

[R. & L.]

1,000—10-6-13.

Educational (1913) Department.

ORDINARY MS.

G.O., No. 507. Sol

DATED 28-5-1913.

[Despatch Abstract.]

Government of India Scholars — According to the
from the Joint Secretary to the Govt of India
forwarding a copy of the annual report
2 on the progress and prospects

PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Encls. 2. C. 158088

18-5-12

MANCHESTER
MUNICIPAL SCHOOL OF TECHNOLOGY.

HOME WORK BOOK.

NAME, *H. Sakharan Rau*

SUBJECT, *Diary 1st term*

DEPARTMENT, *1911-1912.*

BEMROSE & SONS, Ltd., Manufacturing Stationers, Printers, etc., DERBY;
also at London, Leeds and Manchester.

27
H. Sakharan Rau
School of Technology
Manchester.

Time - Table.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
10.30 - 10.50	Fabric Structure & Calculations	Weaving Calculations & Mechanism		Principles of Looming, Drawing & Bleaching	Design and Analysis	Practical Weaving.
10.30 - 11.30	Weaving Mechanism	Textile Testing Calculations	Chemistry	do.	do.	
11.30 - 12.30	Textile Fibres & Spinning				Spinning Calculations	
1.30 - 2.30	Practical Weaving	Practical Spinning		Chemistry	Practical Spinning	X
2.30 - 3.30						
3.30 - 4.30						

Lectures

"Fabric structure & Calculations"
(Monday only)

September : 25

October : 2, 9, 16, 23, 30.

November : 13, 20, 27

December : 4, 11, 18.

February : 19.

"Weaving mechanism" (Monday)

September : 25

October : 2, 9, 16, 23, 30.

November : 13, 27

December : 4, 11, 18

February : 5, 12.

"Weaving Calculations" (Tuesday)

September : 26

October : 3, 17, 24, 31

November : 14, 21, 28.

December : 5, 12, 19.

February: 6.

"Principles of Color Drawing
& Colouring" (Thurs days).

September: 28,

October: 5, 12, 26.

November: 2, 9, 16, 23.

December: 7, 14, 21.

February: 1, 15, 22, 29.

"Design and Analyses" (Friday)

September: 22, 29.

October: 6, 13, 20, 27.

November: 3, 10, 17, 24.

December: 1, 8, 22.

January: 12.

February: 2, 16, 23.

"Spinning Calculations."

September: 22, 29.

October: 6, 13, 20, 27.

November: 3, 10, 17, 24. x

December: 1, 8, 15, 22.

January: 12.

February: 16.

Practical work

Textile:

Practical weaving (Mondays & Saturdays)

January

September: 25, 30.

October: 2, 7, 14, 16, 23, 28, 30.

November: 11, 13, 18, 25, 27.

December: 4, 9, 11, 16, 18,

January: 13.

February: 3, 5, 17, 19.

Textile Testing Laboratory

September: 26

October: 3, 10, 17, 24

November: 14, 28

December: 5, 19.

January: 9.

February: 6, 20.

Practical Spinning:

September: 26, 29.

October: 3, 6, 10, 13, 17
24, 27, 31.

November: ~~4~~, ~~4~~, 3, 10, 14
17, 24, 28.

December: 1, 5, 8, 15, 19, 22

January: 12.

February: 2.

Special Laboratory (Chemical Dept)

September: 27, 29.

October: 4, 11, 18, 25, 5, 12, 26, 31,

November: 1, ²8, 9, 15, 16, 22, 23, 29.
30,

December: 6, 7, 13, 14, 20.

January: 10

February:

H. Sakharan Rao

Work in the Chemical Laboratory:

- 1) Standardisation of chemical apparatus
- 2) Preparing standard solutions for testing and titration.
- 3) Finding the strength of dyeing materials and the strength of dyes (direct & indirect methods) by titration against standard solution of TiCl_3 .
- 4) Investigating the amount of iron taken up by

10
cotton after it has been treated
with Tannic acid from different
sources.

Ist term. Diary M.C. Sitaraman

Englo MUNICIPAL SCHOOL OF TECHNOLOGY,
C-ISED 248 MANCHESTER.

12/5/13
REGULATION NOTE BOOK.

Subject

Daily Diary & work done

Name

for first term 1911-1912

M. C. Sitaraman

1st year Textile

Sept.

✓ First Session 1911-1912.

18 Monday. joined The School.

9-30-12-30 in the Spinning Room

1-30-4-30 in the Weaving Room

and drew a sketch of a

plain Calico power loom

19 Tuesday. Attended School

9-30-11-30 Mathematics

Contract's multiplication

11-30-12-30 Mathematics

parallelogram of Velocif

1-30-4-30 a short description

and explanation of the machines

in the spinning room

20 Wednesday ⁹⁻³⁰⁻¹⁰⁻³⁰ Mathematics Contract's

multiplication & division

10-30-12-30. Experimental

mechanics and sketching of

textile machinery. Appended

one new type and one of the

type and a bobbin.

21 Thursday. attended School

9-30-10-30 principles of colouring a

figure drawn in free hand

10-30-11-30 Freehand drawing

one figure drawn in

free hand.

1-30-4-30. Geometrical & Engineering

drawing.

Sept. 1911

22

Friday Attended School

9-30-1230 Design and analysis
 Drawn 4 figures of design
 picking out squared paper.

1-30-230 Spinning Calculat
 Direct & indirect trains
 and the classification of
 wheels.

230-430. practical weaving
 Drawn a sketch of a
 plain calico power loom

23 Saturday Attended School

93-1030 physics. Properties
 of matter. Definition of matter
 weight, force, gravitation
 Law. and units

1030-1230. physical
 Laboratory. Found the
 Sp. Grav of a piece of glass by
 means of balance

24 Sunday

25 Monday Attended School

930-1030. Fibre Structure

1030-1130. Weaving Mechanism

1130-1230 Textile fibres +
 spinning

Sept 1911

13

25- 130-230 Mathematics. Algebraical
 addition, division etc

230-430. Draw a sketch
 for hand loom

26 Tuesday. Attended School

930-1130. Mathematics
 Theory of Indices & Definition
 of Logarithm

1130-1230. Mechanics
 parallelogram of velocity

130-1630 Practical Spinning
 Draw a sketch of the hopper
 feed of the opener

27 Wednesday. Mathematics

Logarithms and twenty
 examples worked

1130-1230 Experimental
 mechanics to find under
 the parallelogram of velocity

11-30-1230. Engineering Drawing
 and Sketching of Machinery
 drew ordinary cleaners
 + adjustable cleaners

(Daily evening from 5-6-30
 go on a walk)

28 Thursday. Attended School

9-30. Principles of spinning. Water
 colour

- Sept. 1911
- 28 10.30-12.30. Freehand Drawing
12.30-4.30. Geometrical Drawing
Construction of triangles
and Engineering drawing
- 29 Friday. Absent in the school
- 30 Saturday Physics Force and
9.30-11.30 Units of force. Absolute units
10.30-12.30. Practical physics
found the Sp. G. of a solid powder
insoluble in water.
- Oct 1 Sunday.
- 2 Monday. Attended School.
9.30-10.30. Fibre Structure
and Calculations. Plain
reel weaves, Counting of
warp ends & weft-picks
and the design of checks.
10-11.30. Weaving Mechanism
winding, from cop to bobbin
11.30-12.30. Textile fibres and
Spinning. Fibres various
kinds, cotton, various kinds
cotton plant and its growth.
1.30-2.30. Mathematics. Multipli-
cation by logarithm and
the application of logarithm
and antilogarithm.
2.30-4.30. practical
weaving

- Oct 2 Drawing a sketch of winding Ma-
chine.
- 3 Tuesday. Attended School.
9.30-11.30 Mathematics
Logarithms, its applications
and uses, and examples
11.30-12.30 Mechanics. Parallel
frang forces, Examples, Moments
and its measurement.
1.30-4.30. Practical Spinning
Drawing a sketch of
the spinner.
- 4 Wednesday. Attended School
9.30-10.30. Logarithms
and examples
10.30-12.30. Experimental
Mechanics. Examples.
Sketching of a adjusting
flexible rings and nuts
- 5 Thursday. Attended School
9.30-10.30. principles of
colouring. paints, body
colour and its use.
10.30-12.30. Free hand drawing
1.30-4.30. Drawing a
plan, front and end elevation
of an eccentric of an
old.
and construction of triangles

6
Feb. 5 and the construction of
for a opening through various
points.

6 Friday attended school.
9-30-12-30 Design and analysis
Country fends & pick,
making warp and weft
patterns. Design for corded
cloth.

1-30-2-30. Spinning Calculation
determination sizes &
driven and driven wheels
and the effect of changing
wheels.

2-30-4-30 practical weaving
Sketching of a weaving
machine.

7 Saturday attended school
9-30-10-30 Physics. Determination
of sp. g., density,
absolute and relative
principles of Archimedes.

8 Sunday.

9 Monday attended school
9-30-10-30. Weaving
calculations. Units of
weights and measures
and determination of count
and the wrapping bobbles

15
10-30-11-30 Weaving Mechanism
winding of yarn on
bobbins and the Machine.

11-30-12-30. Textiles fibres and
Spinning, formation
of fibres, their growth and
treatment.

1-30-2-30. Mathematics. Simple
equations.

2-30-4-30. practical weaving
sketching of the day
the pick, becks, etc.

10 Tuesday. Mathematics. Equations
9-30-11-30 evaluating, powers of
expressions by using logarithms
11-30-12-30 Mechanics.

Moments and their
determination Examples.

1-30-4-30 practical Spinning
Sketching of eveners
of the hopper-feeder

11 Wednesday attended school
9-30-10-30. Mathematics
Equations & logarithms
10-30-12-30. Examples on parallels
from forces. and
sketching of a Shuttle

12. Thursday. Attended School.
9.30-10.30. Principles of
Colouring. Tints, Shades
tues.

10.30-12.30. Freehand drawing

12.30-4.30. Geometrical and
Engineering drawing.

Construction of Regular
polygons Sketching of
the bevel shaft.

13 Friday. Attended School
9.30-12.30 Design & analysis
of an Oxford shirt cloth
and Zephyrs. and
problems on Weaving
Calculations.

1.30-2.30 Spinning Calculations
of the various wheels
of hopper feeder of spindles.

2.30-4.30. Practical
weaving. Sketching
of the slay with its
parts.

14. Saturday. Attended School
9.30-10.30 Physics. Determi-
nation of the specific gra-
vity of liquids and soluble
substances. Hydrometers.

14 10.30-12.30 - Practical Physics
Determination of the
specific gravity of a
piece of glass and of wax by
use of Nicholson's hydrometer.

15 Sunday.

16. Monday Attended School.
9.30-10.30 Fabrics Structure
Lecture on the use and
properties of poplin, Repp, & Matt.

10.30-11.30. Weaving Mechanism
Draw winding Machine

11.30-12.30 Textile fibres & spinning
physical properties of cotton
defects in cotton, their
causes & remedies used in
the dealings of cotton.

1.30-2.30. Logarithms, Equations

2.30-4.30. Practical weaving
Sketching of the top
frame of a jacquard.

17 Tuesday Attended School
9.30-11.30 Mathematics
Logarithms & simple
equations

11.30-12.30. Mechanics
Forces, moments

- 17 of single carrier wheels.
1.30-4.30. Practical spinning
sketching of the sketches
the process of cotton thrown
in machine, and the type
feed regulator.

18 Wednesday attended school.
9.30-10.30. Mathematics
logarithms & equations.

10.30-12.30. Experimental
mechanics & sketching
of a shuttle for double
pick, and those for gate

19 Thursday attended school
9.30-10.30 principles of
colouring. Explanation
of the kinds of colouring
and the matching function
-al colours.

10.30-12.30 Free hand drawing
and painting

1.30-4.30. Geometrical drawing
drawing of tangents
and describing circles to
touch other circles.

sketching of wheel shaft.

20 Friday attended school
9.30-1.30. Design & Analysis

12 of poplins, Reppe, Matis
Irregular Fancy matters.

1.30-2.30. Spinning Calculations
determining the drafts
of the between the rollers
of the Hoppers type machine

2.30-4.30. practical weaving
sketching of lay and
weaving in the handloom.

21 21 Saturday attended school
9.30-10.30. Physics. Finding
the sp. g. of liquids by
comparison of volumes of
equal weights by means
of Hick's, Hare's apparatus
and also by hydrometers of
variable immersion.

10.30-12.30 practical
physics. find the
specific g. of salt water
by means of Hare's apparatus.

22 Sunday.

23 Monday attended school.

9.30-10.30 Fabric structure
plain & warp rib weave
" " weft rib weave
check rib weave
& Fancy wale weave

23. 10.30-11.30. Weaving mechanism
Mill warping, the beam
warping machines
11.30-12.30 Selection of cotton
for ^{the} spinning of various
counts.
1.30-2.30 Mathematics Equations
2.30-4.30 practical weaving
weaving in a jacquard
24. Tuesday Attended school
9.30-11.30. Mathematics
principles of a slide rule.
11.30-12.30. Mechanics. Tensi-
on & vibration of the part of
cloth in an uptake motion
1.30-4.30 practical spinning
sketching of an air elevator
the tripod regulating rod
and the cages of a dentcher
25. Wednesday Attended school
9.30-11.30. Mathematics use of
a slide rule
10.30-12.30. Experimental mechanics
examples on moments &
parallelogram of forces.
& sketching of click
catch used for slow
roller turning motion
Five Hule

16

26. Thursday Attended school.
9.30-10.30 principles of colouring
effect of two colours of
the same tone upon one
another and its enhance-
ment.
10.30-12.30 freehand drawing
& matching of natural
colours
1.30-4.30. Geometrical drawing
describing similar polygons
and describing an ellipse
& definition of an ellipse
parabola & hyperbola.
& sketching of a bracket
used between the two
rollers.
27. Friday Attended school.
9.30-12.30 Design & analysis
of 3 examples of mat
weave, fancy mat weave
and warp rib weaves.
1.30-2.30 Spinning Calculation
effect of changing wheels
upon rollers in a Hotts
type machine.
2.30-4.30 attended the textile
exhibition at the City Hall.

28

Saturday. Attended school
 9.30-10.30. Experiments to
 prove the pressure of air
 + barometer + Calculation
 of the pressure of coal gas.
 10.30-12.30. practical physics
 Determination of the area
 of the given piece of wire
 and the thickness of glass
 plate by using micrometer
 wire screw.

29

30

Sunday.
 Monday. attended school
 9.30-10.30. Weaving Calculation
 Counting of coarse yarns. linen
 jute and woads.

10.30-11.30. Weaving Mechanism
 Sectional warping + weaves.

11.30-12.30 Textile fibres + spinning
 physical properties of Egyptian
 and South American Cottons

1.30-2.30 Mathematics logarithms
 + slide rule

2.30-3.30 practical weaving.
 positive up-late motion of
 the cloth and Calculations of
 the reed + pickers wheel

31. Tuesday. Attended school

15

19

9.30-11.30. Mathematics logarithms
 + slide rule. fraction
 rule

11.30-12.30. Mechanics Friction
 Laws of solid friction +
 liquid friction.

1.30-4.30 practical spinning
 Sketching of the cages, front
 elevation, and the frame
 + full length stop motion of
 the Scotcher.

Nov / 1911

Wednesday Mathematics Slide
 rule + Examples.

10.30-12.30 Experimental mechanics
 problems on parallelogram of
 forces.

Sketching of textile machinery
 Temple mounting, 2 and 3
 heddle temples.

2

Thursday. principal of dyeing
 9.30-1.30 Taking of natural colours
 in textile designs.

10.30-12.30. Free hand drawing of
 ground base or body colour
 with zinc white.

1.30-4.30. Geometrical drawing
 Construction of an ellipse
 with 2 piece of paper

and the construction of an hyperbola.

Engineering drawing

Drawing the front & end elevation of the Crank of the shaft of the two rollers & the section

3

Friday. Attended school.

9.30/12.30. Design & Analysis.

Affixing all the patterns with their particulars & design in the pattern book. Analysis of repps, stripe cloth.

1.30/2.30 Spinning Calculation

Drawing the several shafts with their pulleys and noting their dimensions and the velocity of the motors.

2.30/4.30. Practical weaving sketching of weft fork front & end elevations and explanation of the weft fork stop-motion.

4. Saturday. Attended school.

9.30/10.30. Physics Barometer pressure & volume of gases
 pV is constant of perfect gas.

10.30/12.30 practical physics

20

measuring the thickness of a wire & glass plate, and finding the sectional area of the wire.

5 Sunday.

6 Monday Attended school.

9.30. 10.30. Fabric structure Corded effects with warp & weft of worsted & silks

10.30/11.30. Weaving Mechanism.

Sizing, method of sizing
 Subject of sizing foreign materials used in sizing

11.30/12.30. Cotton fibre & spinning. Physical properties of American & Indian Cotton.

1.30/2.30. Mathematics. Solution of Quadratic equations.

2.30/4.30. practical weaving. Weaving a pattern with hand loom.

7 Tuesday. Attended school.

9.30/11.30. Mathematics.

Measurement, Finding the area of Δ^s of Equilateral.

Mechanics. Coefficient of friction between various substances & perfect & lubricated journals.

- 7 230-430. Practical Spinning.
Sketching of the muller Card
- 8 Wednesday, Attended School.
9.30-1030. General formulae
for the solution of any
quadratic equation
1030-1230. Experimental mechanics
problems on parabolic motion
Sketching of textile machinery
of a Swiss Temple.
- 9 Thursday, Attended School.
930-1030. Principles of dyeing
The effects of Colour on texture
1030-1230. Free hand Drawing
130-430. Geometrical Drawing
Construction of a rectangular
parabola and its properties
- 10 Friday, Attended School.
9.30-1230. Design & Analysis
of a Grosgrain, and of work
plain weave
1.30-230 Spinning Calculations
Determination of the speeds
of the pulleys driving various
machines of the Sheffield Vol. + 2.
230-430. Practical weaving.
Weaving a pattern on the
hand loom.

- 11 Saturday. Attended School.
930-1030 physics. Syphon
Elasticity of solids, fluids, gases
and the volume modulus
of solids + gases
1030-1230. Practical physics
Determination of the
area & volume of a
wooden cylinder from
its dimensions found by
means of a Vernier.
- 12 Sunday
- 13 Monday, Attended School.
9.30-10.30. Fabric structure
Effect of colour on texture
10.30-11.30. Weaving mechanism
Dressing machines
11.30-1230. Spinning, fiber spinning
130-230. Mathematics quadratic
equations
2.30-430 practical weaving
winding yarn on bobbins
in winding machine
- 14 Tuesday Attended School.
9.30-11.30. Mathematics
mensuration finding the
area, height, and angles of a
triangle.
11.30-1230. But exposed.

14. practical Spinning Sketching
of the flexible band of the Card
and finding out the physical
properties of the Indian Cottons
15. Wednesday Attended School.

9.30-10.30 Mathematics

Mensuration.

10.30-12.30. Experimental mechanics
Determination of forces required
to pull along & push a
body on an inclined plane.
and sketching of the Cap
and bearing of the two rollers.

16. Thursday. Attended School.

9.30-10.30. Principles of Colouring
the effect of bars and stripes of
colour on various textures.

10.30-12.30. Free hand drawing
and Colouring on tracing paper

1.30-4.30. Geometrical Engineering
Drawing. Describing Cycloidal
& Epicycloidal curves.

and sketching of the fitting
plate of the bearing of the two
rollers

17. Friday Attended School.

9.30-12.30 Design & analysis
of Coloured thread, in plain
weave.

17. 1.30-2.30. Spinning Calculations
Finding the speeds of the
pulleys of the shaft No. 3, 4 & 5.

2.30-4.30. Practical weaving
Making a warp from
a mill warping machine.

18. Saturday Attended School.

9.30-10.30 Physics. Young's
Modulus of Elasticity.

practical physics 10.30-12.30
Measuring the length, breadth
the sectional area and
the area of the cylindrical
surface with Vernier Calipers.

- 19 Sunday.

I have been attending
the School regularly and
doing work with care
and attention, with the
exception of 4 or 5 hours
in all the working periods
when I was indisposed
to attend the class.

The school closed for
the Christmas vacation
during which I went
to Edinburgh and Glasgow

to see some friends.
The school opened on the
8th January and
continued till 24th Feb.
during the whole of
which I have been
regularly working and
attending the lectures.

I attended the mid-term
examination
held at the close of the
last term and answered
all the papers satisfactorily.
In Spinning I have
sketched all the machines
from the Gin to Card
and their several parts.
In weaving I have
completed almost all the
work regarding preparatory
process, I designed patterns
for hand looms, and
sketched the parts of
power looms and woven
in all the periods
assigned for the same.
I have done fairly
good work in drawing

mathematics, mechanics
and physics.

My home works I have
been doing without missing
any of them.

To give a brief idea of
my daily work (as is
given at the beginning) is that
I attended school every
day from 7-30 A.M. to 4-30
P.M. From 7-30 P.M. to
11 P.M. wrote my home works
or studied treatises on
Spinning and Weaving.
On Saturdays sometimes
Fridays at night I
attend a picture theatre
to give a variety and
amusement from my
work during the week.
On week days I generally
go on a long walk after
my dinner to give some
exercise to my body and
avoid fire place, as much
as possible. On Sundays
I generally take 2 walks
one after breakfast

and the other after dinner.
All then along with
some writing that is
generally done on Thursday
evenings for the Indian
Mail forms all my
full course of work.
Fortunately I have not
till now been prevented
from doing my work by
any trouble of body in
my bodily health. I hope
I shall continue to manage
as well as I did, in
future.

I attend once a month
the meeting of the Indian
Association at Manchester.
I once even responded
to the kind invitation of
the Missionary College Students
of Didsbury for a Social
on the 23rd Feb. 1812.

I generally visit all
places of importance along
with the members of the
Textile Society, concerning
textile manufacture.

The following shows an
outline of my work in the
different Subjects of the Textile Course.
Practical Mathematics.

Mondays, 1.30-2.30, Tuesdays
9.30-11.30, Wednesdays 9.30-10.30.

The portions finished are.

Contracted multiplication, Division.
Logarithms, Mensuration
both plane and solid,
Variation, Slide rule,
Graphs, Straight line laws
and curves of the 2nd power
quadratic equations,
Surds, Simple trigono-
metrical functions and
identities.

Practical Mechanics. Tuesday

11.30-12.30 parallelogram of forces, Velocity
Wednesday principle of moments &
10.30-11.30 Couples. Friction and
laws of friction, Coefficient
of friction
principle of work
power, Velocity ratio, mechanical advantage.
Inclined plane, wedge &
crews

Reversibility of Machines
Law of Machines

Law

Machine Drawing. Wednesday

~~11-30~~ ~~12-30~~ 12-30 Spindles old and new type.
Adjustable & ordinary levers
of the Winding Machine.

Shuttles

Clutch Catch used for slow
roller turning motion. Five Mule
Tople

Temple mounting and 2 Rollers
and 3 rollers temples

Two roller coupling

Spindle Drive for west winder

Single measuring stop
motion

Solid Grinding Roller

Horse fall grinding roller
Transverse rack, levers & clams

Couplings of Spindle Drive
for flyer frame.

Semipositive let off double
plain loom.

patent picking plate for
under pick looms

Measuring & knocking off
motion arranged for Warping
Machine

Geometrical Drawing. Thursday

1-30-230 Triangles, polygons (regular)
Ellipses, Curves, Cycloidal
Epicycloidal, Hypocycloidal
Curves, parabola & hyper-
bola, Involute, Cams
and tappets. Nuts, bolts
Screws, couplings, Keys,
and mountings. Thursday
Engineering Drawing. 2-30-4-30

Physics Saturdays. 9-30-10-30
properties of Matter.

Specific Gravif. Elasticity
Heat and Magnetism.

practical physics Saturdays
10-30-12-30 Specific

Gravif. Vernier, Calipers
Reading of Fox's Barometer
Find the sp. g. by means of
Hare's apparatus, finding
the water value of a calorimeter
and finding the sp. heat
of a piece of lead.

Screw gauge, finding the
sp. gravif. of methylated
spirit by means of Mohr's
balance. Verifying Boyle's
Law

Spinning Calculations Friday

120-230 Finding the revolutions of all the progressive parts of Hopps bale breaker, opener and Scutcher. The Drafts between the several parts of Bale breaker, opener and Scutcher. Change wheels. Stop motions, knocking off motions and Lap but the measuring motions.

Finding the speeds of the driving pulleys of all the spinning machines from the gin to the Mule.

Practical Spinning Tuesday

Sketches. 1-30-4-30

Hopps feeder, the Section of the machine and the passage of cotton. The eveners and the eccentric on the shaft of the Evener. Friction clutch.

Copener, porcupine beater, feed regulators, cages, fan beater, calenders, lap rollers. Lap but the stop motion.

Scutcher Section of the machine, and passage of cotton. Feed regulators, tripod link motions, beater and beater box, cages, Calenders and Lap rollers. The Connection of feed regulators to the strap on the cones. plat's revolving card. feed portions, lickerin cylinder, Doffer, Comb Doffer, comb box, Flexible beam, its mounting and adjustment, Horse fall griinder and Flats.

Mearns gin. M

Section of the machine mountings of the rollers Doctor's Knife & Grid bars.

Knife roller gin Section Knife roller, Doctor's Knife and passage of cotton

Saw gin Section of the machine. The fixing of saws, adjustment of Grid bars. fan and Case.

Sliver lap machine Section of the machine

Spoon stop motion, Lap roller
raising and adjusting arrange-
ment-

Condenser Card

Lickerin, Cylinder, clearer rollers
Doffer and Condensing ~~sub~~ to
ribbons and divided flats.

Coiler can, rollers and gearing.

Fibres and Cotton Spinning Monday

11-30 - 12-30

Cotton
plant, its crop and belt
of production, kinds of cotton
and their qualities. Physical
conditions tending its mature
growth, Staple length of
various cottons, advantages
and disadvantages of
the nature of staple. The
defects in cotton, and
Commercial expressions.

Ginning, picking
picking, hand picking
and machine picking
Ginning, Foot roller,
Coker, McCarthy
Knife roller, & saw, gum.

Bale breaking
Cotton roller pulley,

hopper bale breaker.
Slack mixing and direct
mixing. Advantages
and disadvantages of
Slack and direct mixing.

Hopper feeder,
porcupine feed,

Dust Trucks. Automatic
dirt carriers.

Opener. Vertical cotton
opener, Horizontal beater
opener, porcupine beater
opener, Double opener.
The new bearing at the
bottom of the beater shaft
of the vertical opener, Double
balance rope driving of
the top pulley of the vertical
beater.

Scutcher regulators

double and triple beater
beaters, Single acting
and reversible or double
acting beaters.

Practical weaning Monday

2-30 - 4-30

sketch all the parts of
a power band hand loom
slay, picker, buffer

pickin' stick, Play, Crank
Shaft, Taking up motion
weft stop motion, loose reed
fast reed, Tappets,
Woodcroft Tappets, Doleby
pins' movement.

Preparatory Sketched
upright
Spindle winding Machine,
Drum winding machine,
Sliding rail, mangle wheel
sliding motion. Mill warping
Machine, beam warper
Sectional warper.
Made warps of 120 yds.
and 500 ends from the
mill warping Machine.

Drawing in through healds
eyes, and calculating
the speeds of the upright spindle
and drum winding Machines.

In the hand loom,
made patterns of Twills
broken and fancy, Diamond
patterns and Crape
patterns.

Cutting cards and fastening
them, & to looms.

Weaving Mechanism Monday

1030-1130 Weaving, warping, & sizing
upright spindle machine,
Drum winding machine
and pin winding machine.
Mill warping, Beam
warping, Sectional
warping & Ball warps.
Slasher Sizing, Heavy
Sizing, medium Sizing
and light Sizing
Dressing & sizing
Slasher Sizing warps
from the back beams (of
the beam warpers),
Ball warp Sizing, & Scotch
dressing.

Beaming, Looming
Drawing in & Twisting in.
Hand Looms

Shedding, picking and
beating up. Beards &
beards.

power Looms, Cams,
Tappets and Dobbies.
Tappet Construction
telling off arrangements
rigid beam and flexible beam.

Tappet Construction

Jamieson's Tappets, Woodcraft's
Section Tappets and chain
tappets and their position
regarding the loom.

Fabric Structure Monday 9.30

- 10-30 AM.

Weaving

plain cloths, poplins, Mats
warp & weft ribs, twills
Broken twills, fancy twills
Sateen & satin weaves, Diamond
weaves, Honey comb weaves
Briarflow weaves, Huckaback
Designing, Drafting and
lifting plan of the weaver.

Weaving Calculation. Monday

(Fortnightly) 9.30 - 10.30 AM Counting
of cotton, English & French.
Counting of Worsted, linen,
coarse cottons, silk, spun
silk, jute Counting, Davis
System Gause System
Grain System, Run, Cut,
Galasheeds, Hawick
West of England
Folded thread Counting
Needlework threads
Lace threads

Grandrelle's Threads

Reel counting and
various kinds of reeds.

Free hand Drawing, Principles
of colouring. Thursdays 9.30 -
12.30.

Colour drawing, tints
hues, tones & shades.

Drawing patterns from
natural colours. Sketching
nature. Complementary
colours. Drawing &
writing, flowers (repeated),
butterflies, birds and feathers.

M. C. Sitarman
Ist year Textile
Municipal
School of
Technology.
Manchester

C. 1580 of

14/5/13

No. 816 20

From

The Hon'ble Mr. H. Sharp, C.I.E.
Joint Secretary to the Government of India.

To

The Secretary to the Government of Madras,
Educational Department.

Department of Education,
(Education)

Simla, the 6th May 1913.

I am directed to forward, for the information of His Excellency the Governor in Council, a copy of the annual report for 1912 on the conduct and progress of the Government of India scholars under the charge of the Educational Adviser to Indian Students together with the diaries, in original of scholars named below :-

M. C. Sitaram

H. Sakharan Rao.

I have the honour to be, ..

Sir,

Your most obedient servant,

Joint Secretary

Madras

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Annual Report for 1912 on the conduct and progress of the
Government of India Scholars.

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REPORT ON GOVERNMENT SCHOLARS AT CAMBRIDGE.

Bisheshwari Prasad, M. Sc., from the United Provinces (*vide* India Home—Education, letter No. 32, dated the 23rd September 1909).

Mr. Prasad has continued to make satisfactory progress. The Tutor of Emmanuel College states that his diligence and conduct have been in the highest degree satisfactory to the College authorities. Mr. Prasad's Scholarship expired in September 1912, but it is probable that he will remain at Cambridge for a further year before returning to India. He has been attending the lectures for I. C. S. students in Mathematics, English History, Economics, Political Science, Geography and English Composition, as well as the Honours lectures in Mathematics. He was not able to take the Mathematical Tripos owing to an unforeseen technical point as to his University standing. The Tutor of Emmanuel College writes of him: "Mr. Prasad has been during the past year, as in his former years, a thoroughly satisfactory and industrious student." He was an unsuccessful candidate at the Civil Service Examination in August 1912.

Sonti Venkata Ramamurty, from Madras (*vide* letter from the Government of Madras, No. 4, Education, dated the 14th June 1909). *For 34224 26-09*

Mr. Ramamurty's Scholarship expired in August 1912. He is now serving as a Probationer for the Indian Civil Service. *Return 5*

Kshitish Chandra Sen, from Bengal (*vide* India, Home Department, Education, letter No. 33, dated the 15th September 1910).

The reports on Mr. Sen have been satisfactory. He has postponed taking Part I of the Moral Science Tripos until the end of his third year with a view to reading almost exclusively for the I. C. S. Examination, for which he appeared in August. He is also studying for the Moral Science Tripos. He is now a Probationer of the Indian Civil Service.

Hassamal Basharmal Shivdasani, from Bombay (*vide* telegram from the Government of Bombay, dated the 15th July 1911).

Mr. Shivdasani is studying at St. John's College, Cambridge, for the Mathematical Tripos. His Tutor writes that he has done well, though not brilliantly, in the College and Tripos Examinations and that he has got a First Class in Part I. It appears that Mr. Shivdasani has not been entirely successful in falling in with the life of the College.

REPORT ON GOVERNMENT OF INDIA SCHOLARS STUDYING IN LONDON.

Anandrai Keshavlal Dalal, from Bombay (*vide* Bombay Educational letter, No. 23, dated the 26th September 1908).

Dr. Dalal's Scholarship expired in October 1911, but he has been acting as House Surgeon at the Metropolitan Hospital, London, and for this reason was allowed to postpone his return to India until October 1912. He has now returned.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLARS STUDYING IN LONDON.

Mawng Po Thein, from Burma (*vide* India Home—Education, letter No. 12, dated the 27th May 1909).

Reports on Mr. Po Thein have continued to be satisfactory so far as his attendance and conduct are concerned, though his progress is only reported to be "Fairly satisfactory." Mr. Po Thein's Scholarship has now expired, but he

wishes to withdraw from his undertaking to return to India. The last report from the City and Guilds Engineering College on this Scholar is attached. In the letter from the Secretary to the Government of Burma, No. 231-M-5E-1, dated the 8th April 1909, enclosed in the above-mentioned letter from the Government of India reporting the selection of Mr. Po Thein for a Government of India Scholarship, it is stated that two firms (Messrs. Finlay, Fleming and Company and the Burma Mines, Limited) had offered to give employment to the Scholar on his return from England, and it will be very unsatisfactory if the Scholar after completing his training declines to return. I am, however, unable to discover his present address.

A. C. Patel, B. Sc., from Bombay (*vide* Government of India Home Department, Education, letter No. 21, dated the 9th June 1910).

Mr. Patel has completed his course at the City and Guilds Engineering College, where he has done exceedingly well. He has just passed (in July) his B. Sc. (Engineering) Examination of the London University, and also his A. C. G. I. (Associate of the City and Guilds of London Institute) at the same time, both after a course of only two years.

The following extract from the report of the City and Guilds (Engineering) College shows Mr. Patel's marks for work done during the Session ending July 1912.

Electrical Engineering.	Mathematics.	Physical Chemistry. (Percentages only.)
(550) 370	(150) 145	47 per cent.
Spring Term	Winter Term.	Total.
(375) 283	(425) 322	(3,000) 1909

Mr. Patel has now been granted an extension of his Scholarship for a third year, and arrangements are in progress for procuring for him actual employment in works.

Ambat Kesava Menon, from Madras (*vide* India Home Department, Education, letter No. 21, dated the 15th July 1909).

On the expiration of the period for which Mr. Menon's Scholarship was extended (as mentioned in my report of last year) he applied for a further extension for six months, which he proposed to spend partly with Messrs. Gibbs and Company and partly in visiting various Works on the Continent, to which Dr. Lewkowitsch had undertaken to procure introductions for him. On enquiry it seemed doubtful whether useful facilities could be obtained for Mr. Menon on the Continent, and his request for permission to go there was accordingly negatived; but his Scholarship was extended for three months in order that he might continue to enjoy the advantage of work with Messrs. Gibbs and Company. Sanction was also given to Mr. Menon's visiting certain Works in this country, to which he was introduced by Messrs. Gibbs and Company and Dr. Lewkowitsch. At the expiration of this period Mr. Menon urged that he should be allowed to complete his third year, and sanction was accordingly given to an extension of his Scholarship for the three months remaining, and a further premium of £26-5-0 was paid to Messrs. Gibbs and Company on his behalf. Mr. Menon has now renewed his application for permission to visit various places on the Continent, and has been granted an extension of his Scholarship to enable him to undertake a two months' tour in order to visit various Works connected with the oil and fat industries there.

Mr. Menon has been well reported on throughout his career as a Government Scholar. When Mr. Menon was sent to Messrs. Gibbs and Company, Dr. Lewkowitsch (under whom he had been working for some fifteen months) said that this arrangement would be the grounding and finishing of Mr. Menon's education for practical work. Messrs. Gibbs and Company have reported him to be an apt pupil, hard-working and very interested in his work; and their Director in this final report of the 12th January last, wrote as follows:—

"I have much pleasure in testifying that Mr. Menon has qualified himself as quite a good Hard Soap Maker, and I should consider that he was quite capable to take charge of a small Factory.

As far as Soft Soap is concerned, he is devoting the remainder of his time principally to this and to Glycerine recovery. This knowledge he will easily acquire in the time at his disposal while here, and will be thoroughly up in both Hard and Softs, and also will have full knowledge of the bases for the different Toilet Soaps.

We are very pleased with the way he has worked, and has always been ready to put his hand to any job, and has been punctual and industrious."

Mr. Menon will return to India probably some time in December, and proposes to go direct to Calcutta in order to investigate the present condition of the oil and soap industry in that city. He also wishes to go to the United Provinces for the same purpose; and any facilities that could be afforded to him might most usefully be given.

Panjanyarai Vaikuntharai Mehd, from Bombay (*vide* India Education letter No. 12, dated the 29th June 1911).

Mr. Mehd's work at the Leathersellers' Company's College has been satisfactory. During the year permission was granted him to visit Works in Leeds and Glasgow, facilities for which were procured for him by Dr. Parker of the Leathersellers' Company's College.

Ghulam Ali Muhammadi, from the Central Provinces (*vide* India Education letter No. 11, dated the 15th June 1911).

Pending the final settlement of the course of study to be pursued by Mr. Muhammadi he was allowed to join the Battersea Polytechnic to continue his theoretical work and to get practical work in the laboratory of one of the Professors. He was also allowed to take lessons in the German language. Arrangements were then completed to place Mr. Muhammadi for a year in the Wapping Soap Works, where Mr. A. K. Menon had spent a year with considerable advantage. As in Mr. Menon's case, a premium of £105 had to be paid. Mr. Muhammadi is still with Messrs. Gibbs and Company.

Muhammad Nawab, from the Punjab (*vide* India Home Department letter No. 15-Education, dated the 10th June 1909).

Mr. Nawab's report on his visit to America is sent herewith. From this report it will be seen that he endeavoured to get into business relations with a large number of firms, including the following:—

New York.

- (1) The Central Leather Company; (3) Doherr, Grimm and Company;
- (2) A. Klepstein and Company; (4) Abe Stein and Son.

Philadelphia.

- (1) Messrs. Burk Brothers; (5) J. Kirkpatrick and Company;
- (2) Max Burnstein and Son; (6) Mulford and Schelenger;
- (3) Chas. D. Burk and Son; (7) Wm. Amer and Company.
- (4) E. Huleschman and Son;

Pinegrove.

Messrs. Gensemer and Salen. (This factory claims to be the biggest extract tanning factory of sole leather.)

Boston, Peabody and Lynn.

- (1) Alden B. Sleeper Leather Company ;
- (2) Hunt, Ranken and Company ;
- (3) Winslow Bros. and Smith Company ;
- (4) Thomas Kelly and Company ;
- (5) A. C. Lawrence and Company ;
- (6) Brown Dexter Company ;
- (7) F. E. Jones and Company ;
- (8) Willett and Company ;
- (9) L. Beebe and Son ;
- (10) A. R. Eales ;

etc., etc.

Newark, N. J.

- (1) J. H. Ladew Company ;
- (2) The Harvey Company ;
- (3) E. S. Ward and Company ;
- (4) T. P. Howell and Company ;
- (5) Messrs. Walsey and Smith.

It appears from the concluding part of Mr. Nawab's report, however, that in America, as in Germany, in spite of recommendations from Dr. Parker and the Leathersellers' Company's College, he did not receive such valuable facilities as he expected.

In addition to his practical course at the Leathersellers' Company's College, where he passed the College examinations in Heavy Leather Tanning (First Class) and Applied Chemistry (Third Class), Mr. Nawab took the City and Guilds College First Class ordinary certificates in Leather Tanning and Dyeing.

Mr. Nawab's Scholarship has now expired, and he returned to India in December last. It is understood that he returned in order to rejoin the firm of which he is a member—Messrs. Nawab-ud-din, Leather Merchants, Amritsar.

Harold Douglas Bennett, from Bengal ;

Phani Bhusan Roy, from Bengal ;

Kupppanda Muttanah Muttanah.

(*vide India Education letter No. 11, dated the 15th June 1911.*)

Arrangements were made to place Messrs. Bennett, Roy and Muttanah under Faraday House for courses of practical training, and the payment of a premium of £ 175 to that Institution was sanctioned on behalf of each of them.

Frequent reports are received as to their progress, and Mr. Campion, M.I.C.E., follows their work closely on my behalf. I would urge that particular care should be taken, in selecting Scholars for the study of practical engineering, as to their physical fitness for the arduous work which this implies. Mr. Bennett is not of robust constitution, and was obliged to undergo an operation almost immediately after his arrival in this country. He has since had to abandon his work with the British Westinghouse Co., as his health will not stand the strain. Mr. Roy, who was working in the work-shops of Messrs. Clarke, Chapman and Company, was unable to keep the work-shop hours and has had to be transferred to the drawing office. The Medical Board of the India Office reports that both Roy and Bennett are of poor physique and not equal to doing a long day's work in work-shops.

Mr. Muttanah, who has been placed by the authorities of Faraday House with the British Westinghouse Electrical and Manufacturing Company, appears to be doing satisfactorily.

REPORT ON GOVERNMENT SCHOLAR AT GLASGOW.

Leslie Hyde Lacy Langley, from the United Provinces (*vide India Home Department—Education, letter No. 17, dated the 10th June 1909.*)

Mr. Langley has completed his three years' Scholarship at the Glasgow University and has taken his B.Sc. degree in Engineering. Professor Barr states that he went through his course of study with much credit, that he has gained a sound knowledge of the branches of Pure and Applied Science which he has studied, that he had valuable experience in practical engineering work, and that he is well equipped to make rapid advance in the practice of engineering. With regard to his personal character, Professor Barr writes :—

"He displayed much energy, ability and alertness in the pursuit of his studies, and I formed the opinion that he is a man who will commend himself to those with whom he is associated, not only by his attainments, but by his personal character and bearing and his devotion to the duties which he may have to discharge in the practice of the profession he has chosen to follow."

Mr. Langley has not yet submitted his application for his return passage to India, as he is anxious, if possible, before he leaves this country to secure a post in India to which to return. He has been advised to apply to the Consulting Engineers for Indian Railways here, and also to the Secretary to the Railway Board in India ; the Principal, Thomason College, Koorkee ; and the Agents of the various Railways in India.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR AT LEEDS UNIVERSITY.

Saiyid Faizuddin, from the Central Provinces (*vide Government of India, Home Department—Education letter No. 13, dated the 27th May 1909.*)

Mr. Faizuddin has taken his Diploma in Leather manufacture at the Leeds University and, his Scholarship having expired, has returned to India. Mr. Faizuddin applied for an extension of his Scholarship for a fourth year, but this was refused. A letter has, however, been sent from the India Office recommending that facilities may be afforded to him for practical work in the Army Factory at Cawnpore, and Mr. Faizuddin has been advised to apply for this permission on his arrival in India.

REPORT ON MR. M. A. R. PANIKER. (FORMERLY AT LEEDS UNIVERSITY.)

Manakath Allampatath Ramunni Paniker, from Madras (*vide Despatch No. 23, Home Department, Education, dated the 31st October 1907.*)

Mr. Paniker is at present employed by Messrs. Röhm and Haas (Chemische Fabrik), Darmstadt.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR AT LIVERPOOL UNIVERSITY.

Hashmat Rai, from the Punjab (*vide Government of India, Home Department—Education, letter No. 30, dated the 29th September—6th October 1910.*)

Mr. Hashmat Rai's Scholarship has been extended for a third year in accordance with the recommendation of Professor Donnan, who wrote as follows:—

"I am writing this letter to urge strongly that Mr. Hashmat Rai's Scholarship be extended to a third year. Unless this is done, I am of opinion that the whole object of the Scholarship will be defeated. My aim all along has been to prepare Mr. Rai for a particular industry, namely, the electrolytic preparation of alkali (sodium carbonate, caustic soda) and bleaching powder (or bleaching liquor). Mr. Rai has spent the last two years in acquiring a competent knowledge of chemistry, physical chemistry, and electro-chemistry. He is now in a position to study the technical problem to which I have referred. I have corresponded with Sir Thomas Holland on the subject, and have been assured by him that the industry in question would have every prospect of success in India. Of course Mr. Rai himself cannot start it. But the best thing I can do is to prepare him to be of service in an industry which competent authorities consider would be successful in India. Mr. Rai has worked very well indeed, and would benefit enormously by a third year in which he could devote himself to a practical study of the working of electrolytic cells for the manufacture of alkali and bleach. I cannot guarantee to gain admission for him to actual works. But he can do a great deal without that, and we can prepare him just as we would prepare an English student who desired to enter works. For this purpose, however, I consider it quite essential that he should have a third year at his disposal, as otherwise he would be obliged to break off his work at the very point where it began to have a direct practical bearing on the technical question. It is possible that I may be able to gain admission for Mr. Rai to an experimental electrolytic alkali plant which is being worked by a friend of mine in Belfast."

Copies of three concise diaries by Mr. Hashmat Rai accompany.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR AT MANCHESTER UNIVERSITY.

Ganesh Govind Narke, from the Central Provinces (*vide* India, Home Department—Education, letter No. 24, dated the 12th August 1909).

Mr. Narke took his B. Sc. degree in Mining at the Manchester University and then submitted a thesis for the M. Sc. degree, which he received in June 1912. Mr. Narke asked permission to visit the Bauxite Mines in the south of France on his return journey to India, and on the recommendation of Sir Thomas Holland this was granted. Sir Thomas Holland, in recommending that sanction be given to this proposal, wrote as follows:—

"As the development of the bauxite deposits in the Central Provinces—from which Mr. Narke has received his Scholarship—is likely to take place in the near future, I consider that it would be desirable to sanction his request. He has made very good use of all opportunities of the kind granted during the currency of his scholarship, and has throughout been exemplary in conduct."

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLARS AT THE MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER.

Copy of the Mid-Sessional Report (February 1912) and of the Sessional Report (July 1912) are sent herewith, together with reports on the following Scholars from the Principal of the School:—

M. N. Basak.

A. C. Datta.

Ashutosh Guha.

R. V. Gurjar.

H. Mookerjee.

B. B. Pradhan.

H. Sakharan Rau.

M. C. Sitaram.

R. C. Srivastava.

A. P. S. Yadav.

Diaries are also sent of the following Scholars:—

M. N. Basak ... 1st Term, Session 1911-12.

(Including Continental Diary.)

A. C. Datta ... 1st Term, Session 1911-12.

Ashutosh Guha ... 1st Term, Session 1911-12.

(Report of visit to Turin Exhibition, 1911.)

R. V. Gurjar ... 1st Term, Session 1911-12.

H. Mookerjee ... 1st Term, Session 1911-12.

(Report of visit to Turin Exhibition, 1911.)

B. B. Pradhan ... 1st Term, Session 1911-12.

H. Sakharan Rau ... 1st Term, Session 1911-12.

M. C. Sitaram ... 1st Term, Session 1911-11.

R. C. Srivastava ... 1st Term, Session 1911-12.

A. P. S. Yadav ... September 18th, 1911, to February 29th 1912.

In addition to these remarks by Mr. Reynolds and what will be gathered from the Diaries of the Scholars themselves, I have to make the following remarks:—

Raghunath Vithal Gurjar, from Bombay (*vide* India, Home Department, Education, letter No. 16, dated the 10th June 1909).

A special grant of £39 was made to Mr. Gurjar for the purchase of Indian cloth in order that he might carry out certain experiments at the Municipal School of Technology thereon. These experiments were not concluded on the termination of the third year of Mr. Gurjar's Scholarship in August, and a further extension of four months has been granted to him for this purpose. The question of granting him an extension for a full year's practical work is also under consideration.

Balkrishna Bhasker Pradhan, from Bombay (*vide* India, Home Department—Education, letter No. 16, dated the 10th June 1909).

Mr. Pradhan passed his B. Sc. in Engineering at the Manchester University in 1911 and duly submitted a thesis for his M. Sc. degree, which he took in 1912. He is now engaged in special research work in Electrical Engineering and is reported to be doing excellent work. He has been granted a special extension for a fourth year to enable him to undergo practical training, and an allowance has been sanctioned for this year at the rate of £75 per annum. If this proves successful, the Secretary of State will consider the advisability of continuing Mr. Pradhan's Scholarship for a fifth year on the same conditions, as it is considered to be of great importance to secure opportunities for practical experience for Government Scholars.

Ram Chandra Srivastava, from the United Provinces (*vide* India, Education,—letter No. 11, dated the 5th June 1911).

Mr. Srivastava has spent one Session at the Municipal School of Technology, Manchester, and arrangements have been made for him to spend his second year in Glasgow, partly at the Glasgow and West of Scotland Technical College and partly with a firm of Sugar Machinery Makers. It was hoped that facilities would also be obtained for Mr. Srivastava to enter a Refinery, but so far these facilities have not been secured.

Jwala Prasad Srivastava, from the United Provinces (*vide* India, Home Education,—letter No. 16, dated the 25th June 1908).

Just at the time when the third year of his Scholarship was expiring, Mr. Srivastava obtained an opportunity through Messrs. John M. Sumner and Company, Engineers and Machinery Exporters of Manchester, to enter the Bleaching, Dyeing and Finishing Works of Messrs. J. C. Taylor and Company, Pendleton, Manchester, where goods for Indian markets were treated; and on the recommendation of Mr. Reynolds, the Principal of the Municipal School of Technology at Manchester, Mr. Srivastava's Scholarship was specially extended for a period of three months beyond the third year in order that he might take advantage of this opportunity, and a premium of £50 was paid to the firm on his account. In making the recommendation Mr. Reynolds wrote of Mr. Srivastava as follows:—

"Mr. Srivastava is one of the best, perhaps the best, Indian students who have ever come to the School. No one has used his opportunities to greater advantage than he, and I think if there be any chance at all of the Secretary of State considering his case it would be well if it could be done."

And again

"I think it would greatly enhance Mr. Srivastava's industrial position could he take advantage of it (this opportunity) before he finally leaves this country for India. The money required would be well invested and produce an adequate return so far as Indian industries are concerned."

Mr. Srivastava returned to India in March last and has been appointed Assistant Chemist, Technological Institute, Cawnpore.

The report by Mr. Srivastava on the work done by him on the Continent during the summer vacation of 1911 is sent herewith.

REPORT ON SCHOLAR ATTACHED TO MESSRS. THORNYCROFT'S FIRM.

Henry James Newson, from the United Provinces (*vide* India, Home Education—letter No. 18, dated the 26th May 1910).

At Mr. Newson's urgent request his time at Messrs. Thornycroft's Works has been extended for a further six months, in order that he may have the advantage of a full eighteen months' practical work. For this an additional premium of fifty guineas has been paid to that firm. Mr. Newson is a very energetic student, and reports upon his work continue to be satisfactory. But he is apt to raise difficulties, and to threaten to throw up his scholarship and to refuse to return to India, unless we adopt all his suggestions and guarantee him work on his return.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR STUDYING AT CLEVEDON JUNCTION, NEAR MANCHESTER.

Maung Ba Tin, from Burma (*vide* India, Home Department—Education, letter No. 15, dated the 12th May 1910).

Mr. Ba Tin has continued to make satisfactory progress under Mr. Burton of Pilkington's Tile and Pottery Company, and on Mr. Burton's recommendation he has been granted an extension of his Scholarship for a third year on the understanding that admission to an English firm engaged in the manufacture of earthenware is secured for him or other arrangements made for a useful alternative for his third year's work. After great difficulty it has been found possible to secure for Mr. Ba Tin admission to a large English Earthenware Factory at Longton in Staffordshire, where valuable opportunities of study will be put in his way. On Mr. Burton's recommendation Mr. Ba Tin was recently allowed to visit Clay Mines in the South of England (Messrs. Pike Brothers, Wareham, Dorset).

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR STUDYING IN THE WEST INDIES.

G. N. Sahasrabudde, from Bombay (*vide* Government of India, Home Department—Education, letter No. 21, dated the 9th June 1910).

Mr. Sahasrabudde's Scholarship has expired and he has now returned to India (where his address is care of Mr. V. G. Apte, 400, Shanwarpeth, Poona City).

Mr. Sahasrabudde has submitted full reports on his work, which I understand have been sent to India by the Secretary to the Judicial and Public Department. Mr. Sahasrabudde does not want this report published in full; and I have already suggested that, if publication is proposed, Mr. Sahasrabudde might first be referred to. Mr. Sahasrabudde also suggested that, if another Government of India Scholar is sent to the West Indies, a more restricted tour would be better. Although every part of his experience there was useful, he considers that the results contained in certain parts of the tour were not commensurate with the expenditure. The best programme for another Scholar would, in his opinion, be to go to Demerara in October or November; to stay a month there; to go on to Trinidad in the beginning of January, and spend two or three weeks there; to spend two weeks in Barbadoes; and then to go either to Antigua or St. Kitts (not both) until August, when the factories are closed and the Scholar should return to India. As in his own case, a Scholar should be sent in the first instance to the Agricultural Office and should be placed, while in the West Indies, under the control of the Commissioner of Agriculture for the West Indies, of whose assistance Mr. Sahasrabudde said that he could not speak too highly. Mr. Sahasrabudde added that the processes for the manufacture of white sugar could not be studied in the West Indies.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLARS AT BIRMINGHAM UNIVERSITY.

Girish Chandra Bardaloye, from Eastern Bengal and Assam (*vide* India, Home Department—Education, letter No. 11, dated the 20th May 1909).

A report from the Vice-Principal of the Birmingham University on Mr. Bardaloye is attached, and is in every way satisfactory. Mr. Bardaloye entered for his B. Sc. Examination in June 1912, but failed to pass in one subject, owing to a bicycle accident. He has therefore to enter again for this subject in September. A special grant of £16 was made to Mr. Bardaloye, as an exceptional case, to meet the expenses of this accident. He had already drawn all his Scholarship allowance, and without this grant would not have been able to remain to complete his degree.

Mr. Bardaloye's Scholarship has now expired and he leaves for India on the 25th October by the S. S. "Medina".

T. Kumaran Nair.—from Madras (*vide* India, Home Department—Education, letter No. 25, dated the 28th July 1910).

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A report from the Vice-Principal of Birmingham University on Mr. Nair is attached. It will be seen from this report that Mr. Nair only passed part of the Final Metallurgy Examination, but in his Professor's opinion this was not due to neglect of his work; and in view of a favourable report from Professor Tanner, an extension for a third year has been granted him.

M. N. Sen Gupta, from Bengal (*vide* India, Home—Education, letter No. 19, dated the 25th June 1908).

Mr. Sen Gupta's Scholarship expired in September 1911, and he has returned to India.

REPORT ON GOVERNMENT OF INDIA SCHOLARS AT OXFORD.

Walter Gabriel Howell Elliot, from Madras (*vide* India, Home Department Education, letter No. 22, dated the 30th June 1910).

Mr. Elliot is studying Modern History with the view of preparing for the Final Honours School. He is reported by the Senior Tutor of Jesus College to be quite satisfactory in every way.

Girja Shankar Bajpai, from the United Provinces (*vide* India Secretary's letter No. 32—Education, dated the 24th August 1911).

Mr. Bajpai is preparing for the Indian Civil Service Examination, taking Modern History, Mathematics, and English Literature. He is reported to be most regular in his attendance and exemplary in his conduct, and he is making good progress. His Tutor at Merton College writes of him: "Mr. Bajpai is a very clever, well-informed man. He ought to have no difficulty in passing high in the Examination for the Indian Civil Service in August 1913. He is genuinely loyal in his opinions and convinced of the value of English rule in India. He has been living with me during part of the Long Vacation, and I have formed a high opinion of him in every way."

Richard Sidney Blaker, from the Punjab (*vide* India—Education—letter No. 9, dated the 15th June 1911).

Mr. Blaker joined Queen's College, Oxford, last year and worked there for one Academic Session. He at first proposed to take the B. C. L. degree and read for the Honours School in Jurisprudence, but he has come to recognise that the possession of such a degree would not help him to get work in India, and he has asked and obtained permission to change his course of study and to read for the Honours School in Literae Humaniores with the intention of appearing afterwards for the Indian Civil Service Examination. With this object he has obtained permission to stay down from Oxford for the academic year 1912-13 (during which time his Scholarship will be suspended), to read for that time with a private tutor, and then to resume his Scholarship and return to Oxford.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR IN EDINBURGH (SPECIAL.)

Fanindra Nath Bose, from Eastern Bengal and Assam (*vide* letter from the Director of Public Instruction, Eastern Bengal and Assam, No. 108-T., dated the 29th November 1910).

Mr. Bose was sent by the Edinburgh College of Art to Paris with a Traveling Scholarship awarded by the Scotch Education Department. He has now returned, and the Director of the College reports that the work done by him during the period spent in Paris is highly creditable. He is now doing post-graduate work at the Edinburgh College of Art.

REPORT ON SCHOLARS GRANTED SCHOLARSHIPS FOR THE STUDY OF ARABIC AND SANSKRIT.

Asimuddin Ahmad, from Bengal (*vide* India, Home—Education, letter No. 18, dated the 17th June 1909).

I beg to report that Mr. Asimuddin Ahmad has completed his three years' course of study in the University of Leipzig where he has obtained the degree of Ph.D. (*Magna cum laude*). Professor Fischer, under whose direction he studied Arabic, has throughout spoken highly of his diligence and intellectual ability and has reported that he has made great progress in scholarly method. He has attended the lectures of Professor Fischer in Arabic and Syriac, those of Professor Zimmer in Aethiopic and of Professor Stumme in Turkish. He presented for his Doctorate a thesis which has received the distinguished honour of having been accepted for publication in the Gibb Memorial Trust Series, a fact which is in itself a testimony of its excellence.

Mr. Asimuddin Ahmad is the first Scholar of Arabic who has received a Scholarship from the Government of India for the scientific study of that language in Europe, and he has entirely justified the confidence reposed in him; he has created a very favourable impression upon his Professors and has made full use of the opportunities offered him. I can thoroughly recommend him for any learned post, as Professor of Arabic or any similar capacity.

A. H. Mensur Ahmad, from Bombay (*vide* India, Home Department—Education, letter No. 27, dated the 11th August 1910).

Mr. Mensur Ahmad's work in Madrid was interrupted by an illness from which he suffered while there. On his return to Berlin, however, he resumed his work under Dr. Sachau, and has given every satisfaction. He has, therefore, been granted an extension of his Scholarship for a third year. Permission was also given him to visit London during the summer vacation 1912 for the purpose of collating manuscripts for the Dissertation which he is preparing for the degree of D. Ph. of Berlin.

P. D. Gune, from Bombay (*vide* India, Home Department—Education, letter No. 27, dated the 11th August 1910).

Mr. Gune has continued his studies under Professor Brugman at Leipzig, taking especially Comparative Philology. His progress and conduct appear to be quite satisfactory.

Tukaram Krishna Laddu, from the United Provinces (*vide* India, Home—Education, letter No. 18, dated the 17th June 1909).

In the spring permission was given to Mr. Laddu to attend the Congress of Orientalists at Athens. Mr. Laddu's Scholarship expired in July, but he has been allowed to postpone his return to India for four months. A grant of £32 has been sanctioned for him to assist in printing his Dissertation for the degree of Doctor of Philosophy of Halle University and for the examination fee. This grant was made subject to his succeeding in obtaining the degree; and it has since been increased to £37. It is expected that Mr. Laddu will return to India about the end of December, and the Government of the United Provinces has recommended him to the Government of India for appointment to the Provincial Educational Service on a salary of Rs. 250 a month.

Todar Mall, from the Punjab (*vide* India—Education, letter No. 15, dated the 10th August 1911).

Dr. Pope, the Censor of Non-Collegiate Students at Oxford, commends Mr. Todar Mall, who is doing well in his studies of Sanskrit there and is an expected candidate for the degree of B. Litt. In the spring permission was given to Mr. Todar Mall to attend the Congress of Orientalists at Athens.

Irach Jehangir Sorabji, from Bombay (*vide* India—Education, letter No. 15, dated the 10th August 1911).

Mr. Sorabji is studying Sanskrit as a Non-Collegiate Student at Cambridge under Professor Rapson. He has been taking Professor Rapson's course for the

Oriental Tripos and the Vedic lectures delivered to Indian Civil Service candidates, as well as attending Dr. Gile's lectures on Comparative Philology. His attendance, conduct and progress are reported to be entirely satisfactory, and Mr. Reddaway, the Censor of Non-Collegiate Students, speaks in the highest terms of Mr. Sorabji and says that Mr. Sorabji has established himself as a valuable factor in the corporate life of Fitzwilliam Hall. In the spring sanction was given to Mr. Sorabji's attending the Congress of Orientalists at Athens; and, in addition to spending the present summer vacation under Dr. Jolley at Wurzburg, permission has been given to Mr. Sorabji's visiting a number of the German Universities, in order that he may have opportunities of consulting with various Professors who may be of assistance to him in the course of work upon which he is engaged.

REPORT ON GOVERNMENT OF INDIA TECHNICAL SCHOLAR FOR SILK-WEAVING.

Prabhat Chandra Chaudhuri, from Eastern Bengal and Assam (*vide* India, Home Department—Education, letter No. 13, dated the 28th April 1910).

As stated in my last report, Mr. Chaudhuri was allowed to transfer from Manchester to the École Supérieure de Commerce at Lyons. In the spring of this year he submitted a programme of work according to which he was to spend the time from August to October in visiting important silk places in Italy, France and Switzerland, including a month at Milan to study the diseases of the silk worm.

Then he was, if it could be arranged for him by the Principal of the École Supérieure de Commerce, to spend about two months in a Filature; after which it was proposed that he should finish his training by taking the *Cours de Garage* at the École Supérieure de Commerce—a six months' special practical course. Owing to indisposition Mr. Chaudhuri was obliged to depart somewhat from the sanctioned programme and to spend some time in a silk mill in Lyons instead of paying the visits which he had proposed, but he will keep as close as circumstances will permit to the programme given above.

It is not possible to supervise in detail the work of a Scholar at such a distance as Mr. Chaudhuri, but, so far as can be judged, he has shown himself to be a diligent and satisfactory student. Reports from him are attached for transmission to India.

GOVERNMENT OF INDIA SCHOLARS, 1912.

Name.	Subject of Study.	Reference.	REMARKS.
(1) Halloran, George	Honours degree in Arts at Oxford; and I.C.S.	Government of India Despatch No. 11 (Education) of 25th June 1912, J. and P. 2457-12.	Mr. Halloran has joined Worcester College, Oxford, where he proposes to study for the Indian Civil Service Examination.
(2) Siddiqi, Munshi Abdursattar.	Arabic	Government of India Despatch No. 11 (Education) of 20th June 1912, J. and P. 2458-12.	Has been placed under the charge of Professor Littmann, University of Strassburg.
(3) Roy, Pandit Tara Chand.	Sanskrit	Government of India Despatch No. 11 (Education) of 20th June 1912, J. and P. 2458-12.	On Mr. Roy's arrival he was sent to Heidelberg to study German until the beginning of the University Session, and has now joined the University of Leipzig.

Name.	Subject of Study.	Reference.	REMARKS.
(4) Nagarkatti, D. N. ...	Paper Manufacture.	Telegram from Viceroy dated 6th June 1912.	It was proposed that Mr. Nagarkatti should go to the Municipal School of Technology and he has now submitted for consideration a plan of practical work in paper manufacture.
(5) Sadasivam, D. ...	Applied Chemistry and the manufacture of Textiles.	Viceroy's Telegram, dated 6th June 1912.	Failed to pass the Medical Board.
(6) Tombat Sakharama Rao.	Electrical Engineering.	Viceroy's Telegram, dated 6th June 1912.	He has joined the works of Messrs. Mather and Platt and is to join the Municipal school of Technology in October 1913.
(7) Mittra, Chandra.	Electrical Engineering.	Viceroy's Telegram dated 6th June 1912.	Arrangements have been made for Mr. Mittra to be placed with Messrs. Siemens and Co. at Stafford.
(8) Henriques, E. F. ...	Architecture	Viceroy's Telegram dated 6th June 1912.	Mr. Henriques is spending the first part of his Scholarship period in India.
(9) Duncan, P. R. ...	Mechanical and Electrical engineering.	Viceroy's Telegram dated 6th June 1912.	He has joined the University of Birmingham.
(10) Sarkar, Chandra Sekhar.	Mechanical and Electrical engineering.	Viceroy's Telegram, dated 6th June 1912.	He has joined the Municipal School of Technology, Manchester, and will work during vacations with Messrs. Mather and Platt.
(11) Kochhar, Lakhmi Das.	Tanning	Viceroy's Telegram, dated 6th June 1912.	Mr. Kochhar will probably join the Leathersellers' Company's College. On his arrival however, he fell ill and has had to undergo an operation for appendicitis. The settlement of his course of study is therefore delayed pending his recovery.
(12) Qazi, Muhammad Husain.	Higher Mathematics.		Mr. Qazi has joined Emmanuel College, Cambridge, where he is studying for the I.C.S.
(13) Zachariah, Kuruvilla.	Honours School of Modern History.		Mr. Zachariah has joined Merton College, Oxford, where he is studying for the Honours School of Modern History.
(14) Das, Bhubananda ...	Mechanical and Electrical Engineering.	Viceroy's Telegrams, dated 6th June 1912 and 19th August 1912, and Government of India Despatch No. 13 (Education), dated 27th June 1912, J. and P. 2571-12.	He has joined the University of Glasgow for the Engineering Degree and is to work with Messrs. Mavor and Coulson at the same time.

Diaries.

Basak, M. N. ... 1st Term, Session 1911-12.
 Datta, A. C. ... 1st Term, Session 1911-12.
 Faizuddin, Syed ... 1st, 2nd and 3rd Terms, Session 1911-12.
 Guha, Ashutosh ... 1st Term, Session 1911-12.

Report of visit to Turin Exhibition 1911.

Gurjar, R. V. ... 1st Term, Session 1911-12.
 Mehd, P. V. ... Three Terms, Session 1911-12.
 Mookerjee, H. ... 1st Term, Session 1911-12.

Report of visit to Turin Exhibition 1911.

Narke, G. G. ... Summer Vacation Diary, 1910-11.
 Pradhan, B. B. ... 1st Term, Session 1911-12.
 Rai, Hashmat ... Three Terms, Session 1911-12.
 Rau, H. Sakharan ... 1st Term, Session 1911-12.
 Sitaraman, M. C. ... 1st Term, Session 1911-12.
 Srivastava, R. C. ... 1st Term, Session 1911-12.
 Yadav, A. S. ... September 18, 1911, to February 29, 1912.

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REPORT ON INDIAN GOVERNMENT SCHOLAR.

University or College	-	Manchester Municipal School of Technology.
Name of Scholar	-	M. C. Sitaroman.
Subject of Study	-	Textile Industries - First Year.
Academic Session	-	1911-1912.
Course of lectures attended-		First Year Textile. (see Time Table)
Examinations passed (if any) during the Session.		Passed in all subjects in the course at the Mid-Sessional Examinations.
Attendance, progress, and conduct.		Satisfactory.
General remarks	-	

Date 14th March 1912.J. H. Reynolds
Principal or Professor.

41) Textile Industries - 1st Year Course

MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER.

SESSION 1911-1912.

Classes taken by Mr.

M. C. Sitaraman (J. G. S.)

	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
	SUBJECT.	SUBJECT.	SUBJECT.	SUBJECT.	SUBJECT.	SUBJECT.
9-30-10-30	<i>Fabric Structure and Calculations.</i>	<i>Mathematics.</i>	<i>Mathematics.</i>	<i>Principles of Colouring.</i>	<i>Design</i>	<i>Physics.</i>
10-30-11-30	<i>Weaving Mechanism.</i>		<i>Experimental Mechanics and Sketching of Textile Machinery.</i>	<i>Freehand Drawing.</i>	<i>and Analysis.</i>	<i>Physics Laboratory.</i>
11-30-12-30	<i>Textile Fibres and Spinning.</i>	<i>Mechanics.</i>				
12-30-1-30	LUNCH.	LUNCH.	LUNCH.	LUNCH.	LUNCH.	
1-30-2-30	<i>Mathematics.</i>	<i>Practical</i>		<i>Geometrical and Engineering Drawing.</i>	<i>Spinning Calculations.</i>	
2-30-3-30	<i>Practical Weaving.</i>	<i>Spinning</i>			<i>Practical Weaving.</i>	
3-30-4-30			RECESS.			
6-25-7-25						
7-25-8-25						
8-25-9-30						

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REPORT ON INDIAN GOVERNMENT SCHOLAR.

University or College	Municipal School of Technology, Manchester.
Name of Scholar	H. Laksharan Rao. (Rau.)
Subject of Study	Textile Industries - Special Course.
Academic Session	1911-1912.
Course of lectures attended.	Special course in Textiles. (see Time Table.)
Examinations passed (if any) during the Session.	Did not sit for Examinations, on account of illness.
Attendance, progress, and conduct.	
General remarks	

Date 14th March 1912.J. M. Reynolds
Principal or Professor.

MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER.

SESSION 19

Classes taken by Mr. *A. S. Rau (S. G. L.)*

	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY
	SUBJECT.	SUBJECT.	SUBJECT.	SUBJECT.	SUBJECT.	SUBJECT.
9-30—10-30	<i>Fabric Structure and Calculations</i>	<i>Weaving Calculations and Mechanism</i>	<i>Chemical</i>	<i>Principles of Colour</i>	<i>Dyeing</i>	<i>Practical</i>
10-30—11-30	<i>Weaving Mechanism</i>	<i>Textile Testing Laboratory</i>	<i>Dept.</i>	<i>Drawing and Colour</i>	<i>and Analysis</i>	<i>Weaving</i>
11-30—12-30	<i>Textile Fibres and Spinning</i>		<i>do</i>			
12-30—1-30	LUNCH.	LUNCH.	LUNCH.	LUNCH.	LUNCH.	
1-30—2-30					<i>Spinning Calculations</i>	
2-30—3-30	<i>Practical Weaving</i>	<i>Practical Spinning</i>		<i>Chemical Dept.</i>	<i>Practical Spinning</i>	
3-30—4-30			RECESS.			
6-25—7-25						
7-25—8-25						
8-25—9-30						

REPORT ON INDIAN GOVERNMENT SCHOLAR.

19 24

University or College	University of Birmingham.
Name of Scholar	J. K. Nair.
Subject of Study	Metalurgy.
Academic Session	1911-12.
Course of lectures attended.	Courses in preparation for Final Metallurgy examinations in Metallurgy & Engineering I & II Mining & Surveying
Examinations passed (if any) during the Session.	Part of Final Metallurgy examinations. Metallurgy II. Surveying.
Attendance, progress, and conduct.	Student's attendance regular, progress satisfactory and conduct good.
General remarks	M ^r Nair will have an opportunity of taking his examination in Engineering I & II again in September, but will have to wait till next June before he can be re-examined in Mining. I do not think his failure indicates any neglect of his work.

R. S. Heath

Vice-Principal and Registrar

Date 31st July 1912.

Again G.O., No. _____, dated _____ 19 ____.

Again G.O., No. _____, dated _____ 19 ____.

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None notices in the report of
the students from this
Presidency are marked
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ORDER OF GOVERNMENT.

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LETTER OF GOVERNMENT.

STATEMENT WITH DEPTO.

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