served by good transport, as mentioned elsewhere.

It is stressed that the residential areas would be developed as neighbourhood units where every citizen would find life happier and pleasanter because it would meet all his every-day needs. There will be schools, maternity homes, dispensaries, post offices, cinemas, clubs and gymkhanas, etc., for all the units which are recommended to have a population varying from 35,000 to 80,000. An inviolable green belt running round the unit is intended to be provided to ensure its size being maintained to the predetermined population. These green belts are intended to serve as agricultural fields, fruit orchards and vegetable farms, and help to maintain a healthy mind in a healthy body.

Such self-contained neighbourhood units are also recommended to be created in the City, although there are admittedly fewer opportunities for their creation in the City. However, four areas have been suggested for such development.

Housing.

Housing is recognised to be Bombay's most pressing need. It is recommended that as many houses should be built for working class population as deficit money could be made available for the purpose. Altogether, it is recommended to build 161,400 houses in the City and the region during a period of 15 years. In the first five years more houses are recommended to be built in the City, because of the availability of existing services.

Shopping and Business.

Shopping and business area in the City is very limited and it is proposed to augment this by clearing and developing the slum area to the east of Hornby Road and absorbing some residential area along Churchgate street in the rec-

lamation scheme, expressly for this purpose. Additional shopping centres are also recommended to be created further north at Bellasis Road, Dadar and other suitable locations in the City and in the Suburban areas in the Greater Bombay Region. This is expected to reduce the south-bound traffic to a certain extent and help in reducing the congestion on City roads. Shopping centres and markets are recommended to be designed in such a way that they will be safe for pedestrians and make it possible to take the children along.

Gardens and Open Spaces.

Inadequacy of garden areas in the City is strongly stressed and the worst slum and high density areas in the City are recommended to be cleared gradually to provide open parks. It is proposed to provide a total of 2,300 acres for parks and although this is recognised as being inadequate on the basis of 4 acres per 1,000 of population it is thought to be as much as could be realistically planned. To a certain extent it is not considered to be extremely bad because of the long shoreline of Bombay.

The Greater Bombay Region is adequately served by large green areas of the mountains, the National Park and the green belts round the neighbourhood units for recreation of body and mind.

Dairy Farm.

The Dairy Farm Colony established by Government at ASREY near Goregaon is not considered to be in a happy location by the planners, as it falls almost in the centre of the Greater Bombay Region. It is considered that as Greater Bombay develops, there will be demand from the public for its removal to areas beyond the Bassein Creek.

Legislation.

Prompt and thorough zoning legislation and a powerful Planning Body or Commission for the successful implementation of the Master Plan is urgently recom-

mended. The subjects to be tackled under the legislation being, control of land use, density, prevention of ribbon development, the basis of arriving at property value, prevention of premature or partial development, etc.

Cost of Work as envisaged in the Plan.

The work has been estimated for being carried out in a substantial measure in four stages of five years each. The total cost of development, if taken up at one stretch, is estimated at Rs. 115 crores, resulting in a deficit of Rs. 62 crores. It is stressed that development at one stretch is not necessary and the work should be carried out in four, five-year stages. A loss of Rs. 10 crores is shown in the first stage, Rs. 4.75 crores in the second stage and Rs. 4.75 crores in the third stage. It is pointed out that the estimates are based on the high rates of labour and material prevailing today, which are likely to come down during the 20-year period of work. Because of this it is hoped, the work may actually cost less. That is one of the reasons why the fourth stage has not been estimated.

It is stressed although, that the plan is just an outline of what is proposed to be done, and although it covers the ground as a conception, it is a product of experience and observation only—and not of detailed surveys which will have to be made. The plan as it is before the public is an envelope whose contents must be filled quickly to prevent further mistakes, confusion and civic decay.

All in all, this report on the outline of the Master Plan is a most interesting publication and the facts and proposals are presented in a manner that will create the interest of every public-minded citizen who is keenly interested in civic affairs. We feel that no sizable city in India should be without such a planned proposal for its orderly development. This is a duty that every city owes to posterity.

PERSONAL

Rao Sahib K. K. Nambiar.

The new Chairman of the City Improvement Trust, Madras is Rao Sahib K. K. Nambiar, B.E., M.I.E., F. INST. H.E., M.I.M. & Cy.E., M.R.S.I., M.A.S.C.E. He has been selected from amongst 60 applicants. He is fully aware of the City's requirements, having himself been the City Engineer and the choice is most appropriate.

Mr. M. Meeran.

Mr. M. Meeran, B.E., A.M.I.E., A.M.I. Struct. E., A.M.A. Soc. C.E., hitherto Executive Engineer of the City Corporation, Madras has been promoted as City Engineer.

Mr. M. B. Chabiani.

Mr. M. B. Chabiani, M. Sc. (Lond.), B.E., A.M.I.C.E., M.I. Struct. E. M.I.M. & Cy. E., has accepted the post of Resident Engineer, Kandla Harbour on the West Coast.

Dr. George Sachs

Dr. George Sachs, Director, Research Laboratory of the Institute of Technology, Cleveland, Ohio U.S.A. has been appointed Director, National Metallurgical Laboratory, Government of India, Jamshedpur.

OBITUARY

Mr. S. D. Bose.

It is with deep regret we report the death of Surendra Mohan Bose on October 11, at Calcutta at the age of 66. The waterproofing industry in India owes its inception and development to his unflagging efforts. His contribution to this country's welfare was full of merit and diverse activity. He associated with various organizations including that of the College of Engineering and Technology, Jadavpur.

STRESS GRADING OF TIMBER*

C. J. CHAPLIN, M.Sc., M.E.I.C., M.I. Mech. E.

What it is and why it is needed in a competitive world for the future development of the use of timber in structures.

The Structural Engineer, whom we shall in future call the Engineer, has been much engrossed in the development of steel and reinforced structures in the last fifty years, but recently the modern conception of the timber structure has caught his fancy and imagination and he is considering how he can use this interesting material with such useful properties. At the same time, however, the Engineer is uncertain about timber because of its variability, which in the past has necessitated the use of much larger sizes than should really be necessary for the safety of the structure.

To bring timber into a favoured place as a structural material in competition with steel and concrete, we must gain the complete confidence of the Engineer by presenting data on timber in a form that he can use in accordance with his Theory of Structures, and then provide him with material that is certain to have the necessary strength and other properties in accordance with this data. This can only be done by grouping timber into grades within given limits of size of defects and of other characteristics that have been found by extensive investigations and tests to determine the strength of the timber; and from the results of these same tests, to compute the safe strength or, as the Engineer puts it, the "permissible stress" for the grade. This process is now known as Stress Grading.

The influence of defects and of natural characteristics of timber upon its strength.

We know that the stronger pieces of timber are likely to be

amongst those having, like our ancestor's club handle, "straight grain and freedom from knots and all other defects," and the task of providing suitable timber to make strong floors and other parts of buildings would be simple if there were enough of this "grade" to fill all requirements. But this grade is no longer available in sufficient quantity to warrant its use in structures, although probably it will still be specified by some engineers and architects for their works. In the past, however, it was not entirely their fault that they clung to their clause that excluded timber with defects, for there was little known about the weakening effect of knots, cross-grain, and splits; and the fear of the unknown impelled them to continue to specify the impossible and hope for the best!

Stress-grading has been simplified and it should not be imagined that any real difficulties are involved. I quote from Forest Products Research Laboratory's leaflet No. 19: "Anyone with average intelligence and a foot-rule can grade timber for strength purposes, and may carry out the operation at any stage in the progress of the converted timber, from the saw to its position in the structure." This view of the ease in the application of the grading rules is endorsed by T. R. C. Wilson (Madison), who wrote: "With the help of the data given here (Misc. Pubn. No. 185), individual pieces or lots of timbers can be graded by the user or distributor, grade descriptions can be prepared by the lumber manufacturer or user, and working stresses for grades described in lumber Association rules or else-

where can be determined or checked by the engineer, architect or contractor."

To use timber with defects in positions requiring strength, as discussed in connection with beams, struts and trusses, we must know in how far each type of defect influences each of the several strength factors.

The commonest defect is the knot and, as it has a serious influence on strength under certain conditions and in certain positions, and a lesser influence in other circumstances, we must learn from experience gained in testing timber with and without knots just how the size of each type of knot is to be limited in the piece so that the strength of its piece will be adequate.

A very large number of official tests on beams and struts have been made in the Forest Products Research Laboratories both at home and abroad to determine the strength in relation to the defect and to the natural characteristics and the results have been applied to the system of grading for strength. In Treadgold's time and for many years later comparatively few tests on timber to provide these strength values were made and what had been done were on small-sized pieces, of which the greatest number measured only about an inch square in cross-section! And so it was the custom before this modern study of the strength of timber was initiated for an engineer about to design a load-bearing structure, especially if it were to be carried out on some

(Continued on page 22)

AEROPLANE HANGAR DESIGN

Doctor Ing. ALFRED MEMEL

The Plan of A Hangar

The object of a hangar is to afford protection against the weather both to the machines themselves and to the personnel engaged in their maintenance and repair. In addition, it is considered necessary to have regard to the contingency of hostile attack both in the lay-out and in the detailed construction of the hangars. One of the most fundamental points is that of the plan of the hangar. A number of different forms are possible, but the only ones which come under practical consideration are the circular, the polygonal and the rectangular shapes, of which the last is much the most frequently adopted.

In this connection use is made of an important concept, which is designated as the space efficiency φ and is defined as the ratio between the sum of the rectangular areas enclosing the aircraft sheltered by the hangar, and the total floor area of the latter. The greater the value of φ the better the use made of the available space. While a rectangular plan affords an approximately equal sheltering capacity whatever the sizes of machines fitted into it, other designs are efficient only for the particular type of machine assumed in their design, and can be used for sheltering other types only by wasting a great deal of space. For a smaller type of machine than that assumed in the design, φ is reduced, for instance, from 0.91 to 0.70, while, on the other hand, machines of still larger size cannot be accommodated at all. It is not sufficient, therefore, to achieve a good space efficiency only for one particular type of aeroplane, but φ must have a satisfactorily high value for different types; the value of φ must be not only high but insensitive.

Another disadvantage of the polygonal design of hangar is the difficulty which arises in the important matter of the doors. Nevertheless, there are certain special purposes for which the polygonal design offers advantages, and it is occasionally adopted in Germany. What follows will have reference only to hangars of the rectangular plan.

Design and Cost.

The general problem of the design of a hangar may be divided into the following four principal considerations, each of which is linked with the question of cost:

- (1) Area of the floor space.
- (2) Arrangement of supports.
- (3) Ratio between length and depth of the plan.
- (4) Arrangement of roof girders.

As regards size, it is necessary to reconcile two opposing considerations. The larger the hangar the better and the less "sensitive" will be its space efficiency, but the greater will be, the risk of fire, for it must always be remembered that aircraft are dangerous in this respect. The smaller the hangar the lower and more "sensitive" the space efficiency, but on the other hand the less is the risk from fire.

The limiting condition in one direction may be illustrated by a hangar divided up into separate boxes for each aeroplane, and which has, therefore, a high space efficiency of $\varphi = 1.00$ for one particular type of aeroplane, but in which the space efficiency is, of course, very sensitive. The outcome of a great many trials is that the greatest area which is suitable for this type of hangar is about 37,600—43,000 square feet suitable for large machines, and the mini-

mum about 10,760 square feet suitable for smaller aircraft.

The question of the arrangement of the supporting columns is closely connected with that of the size of the hangar, its space efficiency and "sensitivity" and also the cost of construction. If the supporting columns within the parking space are avoided as far as possible the space efficiency will obviously be increased, or, in other words, the same results may be obtained with a smaller amount of parking space. It is true, of course, that the avoidance of structural supports in the floor space entails longer spans and correspondingly heavier material in the roof girders in proportion to the space covered. On the other hand, since better use is made of the floor space the amount of space required can be reduced, that is to say, the cost per unit area is greater, but the value per unit area is also greater, and if the total area can be reduced there is, of course, also a saving in roofing and flooring material, in heating and in the construction of the outside walls. It will be remembered that in similar rectangles the periphery varies as the square-root of the area. Similar considerations arise in comparing the advantages of building a smaller number of large hangars or a larger number of small ones. There are two points to be remembered:—

(1) Comparisons of cost should not be made on the basis of the cost of construction alone, but on that of the total costs, and

(2) Such comparisons should not be expressed as so much per square feet of area covered, still less as so much per cubic feet of space enclosed, but as so much per unit of aircraft accommodated.

(To be continued.)

* Continued from October Issue of The Building Gazette.

STRESS GRADING OF TIMBER

(Continued from page 20)

species of timber with which he was unfamiliar, to select a few pieces and put them to some form of test—sometimes shockingly crude—and from their scanty results compute averages of the various properties and then observing that timber is very variable ("uncertain," he probably said), he would divide each average property by a "factor of safety" to obtain his "permissible stress." The size of his factor of safety would vary with his idea of the "uncertainty," with the degree of hazard to life and property should the structure collapse under load, and then he added a bit more for good measure so that in the end the factor of safety, which was in fact a "factor of ignorance", was sometimes 8 or 10 or 12 or even greater.

The application of these large factors had the effect of increasing the sizes of the various members beyond what was really needed for strength and stability, with a consequent waste of material, and in many cases unsightly structures built of huge timbers that required considerable skill and extensive equipment to erect. These conditions had a deterring effect upon the use of timber in structures.

Now, as a result of our better understanding of timber, we can closely assess the probable strength of each piece; and the factors we apply, instead of being factors of ignorance, have definitely understood relations to the conditions of the timber and the method of loading. There remains one factor for the unknown, for the hidden defect or for unforeseen overloading, or any condition that may tend to weaken the piece, but its value is only 1.33. That so small a factor remains reassures the Engineer.

This new method of assessing strength has been developed during the last twenty years and began quite naturally in the U.S.A., where such quantities of timber were used not only for housing but also for important bridges, railway trestles and the like, that the

extensive virgin forests, which at one time could supply all the needs of the community, were beginning to show signs of exhaustion.

The actual beginning of stress-grading was made at the Forest Products Laboratory at Madison, Wisconsin, with series of tests on full-sized structural beams and columns, which have yielded results that have been the basis of all the data on strength of structural timbers published recently in the U.S.A. The data have been worked into various reference books, an example of which is "The Douglas Fir Use Book," a companion volume to the West Coast Lumbermen's Association's Grading Rules No. 9, and from it I quote: "Giving a classified strength rating on structural timbers for specified uses, these rules provide a basis for selecting material of dependable uniformity. This makes possible the safe use of smaller sizes and longer spans, with maximum initial and ultimate economy resulting."

The Canadian laboratories at Ottawa and Vancouver have applied these methods to the native species of the Dominion, and the results have been adopted in several Canadian grading rules, in particular those of the B. C. Lumber and Shingle Manufacturers Association.

Investigations in progress at the Forest Products Research Laboratory, Princes Risborough for several years had produced data on beams of European redwood before the war; but the outbreak of hostilities, with the need to direct the Laboratory's efforts to more urgent war problems, cut short the work before other much needed information on European redwood struts and European whitewood members could be adequately developed. An early return to these features of the investigation with extensions to other related work is hoped for as soon as post-war conditions permit.

Engineers from Sweden and Finland came to the Laboratory at Princes Risborough to learn the

technique of testing structural timbers and of stress-grading, and that on their return to their countries they initiated similar investigations. We may then expect that there will be an appreciation of the value of stress-graded timber in those two countries and even a readiness to supply stress-grades to their export market.

The results of tests can now be made available to Engineers who wish to design in timber, provided that the timber is graded in accordance with the recommendations of the laboratories.

Application of Stress-Grades to Construction.

Until recently precise data on strength of graded timber was not needed for the design of joists, rafters and other members, for it could not be applied owing to the lack of essential information on the loadings of floors and roofs. Now, however, this information on loadings has been obtained and has become of importance in those sections of the National Building Code which will undoubtedly become more and more effective in the future with improved conditions and facilities for reconstruction.

Before leaving this review of the efforts made in various countries to grade timber for strength, it is interesting to note that in Germany somewhat similar work was begun some years before the war, and from an available report published there in 1942 the results were being vigorously applied to "The economical use of wood in building" in war-time.

The Essential Points to be covered by Stress-Grading Rules.

Although its moisture content has a marked effect upon the strength of timber, it does not come into grading, as it is a matter of process or treatment of the material between the saw and its position in the structure. We are, however, concerned with moisture changes causing shrinkage in the transverse dimensions or size of the piece, and the fact must be accepted that no

(Continued on page 23)

SPECIFICATION
SYMMETRICAL LIGHT DISTRIBUTIONS FROM
LIGHTING FITTINGS.

British Standard 398, Symmetrical light distributions from lighting fittings, which was first published in 1930 and revised in 1936 has now been revised again to keep pace with developments in illuminating engineering. This standard provides a common terminology, to permit comparison of the characteristics and performance of lighting fittings, the most important characteristic being light distribution. It is possible to describe the types of light distribution by names such as "high bay" or "dispersive"; but the value of such a classification is limited by the variations within each of these classes, which may result in particular fitting falling into more than one class.

This Standard permits more precise classification of light distribution, firstly by the division of light flux between upper and lower hemispheres, and secondly by the

spacing/height ratio, which gives a specified minimum uniformity ratio. The minimum spacing/height ratio, at which fittings may be installed to give sensibly uniform illumination, is related to the dispersive angle. As an indication that the distribution curve of a fitting is capable of giving sensibly uniform illumination, the specification defines a standard form of installation to test that the uniformity ratio is not less than a certain minimum value. The specification provides simple methods of determining the dispersive angle and spacing/height ratio and for estimating the approximate uniformity ratio.

Copies of this British Standard may be obtained from the Sales Department, British Standards Institution, 24, Victoria Street, London, S.W. 1. Price 2/6d. post free.

STRESS GRADING OF TIMBER

(Continued from page 22)

matter how timber is seasoned its moisture content never remains fixed at some degree of dryness that might be related to that peculiar expression "thoroughly seasoned." It is well known that as timber dries from the "green" condition as when freshly felled and converted, with moisture contents generally ranging well over 50 per cent, little change is to be noticed until the moisture content comes down to about 25 per cent, when on further drying several things begin to happen; the timber shrinks across the grain, tangentially more than radially; it becomes stiffer and stronger in bending, compression and tension; and sometimes warping takes place. When its moisture content has dropped to 20 per cent or lower the timber becomes immune from any form of rot and will remain safe as long as the

moisture content remains below that level. This is most fortunate for the life of the structure, for it has been found that the moisture content of timber in buildings where it is protected from direct wetting is not likely to exceed 18 per cent as the result of taking up moisture from the air in damp seasons.

Neither need we consider the effect of sapwood for, contrary to a belief still cherished by some people, it is as strong as heartwood when seasoned to the same condition and therefore should not be excluded from stress-grades; but sapwood should not be used in positions conducive to dry-rot or attack by other wood-destroying fungi unless it be protected by some effective preservative.

(To be continued)

(By Courtesy: The Timber Development Association, London.)

A-B-C OF TOWN
PLANNING

New Handbook Outlines Basic Principles.

An important publication just issued in Britain represents the first attempt by any country to provide a set of simple propositions on which town planning and reconstruction can be based.

It takes the form of a handbook prepared by the Ministry of Town and Country Planning. It is the first of a series of technical publications covering the whole field, being prepared for the assistance of local authorities in dealing with their reconstruction problems.

The present handbook is realistic in tone and excellently illustrated with clearly coloured maps and diagrams. It deals with the re-planning of the civic and commercial core of a typical large town in Britain. It shows that it is possible to achieve a free circulation of traffic with ample parking space and easy access within some area without sacrificing accommodation. This can be done no matter how congested the streets may be, while, at the same time, providing generous open space and excellent daylight. The main principle recommended is that of building in larger units and spreading the total accommodation more evenly.

Other subjects considered are the stages by which such a re-development can be most economically carried out without undue dislocation, and the best methods of undertaking the necessary surveys. Street patterns, with particular attention to the design of road intersections, are also discussed.

The most important section is, perhaps, the appendix, setting out a daylighting code. It lays down an entirely new standard, both for health and amenities, in city planning of the future.

Such principles are applicable not only in Britain but to any large town in any part of the world.

CONTRACTS OPEN

The dates at head of paragraphs are those for the submission of tenders. Application for forms and particulars should be made to the address given at the end.

BIRBHUM: Mor Project.

November 16.—Excavating Mor-Dwarka Main and Branch Canals in connection with the Mor Project. The work is divided into different reaches value of work for each reach being about Rs. 1,50,000. Earnest money 5 per cent. The Executive Engineer, Mor Construction Division, No. 1, Rampurhat, Birbhum.

KALYAN: Water Supply.

November 16.—Extension of Kalyan Filtration Plant. The Chief Engineer, G.I.P. Railway, Bombay.

TITILAGARH: Railway Quarters.

November 16.—Construction of Staff Quarters 244 at Waltair, 51 at Vizagapatam, 32 at Rayagadhe, and 71 at Kantabanji. The District Engineer, B.N. Ry., Titilagarh.

BILASPUR: Railway Quarters.

November 17.—Construction of Staff Quarters 268 at Bilaspur, 73 at Sahdol, 38 at Manendragarh, Percentage Rate Contract. The District Engineer, B.N. Ry., Bilaspur.

NEW DELHI: Aerodrome Quarters.

November 17.—Construction of Class I-A and Class II-B Quarters for Civil Aviation staff at Palam aerodrome. Estimated cost Rs. 1,26,790 and Rs. 7,48,350 respectively. The Executive Engineer, Delhi Aviation Division, Connaught Circus, New Delhi.

PAURI: Girder Bridge.

November 17.—Construction of 120 ft. span girder bridge over Eastern Nayar at Satpuli in Garhwal District. Approximate cost Rs. 1,00,000. The Executive Engineer, Garhwal Provincial Division, Pauri.

JUBBULPORE: Re-roofing Work.

November 18.—Re-roofing and Repairs to Stores Sheds, at Amla and Jubbulpore. Estimated cost Rs. 4,75,000 and Rs. 3,75,000 respectively. Commander, R.I.E., Jubbulpore.

CUTTACK: Railway Quarters.

November 18.—Construction of Staff Quarters 73 at Bhadrak, 44 at Cuttack, 184 at Khurda Road, 36 at Palasa. The District Engineer, B.N. Ry., Cuttack.

BOMBAY: Cargo Shed.

November 19.—Construction of a Cargo Shed at Carnac Bunder. The Chief Engineer, Bombay Port Trust, Ballard Road, Bombay.

NAGPUR: Railway Quarters.

November 19.—Construction of Staff Quarters 91 at Raipur, 120 at Dongargarh, 81 at Goudia, 87 at Nagpur and 60 at Motibagh; Types A, B & C. The District Engineer, B.N. Ry., Nagpur.

NAINPUR: Railway Quarters.

November 20.—Construction of Staff Quarters 82 at Nainpur, 22 at Howbagh, 48 at Chindwara, 30 at Nagbhir. Percentage Rate Contract. The District Engineer, B.N. Ry., Nainpur.

WANKANER: Mochhu Project.

November 22.—Construction of a Masonry Dam across river Mochhu. Estimated cost Rs. 45 lakhs. The Chief Engineer, P.W.D., United State of Sourashtra, Rajkot.

GARDEN REACH: Railway Hostel.

November 23.—Construction of a Hostel Building for Railway Staff at Garden Reach. The District Engineer, B.N. Ry., Development, Garden Reach, Calcutta.

JUBBULPORE: College Block.

November 23.—Construction of Block for Electric Engineering Section of the Mahakoshal Mahavidyalaya, Jubbulpore. Estimated cost Rs. 3.31 lakhs. The Superintending Engineer, P.W.D. Jubbulpore.

KHARGPUR: Tube Well.

November 26.—Sinking and fitting complete one 6 inches

diameter Tube Well to a depth of about 400 ft. with a yield of 15,000 to 20,000 gallons of water per hour at Kharapur Settlement of the B.N. Railway. The District Engineer, B.N. Ry., Development, Kharapur.

ADONI: Aqueducts.

December 1.—Constructing two aqueducts at mile 107-6-150 and 154-0-530 respectively of Low Level Canal in Adoni Division. The Executive Engineer, Adoni.

MADURA: Transmission Lines.

December 2.—Construction of 127 miles overhead transmission lines of 66 KV. in Madura and the surrounding area. The Superintending Engineer (Technical), Chepauk, Madras.

NAGPUR: Nurses' Quarters.

December 3.—Construction of a portion of Nurses' Quarters attached to the Medical College at Nagpur. Probable value of contract Rs. 7,61,810. The Superintending Engineer, Project Circle, P.W.D., Nagpur.

NAGPUR: Medical College.

December 6.—Construction of additional quarters for Medical College Staff at Nagpur. Estimated cost Rs. 2 lakhs. The Executive Engineer, Construction Division, P.W.D., Nagpur.

NAGPUR: Staff Quarters.

December 10.—Construction of Ministerial Staff Quarters at Nagpur. Estimated cost Rs. 9,22 lakhs. The Executive Engineer, Construction Division, P.W.D., Nagpur.

SIMLA: Naugal Project.

January 20.—Supply and delivery of steel towers for 220 K.V. and 132 K.V. Transmission lines, Specification No. 628 for Naugal Power Project. The Chief Engineer, East Punjab P.W.D., Electricity Branch, G.H.Q., South Block, Simla.

BOMBAY: Water Supply.

February 4.—Construction of a cement Concrete Dam across the river Vaitarna. The dam will be about 1,700 feet long and about 250 feet high. The Special Engineer, Bombay Municipality.

HOW WAS DECEMBER 1947

For Building

Rainfall in inches.

Ahmednagar	1.4
Ahmedabad	0.0
Alleppey	5.7
Ambala	0.5
Aurangabad	1.1
Bangalore	0.3
Baroda	0.0
Belgaum	2.6
Bellary	0.7
Benares	0.0
Bhopal	0.4
Bombay	0.0
Calcutta	1.1
Cherrapunji	0.1
Cocanada	2.7
Cochin	3.7
Colombo	6.3
Cuttack	3.8
Darjeeling	0.1
Dehra Dun	0.1
Delhi	0.3
Gaya	0.1
Gulbarga	0.0
Hanam Konda	0.2
Hanovar	1.0
Hyderabad (Deccan)	1.1
Hyderabad (Sind)	0.0
Jamshedpur	0.9
Kodaikanal	1.0
Kurnool	0.5
Ludhiana	2.5
Madras	0.6
Madura	0.9
Mahabeshwar	0.1
Mangalore	1.4
Mercara	2.7
Multan	0.0
Masulipatam	8.9
Mussoorie	0.3
Mysore	0.1
Nellore	1.7
Nagapatam	2.2
Ootacamund	0.8
Palghat	1.1
Peshawar	0.7
Poona	0.1
Raichur	0.4
Rajkot	0.0
Ranchi	1.3
Shillong	0.3
Sholapur	0.3
Simla	1.0
Surat	0.0
Trichinopoly	0.4
Trivandrum	1.6
Vizagapatam	9.9

FOR DISCUSSION

There are only four Indians who are qualified water engineers.

The Ceylon Government has commissioned for their work the best one of this group.

While designing houses for orthodox Hindus, well should be so located in the backyard that it is either visible in full or not at all from the main entrance door.

Mysore feels she is ahead in every respect and have hastened to form a Contractors' Association.

With all the impact of the last war, Japan produces today more steel than India.

The rate of the increase of migration from villages to towns is not peculiar to India alone.

Engineers' qualifications include intellectual and moral honesty, courage, independence of thought, fairness, good sense, sound judgment, perseverance, resourcefulness, ingenuity, orderliness, application, accuracy and endurance.

The first railway bridge ever constructed over the river Tigris is now being built at Baghdad.

A building is badly ventilated if the carbon dioxide reaches a concentration of about a half of 1 per cent. No physiological effect from an excess of carbon dioxide will be noticed until the concentration reaches about 2 or 3 per cent, and then the only effect will be to cause a slight increase in the depth and frequency of respiration.

PROPOSED NEW WORKS

Ahmedabad.

An important development scheme to relieve congestion in the City has been approved by the Municipality.

Calcutta.

Plans for sinking one 10" x 6" tube well to a depth of about 700 ft. with a yield of 15,000 to 20,000 gallons of water per hour at the Santragachi Settlement for the B. N. Ry. are ready for execution at the Chief Engineers' Office (B.N. Ry.), Calcutta.

A proposal to build a house of their own in Calcutta at a cost of Rs. 5 lakhs is being considered by the West Bengal Provincial Congress Committee.

Dehra Dun.

Necessary land for constructing an aerodrome at Dehra Dun is being acquired in three contiguous villages—Bamanwala, Majra and Bhanuwala.

Juhu.

Preliminaries are complete at the C.R.I.E.'s Office, Bombay for the construction of a Wireless Transmitting Station consisting of transmitter-building, living accommodation, aerial masts, roads, fences, etc. at Juhu. The approximate value of the work is estimated at Rs. 3.4 lakhs.

Katmandu.

The Nepal Government has sanctioned the construction of a 60 mile road connecting Katmandu with India for which the survey work is complete.

Raipur.

The Municipal Committee of Raipur has proposed to construct a new Building costing not more than Rs. 3 lakhs for its office; the Building Information Centre, Madras has suggested a panel of six architects for undertaking to prepare its design.

Sourashtra.

A special Projects Division of the Sourashtra Union has prepared the blue-print of Rs. 3 crore plan to irrigate about 70,000 acres by dams.

EDUCATIONAL

THE INSTITUTION OF WATER ENGINEERS

The Institution was established in 1896 as the British Association of Water Works Engineers; in 1911, it was incorporated as the Institution of Water Engineers; and on January 1 this year its strength of membership grew to 1,038.

The main object for which the Institution is established is to promote the advancement of water engineering in all or any of its branches and of matters connected with or relating to water undertakings.

Until the year 1928 the annual Winter Meetings of the Institution were held at Burlington House, by courtesy of the Geological Society, but as the membership grew this accommodation was found to be inadequate, and subsequently the meetings have taken place, with some exceptions during the war at the Institution of Civil Engineers, whose Council have kindly placed the Lecture Theatre at the disposal of the Institution on these occasions.

The Institution holds no specific examination of its own, but certain qualifications are accepted in regard

to various grades of membership. Due regard is paid to the "eminence" or otherwise of the candidate. The most interesting feature of the Institution is in its organisation connected with research. At the moment research groups are working on the following subjects:—

Reservoirs; supersonic frequencies; algal growths; sterilisation of water; corrosion and failure of pipe lines; hydrological; water works fittings; mechanics of filtration; detection of underground leakages.

The Institution conducts research on chemical analyses with the harmonious co-operation of the Royal Institute of Chemistry, Society of Public Analysts, and other analytical chemists.

A feature of the constitution of the Local Committees is that each must contain at least two Associate Members under the age of 35.

The Institution is represented on 40 committees other than committees of its own. The address of the Institution is Parliament Mansions, Abbey Orchard Street, Westminster, London, S.W. 1.

Are you interested in
TOWN PLANNING?
THE
SCHOOL OF PLANNING
is now able to offer to
PROFESSIONAL MEN
IN
INDIA

the opportunity of studying by correspondence for the external Intermediate and Final Examinations of the Town Planning Institute.

The fee for the whole Course, including text-books, tuition and criticism,

is £20 sterling

Applications for further particulars and enrolment form should be sent to:—

The Secretary:

SCHOOL OF PLANNING

35, Gordon Square,
LONDON, W.C. 1.

RESULTS OF TENDERS

Closed August 16.—Proposed Pharmacy Laboratory, Andhra University:—Under consideration.

Closed September 1.—Town Hall at Godhra:—Out of 9 Contractors registered, 3 have submitted design. Final decision not yet arrived.

Closed September 10.—Construction of Donje-Khanapur Road:—Entrusted to Firangu Maruti Jadhav, Poona. The amount of accepted tender is Rs. 41,941 against the estimated amount of Rs. 43,098.

Closed September 17.—Fountains for Virudhunagar Municipality:—Entrusted to S. Gandhi Bros., Virudhunagar.

Closed October 5.—Coimbatore Water Supply Scheme:—Under scrutiny.

CURRENT PRICES FOR MEASURED WORK

*Current Prices for Measured Work are a new feature. We believe that even those who may criticise the subject-matter will agree that the idea behind it is sound. For all aspiring builders call for estimates from contractors chiefly to get an idea of the cost of a proposed building and construct the building themselves. Prices shown below are for work executed complete and are for an average job in the Madras City; all prices include for overhead charges and profit for the general contractor. This feature to cover other areas will be published in our subsequent issues.

EXCAVATOR	Rs. A. P.	Glazed sashes for windows 1-1/8" thick Malabar teak with 18 oz. glass including hanging per sq. ft.	Rs. A. P.
Excavating not exceeding 5' 0" deep to form trenches for foundation per 100 c. ft.	2 0 0	Wrought and fixed boarding Malabar teak 1 1/2" thick per sq. ft.	3 12 0
Hardcore, good earth, filled in under floors, per 100 c. ft.	4 0 0	Do. 1" thick per sq. ft.	2 8 0
Sea sand deposited in trenches, 6" thick per 100 sq. ft.	12 8 0	Malabar teak, in roof joists per c. ft.	22 0 0
		Malabar teak, wrought, framed and fixed in fixtures per c. ft.	28 0 0
CONCRETOR		IRONMONGER	
Brick-jelly concrete in lime 1:2:5 for foundation per 100 c. ft.	75 0 0	3" Butt Hinges iron including fixing each	0 6 0
Cement concrete for lintels including form-work per c. ft.	4 0 0	4" do. each	0 7 0
Reinforcement under 5/8" diameter, M.S. rods cut to lengths, including bends and hooked ends and embedding in concrete lintels per cwt.	26 8 0	4" Barrel bolts, brass including fixing each	2 0 0
Cement concrete grills, 1 1/2" thick per sq. ft.	2 0 0	6" do. fixing each	2 8 0
		6" cabin hooks iron including fixing each	0 3 0
BRICKLAYER		1 1/2" diameter rings, brass including fixing each	0 12 0
Country brick in lime mortar 1:2 in foundation per 100 c. ft.	110 0 0	Sash pivots brass 2 1/2" including fixing per set	1 8 0
Country brick in lime mortar 1:2 in superstructure per 100 c. ft.	115 0 0	Rim locks and furniture brass including fixing each	40 0 0
Half-brick wall in cement mortar 1:5 per 100 sq. ft.	55 0 0	All-drop bolts 12" brass including fixing each	15 0 0
Flooring of brick jelly concrete in lime 4" thick and cement mortar rendering 1/2" thick 1:3 finished to a smooth trowelled surface per 100 sq. ft.	40 0 0	PLASTERER	
Do. with surface red, black or brown colour per 100 sq. ft.	48 0 0	1/2" Rendering to walls in lime, cement and sand 1:1:5 to internal or external per 100 sq. ft.	15 0 0
Madras terrace roof complete including puttying to soffits per 100 sq. ft.	160 0 0	1/2" Rendering to walls in cement and sand 1:3 per 100 sq. ft.	13 0 0
Skirting 1:3 cement and sand 3/4" thick rounded to 3" radius and 4" high including mitres and stop ends per R. ft.	0 5 0	Cornice moulding 6"—9" girth per R. ft.	0 12 0
CARPENTER		Whitewashing 2 coats per 100 sq. ft.	1 8 0
Door and window frames 4" x 3" sections Malabar teak, moulded and rebated, framed and fixed in position per R. ft.	2 4 0	Common colour washing 2 coats per 100 sq. ft.	1 12 0
Panelled shutters for doors and windows 1-1/8" thick Malabar teak including hanging, per sq. ft.	5 12 0	Water-bound distempering 2 coats per 100 sq. ft.	9 0 0
Do. 3/4" thick	4 0 0	PAINTER	
		Preparing and painting 2 coats of oil colour on iron work after fixing per 100 sq. ft.	15 0 0
		Knot, prime, stop and paint 3 coats oil colour on wood work per 100 sq. ft.	13 0 0
		Wood oiling 2 coats tinted brown per 100 sq. ft.	8 0 0
		Tarring to wood work one coat per 100 sq. ft.	4 0 0

* This page is specially compiled for THE BUILDING GAZETTE and is strictly copyright.

Phone: 2760

Telegram: "LUX"

LAKSHMI RATANS LIMITED

316, Thambu Chetty Street,
G.T., MADRAS

CARRY STOCKS OF SANITARY-WARE,
MANHOLE COVERS, TILES, STONE-
WARE PIPES, AND ELECTRICAL
GOODS. SANITARY INSTALLATIONS
AND BUILDING CONSTRUCTION
UNDERTAKEN

Tel.: "Timpost."

Phone: 2848

MADRAS TIMBER TRADING CO.,
76, SYDENHAM'S ROAD,
MADRAS-3.

OFFERS

TIMBER AND MANGO PLANKS
GLASS TILES & PLYWOOD.

BOOKS ON ENGINEERING**ARCHITECTURE & TOWN PLANNING****O-SERIES**

	Rs. A. P.
Architecture by Martin S. Briggs ...	3 12 0
Architecture by C. Batley (Oxford Pamphlet) ...	0 6 0
Build Your Own Abode by Paul and Doris Aller ...	10 8 0
Slide Rule Calculations by H. O. Cooper... 6 6 0	
Constructional Steelwork Simply Explained by O. Faber ...	4 8 0
Simple Examples of Reinforced Concrete by O. Faber ...	4 8 0
Reinforced Concrete Simply Explained by O. Faber ...	4 8 0
New Acoustics by N. W. McLachlan ...	5 10 0
Iron and Steel Today by J. Dearden ...	5 10 0
Building Today by M. S. Briggs ...	5 10 0

OL-SERIES

Practical Engineering Problems and Their Solution by Higgs ...	1 0 0
Building Construction by McKay Vols 1, 2 & 3, each ...	7 5 0
Structural Engineering by Cassie ...	13 0 0
Theory of Structures by Morley ...	13 0 0
Building Quantities by Anderson ...	6 1 6
Britain and Her Buildings by Kirkman ...	2 3 9
Strength of Materials by Morley ...	12 3 0
A Residential Unit for Town and Country Planning by Fawcett ...	2 7 0
Town Planning and Road Traffic by Tripp ...	10 15 0
City Planning, Why and How by Lewis... 11 4 0	
Plumbing by Winder ...	6 1 6
Men at Work (Industrial Psychology in the Factory) by Oakley ...	6 14 6

M-SERIES.

Architectural Building Construction by W. R. Jaggard and F. E. Drury—	
Vol. 1 ...	8 8 6
Vol. 2 ...	12 3 0
Vol. 3 ...	12 3 0
Building Construction for Beginners by Relly ...	5 4 6
Experimental Building Science by Mason ...	4 14 6

POSTAGE AND PACKING EXTRA.

Write for your copy to:

BUILDING INFORMATION CENTRE
Post Box 288, :: G.T., MADRAS.

All our Work is obtained by Merit.

K. C. DUM & CO.,

ENGINEERS & CONTRACTORS

MERCARA

WE BUILD

FACTORIES, HOSPITALS, POWER
STATIONS, RUNWAYS AND
BUILDINGS OF EVERY DESCRIPTION.

B. RANGIAH

CONTRACTORS TO M.E.S.

ALWAL—SECUNDERABAD.

Phone: 3794.

Telegram: MONITOR.

T. A. RAMA ROW

'NARMADA'

39, Lingha Chetty Street,
G.T., MADRAS

Representative:

IRONSIDE LIMITED, LONDON

IMPORTER FOR IRON AND
HARDWARE, YELLOW METAL
COPPER SHEETS AND INGOTS.

ENQUIRIES SOLICITED

<i>Karnataka Construction Co. Ltd.</i> ENGINEERS & CONTRACTORS SHIMOGA UNDERTAKES ALL CLASSES OF CONSTRUCTION WORKS UNDER THE SUPERVISION OF QUALIFIED ENGINEERS.	FOR FURNITURE Visit : The Madras Furnishing House 18-E, Broadway :: MADRAS.		
CLASSIFIED ADVERTISEMENTS Appointment Wanted Architect's Assistant (26) desires post in busy Architect's office; 5 years' drawing office experience in details, etc. Working for R.I.B.A. Intermediate. Write to Box C.A., c/o The Building Gazette.	ORDER THE BUILDING GAZETTE REGULARLY AND AVOID DISAPPOINTMENT		
EMPLOYMENT EXCHANGES Open to All The Proprietors of "The Building Gazette" have placed this space at the disposal of the Employment Exchange, Government of India. The Employment Exchange has on the Register a large number of ex-servicemen of various qualifications, and the Director would be very thankful if Employers would kindly notify to the local office of the Exchange particulars of any vacancy they may have available.	Telegrams: "ACME" P. B. 132. Phone 3205. <table border="1"> <tr> <td data-bbox="994 1139 1264 1295"> ACME TRADING CORPORATION INDENTING AGENTS Builders Hardware, Sanitaryware and Tiles, Electrical Accessories, and Sundries. </td> <td data-bbox="1264 1139 1524 1295"> B. S. & F. MART "PEN CORNER" Direct Importers and Suppliers of all office equipments, Drawing materials, Paper and Stationery. </td> </tr> </table> Enquiries Solicited at 113, ARMENIAN STREET, MADRAS-1. PLAN YOUR BUILDINGS <i>through your Architect—</i> ★ E. GIBSON, 15, Md. Hussain Street, Narasingapuram, Mount Road, MADRAS.	ACME TRADING CORPORATION INDENTING AGENTS Builders Hardware, Sanitaryware and Tiles, Electrical Accessories, and Sundries.	B. S. & F. MART "PEN CORNER" Direct Importers and Suppliers of all office equipments, Drawing materials, Paper and Stationery.
ACME TRADING CORPORATION INDENTING AGENTS Builders Hardware, Sanitaryware and Tiles, Electrical Accessories, and Sundries.	B. S. & F. MART "PEN CORNER" Direct Importers and Suppliers of all office equipments, Drawing materials, Paper and Stationery.		

★ REGISTERED STOCK-HOLDERS OF IRON AND STEEL IN THE MADRAS PRESIDENCY

Applications for iron and steel for building purposes should be made to the Director of Controlled Commodities, Madras, through Tahsildars with detailed estimates and approved plan. Applications for pipes should be made out in the prescribed form and should be submitted through the Collectors.—ED.

COIMBATORE DISTRICT

V. Raju Naidu & Co., Coimbatore
 T. N. Rangaswamy Naidu, Coimbatore.
 T. S. Ramaswamy Iyer Bros., Coimbatore.
 A. Marimuthu Mudali, A. Arumuğa Mudali, Erode.
 K. V. Vyapuri Chetty, Erode.
 R. Palaniappa Mudaliar Sons, Erode.
 B. S. B. Govindarajulu Chettiar, Pollachi.
 V. K. Muthuswamy Chettiar, Pollachi.
 N. K. R. Narasimha Chettiar & Co., Pollachi.
 P. Palaniappa Gownder, Pollachi.
 B. S. Ganapathi Chettiar, Pollachi,
 Venkatanarayana & Co., Satyamangalam.
 Viswanatha & Co., Satyamangalam.
 R. M. Annamalai Chetty and Krishna Chettiar & Sons, Salur.
 N. Mohideen Khan Saheb, Tiruppur.
 India Company Limited, Coimbatore.
 South India Corporation (Madras) Ltd., Avanashi Road, Coimbatore.
 V. Arthanari Mudaliar, Erode.

EAST GODAVARI DISTRICT

Nalam Ramalingiah, Temple Street, Cocanada.
 Nilla Subhanna, Temple Street, Cocanada.
 Pyda Chinna Venkataramana Bros., Cocanada.
 Sripada Narasimham Bros., Cocanada.
 Vadakatty Suryaprakasam, Cocanada.
 Jagatha Venkatratnam, Ambajipeta.
 Durga Savarayudu, Peddapuram.
 Kadirisetti Narayanamurthy, Peddapuram.
 Thalam Bapanna Garu Venkatramanna, Peddapuram.
 Thaluri Veeraraju & Son, Peddapuram.
 Kaley Veerasankaram, Rajahmundry.
 Kaley Satyanarayanamurthy, Pedmally Tata-bhoy, Rajahmundry.
 Kaley Venkatramiah, Rajahmundry.
 Nagavarapu Butchi Abboyi Son, Rajahmundry.
 Sri. Suvacharla Anjaneya Steel and Iron Association Ltd., Rajahmundry.
 Thentapur Satyanarayanamurthy, Rajahmundry.

Vetcha Subba Rao, Rajahmundry.
 Bandary Satyanarayana, Tuni.
 Pyda Chinna Venkatramanna Bros., Samalkot.

GUNTUR DISTRICT

Kanamerlapudi Venkatasubbiah Chetty, Ponnur.
 Sri. Radhakrishna Iron Company, Repalle.
 Sree Ramakrishna Iron Company, Tenali.
 Dasy Pitchiah, Tenali.
 Jayavarapu Ranganayakulu, Vinukonda.

KISTNA DISTRICT

Kanigicherla Ananda Kotiah, Bezwada.
 Kanigicherla Satyanarayana & Co., Bezwada.
 Kolisetty Venkatratnam & Sons, Bezwada.
 Vamidi Venkata Veeraraghaviah, Bezwada.
 Nunna Sreeramulu, Bezwada.
 Parapalli Thukkaram, Bezwada.
 Seshamanickam, Bezwada.
 Sri Ramakrishna Iron Stores, Bezwada.
 Sri Kali Trunk Factory, Bezwada.
 Urmi Venkatratnam, Bezwada.
 Sree Ramalingaswara Iron Co., Masulipatam.
 Tulluru Satyanarayanamurthy, Jagannathapuram, Masulipatam.
 Sama Satyanarayanamurthy & Son, Bezwada.

MADRAS DISTRICT

A. Ali Mohamed & Co., 26, Lingha Chetty Street, Madras.
 The East Asiatic Co. (India) Ltd., First Line Beach, Madras.
 A. Radhakrishna Chetty, 265, Rasappa Chetty Street, Madras.
 M. C. S. Rajana & Co., 155, Naineappa Naick Street, Madras.
 P. M. Ramanujalu Chetty, 21/22, Subbu Chetty Street, Madras.
 T. S. Ramaswamy Iyer and Bros., Royapettah, Madras.
 Richardson & Cruddas, First Line Beach, Madras.
 Saleh Bros., 6, Sembudoss Street, Madras.
 C. Sanjoo Shetty, 86, Rasappa Chetty Street, Madras.

* This completes the full list in the Madras Presidency. The first two lists appeared in our September and October Issues.

(Continued from page 31)

South India Corporation (Madras) Ltd., 80, Sembudoss Street, Madras.
M. C. Sundararajan & Co., 200, Lingha Chetty Street, Madras.
A. K. Abdullabhooy & Co., 7, Anappa Chetty Street, Madras.
H. A. Tyabali & Co., 204, Lingha Chetty Street, Madras.
C. Thirunavukkarasu Chettiar, 267, Rasappa Chetty Street, Madras.
K. Thirubenaaga Chetty & Co., 93, Rasappa Chetty Street, Madras.
K. Sreenivasachari, 277, Rasappa Chetty Street, Madras.
C. A. Galiakotwala, 18, Armenian Street, Madras.
India Company Limited, 108, Armenian Street, Madras.
K. Thangavelu Chettiar, 88, Rasappa Chetty Street, Madras.
K. Chenzalvaraya Chetty, 94, Rasappa Chetty Street, Madras.
N. M. Munuswamy Chetty, 81, Rasappa Chetty Street, Madras.
C. Jagannatha Naicker, 82, Rasappa Chetty Street, Madras.
B. Sambandam Chetty, 26, Rasappa Chetty Street, Madras.
P. Natesa Chetty, 102, Rasappa Chetty Street, Madras.
K.P. K. Vaduvammal, 256, Rasappa Chetty Street, Madras.
P. Muthu Chetty, 98, Rasappa Chetty Street, Madras.
M. Govinda Chetty, Park Town, Madras.
V. Parthasarathy Naidu, Pycrofts Road, Madras.
V. Shanmugha Chetty, 102-A, Rasappa Chetty Street, Madras.
T. Rathnasabapathy, 51, Ponnappa Chetty Street, P.T., Madras.
K. N. Chari & Co., Naineappa Naicken Street, Madras.
P. R. Palani Chetty, Rasappa Chetty Street, Madras.
P. Raghava Chetty, Narayana Chetty, 92, Rasappa Chetty Street, Madras.
C. R. Muthukumaraswamy Chetty, 256, Rasappa Chetty Street, Madras.
Abdul Hussain Jeevaji & Co., 21, Lingha Chetty Street, Madras.
C. Natesa Chetty, 276, Rasappa Chetty Street, Madras.
T. Doraiswamy Nayaagar, Saidapet, Madras.

MADURA DISTRICT

P. P. S. M. A. Neelamega Nadar, Madura.
T. S. Periakaruppa Nadar, Madura.
V. A. Punniapa Nadar & Co., Madura.
V. A. S. Shanmugasundara Nadar, Madura.
V. E. S. Arjunnai Nadar, Madura.
V. A. M. Velliappa Nadar, Madura.

V. A. Kanda Nadar & Sons, Madura.
V. A. C. Chidambara Nadar, Madura.
V. A. M. Chidambara Nadar & Sons, Madura.

NELLORE DISTRICT

K. V. Brahmiah Sesha & Co., Santhapet, Nellore.
Pethuru Subbiah Chetty, Polisatty, Venkatasubbiah & Co., Santhapet, Nellore.
P. Subbarama Chetty & Co., Nellore.
Malupuri Venkatasubbiah Chetty, Santhapet, Nellore.

RAMNAD DISTRICT

V. M. V. R. Ramaswamy Nadar, Sattur.
K. T. A. Shanmugha Nadar, Sattur.
M. A. C. Ramachandra Nadar, Sattur.
V. K. K. Krishna Nadar, Virudhunagar.
K. C. A. A. Lakshmana Nadar, Car Street, Sattur.
K. C. T. Sankaralinga Nadar & Bror., Srivilliputtur.
M. N. M. Chellia Pillai, North Raja Street, Sivaanga.
N. T. S. N. Ramiah Nadar, South Car Street, Sivakasi.

TINNEVELLY DISTRICT

P. P. S. M. A. Neelamega Nadar, Tuticorin.
V. A. Aiya Nadar & Sons, Tuticorin.
P. R. T. D. Rajamani Nadar, Tuticorin.
S. L. Sankarakumara Nadar, Tuticorin.
V. K. M. Rathnam & Bros., Tuticorin.
V. A. Palaniswamy Nadar, Tuticorin.
K. A. M. A. K. Dharmaraja Nadar & Co., Tuticorin.
M. A. C. Theagaraja Nadar & Co., Tuticorin.
A. S. Kandaswamy Rajah, Koilpatti.

TRICHINOPOLY DISTRICT

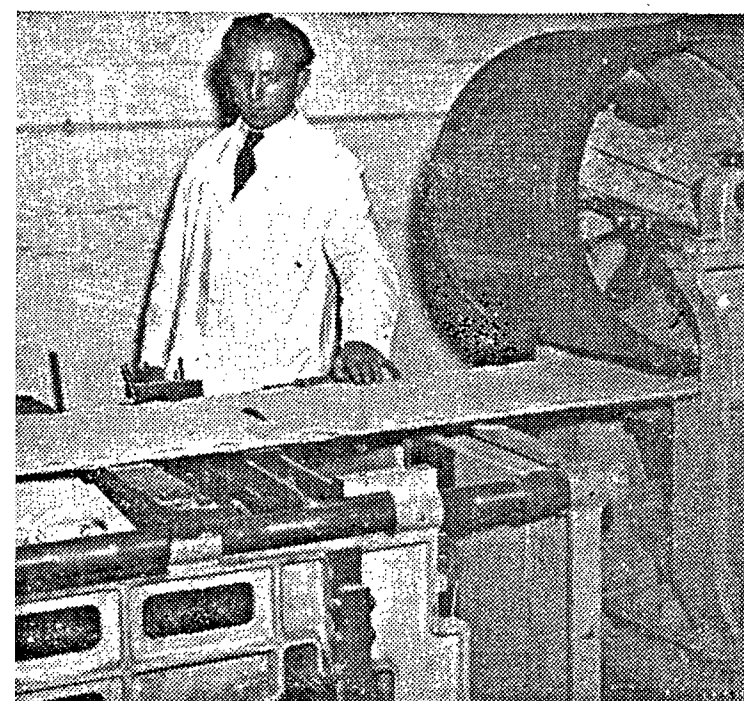
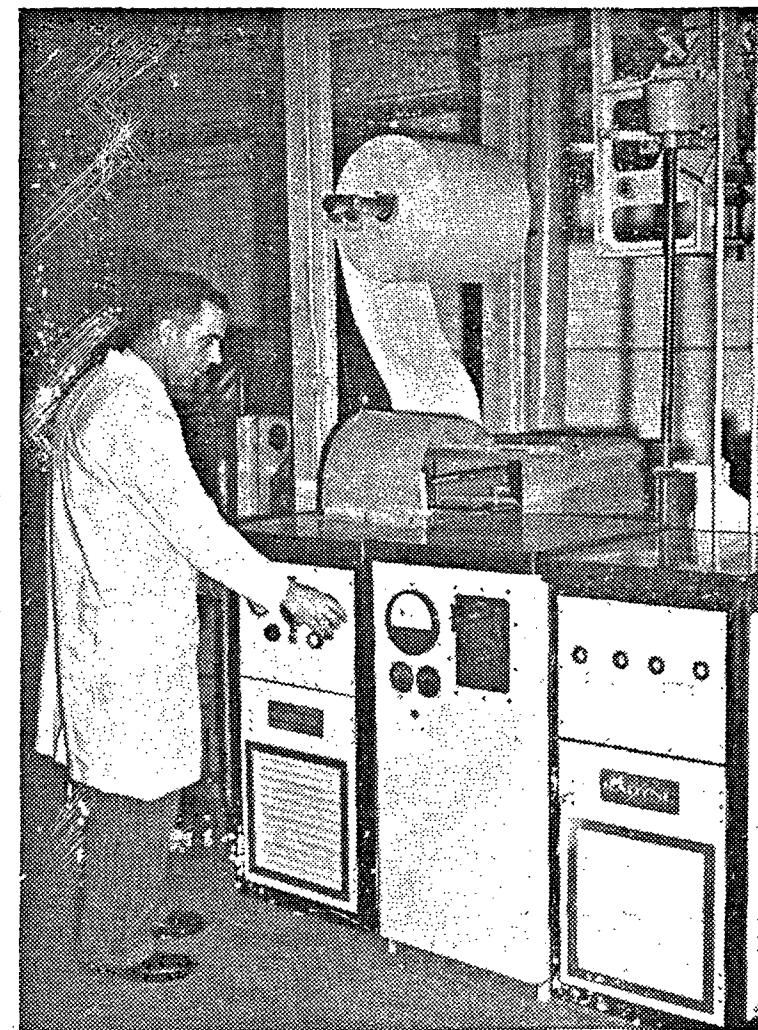
M. Syed Hakim, Trichy.
M. Pichai Mohideen & Bros., Trichy.

VIZAGAPATAM DISTRICT

Pusarala Chenna Brahmiji and Parvateswan, Chodavaram.
G. S. Ramiah & Co., Main Road, Vizagapatam.
G. V. G. Ramiah, Vizagapatam.
Haji Jamal Noor Mohammed, Vizianagram.
Maharaja Trunk Factory, Vizianagram.
Nutti Subbarao, Vizianagram.
Poluri Narayanamurthy, Anakapalle, Pennam Narayana, Vizianagram.
Pennam Chinna Yelliah Chetty, Vizianagram.
Peratla Suryanarayana, Vizianagram.
Pasumarthi Pudi Appa Rao, Vizianagram.
B. M. Sanyasi Chetty, Vizianagram.
New Bombay Hall, Chinnaveedhi, Vizianagram.

BUILDING MATERIALS FROM SAW-DUST

For many years artificial board—a waste material such as sawdust bonded with resin—has been used all over the world increasingly in vast quantities for all sorts of buildings and industrial purposes. The problem of producing this board in continuous lengths appeared impossible to solve, but now a plant has been designed to do so at less than a third of the normal cost and is operating at the London Research Centre of the British Artificial Resin Company. The board has been tested by the Government Building Research Station and passed as suitable for all kinds of purposes. The apparatus for producing the radio high frequency waves, used in the process of converting sawdust and resin into a hard board.



The continuous length of hard board being cut into lengths after passing under pressure, with the temperature, created by radio waves, being maintained by infra-red waves. Six of these new plants forming a small production unit, can with very little supervision produce during 24 hours 13 miles of board.

For the coming Building PROGRAMME

Mr. Recommendation is your TRAVELLER

BY BEING REPRESENTED AT THE

BUILDING INFORMATION CENTRE

B.I.C. assists all manufacturers and agents dealing in building materials ;
fosters all engineers and contractors engaged in building construction ; and
encourages all designers and builders qualified in building industry.

Further particulars may be obtained on application to:

B.I.C. Dept., Post Box 288, G.T., Madras.

177773



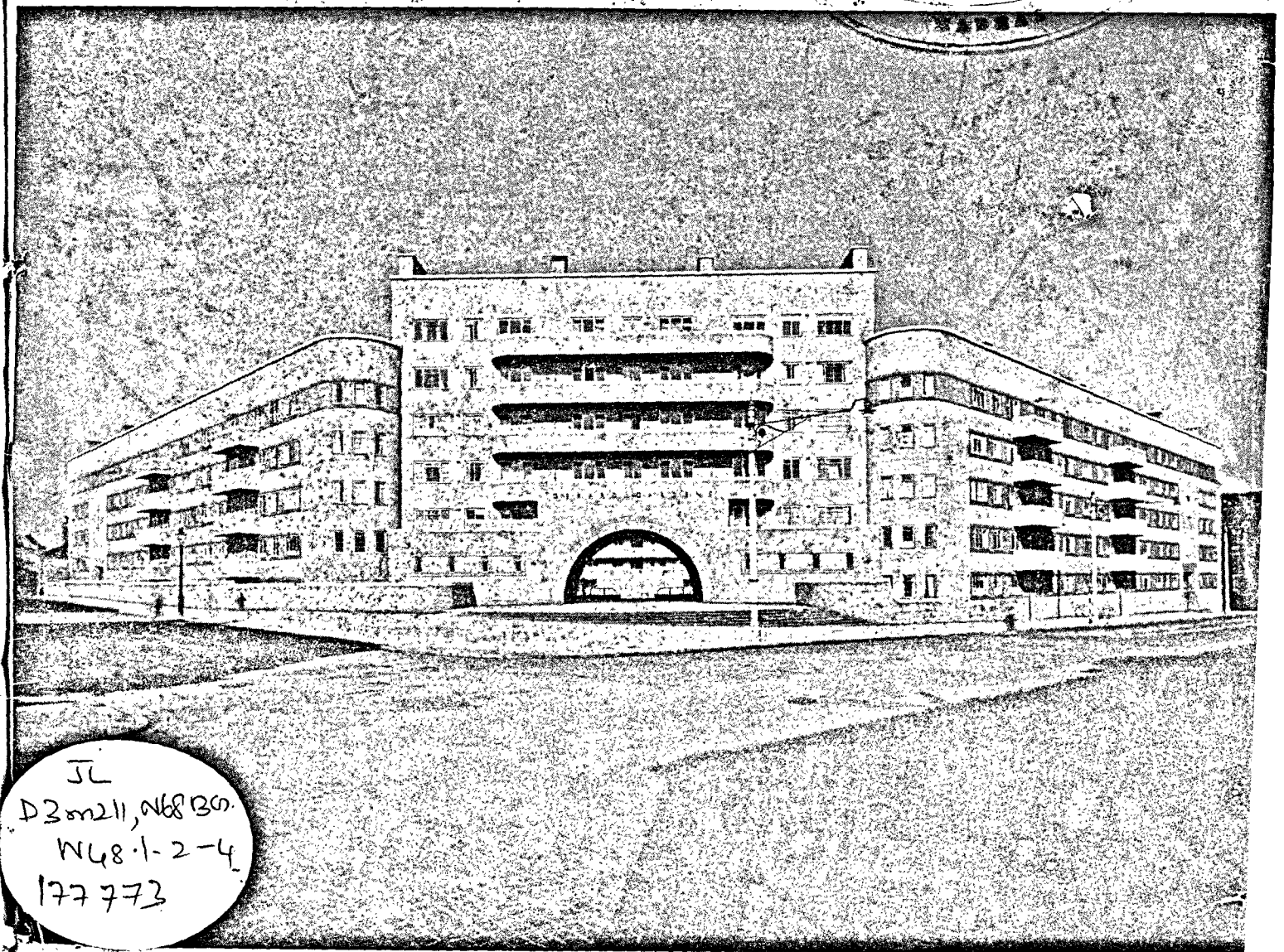
JL
D3m211, N6880
N48.1.2, 4
177773

THE BUILDING GAZETTE

VOLUME I

OCTOBER 15, 1948

NUMBER 2



JL
D3m211, N68 B6.
N48-1-2-4
177 773

L A T S S O L V E T E N E M E N T S P R O B L E

Phone: 3794.

Telegram: MONITOR.

T. A. RAMA ROW

'NARMADA'

39, Lingha Chetty Street,
G.T., MADRAS

REPRESENTATIVE:

IRONSIDE LIMITED, LONDON

IMPORTER FOR IRON AND
HARDWARE, YELLOW METAL
COPPER SHEETS AND INGOTS.

ENQUIRIES SOLICITED

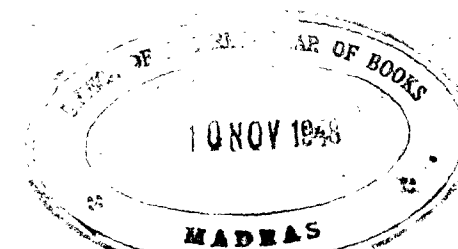
THE BUILDING GAZETTE, OCTOBER 15, 1948

For the coming Building PROGRAMME

Mr. Recommendation is your TRAVELLER

BY BEING REPRESENTED AT THE

BUILDING INFORMATION CENTRE



B.I.C. assists all manufacturers and agents dealing in building materials ;
fosters all engineers and contractors engaged in building construction ; and
encourages all designers and builders qualified in building industry.



Further particulars may be obtained on application to:

B.I.C. Dept., Post Box 288, G.T., Madras.

AN ACCEPTED FEATURE
OF THE
CONTEMPORARY ROOFING
IS
TILES

YOU CAN ALWAYS OBTAIN
THE BEST MALABAR TILES
FOR ROOFING FROM—



K. A. FRANCIS TILE WORKS
KARUVANNOOR P.O. — COCHIN STATE

THE BUILDING GAZETTE

AN INDEPENDENT MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF BUILDING INDUSTRY

VOLUME I

OCTOBER, 15, 1948

NUMBER 2

Articles, photographs, and drawings with a view to publication will be carefully considered. All such articles and illustration should bear the name and address of the sender, and postage should be sent to cover their return if desired in the event of non-acceptance. All communications on Editorial matters should be addressed to the Editor, and all those pertaining to Advertisements to the Manager, THE BUILDING GAZETTE, 1/11, Mukker Nallamuthu Street, G.T., Madras.

THE BUILDING GAZETTE is published on the 15th of each month. Subscription rate in India, Pakistan, Burma and Ceylon is Rs. 6 per annum. Single copies As. 9 each. Post free.

Complete copy instructions and Blocks for Advertisements must reach the Office not later than the 28th of the month preceding that in which the advertisement is to appear.

THE BUILDING GAZETTE,
1/11, MUKKER NALLAMUTHU STREET,
G.T., MADRAS.

EDITED BY T. N. SUBRAMANIAM
Associate, Faculty of Surveyors of England

PRINCIPAL CONTENTS

- 5 ENGINEERING EDUCATION AND PROFESSIONAL PROSPERITY
- 6 NOTES AND TOPICS
- 8 HOW A BUILDING SOCIETY RAISES ITS CAPITAL
- 9 A BOLD CURVE IN CONCRETE
- 13 STRESS GRADING OF TIMBER
- 15 LAW REPORTS
- 17 THE BUILDING RESEARCH STATION
- 19 RAMAPADASAGAR PROJECT: A STUDY
- 21 INFORMATION SHEET
- 23 LETTERS TO THE EDITOR
- 24 CONTRACTS OPEN
RESULTS OF TENDERS
- 25 FOR DISCUSSION
PROPOSED NEW WORKS
- 27 CURRENT PRICES FOR MEASURED WORK
- 30 REGISTERED STOCK-HOLDERS OF IRON AND STEEL
- 31 SOIL CLASSIFICATION AND COMPACTION

BANKS

AND

BANKING

INTRODUCED THROUGH THE BUILDING GAZETTE

Figures indicate the current rates per cent of interest to new investors. Investors are advised to communicate direct with the Bank of their choice so that they may obtain full details of any special advantages which are available.

IN THEIR OWN INTERESTS BANKS ARE REQUESTED TO ENSURE THAT THE JOURNAL IS ADVISED OF ALTERATIONS OF RATES OR CONDITIONS AS AND WHEN THEY OCCUR.

* = Particulars obtainable only on application to the Bank.
— = Investments not received or temporarily suspended.

BHARATHA LAKSHMI BANK: Madras.—**RAJAH OF BOBBILI**, Chairman. 2½ to 3½.

CALCUTTA NATIONAL BANK: Madras.—**S. M. BHATTACHARYA**, Chairman. 6 months—; 1 year 2½; 2 years.

DINDIGUL SRI KANNIKA PARAMESWARI BANK, Kodambakkam, Madras.—**K. V. MUTHUKRISHNA CHETTIAR**, Managing Director. 6 months 3½; 1 year 4; 2 years 4½.

EGMORE BENEFIT SOCIETY: Madras.—**T. R. VARADARAJA PILLAI**, Secretary. 1 year 3½.

HINDU BANK: Karur.—**K. S. ANANTHA RAO**, Manager. 6 months 3½; 1 year 4; 2 years 4½.

INDO-COMMERCIAL BANK: Madras.—**S. N. N. SANKARALINGA IYER**, Managing Director. 6 months—; 1 year 2½; 2 years 3.

KARUR VYSYA BANK: Karur.—**M. LAKSHMINARAYANAN**, B.A., B.L., Secretary. 6 months 3½; 1 year 4½; 2 years 4.

MADRAS MUTUAL BENEFIT PERMANENT FUND, 69, Big Street, Madras 5.—**V. THIRUMALAI IYENGAR**, Secretary. 1 year 4; 2 years 4½.

MADURA MERCANTILE BANK: Madras.—**K. M. S. LAKSAMANIER**, Chairman. 6 months—; 1 year 3; 2 years 3½.

MAHALUXMI BANK: Madras.—**G. C. PAL**, M.L.A., Managing Director. 6 months 3; 1 year 3½; 2 years 4.

KUMBAKONAM BANK: Kumbakonam.—**S. MAHALINGA IYER**, B.A., B.L., Managing Director. 6 months 3; 1 year 3; 2 years 3½.

SOUTH INDIA BANK: Tinnevely.—6 months 2½; 1 year 2½; 2 years 3.

TRAVANCORE BANK: Trivandrum.—**Dr. LUDWIK ARONSON**, Managing Director. 6 months*; 1 year*; 2 years—.

BUYERS' GUIDE

FOR	SEE PAGE
AUSTIN VEHICLES	Inside Cover
BOOKS	29
CONTRACTORS	28 & 29
COPPER SHEETS	Inside Cover
ELECTRICAL GOODS	28
EMPLOYMENT EXCHANGE	28
ENGINEERS	28 & 29
FURNITURE	28
GLASS TILES	29
HARDWARE	Inside Cover
IRON	Inside Cover
MALABAR TILES	2
MANHOLE COVERS	28
PLYWOOD	29
PUMPS	Back Cover
SANITARYWARE	28
SCHOOL OF PLANNING	26
STONEWARE PIPES	28
TIMBER	29
WATER DIVINER	28
YELLOW METAL	Inside Cover

ENGINEERING EDUCATION...
AND PROFESSIONAL PROSPERITY

Announcements, now and again, appear to say that the execution of important schemes are held up for want of technicians. And because of that scholars are now sent abroad to gain specialized knowledge in engineering practice.

Curiously enough proof is lacking to show that knowledge thus acquired is utilized to the advantage of the community at large. Individuals who had the good fortune to possess it at the cost of the State have yet to tell the industry the acme of such studies.

Those who control large-scale planning point out that there is no dearth for talent in this country; the Journal believes it is obvious that tapping the talent that matters most.

Ad hoc associations appear sporadically, work more or less on trade union methods, disappear to disuse and sometimes misused for want of tangible programme. The general tendencies show that the average man has got to the point of pressing for abuses to be remedied by positive—not conservative—planning. Engineers have so far showed little or no collective interest in the national problems which touch on major professional matters.

Here is the thing—perhaps the thing that affects the progress for better standards.

Not long ago Karachi wanted a drainage expert; Bombay, a town planning expert; Punjab, an air conditioning expert; and Madras, a dam expert. All those who were responsible for selection of these experts were satisfied that the required talent was not available then within the boundaries of this country; and just at the same time the progressive Island of Ceylon was commissioning Indian architects for their University scheme; Indian engineers for their irrigation schemes; and Indian scientists for their research schemes.

Be it as it may, we do not cast any blame on the part of the Government for the lack of experts available, nor do we intend to say that the public is not appreciating the services rendered by

engineers at large. The engineering profession is becoming handicapped by its easy-going attitude towards education (we mean standards and not system) and its lack of professional institutions.

Engineering colleges in this country have been, and still do produce excellent engineers; but it is the engineers who ought to look out for and prepare future fields of activity. That is not being done. Only when academical and professional institutions are properly related and interwoven with pursuit of orderly knowledge, they become anything more than a rear-guard action.

In England, as an example, at the outbreak of war, there were about 383 professional bodies dealing with building trades besides various State organisations from whom the prospective house builders could obtain invariable technical tips. Among the latest, the history of the Building Societies Institute provides us more than one lesson. In 1934, there were 1013 societies working; trained personnel were not available from universities nor colleges. There is no record to show if anyone had moved the then government to found a Building Societies College. It was a group of energetic and public-spirited building society officers who laboured for two years, discussed proposals for the formation of the Institute and eventually reached a stage of finality. No capital, no landed property, no building, no salary was included in the scope of the Institute. The most valuable of the Institutes' guidance was the week-end school or study group, which fulfils in an admirable way both educational and social purposes. Up-to-date there are five groups and 29 centres. Thus the Institute devised and imposed its own means of study to help themselves and also to extend such help to those who needed it. The Fellows and Associates of this Institute are the Building Societies Specialists today.

In short it amounts, to this: if professional institutions are organized in this country with planned thoroughness, engineering profession can be utilised in a far more important and beneficial service than any yet undertaken. And this Journal believes Free India can do it.

NOTES & TOPICS

Building Materials: Distribution.

The U.P. Government have banned the building of cinema and "luxury" houses, cost of which exceeds Rs. 25,000. According to the instructions issued by the Ministry, priority in building materials will be given to houses costing the lowest, under Rs. 25,000.

Irrigation and Power in India.

The various projects for irrigation and power development which are under construction or investigation in India will, when completed, add over 27 million acres of irrigation to the country's existing 48 million and about 9 million kilowatts of hydro-electric energy to the existing paltry half-million.

Roughly 6 per cent of the water available in the rivers of the country and the subsoils has so far been utilised; the rest runs to waste, and its course to the sea does incalculable damage to life and property through uncontrolled floods. There is thus immense scope for utilising this water for irrigation and power purposes. The cost of all these projects is estimated at a little over Rs. 700 crores, to be spent over a period of ten years.

Building Operations in England: Appointment of Working Party.

The Minister for Works gave in the House of Commons recently, the terms of reference and composition of the "Working Party on Building Operations in the U.K." The terms of reference are:—

"To enquire into (a) the organisation and efficiency of building operations in the U.K., including those of specialist and sub-contracting trades; (b) the position of the professions in relation thereto; (c) the arrangement for financing operations, and (d) the types of contract in general use, and to make recommendations."

American Society of Civil Engineers.

Twelve engineers from India have applied for membership of the American Society of Civil Engineers since January 1948.

Iron and Steel Today.

The total approximate production in tons of iron and steel at the steelworks of the Tata Iron and Steel Co. Ltd. at Jamshedpur during the month of August 1948 was as follows:—Pig iron 71,800; Steel ingots 70,300; Semis for sale 13,300; Finished 41,600.

Delhi has been allotted, it is understood, a steel and iron quota of 700 tons a year for the first time after nearly two years. Out of this quota, 200 tons are earmarked for allotment to refugees.

The Government of India have engaged Messrs. Koppers Co., Messrs. Arthur G. McKee & Co., and the International Construction Co., for advice regarding the proposed Government owned 1 million ton Steel Factory. The former two consulting firms have already started drawing up their independent reports and the third is expected to arrive in India shortly. They will advise the Government whether it would be better to start two factories each of 500,000 ton capacity or one of 1 million ton and suggest sites besides reporting on facilities for transport, water-supply and power. All the three firms are required to submit their reports by the end of this year.

Production of a ton of steel requires transport of approximately five tons of raw material. Ten tons of water are required for every one ton of the finished product. Though blessed with enor-

mous quantities of rich iron ore and tremendous quantities of coal, India has only limited amounts of the types of coal used in the manufacture of steel. The Fuel Research Institute is, therefore, giving considerable thought to this problem. An interesting aspect of this work is designing a new city which, in the case of a large steel plant, may have to accommodate 50,000 to 100,000 residents.

Graving Dock at Vizag.

In connection with the designing of a proposed Graving Dock at Vizagapatnam, the General Manager of the B.N. Railway has invited firms experienced in soil stability and sub-soil drainage problems to carry out certain experimental work at the site to ascertain:—

- (a) the stability of the soil;
- (b) the quality of water likely to be dealt with during the construction of the dock; and
- (c) whether the well point system of drainage can be adopted for use during construction.

Lower-Middle Class Houses.

A Lower-Middle Class House Planning Committee has been formed recently in Madras with a view to place before the Government and the public a detailed plan for the construction of cheap houses suitable and within the reach of the lower-middle class people.

The composition of the committee is as follows:—Dewan Bahadur L. Venkatakrishna Aiyar, B.A., B.E., I.S.E., Retired (Chairman), Mr. R. R. Dalavai, Mr. S. Venkataraman, Dr. Krishnamurti, Mr. C. Rajam Ramaswami, Mr. C. Dorai-kannu.

An Appointment.

Mr. Vepa Krishnamurti, Superintending Engineer, Central P.W.D., Madras Circle, has been appointed Chief Engineer under the Military Governor of Hyderabad.

Industrialisation and Technicians.

The Technical Employees' Association, C.P.W.D., feels that a step-motherly treatment to Government technical staff is a serious obstacle in the way of rapid industrialisation. Certain classes of technical staff received no attention at the hands of the Pay Commission. After several requests to the authorities this error of omission remains unrectified.

Cement Production.

Although Indian cement factories can produce about two million tons of cement every year, production during the year 1947 was only 1.4 million tons.

Municipal Administration: City Manager Plan.

Administration of Municipalities known as the City Manager Plan, which had been successfully tried out in about 400 medium-sized American cities was described by Mr. E. A. Gilmore, Economic Adviser to the U.S. Consul-General in Calcutta to the Calcutta Citizens' Association recently, according to *The Statesman*.

A City Manager, said Mr. Gilmore, was engaged on a contract basis for periods of two, four or six years by the elected Municipal Council. He was given wide administrative responsibilities and discretion in the day-to-day conduct of the city's affairs, the Council merely concerning itself with the laying down of policy and such general matters as passing the budget, etc. City Managers' salaries varied according to the size of cities they were asked to administer. In 1947, such salaries ranged from 9,000 dollars per annum for a city of 250,000 to 500,000 population to 25,000 dollars per annum for cities of over one million population.

The main differences between the City Manager Plan and the more antiquated Mayor and Council system were the same as those between a limited liability company

and a political body with division of powers. In practice the Plan had worked out quite well and had resulted in a definite higher standard of municipal administration. It was more flexible than the Mayor-Council system in that a City Manager had complete control over subordinate appointments and could deal effectively with departmental heads found to be incompetent. In the Mayor-Council system such action was often impracticable because the Mayor usually had only supervisory powers and was prevented by Statute from dispensing with subordinate executive officers.

Mr. Gilmore said that the City Manager Plan had created a new profession in the U.S.A. City Managers had their own Association and moved from city to city gaining more experience and finding professional solidarity.

In order to have a true appreciation of what municipal administration in the U.S.A. implied, it was necessary, Mr. Gilmore said, to have some idea of the size of American cities. At present 56½ per cent of the total population of the U.S.A., or about 74 million people, lived in about 3,464 incorporated places. These could be divided into groups according to population. In the first group, there were five cities with a population of over 1 million each. Nine cities with population ranging between 500,000 and one million constituted the second group, 23 with a population between 250,000 and 500,000 the third and 55 others numbering between 100,000 and 250,000 inhabitants the fourth group. The total population of each group was 15 million, 6.5 million, 7.8 million and 7.8 million respectively.

On the question of municipal finance, Mr. Gilmore said that in America as elsewhere, the main reliance for the raising of municipal revenue was placed on a general property tax. The administration of this tax in the U.S.A. varied widely. Some cities levied taxes on real property only while

others taxed personal and movable property also.

Assessment in American cities varied from 100 per cent on true market values down to 30 per cent or lower. The actual work of assessment was generally carried out by agencies other than the municipality, e.g., County Assessors, etc. Mr. Gilmore pointed out that in the U.S.A. there were a number of taxing jurisdictions other than the State, County or Municipality; school, sanitary and improvement districts were just a few.

The average real property tax for 249 American cities of over 3,000 population paid in 1946 worked out to about 28.09 dollars per 1,000 dollars of valuation. In some of the larger cities it averaged 32.86 dollars. This was relatively high, nearly 3 per cent on assessed valuation but there was a certain amount of under-assessment and so the actual burden on the taxpayers as a whole was not as high as it might appear.

Mr. Gilmore concluding said that in the U.S.A. there had lately been a trend towards a greater diversity in municipal taxation. Four cities, St. Louis, Toledo, Washington and Philadelphia, levied city income-tax. In Washington this worked out to about 1 to 3 per cent graduated on individual incomes and 5 per cent on company incomes yielding in 1946 a total of 9 million dollars. Philadelphia levied a 1 per cent tax on individual incomes realizing 25 million dollars in the same year.

Other forms of municipal taxation included a general sales tax, and taxes on cigarettes, liquor, admissions, etc. Some municipalities had lately been considering the imposition of a tax on hotel bills to ensure that the floating population that passed through their cities and utilized the amenities provided did not escape tax-free. In some places also the City Fathers resorted to taxing householders who had sewer connexions, while a tax on householders for the removal of certain types of refuse was not uncommon.

HOW A BUILDING SOCIETY RAISES ITS CAPITAL

LEONARD G. HODGSON, A.K.C., F.C.I.S.

A home of some sort always has been, and always will be, a prime necessity; so in dealing with Houses and Housing we are dealing with one of the essentials of life yielding in importance only to food and clothing. But the joy of home lies in the freedom of ownership compared with the thralldom of tenancy. The idea of Building Society is co-operative system of thrift directed, or focussed, upon the promotion of individual ownership of the home.

The methods by which Building Societies in England raise the capital to carry on their businesses, capital which is really their stock-in-trade, are many and various; in fact, they are more numerous than might be imagined, as would very speedily be shown by examining the prospectuses of even a small number of the thousand or more Societies in existence.

Shareholders and Depositors.

To begin with, there is the very clear and definite distinction between the shareholder or member, and the depositor or non-member who lends money to the Society, but has a first charge on all its assets, much in the way that a debenture-holder does in the case of a limited company. But before dealing with the difference in the position of shareholders and depositors it is worth while to repeat that they have in common one great advantage which is not usually possessed by either shareholders or debenture-holders in a company, or by investors in stocks or Government securities, and that is the right, subject to certain limitations, to withdraw the sum invested on comparatively short notice.

Amount of Capital Unlimited.

Under the Building Societies Act of Great Britain the rules of every

Society must state not only the manner in which the stock or fund of the Society is to be raised, but the terms on which it may be withdrawn. A company when being registered must state the amount of capital which it is proposed to raise, and also the amount of each class of share or debenture into which the capital will be divided. No such obligation is required of a Building Society, which is at liberty to raise an indefinite amount of capital according to its wants. The number of shares in a Society is therefore unlimited, and the amount to be raised by deposits is only limited to the extent that the sum to be received on this form of security must not exceed two-thirds of the amount for the time being secured on unblemished mortgages, that is, mortgages on which the repayments are not in arrear.

The Right of the Investor to withdraw.

The position of a shareholder or depositor who wishes to withdraw his investment is such that he has to give notice to the Secretary of the sum which he wishes to withdraw, and in due course the Society will repay him this sum, and will replace it by issuing new shares to other members or receiving fresh deposits. There is usually no obstacle to a member transferring his shares to another person, but in practice the member usually gives notice to withdraw, leaving the Society to recoup itself by obtaining fresh investments from other persons.

In this respect a Society has much more in common with a savings bank, or even an ordinary bank, than it has with a company, and this facility of realising the whole or part of any sum invested is one of the principal reasons why Building Societies are becoming so

popular in England with the investing public. As previously indicated there are several other reasons. The amount invested can be withdrawn without any capital loss or depreciation. The capital sum is not affected and is not subject to fluctuations in value according to the market as in the case of stocks and shares in companies. The investor in a Building Society has no chance of making a fortuitous profit by a rise in the market value of his shares but equally he runs practically no risk of loss and at the same time receives a very reasonably remunerative rate of interest.

The old saying, the higher the rate of interest the greater the risk, is just as true today as ever it was, and the Building Society investor whose money is earning 4½ or 5 per cent is in a much sounder position than the person who has invested his money in a gold mine or rubber plantation which may be paying for the moment 10 or 15 per cent, but which next year may drop to 5 per cent or even pass its dividend.

Then, as already noted, there is no commission or brokerage to pay on either purchase or sale, and no stamp duties on transfer, and no income-tax is deducted from the interest, while the investment can be increased or varied in amount at will and without trouble.

Difference of Position between Member and Depositor.

The essential difference between the shareholder or member and the depositor is that the latter has a first charge on all the assets of the Society, and in the case of a winding-up would be paid out in full before the shareholders received anything. In consequence of this the depositor, as might be expected, receives a lower rate of interest

(Continued on page 16)

A BOLD CURVE IN CONCRETE

BASEBALL STADIUM AT CARTAGENA, COLOMBIA, SOUTH AMERICA.

ARCHITECTS

Gabriel Solano

Jorge Gaitan

Alvaro Ortega

Edgar Burbano

COORDINATOR

Carlos Santacruz

CONSTRUCTING ENGINEERS

Alfonso Mejia

Mario Barahona

Julio Noel Montenegro

STRUCTURAL ENGINEER

Guillermo Gonzalez

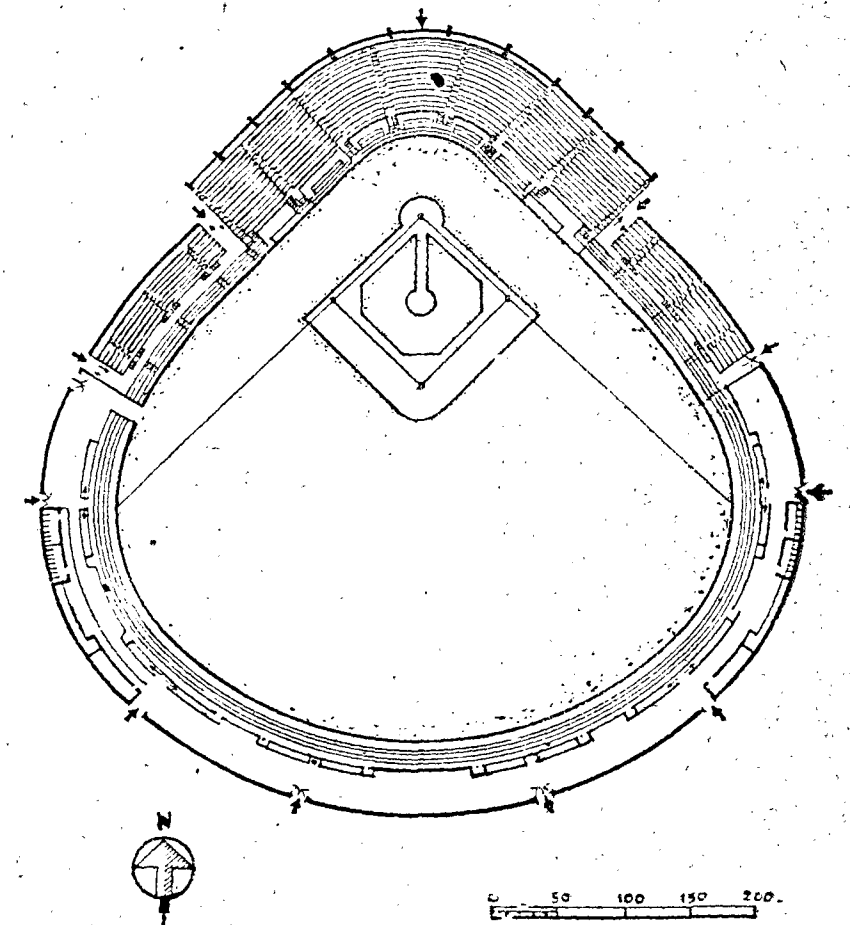
So bold is the concept of this stadium, held by frames in the shape of a capital C or a standing sickle, that the editors (of the Architectural Record) obtained the approving opinion of New York engineers to anticipate possible objections.

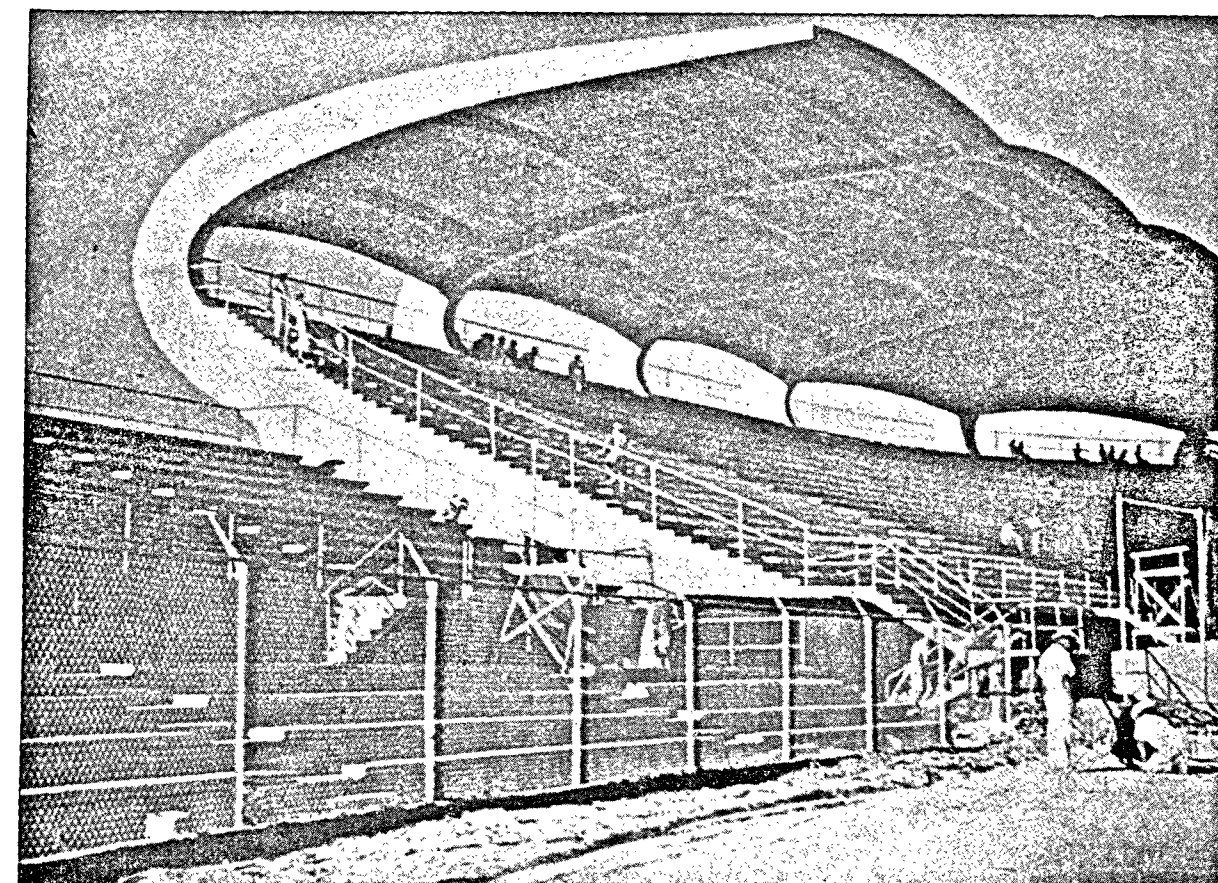
The South American architects declare that the North American tendency to find such structures "impractical" or "not quite safe" arises in reality from an Anglo-Saxon timidity in the face of bold plastic invention. Quite clearly the architects and engineers who devised this stadium were enjoying a game themselves.

The opportunity came in 1946 when Cartagena was chosen as host city to the Ninth Amateur Baseball World Series. By February of 1947 plans had not yet been started, and the Department of National Buildings of the Ministry of Public Works took over. This would be called a "bureaucratic body" here; but it proceeded with exemplary speed. It employed Colombian architects trained at Harvard and Yale, and Colombian engineers not trained there; and

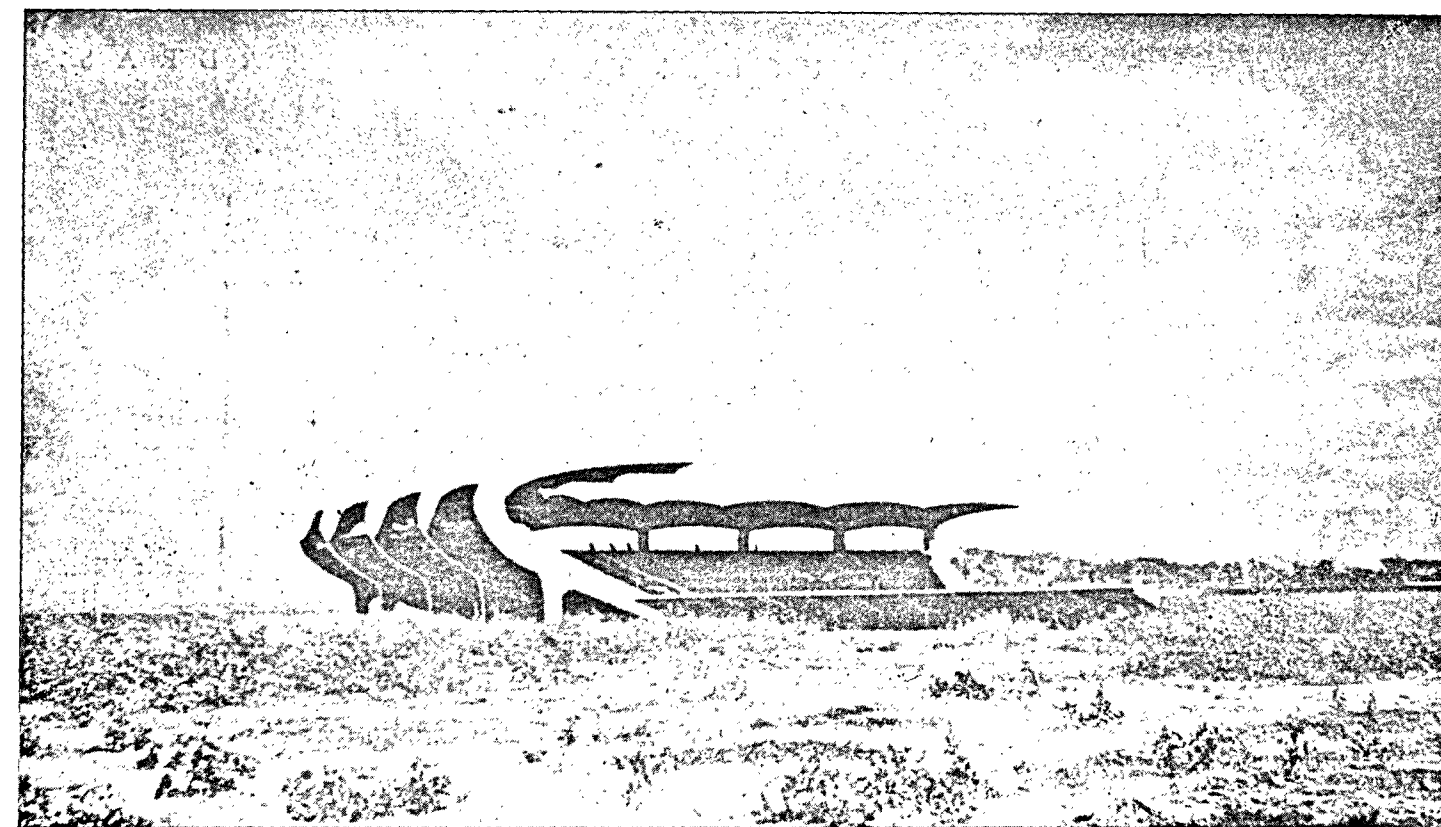
(Continued on page 20)

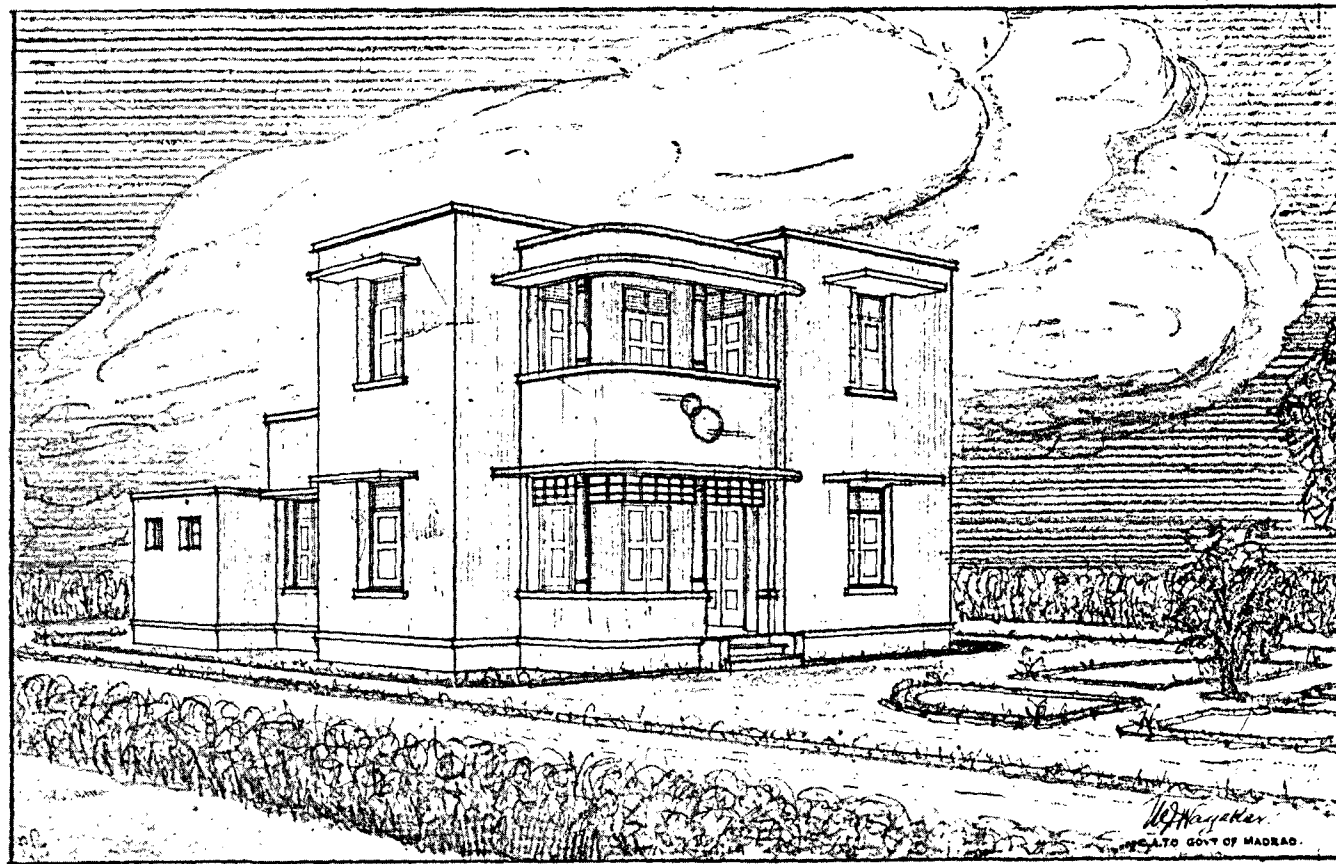
PLAN OF STADIUM



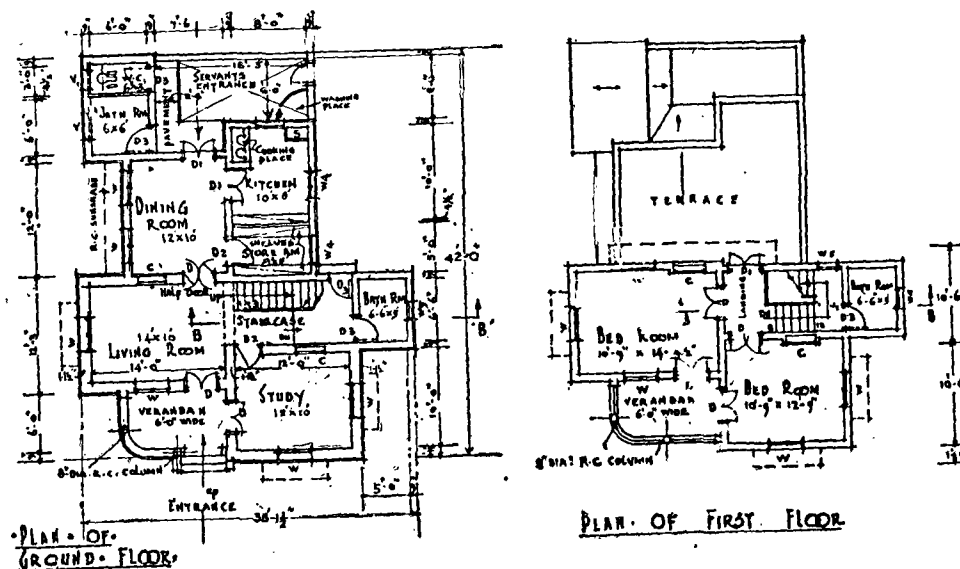


B A S E B A L L S T A D I U M A T C A R T A G E N A





M I D D L E C L A S S H O U S E A T A D Y A R , M A D R A S



DESIGNED BY
GOVERNMENT ARCHITECT
FOR THE CO-OPERATIVE
HOUSING SOCIETY

STRESS GRADING OF TIMBER*

C. J. CHAPLIN, M.Sc., M.E.I.C., M.I. Mech. E.

What it is and why it is needed in a competitive world for the future development of the use of timber in structures.

The Structural Engineer, whom we shall in future call the Engineer, has been much engrossed in the development of steel and reinforced structures in the last fifty years, but recently the modern conception of the timber structure has caught his fancy and imagination and he is considering how he can use this interesting material with such useful properties. At the same time, however, the Engineer is uncertain about timber because of its variability, which in the past has necessitated the use of much larger sizes than should really be necessary for the safety of the structure.

To bring timber into a favoured place as a structural material in competition with steel and concrete, we must gain the complete confidence of the Engineer by presenting data on timber in a form that he can use in accordance with his Theory of Structures, and then provide him with material that is certain to have the necessary strength and other properties in accordance with this data. This can only be done by grouping timber into grades within given limits of size of defects and of other characteristics that have been found by extensive investigations and tests to determine the strength of the timber; and from the results of these same tests, to compute the safe strength or, as the Engineer puts it, the "permissible stress" for the grade. This process is now known as Stress Grading.

The Essential Data to be provided.

When the Engineer sets about the design of a member what data

must he have? Let us take as an example a simple beam (joist, rafter, binder, etc.), and see what is needed. From the specification and the general arrangement of the structure (Fig. 1) he will know the length L of the beam; the weight or load W to be supported and whether it is distributed evenly along the beam or at one, two or more points; the shape of the cross

section of the beam which in the case of timber will usually be a rectangle, of which he will have to determine the breadth b and the depth d ; and finally he will want to know the strength of the timber in bending, the property known as the permissible bending stress f . This f , the permissible bending strength, is determined with the other kinds of

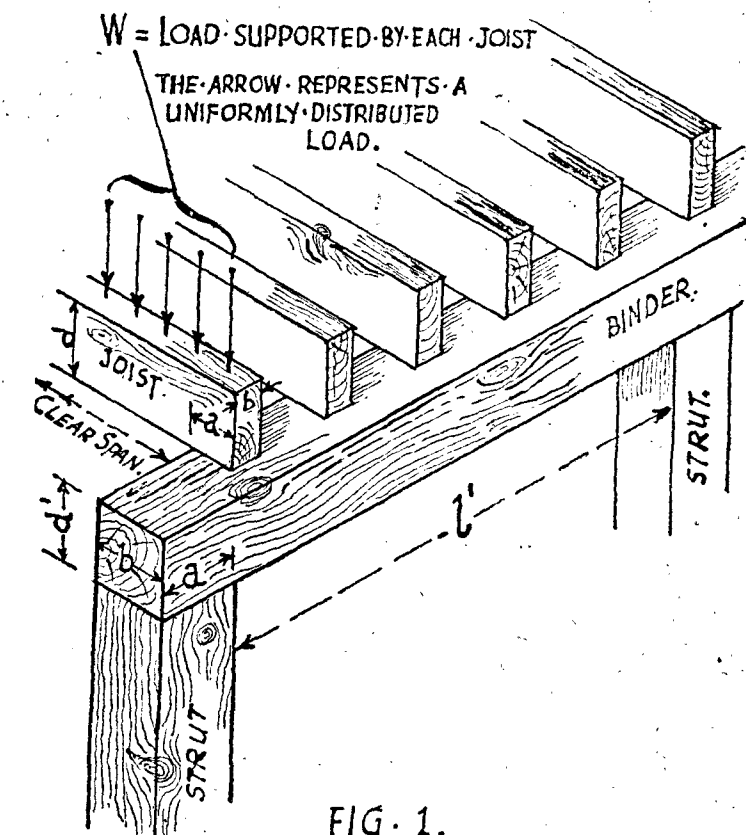


FIG. 1.

SHOWING GENERAL ARRANGEMENT OF
JOISTS SUPPORTED ON A BINDER, WHICH
IN TURN IS SUPPORTED ON STRUTS (POSTS).

* Continued from September Issue of The Building Gazette.

permissible stress mentioned below from the results of a large number of carefully made official tests of which I shall speak later. It, of course, must be appropriate to a definite grade of a certain species of timber. Having got all the quantities, he will compute the cross section from the expression :

$$bd^2 = \frac{3 W l}{4 f} \dots \dots (i)$$

The result will be a beam with the adequate dimensions b and d to carry the design load without crossbreaking, but he has other strength factors to watch; he must make sure that the beam will not fail in shear and that it will not crush where it rests on the plate or other support (Fig. 2). Shear failure may occur in beams that are relatively deep for their length and would look like the beam (Fig. 3), which has split from end to end along a line near mid-depth and the upper part has slipped out over the lower part at each end. If shear occurs there will be a pronounced sag or deflection, for if the beam has split into two halves the two parts together have only one-quarter the stiffness of the beam before it split; and, having sagged, there may then be a further failure in crossbreaking, for in this property the two halves together are only half as strong. To make sure that the beam will not shear the Engineer uses the b and d he got from equation (i) and the load W in the following equation :

$$\text{Shear stress} = \frac{3}{2} \frac{W}{bd} \dots \dots (ii)$$

and the beam is safe in shear strength if the result is not greater than the permissible stress, q , for the stress grade.

To prevent crushing due to pressure on the support—side grain crushing, or, as it is listed in the tables, "compression perpendicular to grain," it is necessary to make the area in contact with the support large enough to keep the stress in this direction not greater than the permissible value. The calculation for this is simply to determine the length, a , of beam

that must rest on the support (Fig. 1):

$$a = \frac{W}{2b \cdot cp} \dots \dots (iii)$$

where W is the same total load on the beam, b the breadth found by equation (i) and cp the permissible stress in compression perpendicular to grain. So far the Engineer has calculated the size of the beam to be safe in bending, shear, and compression perpendicular to grain, but he must now consider its stiffness if spring, deflection and sag are likely to be objectionable. We know how unpleasant a springy floor

may be and how the plastered ceiling on the underside of the joists may crack and even come down if the joists sag to too great a degree. To prevent these unpleasant and unsatisfactory conditions the beam must have requisite stiffness; and to provide for this, another calculation must be made in which the Engineer uses the quantity called the Modulus of Elasticity, always represented in the formulae by E . In the following arrangement the Engineer checks the b and d he

(Continued on page 18)

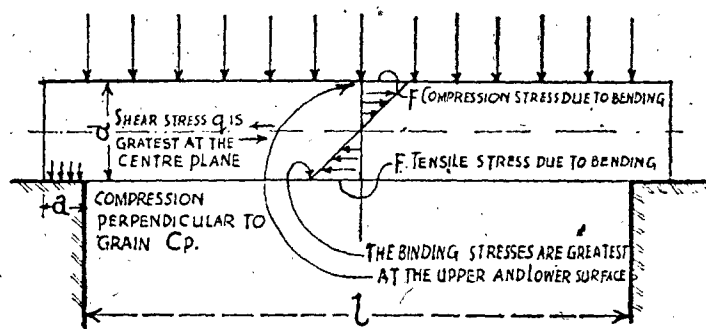


FIG. 2.

DIAGRAM OF SIMPLE BEAM STRESSED BY THE APPLICATION OF A UNIFORMLY DISTRIBUTED LOAD.

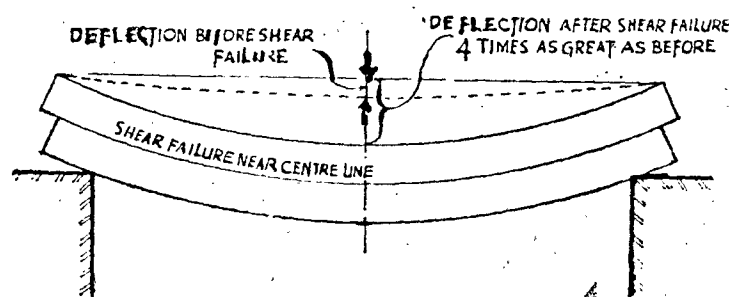


FIG. 3.

DIAGRAM SHOWING THE BEHAVIOUR OF A SIMPLE BEAM THAT HAS FAILED IN SHEAR.

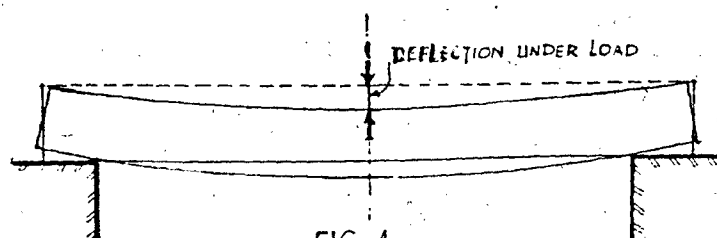


FIG. 4.

MAXIMUM DEFLECTION CONTROLLED BY APPLICATION OF MODULUS OF ELASTICITY E

LAW REPORTS

Question of Principle raised in tendering

Bombay High Court

Before Mr. Justice Bhagwati
Sawant v. Bombay Municipal Corporation.

This case raised an important point to be borne in mind while concluding contracts with the lowest or any tenderer.

In the petition filed by Govind Laxman Sawant against the Municipal Corporation of Bombay and Mr. B. K. Patel, the Municipal Commissioner, His Lordship Mr. Justice Bhagwati at the Bombay High Court passed an order under Sec. 45 of the Specific Relief Act ordering the respondents to forbear from concluding and executing contracts with the Hindustan Construction Co. Ltd., for the construction of certain works for the Vaiturna-cum-Tansa water scheme of the Bombay Municipality. The respondents were directed to invite fresh and proper tenders for the work.

The Bombay Municipality through the Municipal Commissioner some time back advertised for three tenders under Sec. 72 (1) of the Bombay Municipal Act for the construction of certain embankment and other works for the new pipeline from Tansa called the Vaiturna-cum-Tansa scheme. Messrs. Raoji Sojpal and Sons and the Hindustan Construction Co. Ltd. submitted tenders for the works for the sums of Rs. 72,94,055 and Rs. 72,29,394 respectively. The tenders of the Hindustan Construction Co. Ltd. were accepted but subject to an increase of Rs. 30,000 in respect of certain items, which, it was alleged, had been left out. These tenders were accepted also subject to the condition to the effect that the rates were to be adjusted in case of variation in the current rates of materials, sales tax and labour.

Commissioner's Authority.

The petitioner was a rate-payer of the Municipality and he contended that the Commissioner

had acted beyond his authority in making the extra allowance of Rs. 30,000 and introducing the further condition of changing the rates.

The petitioner further contended that in view of these extra allowances, the tenders of the Hindustan Construction Co. Ltd. were not the lowest but those of Messrs. Raoji Sajpal and Sons were the lowest and the latter's tenders should have been accepted.

At the conclusion of the arguments, His Lordship, in giving judgment, referred to large number of both English and Indian cases and held that even if a rate-payer enjoyed a common right with the other rate-payers, he had sufficient specific legal right of his own in the Municipal funds which entitled him to maintain this petition under Sec. 45 of the Specific Relief Act.

Dealing with the tenders, His Lordship held that the tenders submitted by The Hindustan Construction Co. Ltd., were no tenders at all because they were subject to the condition that the rates were not final but were to be suitably adjusted according to the variation in the rates of materials, sales-tax and labour.

His Lordship referred to Sec. 70 (1) of the Municipal Act under which no contract could be entered into by the Municipality which would involve an expenditure exceeding Rs. 500 unless the rates amongst other things were specified.

His Lordship was of the opinion that the acceptance of the condition imposed by The Hindustan Construction Co. Ltd. as to variation of rates meant that the price was not specified as required by law.

His Lordship, therefore, held that the acceptance of the tenders of The Hindustan Construction Co. Ltd. was unauthorised and not valid according to the terms of Sec. 70 (1) (b) and Sec. 72 (2) of the Municipal Act.

His Lordship, therefore, allowed the petition with costs.

The Advocate-General Mr. M. P. Amin with Mr. Purshottam Tricumdas and Messrs. R. M. Kantawalla instructed by Messrs. Sunkershet and Vaidya appeared for the petitioner.

Mr Y. P. Rege with Mr. S. S. Rangnekar instructed by Messrs. Crawford Bailey and Co. appeared for the respondents.

Another Petition.

A similar petition filed by Ramchandra A. Gole in respect of the same tenders and for the same reliefs was dismissed by His Lordship with costs because he was not rate-payer of the Municipality. Mr. Gole was merely a rent payer and therefore had not sufficient interest in the Municipal funds to maintain a petition under the Specific Relief Act. Further prior to the filing of the petition, the petitioner had not made any demand for justice which demand was denied by the Municipality.

COLLEGE NEWS

ANNAMALAI UNIVERSITY INAUGURAL ADDRESS

"The services of an engineer is required in almost every field of human activity," observed the Minister for Local Administration with the Government of Madras, in the course of his inaugural address to the Annamalai University Engineering and Technology Association.

"Mother India freed from servitude," the Minister said, "is looking forward anxiously to engineers to liberate her sons and daughters from the clutches of famine, poverty

and disease."

The farmer needed agricultural implements and electric power to lift water from wells; the industrialist wanted machine tools, plant and power; the worker desired better housing facilities and the public needed improved communications, protected water-supply and sanitary conveniences. It was for engineers to make plans and get popular approval for expeditious execution of these schemes.

(Continued on page 31)

HOW A BUILDING SOCIETY RAISES ITS CAPITAL

(Continued from page 8)

than the shareholder and is not entitled to any share in surplus profits. Depositors are not members of the Society and have no voice in its management, or power to vote at any meeting; they are simply and solely creditors who have lent money to the Society.

Subscribing Shares.

The foundation of a Society's capital is the issue of the subscribing share by which comparatively small amounts are accumulated at compound interest. Such shares are intended to reach a fixed sum in a certain period.

Other Societies may divide their capital into shares of smaller denominations or they may issue parts of shares, but however the details may vary, there is always the underlying principle of the building up of the individual member's savings, and at the same time the Society's fund of capital by the aggregation of small amounts invested at compound interest. This leads to another reason for popularity, as it shows how such an investment can be added to at will. There is no other form of investment earning interest in the neighbourhood of 5 per cent where the investor can increase his holding with so little trouble.

The maturing of the ordinary subscription share and its conversion in due course to the paid-up share, leads naturally to that particular class of investment. Paid-up shares can usually be acquired by the payment of a lump sum. Another method is to issue shares of a fixed value at the expiration of a term of years on payment of a smaller sum down which is thus left to accumulate on the same lines as War Savings Certificates.

Rates of Interest.

The rates of interest offered by Societies vary considerably, in some cases the small subscriber receives the best interest, in others

it is the larger shareholder who is favoured. Some vary their rates according to the length of notice required for withdrawal. In fact, the number of different schemes is legion, and to attempt to enumerate them all would be impossible and would involve giving publicity to special Societies which in an article like this would be invidious.

The Liability of Shareholders.

The liability of a shareholder is limited by Act of Parliament to the amount actually paid or in arrear in respect of his shares. In some Societies this is actually limited by the rules to the amount paid in, but in any case there is no outstanding liability such as there is in the case of a shareholder in a limited company. Thus in the event of a winding-up the Building Society shareholder is only liable for his instalments up to the date of commencement of liquidation, but in the case of a limited company the holder of partly paid shares is liable for the balance uncalled so as to equalise his position in the distribution of assets with the holders of fully-paid shares.

Preference Shares.

Intermediate between shares and deposits are what are called preference shares. The power to issue such shares and the limits within which they are to be issued must be set forth in the rules. The amount of preference shares which may be issued is not limited by Act of Parliament as is the case with deposits, but only by the rules, and may be as much as the total mortgage assets. In most cases such shares receive less dividend than the ordinary shares, or do not share in the surplus profits by way of bonus, and the holder may be excluded from voting at meetings.

Terms of Withdrawal.

A Building Society is not a bank and cannot give banking facilities at the same time as it gives practically double the rate of interest allowed on bank depo-

sits. A bank cannot afford to give interest on an ordinary current account, because it must keep a large supply of cash which is not earning interest, or only a low rate, to meet the daily withdrawals of its customers, neither can a bank offer such a high rate of interest on deposits as a Building Society can for the same reason.

As Building Society funds are invested in long-term mortgages some check on withdrawals such as those mentioned is necessary to ensure stability. A Building Society cannot compel a mortgagor to repay the amount lent to him except by the instalments, or on such notice as is set out in the mortgage deed. A bank will not lend money on mortgage for a long term, will always require a much larger yearly repayment than a Building Society, and frequently will reconsider the amount of the loan every six months.

Although the Building Society shareholder has this right of withdrawal he must recognise that it is subject to certain limitations due to the nature of the business, and that it is only by virtue of these limitations that the Society is able to earn, and to pay him, the comparatively high rate of interest offered.

In calling attention to the restrictions which exist on withdrawals no disparagement of Building Societies is implied; it is an essential part of the system, and the loaning of money on mortgage for comparatively long terms could not exist without it. Persons investing their money in this way should understand the conditions upon which they do so, and must not assume that the immediate withdrawal of their funds is an inalienable right because in practice it is usually possible.

Deposits.

These are loans made to the Society by non-members to supplement its ordinary funds. The total amount so received must not exceed two-thirds of the sum secured for the time being on unblemished mortgages, and all deposits

(Continued on page 23)

THE BUILDING RESEARCH STATION

QUESTIONS AND ANSWERS

The following are abstracts of inquiries submitted to the Building Research Station.* The information given in the replies quoted is based on available knowledge.

Salt in Sand.

A builder stated that for a particular job the best available sand was a sea sand containing a proportion of shell. It was proposed to use this material for mortar, external rendering and internal plastering, and information was desired on any harmful effects which might arise.

Reply.—The use of unwashed sea sand may lead to dampness and discoloration of plaster and mortar, and it should on no account be used. Even sands from river estuaries, where the sea water is diluted with fresh, can cause trouble, and one case was investigated where serious corrosion of the screws and clips fixing electric light conduit, and also of the switches, occurred from this cause. The danger of the use of sea-shore sand can therefore be appreciated.

The dampness in plaster in which sea sand is used is due not so much to the "salt" (common salt: sodium chloride) it contains, as to the more hygroscopic chlorides of calcium and magnesium associated with it in sea water.

It should be appreciated that the troubles arising from the presence of sea salt in sand are most difficult to treat. Stripping and replastering is the least expensive procedure that can be recommended unreservedly, and there is no absolute assurance of success, for the salts causing the dampness may have been absorbed in part by the body of the wall.

The sand can be purified by thorough washing in a sand-washing machine, and if this cannot conveniently be done, an alternative source of sand, e.g., pit sand, should be sought. The shells in the sand will themselves do no harm, but

* Crown copyright reserved.

the fact that they tend to retain salts more strongly than sand grains is a reason for recommending thorough washing of the sand. Effect of Molasses on Concrete.

An architect asked whether the cement face of a concrete tank was likely to be attacked by molasses, and, if so, what means could be suggested for protecting the concrete.

Reply.—Sugar solutions in general cause some attack on Portland cement concrete, but the rate of attack varies very widely with different conditions. Aluminous cement is more resistant than Portland cement, though it is not immune from attack. An aluminous cement rendering has, it is believed, been used in some cases with satisfactory results. The only definite information available with regard to molasses is that contained in a short paper by M. N. Clair and M. A. Morrissey [Engineering News Records, III, 775 (1933)]. Without attempting to reproduce the paper in full, the following general conclusions may be given:

"Concrete tanks have been used to some extent in the U.S.A. for the storage of molasses, in some cases with satisfactory, and in other cases unsatisfactory results. It was concluded that light, refined molasses have a more aggressive action than dark molasses. It was recommended that concrete should be treated with three coats sodium silicate solution. After treatment the concrete should be allowed to age for at least 28 days before exposure to the molasses."

The use of a tar or bituminous coating is recommended in some of the German literature.

The following specification is given by the American authors, but the Building Research Station has no first-hand experience of its efficacy:—

1. The surface of the cement should be freed from dust and grease.

2. The concrete should be allowed to become reasonably dry before treatment, to ensure a maximum absorption of the silicate.

3. If the concrete is dense and well matured, three separate applications of the silicate should be sufficient. An interval of not less than 24 hours (more, if possible, since drying in the interior of the tank is likely to be slow) should be allowed between successive coats.

4. In applying the solution, care should be taken to ensure that the whole of the surface is well wetted at each application. Thus the solution might first be sprinkled generally over the surface with a watering can, and then a further quantity applied freely with a scoop or brush. This process should be repeated at each coating.

5. Strength of solution:—
For the first coat: 1 part silicate of soda to 4 parts water.
For the second coat: 1 part silicate to 3 parts water.
For the third coat: 1 part silicate to 2 parts water.

6. The grade of silicate of soda used should be one of high silicate soda ratio, e.g., $3\frac{1}{2}$ SiO₂: 1 Na₂O to $2\frac{1}{2}$ SiO₂: 1 Na₂O (Proprietary grades approximating to this composition are available in the market).

7. After the final treatment, the concrete must be allowed to dry thoroughly. After this has been done it will be advisable to brush off any efflorescence which appears before putting the tank into use, to avoid contamination with soda.

STRESS GRADING OF TIMBER

(Continued from page 14)

has already found and sees if they are sufficient for stiffness as well as for strength.

$$bd^3 = \frac{225 W \cdot l^3}{4 E} \dots \dots (iv)$$

Thus the Engineer has used four strength properties that must be supplied from the results of research before beams may be designed for safety and comfort with economy of material. These strength properties are:

The three permissible stresses: bending f , shear q , and compression perpendicular to grain c , and the stiffness factor or Modulus of Elasticity, E .

We must also give him the density or weight per cubic foot of the timber, for the total load the beam will carry includes its own weight.

To help the Engineer to design a strut (column, prop, post) which has to carry a load on its end tending to push the two ends together (Fig. 5)—that is to compress its length—we must supply him with another strength value, the permissible stress in compression parallel to grain, for which c is used in the design equations.

In Fig. 1 the strut is carrying on its top, part of the floor with any superimposed load and this total load is transmitted down the length of the strut to its footing, every part of the body of the strut being subjected to the same loading. Thus, all parts or sections of the strut should, theoretically, have equal strength per square inch; but since there are some points or sections in the length of a strut that are weaker than others we must design the size or area of the cross section of the strut so as to be large enough to support the load with safety at its weakest section (Fig. 5). This weakest section will be that at which the maximum allowable defect occurs, and on the strength with the defect present we must base the permissible stress in compression parallel to grain. This permissible stress, as in the case of the bending and other stresses discussed above, are determined from tests—this time from crush-

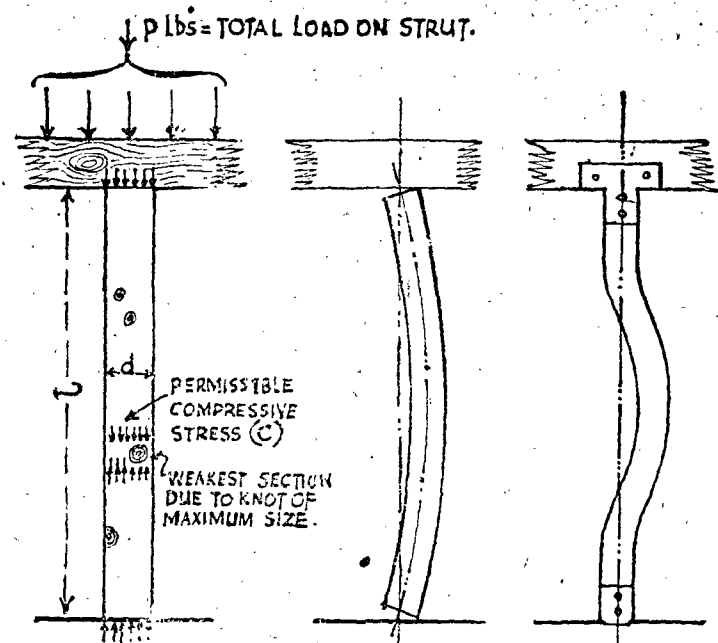


FIG. 5.

FIG. 6.

FIG. 7.

SHOWING BEHAVIOUR OF OVERLOADED SLENDER STRUT WITH FREE ENDS.

SHOWING BEHAVIOUR OF AN OVERLOADED SLENDER STRUT WITH FIXED ENDS.

ing or compression tests on full-sized struts.

The Engineer will know from the loads the structure is designed to carry that the pressure on the top of the strut is P lbs., and we must give him the permissible stress in compression parallel to grain (c lbs. per square inch) appropriate for the grade. Then the cross-sectional area, A , of the strut must not be less than that resulting from the

expression $A = \frac{P}{c}$; or taking a numerical example, if the pressure on the strut is 36,000 lbs. and the permissible stress for the stress grade is 1,000 lbs. per square inch, then the cross-sectional area of the strut must not be less than $\frac{36,000}{1,000} = 36$ square ins., which is that of a 6 in. x 6 in.

I have said that the size must not be less than this for, as has been found from tests, if the length of the strut is more than 11 times its least cross dimension it may fail by buckling owing to lack of stiffness. Here again the Modulus of Elasticity—the same as used to

check the stiffness of beams—comes into the Engineer's calculations. Stiffness is very important in long struts, for their stability and safety from collapse may depend upon stiffness rather than on the basic crushing strength. The strut in Fig. 5 has a length 11 times the least cross dimension, and in it there is no tendency to buckle or bow sideways, as shown in the two slender struts in Figs. 6 and 7. The difference in behaviour between the two latter is owing to the way the ends are arranged, in Fig. 6 the ends are "free" and in Fig. 7 the ends are "fixed." These arrangements must each have its particular mathematical treatment and formulae. There are several formulae from which the Engineer may calculate his sizes, but the mathematical process is too complex for us to consider here, and we shall leave it with other higher computations to the Engineer with his Theory of Structures, simply noting that we have already provided E as for beams and that we must supply c , the permissible stress for a given stress grade.

(Continued on page 20)

RAMAPADASAGAR PROJECT: A STUDY

The following investigation works studies were carried out according to a statement of the Minister for Public Works in the Legislative Assembly, Madras:—

(a) Excavation of experimental trenches and preliminary pumping experiments to study the behaviour of soils and know the pump capacities.

(b) Survey of the coal field area likely to be submerged by the reservoir and detailed surveys of the reservoir area for a few miles above and below the dam.

(c) Dr. Terzaghi and Mr. Savage, dam experts, who visited the site suggested to the engineers-in-charge various methods of testing the soils in which the coffer dam is to be constructed.

(d) A network of probings by the Penetrometer and corroborative boring by the hand-boring set and with the Calyx Drill was done in the river-bed.

(e) Soil samplings from various depths below the surface were taken with the Denison sampler, split spoon and scrapper bucket, etc., samplers, and analysed for their physical properties relevant to the design and construction of the dam and studies in the field soil mechanics laboratory.

(f) Hydraulics model studies of the coffer dam layout, spill-way design, scrapper bucket, etc., and exploratory tests on concrete and mortar, etc.

(g) Excavation of the experimental pit suggested by Dr. Terzaghi to determine the safe slopes of the soil.

(h) Driving sheet piles in a straight line.

(ii) Loading test on the soil in the river bed.

(j) Pumping tests to determine the co-efficient of permeability. A consolidated report on the above tests was prepared and sent to the Consulting Engineers for their review.

Early in April, 1947, the detailed designs for the dam and headworks were finalised and they were sent to Denver for check by the International Engineering Company.

Professor Straub, who visited the dam site and studied the details of the design and layout of the coffer dam, had submitted a memorandum suggesting the collection of additional field data mentioned below, and they were attended to as indicated:

(1) Penetrometer soundings and corroborative borings were continued and completed.

(2) Taking soil samples and analysing them in the laboratory were continued and are still in progress.

(3) In pursuance of Dr. Straub's memorandum mentioned above taking bedload samples, silt and sediment studies, surface and sub-surface observations, taking daily soundings of the river, hydrographic survey of the river and float observations were conducted and the results sent to him.

(4) Arrangements have been made to conduct parallel experiments on hydraulic models suggested by Dr. Straub at Minnesota, United States of America.

(5) Detailed designs for the dam and power plant together with the specifications were finalised at Denver and printed. A meeting of the Board of Consulting Engineers was held early in August 1947, and the Board's final opinion

on the feasibility of the project and adequacy of designs was obtained.

(6) Further exploratory works on the following items left unfinished were done and completed: (a) Pumping tests and permeability experiments, (b) experimental dewatering with well-point system, (c) loading test on the soil, and (d) driving sheet piles in straight line and cellular cell driving for coffer dam layout.

(7) Extensive test on cement concrete cubes of various proportions on Godavari sand for mechanical analysis, on the design of mixes for the concrete, etc., and other allied items were also conducted in the concrete laboratory.

(8) Final designs for the appurtenant works and detailed plans and estimates for the whole project were also prepared.

Detailed investigation of the left main canal, consisting of taking block levels, fixation of ayacut and delimiting the area, preparation of block maps and ayacut registers, alignment of the main canal and distributaries on ground taking L.S. and C.S. and preparing site surveys of important masonry works, etc., were completed. Revenue investigation by the Revenue staff in the submergible area of the waterspread and in the canals area was also done. Detailed plans and estimates for the left main canal were prepared and costs of the aqueduct across the Krishna river and other major streams worked out. Estimates for the costs of the right main and Guntur canals were worked out based on the figures obtained from the detailed investigation of the left main canal. All the estimates for the canals system have also been finalised after preparing detail plans and costs worked out.

The amount of money spent up to June 1948 was Rs. 17,50,366.

BRICKS AND BRICKMAKING A BOLD CURVE IN CONCRETE

Following is the copy of a letter from Mr. N. T. Patel, B.E., A.M.I.C.E., of Messrs. N. T. Patel and Company, Madras addressed to The Coal Controller, Madras.

Sir,—We, as Engineers and Contractors of some repute and standing, write to inform you that the local brick manufacturers complain of lack of sufficient supply of slack coal for burning bricks and enhance the price of bricks to be supplied for constructions in hand. They decline to commit themselves unless some promise or arrangement can be made for supply of slack coal. It is apprehended therefore that prices of bricks will increase on this ground thereby causing loss of revenue and inconvenience to public.

In the interests of speedy and economical prosecution of all housing and construction schemes in hand it is suggested that speedy measures are undertaken by you to arrange for quicker movement of coal for purpose of housing, which is now considered by Government both Provincial and Central of great importance and priority.

We shall be interested to hear from you the action taken in this direction with a view to afford relief to the building trade and the public.

Yours faithfully,
N. T. Patel & Company,
Engineers & Contractors,
Madras.

A copy of the above letter has been sent to the Brick Manufacturers' Association, Madras. It would be interesting to have the views of Experts on this subject.—Ed.

STRESS GRADING OF TIMBER

(Continued from page 18)

For the design of trusses the permissible stresses already discussed are needed and in addition the permissible tensile stress for certain members.

(To be continued)

(By Courtesy: The Timber Development Association, London.)

(Continued from page 9)

By May 10 construction had begun. The department had the big advantage of being its own authority on Codes. By the end of 160 days ball was being played before 18,000 spectators.

At the rear of the magnificently cantilevered canopy, and just above the top seats, it was necessary to leave large openings for the free passage of wind. This also operates to create a pleasant air movement under normal conditions in the hot climate of Colombia. Due to the poor soil conditions and the wide overhang, concrete of a strength of 3,000 psi was used in the canopy membrane and 2,000 psi in the footings. Codstruction involved moving some 69,000 yards of earth, providing 43,000 sq. ft. of paved access road surface and 54,000 sq. ft. of parking area, and finally placing 6,550 linear feet of drainage tile.

In the framing system, seats form a series of Z-beams spanning 35 ft. between vertical supports. These curved vertical frames of parabolic section are each supported on two columns. The canopy is a membrane of reinforced concrete just over 1½ in. thick formed in curved panels between arched ribs. Concrete was preferred over steel because of the proximity to the Caribbean Sea and the action of salt air.—
(With grateful acknowledgments to The Architectural Record.)

PERSONAL

Dr. O. H. Koenigsberger.

Dr. O. H. Koenigsberger, hitherto Chief Architect and Town Planning Expert to the Government of Mysore, has been appointed Director of the newly formed Housing Department under the Ministry of Health, New Delhi.

Mr. P. L. Varma.

Mr. P. L. Varma, Chief Engineer to the Government of East Punjab, will shortly proceed to England and U.S.A. to engage expert architects and town planners for the construction of the new capital of East Punjab near Chandigarh on Kalka-Ambala road.

Mr. Maneckji N. Dalal.

Mr. Maneckji N. Dalal, J.P., M.I.C.E., F.I.A.A., F.I.A.S., has been elected the new President of the Indian Roads and Transport Development Association for the year 1948-49. He has been associated with several governing bodies and institutions. Mr. Dalal was also the Secretary of the Engineering Industries Sub-Committee of the National Planning Commission, 1939.

Mr. E. A. Nadirshah.

Mr. E. A. Nadirshah, O.B.E., J.P., B.A., B.E., B.Sc. (Eng.), M.I.C.E., M.I.E., F.I.S.E., has been elected the new Vice-President of the Indian Roads and Transport Development Association for the year 1948-49. He is the Chief Engineer of the Concrete Association of India and the Editor of the Indian Concrete Journal, and was President of the Institution of Engineers (India) in 1947.

OBITUARY

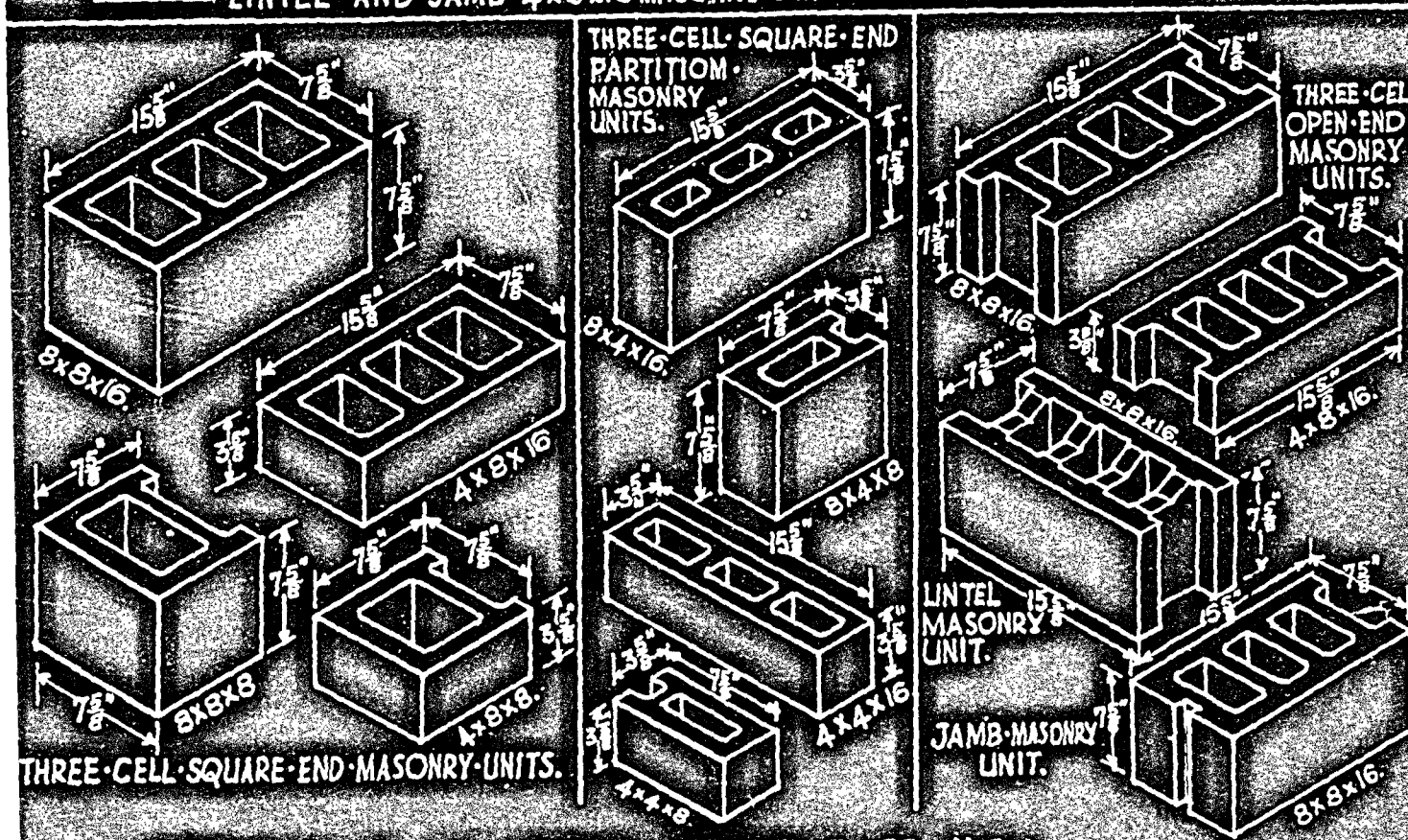
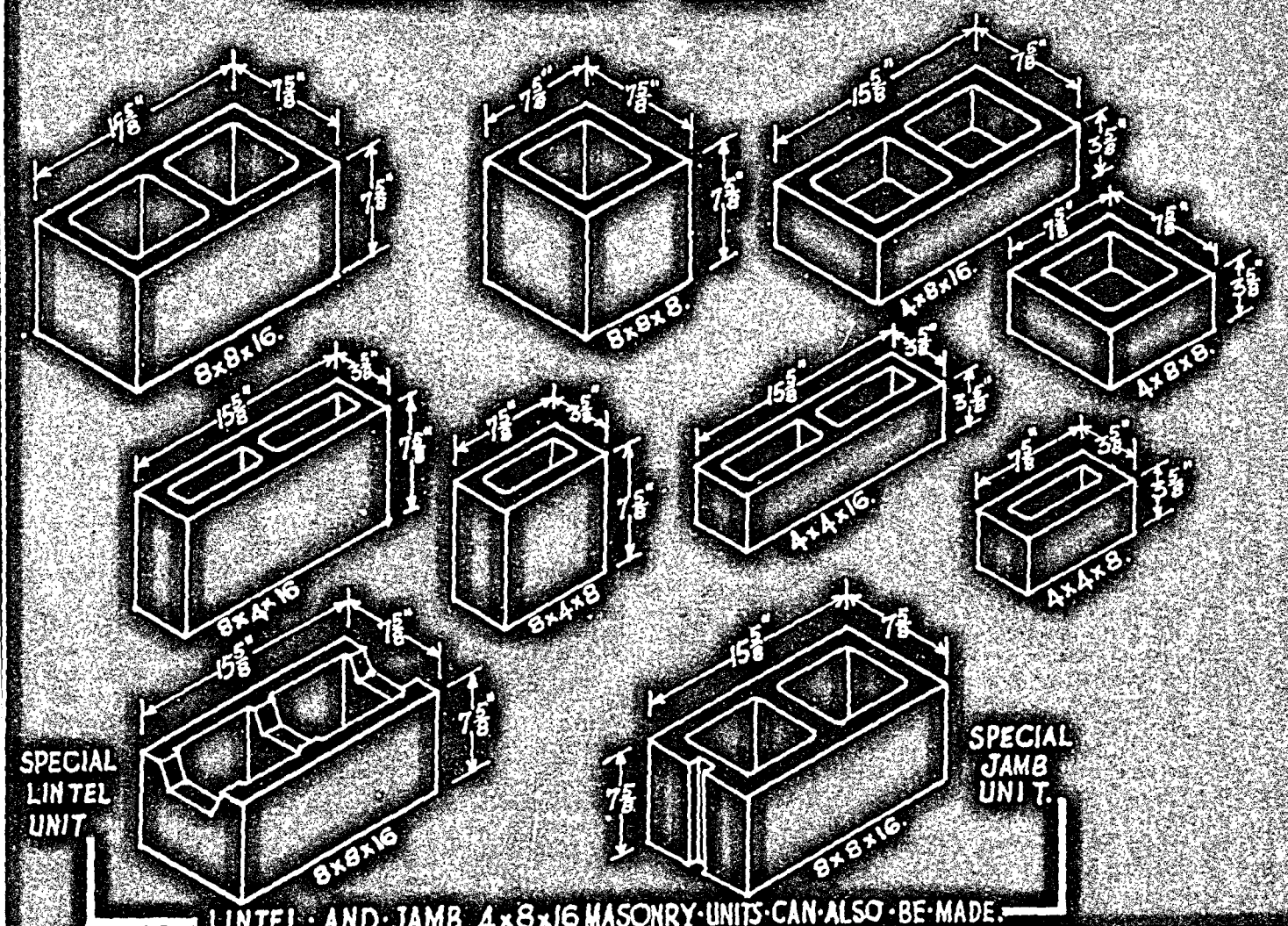
Dr. K. S. Setty.

We learn with deep regret of the death of the retired Principal Dr. K. S. Setty of the C.N.T. Institute, which took place in Madras on September 17. He served the Institute for a number of years and was very popular among students.

TRADE NEWS

Hollow Blocks

We learn from the Modern Housing Construction and Properties Ltd., that they have imported latest machinery for the manufacture of sand cement cavity blocks.

PLANNED INFORMATION SHEET
CONCRETE HOLLOW BLOCKS

INFORMATION OF F. C. GEORGE MACHINE CO. OF U.S.A.

THE BUILDING GAZETTE

PLANNED INFORMATION SHEET

• 2 •

CONCRETE BLOCKS

The Concrete Block Masonry and buildings have many advantages which are not obtainable in other constructions. The main advantages are the cheapness and quickness in constructing houses with concrete blocks. Hollow blocks, not only are lighter and easier to handle, but when made on modern vibrating machines, can give a testing strength of over 1,000 pounds per square inch.

Aggregates, Cement and Water

There are in general two types of aggregates—light and heavy. Cinders, blast furnace slag, pumice, are some of the light aggregates. Sand, gravel, stone are heavy aggregates. Aggregates must be washed clean of all clay, silt or organic matters. Aggregates must be well graded so that voids between coarse particles ($\frac{1}{4}$ " to $\frac{3}{8}$ ") may be properly filled in, with small particles (below $\frac{1}{4}$ "). As much coarse aggregate as possible should be used because the use of larger amount of coarse material increase the load bearing strength and lessens the amount of cement used.

Recommended mixtures are as under:—

- A. — 1 part cement.
3 parts aggregate.
5 parts sand.
- B. — 1 part cement.
6 parts cinders.
2 parts sand.

On an average 25 concrete hollow blocks of standard size 16" x 8" x 8" can be made from 1 bag of cement.

Mixing

The cement and aggregate should be mixed dry for 2 to 3 minutes prior to addition of water. "Dry-mix" concrete as opposed to "wet-mix" concrete used in building and highway construction, is used in making blocks. This dry mixing is necessary so that all particles of aggregate may be properly coated with a film of cement paste. In "wet-mix" concrete construction, poured concrete is allowed to remain in the form for several days to set properly, whereas concrete blocks are removed from moulds immediately and such blocks have to keep their shape without sagging. "Dry-mix" concrete is generally prepared in horizontal mixers with spiral blades. After dry mixing for 2 to 3 minutes, sufficient water should be added so that the mix may be

as wet as possible i.e., wet almost to the slump point of blocks being fabricated. After adding water mixing should be continued for about 3 more minutes.

Complete Plant

Complete Concrete Block Plant comprises—

- (a) Block making machine.
- (b) Self Feed Hopper.
- (c) Various Pallets.
- (d) Mixer—either one bag capacity or 2 bag capacity.
- (e) Belt conveyor.
- (f) Lift Truck.

On either 2 cell or 3 cell machine, two blocks are made at one operation. On an average 250 blocks can be made per hour.

One bag capacity mixer is more standard for use with each machine, but when future expansion may be in view, or where along with block making, manufacture of some other concrete products may also be in view, then it is preferable to install a 2 bag mixer.

One bag mixer has a capacity of approximately 11½ cu. ft. It is powered with 7½ H. P. electric motor. Two bag Mixer has a capacity of approximately 24½ cft. It is powered with either 10 H. P. or 15 H. P. electric motor.

The conveyor is used to carry the mixed concrete from the mixer to the self feed hopper. Detailed operational notes are issued along with the plant.

Curing and Drying

Blocks should be cured by complete hydration to make them dense, hard and strong. "Green" block as it comes out from the machine should be cured by keeping it saturated with moisture. In most parts of India, specially during summer season, the green blocks may be left on the pallet under a cover for about 12 hours or until they can be handled without danger to edges. The pallets may then be removed for using again and the blocks allowed to remain under cover till they are properly cured. The blocks, under curing should be sprinkled with water every alternate day. After the blocks have been cured they should be allowed to dry thoroughly.

Distributed by: The Western Manufacturing Co.

Address: Hesson Chambers,

Parsee Bazaar Street,

Fort, Bombay.

HOW A BUILDING SOCIETY RAISES ITS CAPITAL

(Continued from page 16)

must be subject to at least one month's notice of withdrawal. These deposits are a first charge on the assets and are consequently an absolutely gilt-edged security, and not merely so in name. The reason is not far to seek.

The assets of the Society are invested in mortgages, and it may be presumed that in all new mortgages there is a margin of about 25 per cent between the amount lent and the value. Further, the mortgages are not all new ones, some will be middle-aged and half paid off, others will be nearing their end and nearly all paid off. Taking the mortgage assets of a Society in the aggregate, it is no exaggeration to say that the amount owing will not exceed one-half the value of the securities held.

If, then, deposits are received up to the full legal limit of two-thirds, the security of the depositors lies in the fact that they have only lent the Society two-thirds of one-half of the value of the mortgage securities held. Now two-thirds of one-half is one-third of the whole, so at the very lowest estimate the depositors' money is secured three times over, irrespective of any reserve funds or other securities that the Society may hold.

The normal course of a Society's existence begins with the enrolment of members who take up subscribing and paid-up shares, then as soon as mortgage advances have been made the Society can commence to take deposits up to two-thirds of the sum for the time being owing on mortgages. For the purpose of calculating the borrowing power all mortgages where the payments are twelve months in arrear, or where the Society has entered into possession, must be excluded, also any other assets such as stocks or trustee securities, the borrowing power being limited to two-thirds of the mortgage assets.

THE BUILDING GAZETTE, OCTOBER 15, 1948

The Society having thus been started will now have a regular income from the repayments of mortgages as well as from the influx of fresh capital, and will be in a position to adjust its advances to the funds available. There is one other source of capital available which from its nature can only be regarded as a temporary expedient, and that is the bank loan, which may or may not be secured by the deposit of deeds or other securities. In a district where there is a seasonal variation in the receipts it is quite justifiable to have recourse to a bank loan to enable applications for mortgages to be met, provided that the management have a reasonable expectation of being able to repay such a loan within the year.

For instance, a Society whose receipts are larger in the second half of the year is quite justified in making use of a bank loan in the first half of the year, but unless such loans, taken up during the early months, can be repaid in the latter part of the year, it is not sound finance, as it tends to place the Society at the mercy of its bankers, who may suddenly demand repayment, and so put a stop to mortgage advances altogether.

Small wonder then that investments in Building Societies are among the safest.

(Continued from Col. 3)

and to fulfil the requirements of our Indian Engineers. It contains a variety of information for the members of the Engineering profession.

Though it contains information regarding the Civil and Structural aspects of Building Construction, I am sure that the Mechanical and Electrical aspects also will be included in the course of time. It is definitely a welcome edition to the Book shelf of an Engineer.

Yours faithfully,

G. J. KULKARNI,

Principal.

B.V.B. College of Engineering and Technology, Hubli.

LETTERS TO THE EDITOR

Builders' Association

Sir,—I thank you very much for the September copy of "The Building Gazette" so kindly sent to me and I sincerely congratulate the promoters for having brought out an original work of the kind which should serve one and all in the profession. Such a journal was a dire need in certain respects at any rate in this Province and it is not a day too late to have taken its birth. I feel there is a great future for the Gazette which should carry an All-India importance in the Engineering field as it grows.

During my vast experience of over 30 years in foreign countries and India in Civil Engineering as a Head of a Government Department, as a Consulting Engineer, and as Technical Director of a firm of Constructional Engineers, it was uppermost in my mind to bring about a Builders' Association for South India to serve the interests of Government Institutions, Consulting Engineers and Architects and the builders engaged in the trade.

I am also of the opinion that the Journal if developed on scientific lines is bound to serve the needs of the country in general and the wants of those engaged in the trade in particular. It is sincerely hoped that co-operation of all concerned would soon be forthcoming. I wish the Journal all the success it deserves.

I shall be very glad to be one of your subscribers and shall be willing to contribute my quota of technical co-operation.

Thanking you,

Yours faithfully,

Madras. G. V. RAO, B.Sc., A.M.I.C.E.

"BUILDING GAZETTE"

Sir,—I have received the 1st number and 1st volume of your Building Gazette; while thanking you for the same, I take this opportunity of congratulating you also for bringing out such a valuable collection of information to suit our Indian conditions (Continued in Col. 2)

CONTRACTS OPEN

The dates at the head of paragraphs are those for the submission of tenders. Application for plans and particulars should be made to the address given at the end.

BANDRA: Relief Road.

October 18.—Construction of a Relief Road from Bandra to Borivli Section I from Ch. 3,800 to 13,550. Estimated cost Rs. 1,49,682. The Executive Engineer, North Thana Division, Bandra.

DUM DUM: Hangars.

October 20.—Construction of four temporary Hangars and Apron at Dum Dum Airport. Estimated cost Rs. 3,65,222. The Executive Engineer, Calcutta Aviation Division III, 181/D, Chittaranjan Avenue, Calcutta 7.

CALCUTTA: Pumping Sets.

October 20.—Supply of Electric Pumping sets 50,000 gallons per hour with pumping heads 250' 120'. The Controller of Stores, East Indian Railway, Calcutta.

DHANBAD: Miners' Quarters.

October 20.—Construction of 1,000 Miners' quarters of Bhuli Township 4 miles from Dhanbad. Approximate cost Rs. 30,00,000. B. R. Malhotra, Coal Mines Welfare Works, Seraidhela, Dhanbad.

CALCUTTA: Supply of Bricks.

October 21.—Supply of 29 lakhs of first class bricks at Calcutta. The Executive Engineer, Mint Division, Alipore, Calcutta.

DOMOHINI: Staff Quarters.

October 22.—Construction of 88 Units A Type Quarters at Domohini. The Deputy Chief Engineer, Assam Railway, Pandu.

BOMBAY: Railway Cabins.

October 22.—Construction of A and B Cabins at Surat. Approximate cost Rs. 60,000. The Chief Engineer, B.B. & C.I. Ry., Churchgate, Bombay.

DEHRA DUN: Hydro-electric Scheme.

October 25.—Earthwork 8,000,000 c. ft. on the power channel of the Yamuna Hydro-Electric Scheme in Dehra Dun District. The Executive Engineer, 30, Rajpur Road, Dehra Dun.

SAMBALPUR: Power Channel.

October 25.—Excavating Power channel of Hirakud Dam Project. The Executive Engineer, Power Channel Division, Sambalpur.

LONAVLA: Bridges.

October 25.—Construction of Bridges, Culverts and side drains, etc. on Bhore Ghat, South-East Line. The Executive Engineer, Bhore and Thull Ghats, G.I.P. Ry., Lonavla.

AHMEDABAD: S.D.O.'s Quarters.

October 25.—Construction of Store, S.D.O.'s Quarters and compound wall at the Boring Works Subdivision, Asarwa, Ahmedabad. Estimated cost Rs. 66,678. The Executive Engineer, Northern Sanitary Division, Surat.

MANGALORE: Roads.

October 26.—Providing Bitumen premix carpet to five roads in the Mangalore Municipality. Estimated cost Rs. 71,000. The Commissioner, Municipal Office, Mangalore.

KIRKEE: Sewage Disposals.

October 28.—Provision of Sewage Disposals consisting of Stone-ware drains, Septic tanks and Filter beds, etc., at the School of Military Engineering, Kirkee. Estimated cost Rs. 1,60,000. The Chief Engineer, Southern Command, Pooga.

CALCUTTA: New Mint.

October 29.—Construction of Administrative Block of the New Mint, Alipore, Calcutta. Approximate estimate Rs. 14,12,795. The Executive Engineer, Mint Division, Alipore, Calcutta.

SURAT: Power Station.

November 3.—Construction of Steam Power Station at Utran near Surat. Approximate estimate cost Rs. 7,36,000. The Executive Engineer, Electrical Grid Offices, Foreshore Road, Colaba, Bombay.

KALYAN: Water Supply.

November 16.—Extension of Kalyan Filtration plant. The Chief Engineer, G.I.P. Railway, Bombay.

MADURA: Transmission Lines.

December 2.—Construction of 127 miles overhead transmission lines of 66 K.V. in Madura and the surrounding area. The Superintending Engineer (Technical), Chepauk, Madras.

RESULTS OF TENDERS

Closed August 13.—Supply of Cast Iron Specials, Sluice Valves, etc., for the Madras Corporation:—Under consideration.

Closed August 31.—Construction of Textile Factory at Namur:—No decision taken as yet.

Closed September 1.—Construction of Town Hall at Godhra:—Nine contractors have got their

names registered for submitting plans and estimates with costs.

Closed September 13.—Construction of 1,200 houses for the refugees in Parampurwa, Kanpur. Value Rs. 24,00,000.

Contract for 600 houses was given to a single firm and contracts for the remaining 600 houses were given to several other contractors at the same rate.

HOW WAS NOVEMBER 1947

For Building

Rainfall in inches.

Ahmedabad	2.1
Ahmednagar	0.1
Alleppey	1.3
Ambala	0.0
Aurangabad	0.6
Bangalore	0.9
Baroda	0.0
Belgaum	0.3
Bellary	T
Benares	0.0
Bhopal	0.1
Bombay	0.0
Calcutta	0.0
Cherrapunji	2.1
Cocanada	T
Cochin	4.7
Colombo	0.0
Cuttack	0.0
Darjeeling	0.1
Dehra Dun	0.0
Delhi	0.0
Gaya	0.0
Gulbarga	0.5
Hanam Konda	2.1
Hanover	0.0
Hyderabad (Deccan)	0.0
Hyderabad (Sind)	0.0
Jamshedpur	0.2
Kodaikanal	0.9
Kurnool	0.0
Ludhiana	0.0
Madras	2.8
Madura	0.3
Mahabeshwar	0.6
Mangalore	0.0
Mercara	0.0
Multan	0.0
Masulipatam	T
Mussoorie	0.0
Mysore	1.7
Nellore	1.8
Nezapatam	5.5
Ootacamund	0.3
Palghat	0.3
Peshawar	0.0
Poona	0.3
Raichur	0.2
Rajkot	0.0
Ranchi	2.4
Shillong	0.0
Sholapur	0.1
Simla	0.0
Surat	0.0
Trichinopoly	0.1
Trivandrum	1.4
Vizagapatam	5.0

T denotes rainfall from 1 to 4 cents.

FOR DISCUSSION

Floods on the Ganges in September reached crests that topped all-time records.

Field Marshal Lord Wavell told Indian students in London that India had already pretty nearly enough lawyers and learned men, and the real need now is—engineers and doctors.

Research on Sewage farming is being carried out at the Indian Institute of Science, Bangalore.

Administrators are those who possess uncommon common-sense.

The minimum annual requirements of India for road-rollers is estimated at 350.

Private philanthropy played an important part in the U.S.A., for the purpose of bringing home to an average American scientific methods of farming and agriculture.

A general study at the Cambridge University is in progress of the distribution of stress and strain in materials which do not obey Hooke's Law by a testing mechanism capable of applying direct load and torque, and provided with means of subjecting tubular specimens to internal pressure.

No measure of control or regulation of the economic life of the country would succeed if the right personnel were not there to administer them.

Nearly 40,000 engineers and chemists are employed in Chicago and northern Illinois assuring industry of the technical "Know-how" for every industrial problem and operation.

PROPOSED NEW WORKS

Baroda

The Governor-General of India is to lay the foundation stone of a dam proposed to be constructed across the river Machhu, near Wankaner, a part of a major irrigation project.

Jadavpur

The West Bengal Premier laid the foundation-stone of the new building of the Indian Association for the Cultivation of Science, which is to be erected at a cost of Rs. 33 lakhs at Jadavpur on September 26.

Jaipur

Plans are complete for the establishment of a big cement factory at Sawari Modhopur in the Jaipur State.

Junagadh

The Junagadh State Government have sanctioned a scheme for constructing a bridge measuring about 640 ft. over the river Ozat, one of the largest in Junagadh State, at an estimated cost of over Rs. 6,50,000.

Kaira

A new canal to be constructed on the right bank of the Mahi river somewhere near Balasinor is being designed by the Government Engineers of Bombay.

Lausol

Rajkumari Amrit Kaur, Health Minister, Government of India, laid the foundation stone of Gandhi Memorial Hospital at Lausol on September 26.

Mardan, N.W.F.

The construction of Asia's biggest sugar factory costing about Rs. 1½ crores have begun at Mardan in North-West Frontier Province.

Sourashtra

Sir M. Visveswarayya visited the site of the Thorala Project where a dam is proposed to be built across the river Aji for supplying water to Rajkot City.

EDUCATIONAL

THE ROYAL SANITARY INSTITUTE

The Institute was founded in 1876 to promote the application of the Public Health Act of 1875. The object of the Institute is to promote the advancement of sanitary science in all or any of its branches, and the diffusion of knowledge relating thereto. Such was the success of the Institute in the work which was most urgent at that time, namely, the provision of proper sanitary appliances and the establishment of what may be termed environmental sanitation, that the words sanitary science or sanitation have in common speech become somewhat restricted in their meaning; it is therefore important to realize and remember that the meaning of the word sanitary is "pertaining to health" and the scope of the operations of the Institute has always extended over the whole of the subjects covered by such various terms as hygiene, public health, preventive medicine, social medicine, and others. In other words, the object of the Institute is to promote the health of the people.

The foundation of the Institute is its body of members who are gathered together by a common interest in the objects of the Institute, but unlike many societies, the membership is not restricted to one profession, trade or calling, nor, on the other hand, is open freely to any person upon the payment of a subscription. Consequently among the 7,700 persons who belong to the Institute there are included the chairmen of public health committees, members of the medical, engineering, architectural, veterinary, legal and other professions, and a large proportion of those engaged in public health work, particularly officers of local authorities such as medical officers of health, engineers and surveyors, sanitary inspectors and health visitors; there is also a group of similar persons engaged in commercial pursuits allied to the work of the Institute whose public spirit leads them to support the Institute's work.

The Institute has been fortunate in attracting the notice of charit-

able persons who have wished to leave legacies devoted for all time to helping their fellowmen to better health. These benefactions amount to about £41,000, and have been an important factor in the long-continued success of the Institute, which, apart from these funds, has to depend on its annual income from membership fees and other revenue arising out of its actual activities, since it received no State aid, although its work is not only national but world wide.

One of the most important means of diffusing knowledge of sanitary science is the holding of meetings, which range from the annual congress with an attendance of 2,000 to 2,500 persons, to the sessional meetings in London and other towns which are, of course, smaller and intended to be of more local interest. From time to time conferences are also held to deal with some subject of special interest at the time on which it is desirable to focus attention or which requires discussion to promote progress in certain directions.

The Institute has a library as well as a Museum. The proceedings of the Institute are published in a Journal which is supplied free to members.

Examinations for officers of the Public Health Service were started in 1877 and at the present time the following examinations are held:—Health Visitors; School Nurses; Sanitary Science as applied to Buildings and Public Works; General Hygiene and Sanitation; Food Hygiene; Inspectors of Meat and other Foods; Tropical Hygiene; Smoke Inspectors; Sanitary Inspectors; School Hygiene; Nursery Nurses; Advanced Child Study; Nutrition in relation to catering and cooking.

Certain of these examinations can be taken in India; the Executive Health Officer, Public Health Department, Bombay Municipality, is the Local Honorary Secretary.

Address of the Institute is 90, Buckingham Palace Road, London, S.W. 1.

Are you interested in

TOWN PLANNING

THE SCHOOL OF PLANNING is now able to offer to PROFESSIONAL MEN IN INDIA

the opportunity of studying
by correspondence for the external Intermediate and Final
Examinations of the Town
Planning Institute.

*The fee for the whole
Course, including text-
books, tuition and criticism,*

is £20 sterling

Applications for further particulars and enrolment form
should be sent to:—

The Secretary:
SCHOOL OF PLANNING
35, Gordon Square,
LONDON, W.C. 1.

CURRENT PRICES FOR MEASURED WORK

*Current Prices for Measured Work are a new feature. We believe that even those who may criticise the subject-matter will agree that the idea behind it is sound. For all aspiring builders call for estimates from contractors chiefly to get an idea of the cost of a proposed building and construct the building themselves. Prices shown below are for work executed complete and are for an average job in the Madras City; all prices include for overhead charges and profit for the general contractor. This feature to cover other areas will be published in our subsequent issues.

EXCAVATOR		Rs. A. P.	IRONMONGER		Rs. A. P.
Excavating not exceeding 5' 0" deep to form trenches for foundation	per 100 c. ft.	2 0 0	Glazed sashes for windows 1-1/8" thick Malabar teak with 18 oz. glass including hanging per sq. ft.		4 8 0
Hardcore, good earth, filled in under floors,	per 100 c. ft.	4 0 0	Wrought and fixed boarding Malabar teak 1 1/2" thick per sq. ft.		3 12 0
Sea sand deposited in trenches, 6" thick per 100 sq. ft.,		12 8 0	Do. 1" thick per sq. ft.		2 8 0
CONCRETOR			Malabar teak, in roof joists per c. ft.		22 0 0
Brick-jelly concrete in lime 1:2:5 for foundation	per 100 c. ft.	75 0 0	Malabar teak, wrought, framed and fixed in fixtures per c. ft.		28 0 0
Cement concrete for lintels including form-work	per c. ft.	4 0 0	IRONMONGER		
Reinforcement under 5/8" diameter, M.S. rods cut to lengths, including bends and hooked ends and embedding in concrete lintels	per cwt.	26 8 0	3" Butt Hinges iron including fixing each		0 6 0
Cement concrete grills, 1 1/2" thick	per sq. ft.	2 0 0	4" do. each		0 7 0
BRICKLAYER			4" Barrel bolts, brass including fixing each		2 0 0
Country brick in lime mortar 1:3 in foundation	per 100 c. ft.	100 0 0	6" do. fixing each		2 8 0
Country brick in lime mortar 1:3 in superstructure	per 100 c. ft.	105 0 0	6" cabin hooks iron including fixing each		0 3 0
Half-brick wall in lime mortar 1:3	per 100 sq. ft.	48 0 0	1 1/2" diameter rings, brass including fixing each		0 12 0
Flooring of brick jelly concrete in lime 4" thick and cement mortar rendering 1/2" thick 1:3 finished to a smooth trowelled surface	per 100 sq. ft.	40 0 0	Sash pivots brass 2 1/2" including fixing per set		1 8 0
Do. with surface red, black or brown colour	per 100 sq. ft.	48 0 0	Rim locks and furniture brass including fixing each		40 0 0
Madras terrace roof complete including puttying to soffites	per 100 sq. ft.	160 0 0	All-drop bolts 12" brass including fixing each		15 0 0
Skirting 1:3 cement and sand 3/4" thick rounded to 3" radius and 4" high including mitres and stop ends	per R. ft.	0 5 0	PLASTERER		
CARPENTER			1/2" Rendering to walls in lime, cement and sand 1:1:5 to internal or external	per 100 sq. ft.	15 0 0
Door and window frames 4" x 3" sections Malabar teak, moulded and rebated, framed and fixed in position	per R. ft.	2 4 0	1/2" Rendering to walls in cement and sand 1:3	per 100 sq. ft.	13 0 0
Panelled shutters for doors and windows 1-1/8" thick Malabar teak including hanging,	per sq. ft.	5 12 0	Cornice moulding 6"-9" birth	per R. ft.	0 12 0
Do. 3/4" thick		4 0 0	Whitewashing 2 coats per 100 sq. ft.		1 8 0
			Common colour washing 2 coats	per 100 sq. ft.	1 12 0
			Water-bound distempering 2 coats	per 100 sq. ft.	9 0 0
			PAINTER		
			Preparing and painting 2 coats of oil colour on iron work after fixing	per 100 sq. ft.	15 0 0
			Knot, prime, stop and paint 3 coats oil colour on wood work	per 100 sq. ft.	13 0 0
			Wood oiling 2 coats tinted brown	per 100 sq. ft.	8 0 0
			Tarring to wood work one coat	per 100 sq. ft.	4 0 0

* This page is specially compiled for THE BUILDING GAZETTE and is strictly copyright.