

Educational (1908) Department.

ORDINARY MS.

G.O., No. 182

DATED

13/3/08

order
page no. 35

(ab)

[Despatch Abstract.]

~~Daily diary of a~~ State Technical Scholar

According to the ~~daily~~ ^{of work} diary kept by Mr. M. a.
Ramunni Panickar. State Technical Scholar,
at the University of Leeds.

BACK PAPERS.

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

FURTHER PAPERS.

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

Papers of the department to which the current belongs.

Number.	Date.	Original (=O.) or spare copy (=S. C.).	Remarks. (In this column such of the papers as have been removed —for copying, printing, etc., should be marked with a cross.)	Initials of Referencer with date in token of return to Reference department.

Papers of other departments.

Department.	Number.	Date.	Original (=O.) or spare copy (=S. C.).	Despatcher to note the return of the papers to the departments concerned.

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No.

226

Regd 4/3/08

From



G. B. H. Fell, Esq.,

Depy Secy. to the Govt. of India,

The Secy. to the Govt. of Madras,

Education Department.

Home Department.

(Education)

Calcutta, the 3rd March 1908.

Sir,

I am directed to forward, for the information of the Governor in Council, the diary kept by Mr. M.A.R. Panikkar, State technical scholar at the University of Leeds, during the autumn term of 1907.

I have the honour to be,

Sir,

Your most obedient servant,

G. H. L.

Depy Secretary to the Govt. of India.

red

In person

1. HM.

2. The Hon. Secy. to the Govt. of India

H. S. S.

2.3.08

CIRCULATED IN EDL.
AND LEG. DEPT.

Box Ordinary No. 27



The University of Leeds

M.A. R. Paniker.
1907

Daily diary of work turned out

October

4 v

September 1904.

Date of admission - ^{Oct} Sept 3rd. 4 P.M.

Oct Sept 4th Friday -

9.30 to 10.30. attended the lecture on
General Engineering by Mr
Myers.

10.30 to 11.30. attended Prof Procter's
lecture on the Principles of
Leather manufacture in
continuation of the introductory
lecture delivered by him at 10.30
on Wednesday which I was
permitted to attend.

11.30 to 1. Chemical Laboratory. Leather
Dept. - occupied in fitting up and
stocking the necessary apparatus -
2 to 3. Took lessons in Elementary
German

3 to 5. Organic Chemistry Laboratory
under Prof. Cohen. Stocked apparatus
and made qualitative determination
of Carbon, Hydrogen and Nitrogen,
in organic compounds.

Substances used: - Succinic Acid
and Formanilide -

October 5th Saturday.

University hours 9.30 to 12.30

9.30 to 10.30. attended Theoretical Chemistry lecture by Dr. Dawson. He spoke about the combining wts of elements and cited the experimental determination of the comb wt of Silver by Stas, making at the same time side observations on the standards adopted by Dalton, Wollaston and Berzelius.

10.30 to 11.30. attended the demonstrations of Mr. Bennet on Analytical chemistry of Leather manufacture, the principal features of his demonstration being the rudiments of chemical analysis with special reference to the calibration of pipettes & burettes together with the right method of reading the meniscus.

11.30 to 12.30. attended organic chemistry lecture by Prof. Cohen. He spoke about the history of organic chemistry from the time of Leibig to that of Wohler, noting the broad outlines of the boundary differences between the inorganic chemical world & the organic.

October 7th Monday.

9.30 to 10.30. General Engineering. Lecture upon the materials used, together with their physical properties and the diff kinds of stresses brought into play.

10.30 to 11.30. attended Prof. Proctor's lecture on the Principles of Leather manufacture. He spoke about the structure of the skin with special reference to the Epidermis & animal & vegetable cells with their structure & characteristic features.

11.30 to 1. Leather Industries Laboratory (L.I.L.).

Commenced the preparation of standard solutions. $N/1$ Na_2CO_3 & $N/1$ H_2SO_4 solutions were first begun.

2 to 3. Took lessons in German.

3 to 5. Organic chemistry Laboratory.

Performed qualitative tests for the halogens and Sulphur in organic compounds. Substances used. Chloral hydrate & Benzyl Sulphide.

Preparation of Potassium Ethyl Sulphate was begun.

October 8th Tuesday.

9.30 to 10.30 attended Inorganic chemistry lectures by Prof Smithells. The lecture was upon the element Oxygen, mainly based on the history of the element alluding to the works of Priestly, Scheele, Mayow, Hooke and Lavoisier.

10.30 to 11.30. Prof Procter's lecture on 'The Physics and Chemistry of Leather Manufacture'. He began with the Kinetic theory of gases and discussed the gaseous laws of volume, pressure and temperature ending with the gas constant 'R' got by taking on to the laws of Boyle & Gay Lussac, the generalization of Avogadro.

12. to 1. Prof Cohen's lecture on Organic Chemistry. To-day's lecture was chiefly upon the method of separating the constituents of a mixture of organic substances & the method of testing their purity. The melting & Boiling pt. method, Fractional crystallisation, Fractional distillation & Distillation under reduced pressure were all dwelt upon.

2 to 5. Org Chem laboratory - Preparation of Potassium Ethyl sulphate: Contd the work of the 7th. The process was $\frac{3}{4}$ gone through.

October 9th Wednesday.

9.30 to 10.30. General Engineering. To-day's lecture was upon Ties & Struts with ^{an} explanatory discourse on the modulus of Elasticity & the practical methods employed in testing the tensile strength of materials.

10.30 to 11.30. Prof Procter on Principles of Leather Industry. He dwelt upon the Structure of the skin illustrating his explanations by means of slides. The Anatomy of the hair was largely touched upon.

11.30 to 1. Leather Industries Laboratory - Standardisation of N/1. H_2SO_4 solution by Na_2CO_3 was taken up from where it was left last Monday afternoon.

2 to 3. Took lessons in German.

3 to 5. Organic Chemistry laboratory - Preparation of Potassium Ethyl Sulphate Contd. Preparation of Ethyl Bromide was taken up and proceeded with, side by side with the former one to fill up the time.

7
October 10th Thursday.

9.30 to 10.30. Prof. Smithells On the methods of preparation of Oxygen.

10.30 to 11.30. Prof. Procter On Evaporation & Partial pressure

11.30 to 12. Organic chemistry Laboratory.
Continuation of last day's work.

12 to 1. Prof. Cohen On the quantitative estimation of C, H and N in Organic Compounds.

2 to 5 Organic chemistry laboratory -
Finished the preparation and purification of Ethyl Bromide
Preparation of Potassium Ethyl Sulphate finished. Purification remains -
Yield of Ethyl Bromide - 50 gms.

1 8
October 11th Friday.

9.30 to 10.30. Mr. Myers On the Testing machine used in Engineering works.

10.30 to 11.30 Prof. Procter On the structures of hides and skins with anatomical charts on fibrous tissue and glassy membranes.

11.30 to 1. Leathers Industries laboratory -

Prepared ^{a new} ~~the~~ standard solution of Sodium carbonate but accidentally as I was engaged with the balance, the flask containing the hot solution of the carbonate left on the sand-bath cracked and thus to-day's work was completely spoilt - One of the few accidents during the course of my four years' laboratory work.

2 to 3. Lessons in German

3 to 5. Organic chemistry laboratory.

Crystallisation of the mother-liquor for Potassium Ethyl Sulphate, after the addition of Methyl alcohol. Got the whole yield of the crystals into the filter.

Preparation of Ether begun and finished
Purification remains -

October 12th Saturday.

9 to 9.30. Organic laboratory.

Purification of Ether prepared yesterday

9.30 to 10.30. Dr Dawson on the early methods of determining atomic weights more especially by Berzelius based on the Principle of Simplicity to the Principle of Similarity.

10.30. to 11.30 Demonstrations by Mr Bennett on the Analytical Principles of leather Manufacture. He spoke about

Standard solutions to the use of Indicators

11.30 to 12.30. Prof Cohen on the quantitative estimations of (a) Nitrogen by (1) Kjeldahl's method (2) by Will and Varrentrapp's method (b) Halogens by Carius' method (c) Sulfur by Carius' method -

The rest of the time was occupied in discussing the method of Dumas and Victor Meyer in determining the vapor density of a substance to find out its molecular weight.

12.30 to 1.15. Organic laboratory.

Purification of Ether (Contd) -

October 14th Monday.

9 to 9.30. Organic lab.

Recrystallisation of $\text{SO}_2 \cdot \text{OC}_2\text{H}_5 \cdot \text{OK}$.

9.30 to 10.30. Engineering laboratory -

Hydraulic test machine. Testing the tensile strength of mild steel.

10.30. to 11.30. Prof Proctor on the methods of salting and soaking hides and skins with the antiseptics adopted by different countries for preventing putrefaction, Lanthorn lecture -

11.30 to 1. Leather laboratory.

Titrate H_2SO_4 solution with Na_2CO_3 soln prepared on Friday and began the preparation of the duplicate solution of Na_2CO_3 .

2 to 3. Took lessons in German.

3 to 5. Organic laboratory -

Recrystallised $\text{SO}_2 \cdot \text{OC}_2\text{H}_5 \cdot \text{OK}$ out of a soln with methylated Spirit -
First part of the purification of $\text{OK} \begin{matrix} \text{C}_2\text{H}_5 \\ \text{C}_2\text{H}_5 \end{matrix}$ was also finished -

Tuesday 15th October 07.

9 to 9.30. Organic laboratory.

Concentration of mother liquor from a second

Crop of $\text{SO}_2 \cdot \text{OC}_2\text{H}_5 \cdot \text{OK}$.

9.30 to 10.30. Prof Smithells on the various
Methods of preparing oxygen more especially
from nitrates & chlorates.

10.30 to 12. As Prof Procter was absent,
there was no lecture & the time up to 12
was consequently utilised in the Leather Lab.

Prepared another standard solution of
 Na_2CO_3 to standardise the H_2SO_4 solution.

12 to 1. Prof Cohen on wet determinations
the Euryscopic & Boiling pt Method.
together with the Hofmann Apparatus &
Thorp's modification of the same.

2 to 5. Organic laboratory

Purification of Ether.

Preparation of $\text{C}_6\text{H}_5 \cdot \text{NO}_2$. Preparation
finished.

+

Library book taken.

Bothamley's 'Manual of Photography'

October 16th 1907.

9 to 9.30. Organic laboratory.

Purification of Nitro-benzene.

9.30 to 10.30. Engineering workshop.

Testing the compressive strength of Copper
and aluminium.

10.30 to 11.30. Prof Procter on the lining and
unhairing and fleshing of sole leather
hides alluding also to the bran drenching
used in connection with Dressing-leather.

11.30 to 1. Leather laboratory.

Titration of H_2SO_4 soln with Na_2CO_3 (duplicate
expt). Preparation of standard alkali (NaOH)
soln.

2 to 3. Took lessons in German.

3 to 5 - Organic lab. Purification of ether, of
Nitro benzene & of Potassium Ethyl sulphate.

5.30 to 6.30. Meeting of the Scientific Society.

Inaugural address by Dr Cohen on
'Organic Synthesis'. He spoke about the
development of synthetic organic chemistry from
the time of Scheele's discovery of oxalic acid down
to the remarkable achievements of Fisher in the synthesis
of sugars and his laborious work on the synthetic products
out of albuminoid sub. He also referred to the alkaloids whose
structure is closely connected with their physiological action
'atropine & Cocaine' which have been replaced by simpler synthetic
bodies based on a study of the structure of these bodies.

October 17th Thursday: -

9 to 9.30. Organic lab. Purification of nitro benzene

9.30 to 10.30 Prof Smithells on contact action

10.30 to 11.30. Prof Procter on Evaporation,
Ebullition and Quantities of heat

12.30 to 1 Prof Cohen on the chemical methods of
determining mol wt and the classification
of organic substances according to their
composition and behavior towards chemical
reagents i.e. the oxidising and reducing
agents. Gerhardt's Homologous series

2 to 5. Organic laboratory

Purification of Nitrobenzene and
fitting up apparatus for the
preparation of Acetaldehyde

October 18th Friday: -

9.30 to 10.30 Engineering. Plotting out the
stress-strain diagram for mild steel.

10.30 to 11.30. Prof. Procter on Puering and
Bating and the 1st stages of tannage
proper.

11.30 to 1. Leather Laboratory -

Preparation of standard normal H_2SO_4
solution after another titration with Na_2CO_3
and standardisation of normal alkali.

2 to 3. Lessons in German.

3 to 5. Organic laboratory.

Preparation of acetaldehyde.

October 19th Saturday.

9 to 9.30 Organic Lab.

Distillation of acetaldehyde from

9.30 to 10.30

Dr Dawson on the atomic wt. determination
Works of Reynault, Welter, Naumann &
Kopp on the Sp heat of elements and
the law of Mitscherlich on Isomorphism

10.30 to 11.30

Demonstrations of Mr Bennett on the
analytical processes of Leather Industry.
He spoke about the diff processes of
Volumetric Analysis and the determination
of the hardness of water.

11.30 to 1. Prof Cohen being absent,
there was no lecture on Organic
chemistry. The time was therefore used
in the Organic Lab.

Preparation of acetaldehyde was
finished and the apparatus for the
redistillation of the distillate & conversion
into Aldehyde. Ammonia was fitted up.

October 21st Monday:—

9.30 to 10.30 Mr Myers on the construction of
steam boilers.

10.30 to 11.30: Prof Procter on Tanning, Chrome
tannage, Aldehyde tannage and the
forecasts of currying leathers.

11.30 to 1. Standard NaOH N/1 solution titrated
with H_2SO_4 and fixed.

2 to 3. Took lessons in German.

3 to 5. Organic Lab. Redistillation
of aldehyde and absorption of the
distillate in Methyl Ether. The process
could not be finished during the time.
The Expt had to be postponed for
to-morrow.

October 22nd. Tuesday.

9.30 to 10.30. Prof. Smithells on the historic development of the theory of catalysis

10.30 to 11.30. Prof. Procter on the conservation of energy & the inertia of matter.

12 to 1. Prof. Cohen on the Saturated Hydrocarbons and the Petroleum Industries of Russia and America & the dead Scotch Paraffin industry. Lantern lecture

2 to 5. Organic lab.

Preparation of acetaldehyde gone through, the crystals of aldehyde-ammonia being left over night for a full crop.

Lecture ext. on Liquid Air by Prof. Smithells between 10 & 10.30 AM -.

October 23rd. Wednesday:-

9.30 to 10.30. Mrs Myers on Cornish boilers and their construction. Lantern lecture

10.30 to 11.30. Prof. Procter absent.

11.30 to 1 } The whole time was utilized in the leather laboratory.

Preparation of standard Na_2CO_3 , of $\text{N}/1$ Hcl. Correction factor for $\text{N}/1$ H_2SO_4 & $\text{N}/1$ NaOH .

2 to 3. Lessons in German

3 to 5 Organic laboratory.

Dried the crystals of acetaldehyde-ammonia on the filter. Began with the preparation of aniline -.

October 24th. Thursday.

9.30 to 10.30. Prof Smithells again on Catalysis

10.30 to 11.30. Prof Proctor on the dynamics of a moving particle & the mechanical equivalent of heat.

11.30. to 5. Prof Cohen being absent the time was spent in the Organic Laboratory.

Preparation of Aniline finished ~~and~~ the preparation of Di-nitro-benzene as well. The quantity of the aniline prepared being upset, the expt. had to be repeated again and the first portion of it was gone through.

October 25th. Friday.

9. to 9.30. Organic lab.

Preparation of aniline, and of acetanilide

9.30 to 10.30. Mr Myers on the construction of the flues according to diff patents and that of the Galloway tubes.

10.30 to 11.30. Prof Proctor on the hardness of water.

11.30 to 1. Leather laboratory.

Standardisation of HCl soln by means of standard Na_2CO_3 and NaOH solutions.

2 to 3. Took lessons in German.

3 to 5.30. Preparation of aniline gone through. Preparation of acetanilide was finished. Purification of Meta-dinitro Benzene, acetanilide and aniline was half gone through.

26th October. Saturday.

9.30 to 10.30. Dr Dawson on the
vapour density apparatus and the
abnormal densities of the halogens plotting
out the curve for I for temp & pressure

10.30 to 11.30. Mrs Bennet of the Water-
Analysis

11.30 to 12.30. Prof Cohen on the Paraffins
& Kekulé's theory.

28th October. Monday.

9.30 to 10.30. Mr Myers on the transverse stress
on the boilers tending to blow the end off-
together with the weakening effect of the
rivets.

10.30 to 11.30. Prof Procter on the injuries of
done by the hardness of water on the pipes
and boilers.

11.30 to 1. Standard solutions and their calculation
of the strength of each.

2 to 3. Lessons in German.

3 to 5. Preparation of pure aniline & of
pure acetanilide.

29th October. Tuesday.

9. to 9.30. Purification of acetanilide

9.30 to 10.30. Prof Smithells on colloidal solutions of metals, on the absurdity of the selection of atomic of Oxygen as 16 as the basis by the International Committee and on the Physical properties of Oxygen.

10.30 to 11.30. Prof Procter on the C.G.S units of force & Energy together with the Joule Thompson Effect and the sp. heats of air at constant volume and at constant pressure.

11.30 to 12. Standardisation of HCl soln.

12 to 1. Prof Cohen on the structure of the paraffins, the preparation of the halogen derivatives & the important groups of reactions in which the mono-halogen derivatives take part.

2 to 5. Preparation of Para. Brom. acetanilide
 " of Meta Nitraniline
 Purification of Meta di nitro Benzene
 " of acetanilide.

30th Wednesday.

9.30 to 10.30. Engineering. The rivetings and boiler fittings.

10.30 to 11.30. Prof Procter on the injuries done to pipes by the hardness of water and the methods adopted for softening the same.

11.30 to 1. Standardisation of the HCl Soln. and preparation of $\text{NH}_4\text{Na}_2\text{CO}_3$

Holiday for the football matches.

31st October Thursday.

9.30 to 10.30. Prof Smithells On temp. of Ignition and Phosphorescence of Combustibles.

10.30 to 11.30. Prof Procter on the Second Law of Thermodynamics.

12.30 to 1. Prof Cohen On the Di & Trihalogen derivatives of Paraffins.

2 to 5. Purification of Meta nitraniline
Preparation of Methyl Iodide.

1st November Friday.

9.30 to 10.30. Mr Myers on the 'Combined safety valve', 'Deadweight safety valve', 'Steam gauge', 'Fuel gauge', 'Bourdon's Steam pressure gauge & 'Absolute' water gauge.

10.30 to 11.30.

Prof Procter on the ~~set~~ apparatus & mechanical appliances used in softening water. — Clark's process; Archibutt & Duly's patent. Filter press & its construction.

11.30 to 1.

Preparation of NaIO Na_2CO_3 .

2 to 3.

Lessons in German.

3 to 5.30.

Purification of Meta Nitraniline
Preparation of Methyl iodide

5.30. to 6.30.

Lantern lectures by the Vice-chancellor
Dr Bodington On 'a tour through Spain'.

2nd November, Saturday.

9.30 to 10.30. Dr Dawson on Dissociation
 & the explanation of exceptions to the
 Hypothesis of Avogadro.

10.30 to 11.30. Mr Burrell on the estimation
 of available lime in lime liquors,
 of sulphide in samples of Na_2S & of
 NH_3 in spent lime

11.30 to 12.30. Prof. Cohen on alkyl
 halides & alcohols.

4th November. Monday.

9.30 to 10.30. Mr Meyers on Vertical
 boilers & their improvements

10.30 to 11.30. Prof Proctor on the effect
 of the presence of chlorides, free CO_2 and
 alumina present in waters, on the tanning
 process.

11.30 to 1. Preparation of $\text{N/50 H}_2\text{SO}_4$ &
 estimation of temporary hardness
 in a sample of water.

2 to 3. Lessons in Scientific German.

3 to 5. Purification of methyl iodide.
 Recrystallisation of meta-nitraniline
 Preparation of Amyl nitrite.

5th November. Tuesday -

9.30 to 10.30. Prof Smithells on the velocities of chemical reactions above and below the ignition point & on the measurement of the heat of combustion of fuels.

10.30 to 11.30. Prof Procter on the construction of steam engine & the interpretation of indicator diagrams.

12 to 1. Prof Cohen on the methods of preparation & of manufacture of alcohols & alcoholic beverages.

2 to 5. Purification of methyl iodide
Preparation of chloroform.

" of acetoxime
Purification of amyl nitrate

6th November Wednesday -

Excursion to London
for the International Leather
exhibition. Leather Dept. at the
University was consequently closed.
Left Leeds at 7.45 AM.

Agricultural Hall, Islington,
1 PM to 9 PM.

Examined the Canadian whale leather,
French dressing leather and various
other kinds of leather from different parts
of the British Isles. Saw through the
working & principles of various tanning
& shoemaking machines, in short took a
minute survey of the whole exhibit.

Library: - 'Thermo-dynamics & chemistry'.
by Duhem.

7th November Thursday.

Agricultural Hall, Islington.

1 PM to 6 PM.

Left Leeds 11 PM.

Reached Leeds 5 AM. (Friday)

8th November. Friday.

Indisposed through the night-journey
and inflammation of gums.
Anyhow, went for Prof. Procter's lecture
at 10.30 AM on the injuries done to the
pelt by the presence of iron salts,
mud & organic matter in the water
used.

2 to 3. Took lessons in German.

3 to 5. Purified Amyl nitrite.

9th November Saturday -

9.30 to 10.30. Dr Dawson
on the Law of Mass Action

10.30 to 11.30.

Library, Mr Bennet
being absent in London where
he had gone with us for the Exhibition

11.30 to 12.30

Prof Cohen on Alcohols
and ethers--

Renewed library book.

11th November Monday -

9.30 to 10.30. ~~Mr~~ Myers on.

Water tube & marine boilers.

10.30 to 11.30 Prof Procter on
the Curing of hides.

11.30 to 1.

Estimation of hardness of
a sample of water -

2. to 3. Lessons in Scientific German.

3 to 5.

Preparation of Diazobenzene
sulphate

and a study of the various reactions
in which it takes part.

35
12th November 07. Tuesday.

9.30 to 10.30. Prof Smithells
on the heating value of fuels.

10.30 to 11.30. Prof Procter on
Evaporators, Surface evaporation
& Varian vacuum evaporator.

12 to 1. Prof Cohen on the
Preparation properties & Constitution
of aldehydes.

2 to 5. Purification of chloroform.
Preparation of Acetoxime.

Owing to some error in the
first stages of the expt., it had
to be repeated to get a good
yield.

21 36
13th Nov. Wednesday.

9.30 to 10.30. Mr Myers on Economisers.

10.30 to 11.30. Prof. Procter on the effect of
impurities in the salt used for curing hides.

11.30 to 1. Water-Analysis.

2 to 3. Lessons in German.

3 to 5 - Preparation of Acetyl chloride.

5 to 7. Scientific Society

Lecture by Dr Stanley on
'The inhabitants of Madagascar.'

27
14th Nov. Thursday.

9.30 to 10.30. Prof Smithells on the Qualitative Theory & the old method of classification of chemical compounds.

10.30 to 11.30. Prof Procter on Evaporation, Drying of hides, Ventilation & Drying rooms.

12.10 to 1. Prof Cohen on aldehydes & ketones

2 to 5. Purification of acetyl chloride
Preparation of acetic anhydride begun

22 38
15th Nov. Friday

9.30. to 10.30. Mr Myers on Economics.

Went down to the boiler room and inspected the boiler & its construction

10.30 to 11.30. Prof Procter on the use of Antiseptics

11.30 to 1. Water analysis.

2 to 3. Lessons in German.

3 to 5. Preparation of acetic Anhydride

16th Nov. Saturday.

9 to 9.30. Preparation of Acetic anhydride

9.30 to 10.30. Dr. Dawson on the Degree of
Dissociation & the early history of
Osmotic pressure.

10.30 to 11.30. Mr Bennett on the Estimation
of Nitrogenous matter in spent lime,
of total hide fibre in leather & of lime in
lined hides.

11.30 to 12.30. Dr Cohen on Fatty Acids.

12.30 to 1. Preparation of Acetic Anhydride

18th Nov 07. Monday.

9 to 9.30. Distillation of Acetic anhydride

10.30 to 11.30 Prof Procter on Antiseptics and
Soaking of hide.

9.30 to 10.30. Mr Myers on Economisers
and other types of Feed water heaters.

11.30 to 1. Water Analysis.

2 to 3. Lessons in Scientific German.

3 to 5 - Distillation of Acetic anhydride
Distillation of ethereal extract

of Acetoxime & its Crystallisation -
Fitting up of Apparatus for the preparation
of Acetanilide -

5 to 7. University Debating Society
Parliamentary Election

19th Nov '01 Tuesday.

9.30 to 10.30. Prof. Smithells

on the Unitary Theory and
Faraday's Radical Theory.

10.30 to 11.30. Prof. Procter on
Improved Method of Drying.

12.30 to 1. Prof. Cohen.

on the fatty acids & Structure
of Formic and Acetic acids.

2. to 3. Preparation of acetamide.

20th Nov '01 Wednesday.

9.30 to 10.30. Mr. Myers on Fuels.
and their Calorific values.

10.30 to 11.30 Prof. Procter on
Swelling hides. Alkaline
swelling and Acid swelling.

11.30 to 1. Water analysis.

2 to 3. Lessons in German.

3 to 5. Preparation of Para-cresol.

21st Nov' Thursday.

9.30 to 10.30. Prof. Smithells
on the Ionic Theory

10.30 to 11.30. Prof. Procter
on Surface Tension.

12 to 1. Prof. Cohen
on the Properties of Formic &
acetic acids together with the
preparation of the latter.

2 to 5.

Distillation of Para-Cresol
" of acetamides

22nd Nov' 07. Friday.

9.30 to 10.30. Mr. Myers on the calorific value
of fuel and its estimation

10.30 to 11.30. Prof. Procter on the Process of
Sweating.

11.30 to 1. Water-Analysis.

2 to 3. Lessons in German.

3 to 5. Recrystallisation
of acetamides from Benzene
of acetonides from Petroleum Ether.

23rd November Saturday

9.30 to 10.30. Dr. Dawson on
the laws of dilute solutions

10.30 to 11.30. Mr Bennett on the
estimations of Sulphite & Bisulphite
(mixture) of Sodium Carbonate &
caustic soda (mixture) and of
Carbonate & bicarbonate (mixture).

11.30 to 12.30. Prof. Cohen
on Fatty acids and Saponi-
fication.

12.30 to 1.15. Distillation of the Ethereal
Extract of Cresol.

25th November Monday -

9.30 to 10.30. Mr Myers on the Efficiency
of boilers and balance sheets of boilers.

10.30 to 11.30. Prof. Procter on.
Lining beds.

11.30 to 1. Water Analysis.

2 to 3. Lessons in Scientific German.

3 to 5. Water Analysis.

Distillation of Para-Cresol-
Acetone and AgNO₃.

26th Nov '07. Tuesday.

9.30 to 10.30. Prof Smithells on Hydrogen.

10.30 to 11.30. Prof Procter on
Surface Tension.

Critical temp., pressure, volume & density.
Influence of Surface tension on
the vapor pressure & of pressure
on the melting pt. of a solid.

11.30 to 12. Leather Industries Lab.

12 to 1. Prof Cohen on the manufacture
of soap & its analysis.

2 to 5. Preparation of chloro-toluene.

27th Nov '07. Wednesday.

9 to 9.30 - Extraction of chloro-toluene

9.30 to 10.30. Mr Myers on food-pumps.

10.30 to 11.30. Prof Procter
on Lining holes.

11.30 to 1. Water Analysis.

2 to 3. Lessons in German.

3 to 5. Extraction of Chloro-Toluene.

5.30 to 7.30.

Deliberations of the Scientific Society
Mr Cross B.Sc. read a paper on
Pyrometry followed by Mr Lawson's
exhibition of Silicaware. (chemical
apparatus).

28th Nov '07. Thursday.

9 to 9.30. Extraction of chlorotoluenes.

9.30 to 10.30. Prof. Smithells
the Ionic theory & preparation of
Hydrogen.

10.30 to 11.30. Prof. Procter
On The Triple point and
Partial Miscibility

11.30 to 12. Water Analysis

12 to 1. Prof. Cohen on

Butter, Margarine, Butters Analysis,
acid chlorides & anhydrides

2 to 5. Preparations of

Iodo-toluene
and Diazo-amido benzene.

29th Nov '07 Friday.

9 to 9.30. Diazo-amido benzene
Iodo-toluene.

9.30 to 10.30. Mrs. Myers on
Pulsmotor, double acting
pumps & other patent pumps
for feeding the boilers with water

10.30 to 11.30. Prof. Procter
On the Pullman Process

11.30 to 1. Water Analysis

2 to 3. Lessons in German.

3 to 5. Distillation of iodo-toluene

30th Nov ' Saturday

9. to 9.30. Iodo-toluene

9.30 to 10.30. Dr Dawson

on the mechanism of osmotic pressure.

10.30 to 11.30. Mr Bennet on the determination of hide-substance by sp Gravity determinations

11.30 to 12.30. Prof Cohen.
on amides and esters.

12.30 to 1. Amido-azobenzene
Distillation & extraction of
Iodo-toluene.

2nd Dec 07. Monday

9.30 to 10.30. Mr Myers on Pulsometer.

Expt on Pulsometer. Engineering Lab.

10.30 to 11.30. Prof Proctor on
Sulphide Lining.

11.30 to 1. Water analysis

2 to 3 - Scientific German.

3 to 5 - Preparation of iodo-toluene
of Ethyl acetate

53
3rd Dec '07. Tuesday -

9 to 9.30. Preparation of Ethyl acetate.

9.30 to 10.30. Prof. Smithells on Hydrogen.
and Occlusion.

10.30 to 11.30. Prof. Procter on
Solutions

11.30 to 12. Water - Analysis

12 to 1. Prof. Cohen on
Esters.

2 to 5. Preparation of Ethyl acetate
" Phenylhydrazine
" Amido azobenzene

30 54
4th Dec '07. Wednesday.

9. to 9.30 - Preparation of Ethyl acetate

9.30 to 10.30 - Mr. Myers
on Pulsometers & Steam injectors

10.30 to 11.30. Prof. Procter
on Delirious rides.

11.30 to 1. Water - Analysis

Half holiday for football match

5th December Thursday:--

9.30 to 10.30. Prof. Smithells on the
velocity of explosion of explosive
mixtures.

10.30 to 11.30. Prof. Procter
on Osmotic Pressure.

~~12.0 to 1.3~~

12. to 1. Prof. Cohen on
Nitro-Paraffins.

2 to 5. Preparation of
Aceto-acetic ester.

Purification of Ethyl acetate

Extraction of Phenyl hydrazone
of Amidoazobenzene.

5. to 8.30.

Leather Dinner at
the University Refectory.

6th December Friday -

9 to 9.30. Preparation of Aceto-acetic ester.

9.30 to 10.30 Engineering lab.
Boiler trial.

10.30 to 11.30. Prof. Procter on the
bearing of the ionic Theory on
the Process of deliming hides.

11.30 to 1. Preparation of
Aceto-acetic ester.

2 to 3. Lessons in German.

3 to 5. Preparation of Aceto-acetic
ester.

Extraction of Amido Azobenzene.
Phenyl hydrazine.

32

7th December. Saturday:-

9.30 to 10.30. Dr. Dawson on Solutions

10.30 to 11.30. Mr Bennet on
the older methods of Tannin Analysis

11.30 to 12.30. Prof Cohen on
Sulphur Compounds.

12.30 to 1. Purification of Ethyl acetate

9th December Monday-

9.30 to 10.30. Mr Myers

Boiler trial Calculations

10.30 to 11.30. Prof Procter
on Bran-drenching.

11.30 to 1. Estimation of NH_3 in Amcl.
by Kjeldahling.

2 to 5

Analysis of spent lime liquor.

10th December Tuesday.

9.30 to 10.30. Prof. Smithells on

the gravimetric analysis of water
and a survey of the history of the
determination of the atomic wt. of Oxygen
from the time of Dumas to the present day.

10.30 to 11.30. Prof. Procter

on Osmotic pressure &
Electrolytic dissociation —.

12 to 1. Prof. Cohen on
the Ammonia.

2 to 5. Estimation of Ammonia &
Caustic lime in spent lime
Estimation of available lime
in lime sludge
Purification of Phenylhydrazine

Mr Paniker's work & attention in the Leather

Industries Laboratory & lectures has been very satisfactory
H.P. Procter

I am thoroughly satisfied with Mr. Paniker's
work during the past term.

J.B. Cohen

Dec. 16. 07

University closed for Christmas holidays
on the 19th December
after the usual terminal examination

Submitted for approval

Max Lamb.
20/XII/07.

NOTES.

34

Educational

DEPARTMENT.

C. No. 543 From the Govt of I No. 226, dated 3-3-1908.

SUBJECT.

Diary kept by Mrs. M. A. Ramunni Panikkar,
State technical scholar, at the University of Leeds.

The paper may be recorded.

A draft is placed below for approval.

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C. No. 543, From the Govt. of I., No. 226, dated 3-3-1908

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No. 182, dated 13/3/1908.

Recorded.

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