

Fig. 3 : Energy flow under anoxygenic condition in Si-Mo jeewanu autoorganised under anoxygenic condition, as indicated by pressure increase in cm of mercury due to splitting of water in sunlight and decrease caused by fixation of nitrogen.

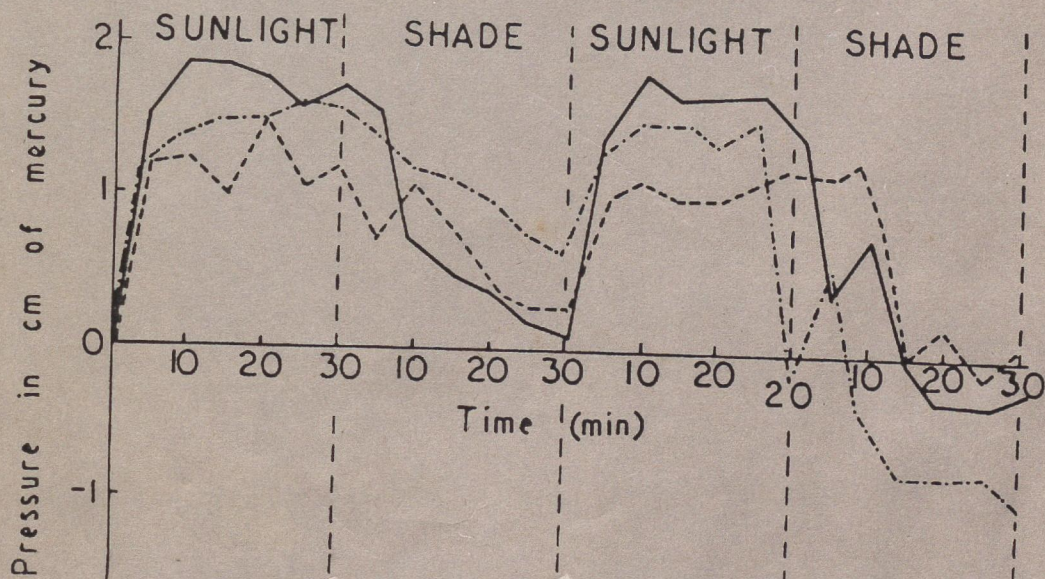
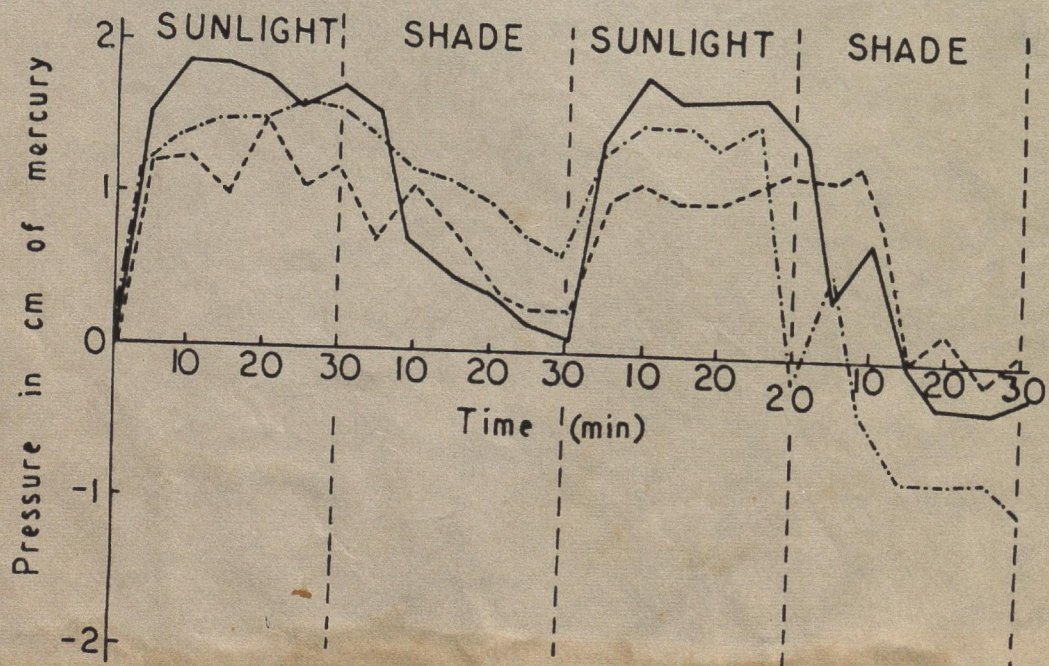
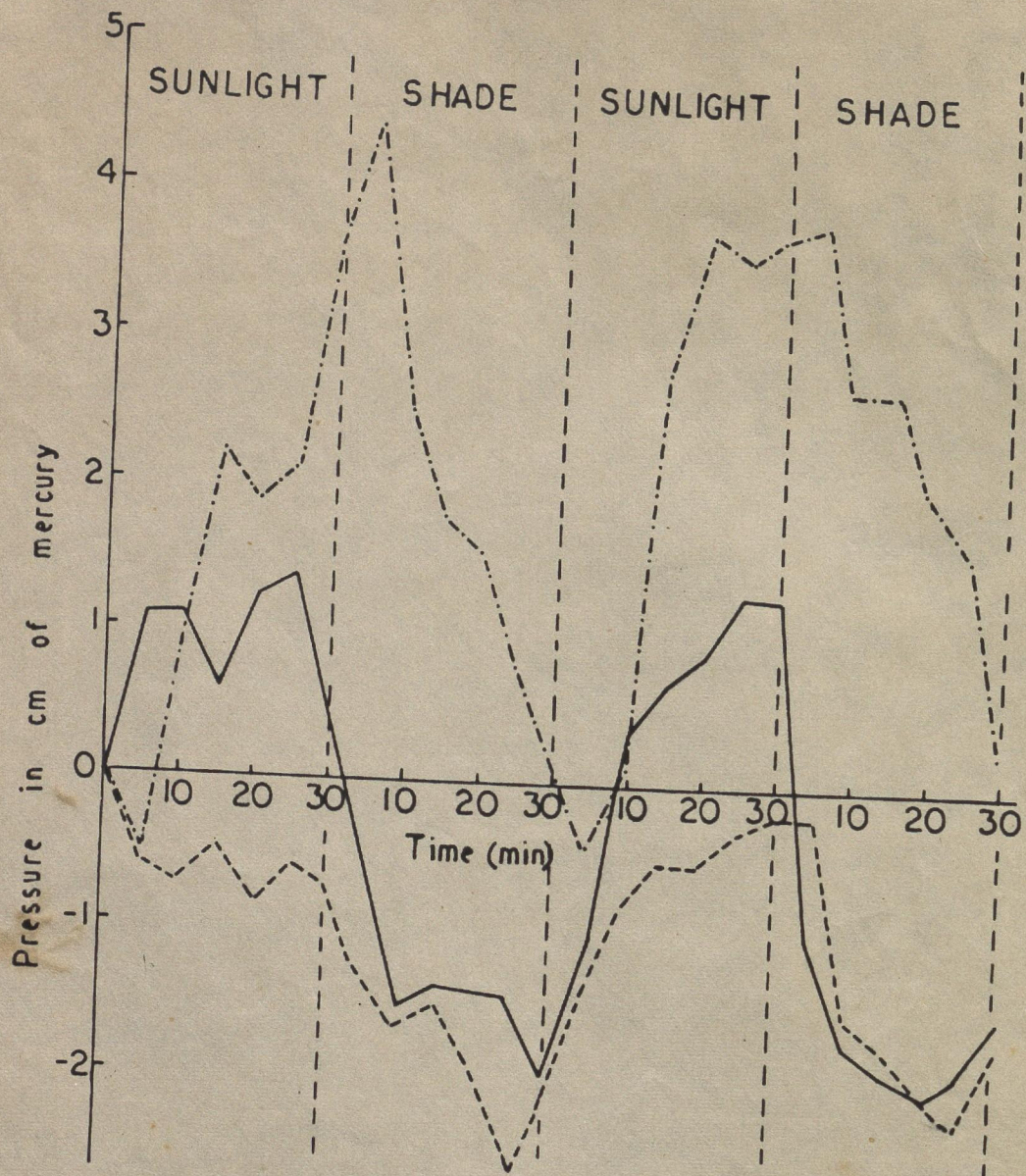
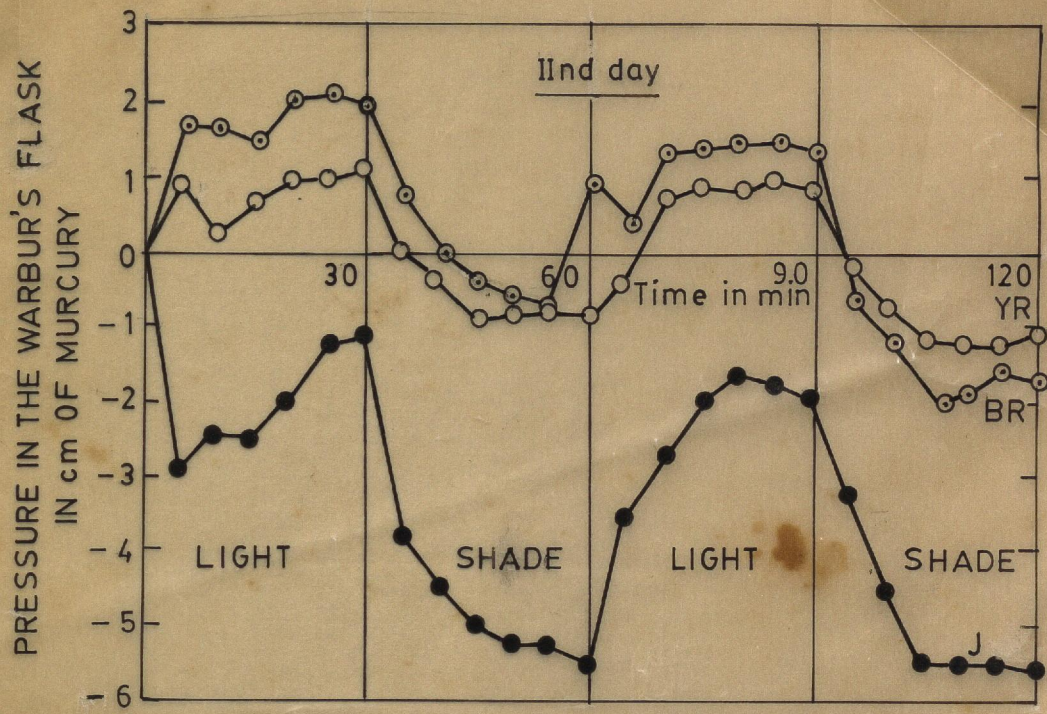
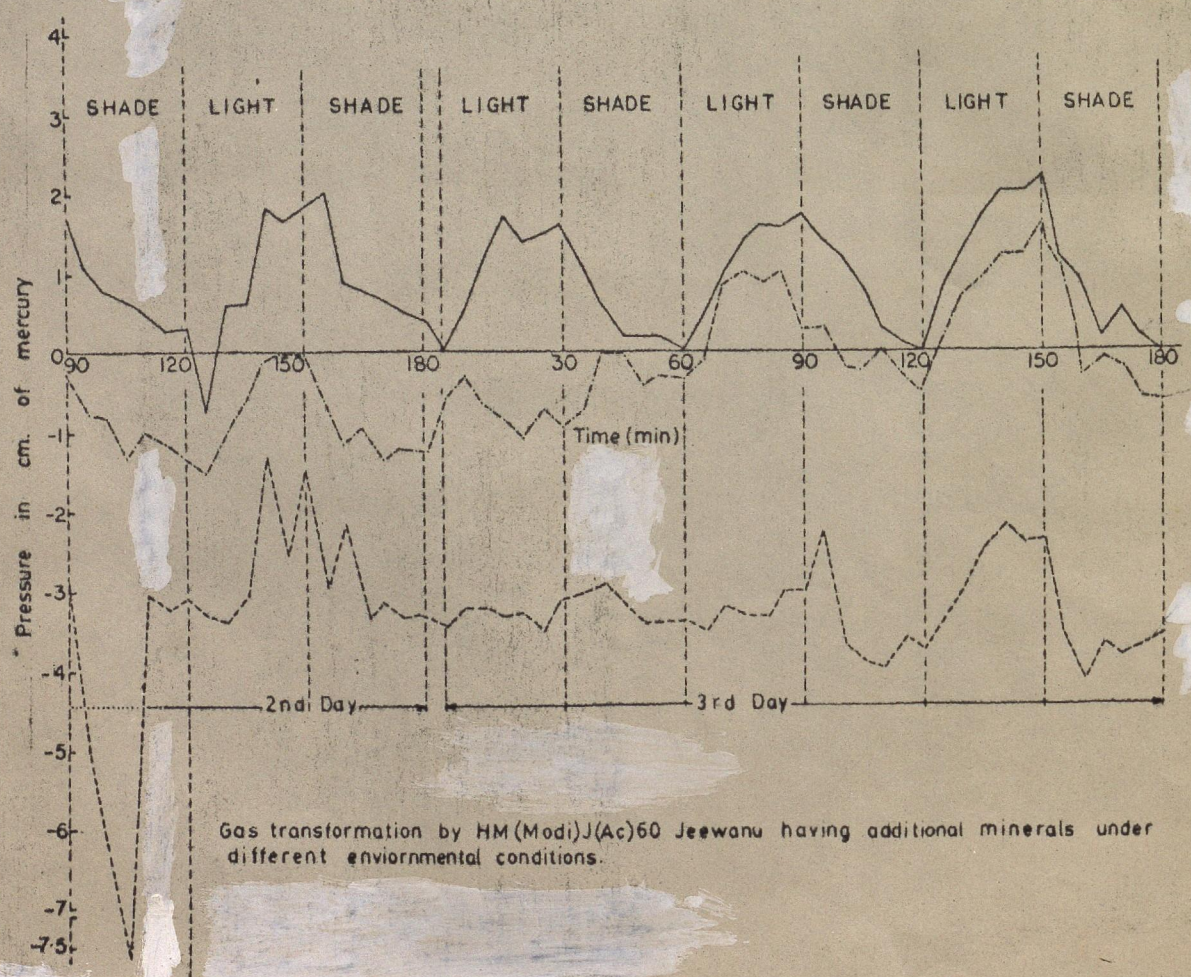
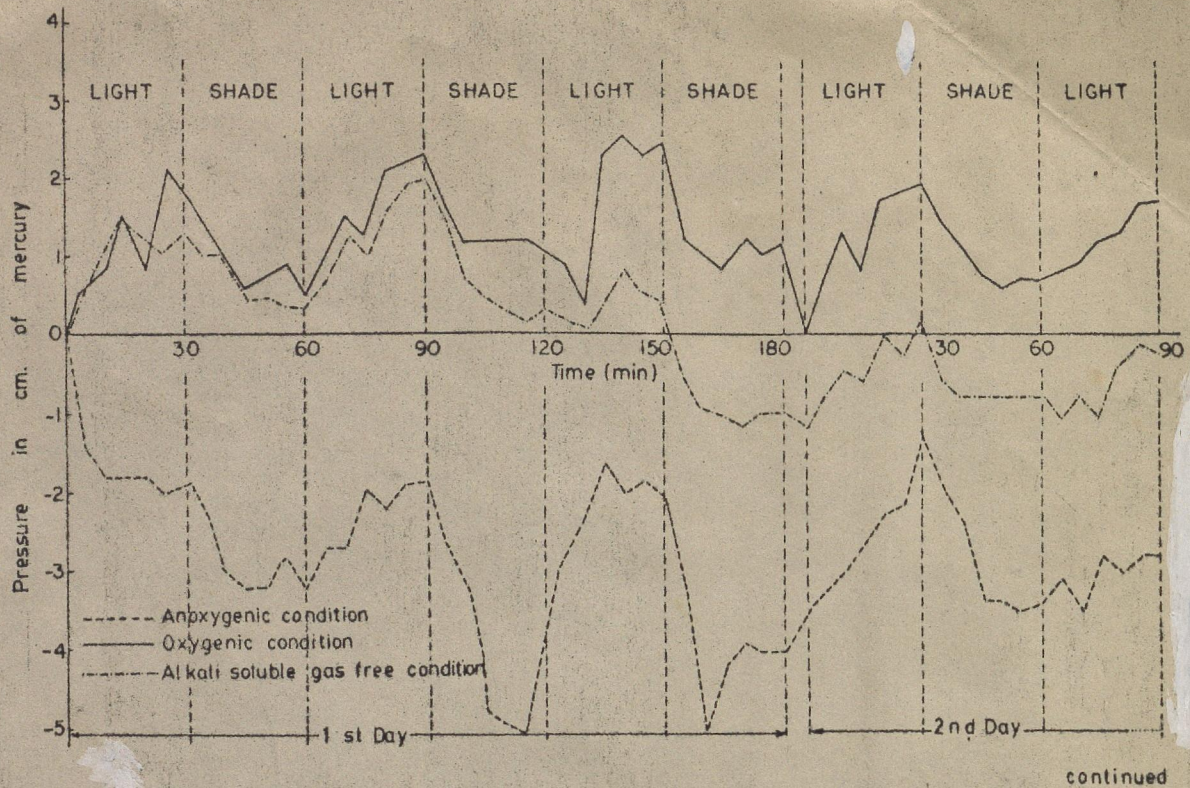


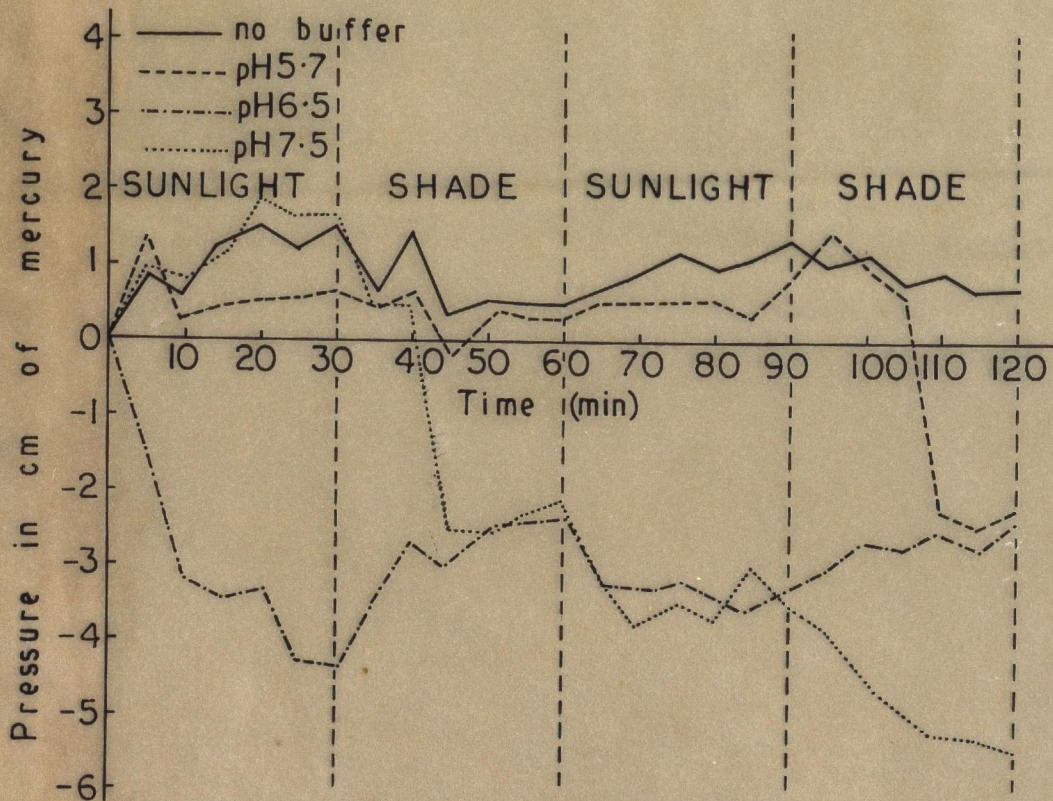
Fig. 4 : Energy flow under oxygenic condition in Si-Mo jeewanu autoorganised under anoxygenic condition, as indicated by pressure increase in cm of mercury due to splitting of water in sunlight and decrease caused by nitrogen fixation.



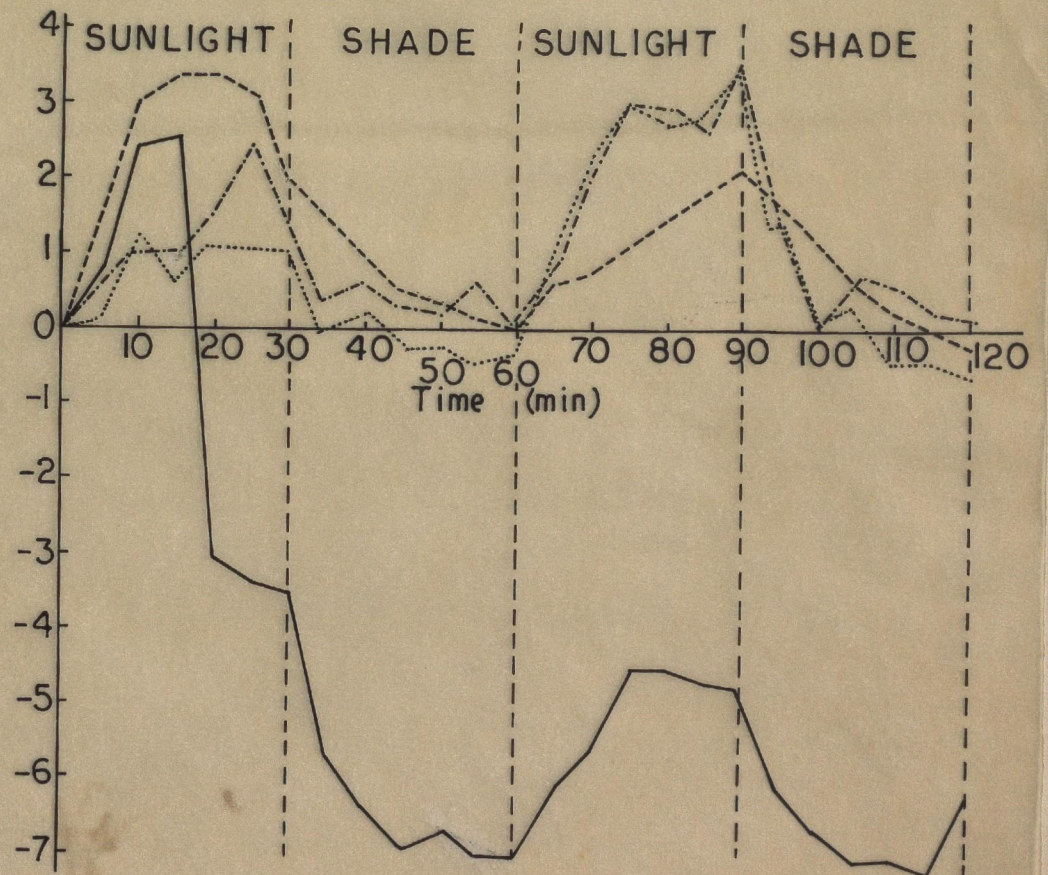




Gas transformation by HM(Mod)J(Ac)60 Jeewanu having additional minerals under different environmental conditions.

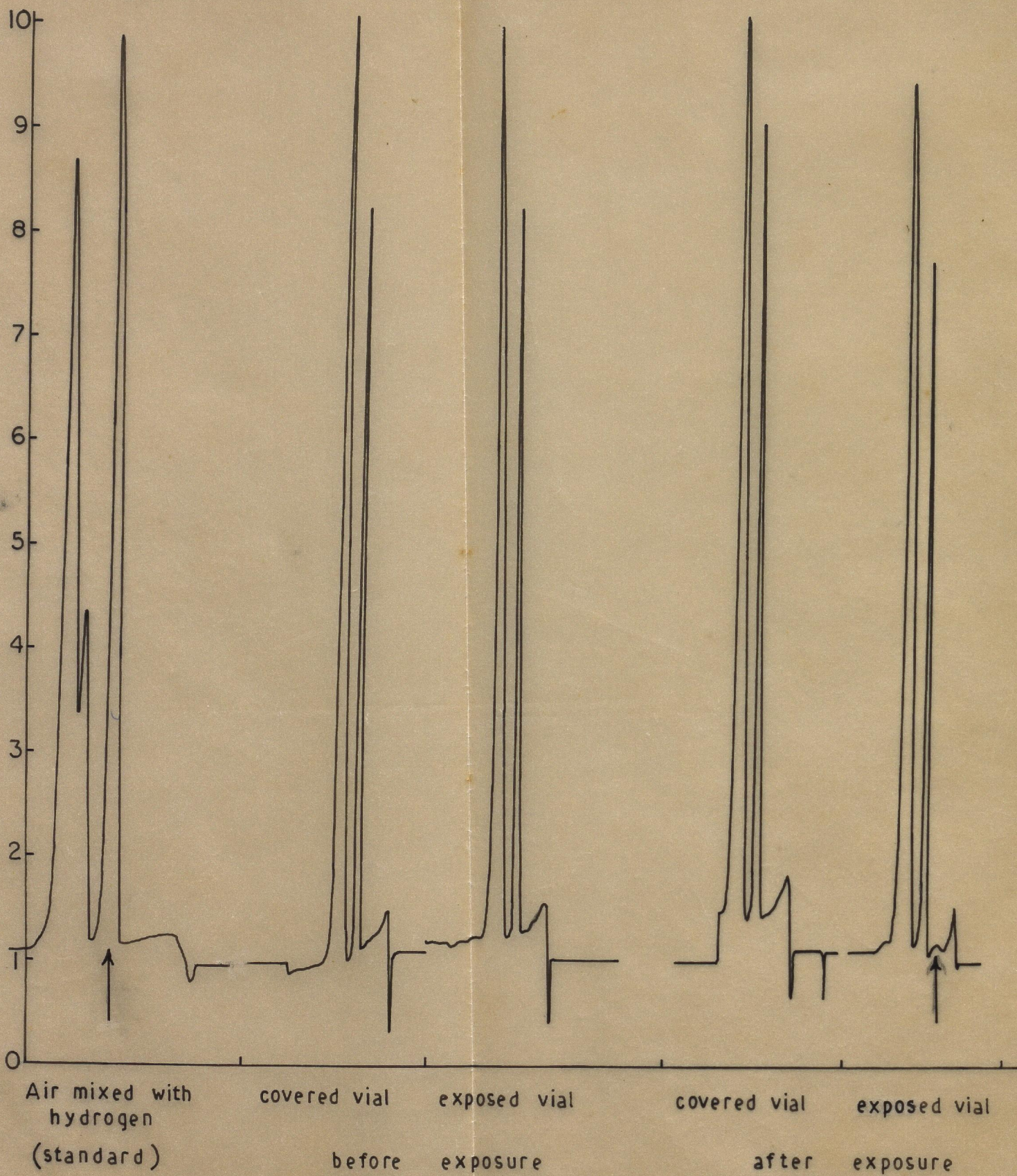


Jeewanu having soluble ortho-silicate in PEM.

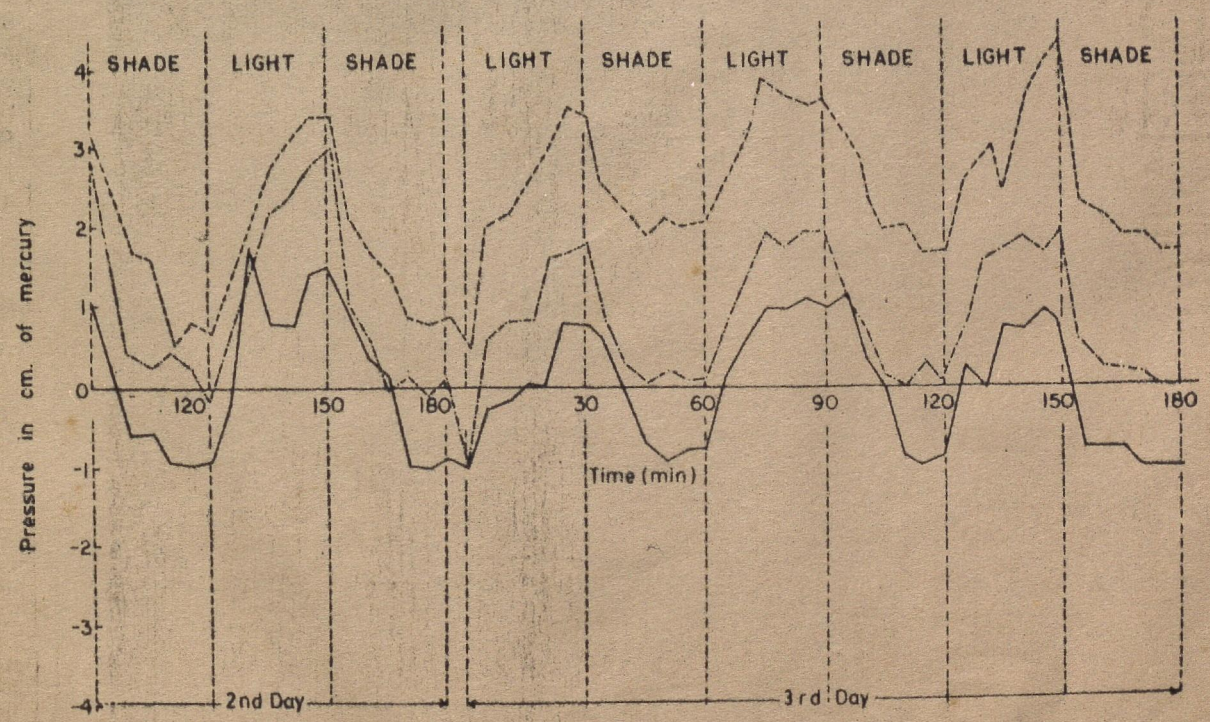
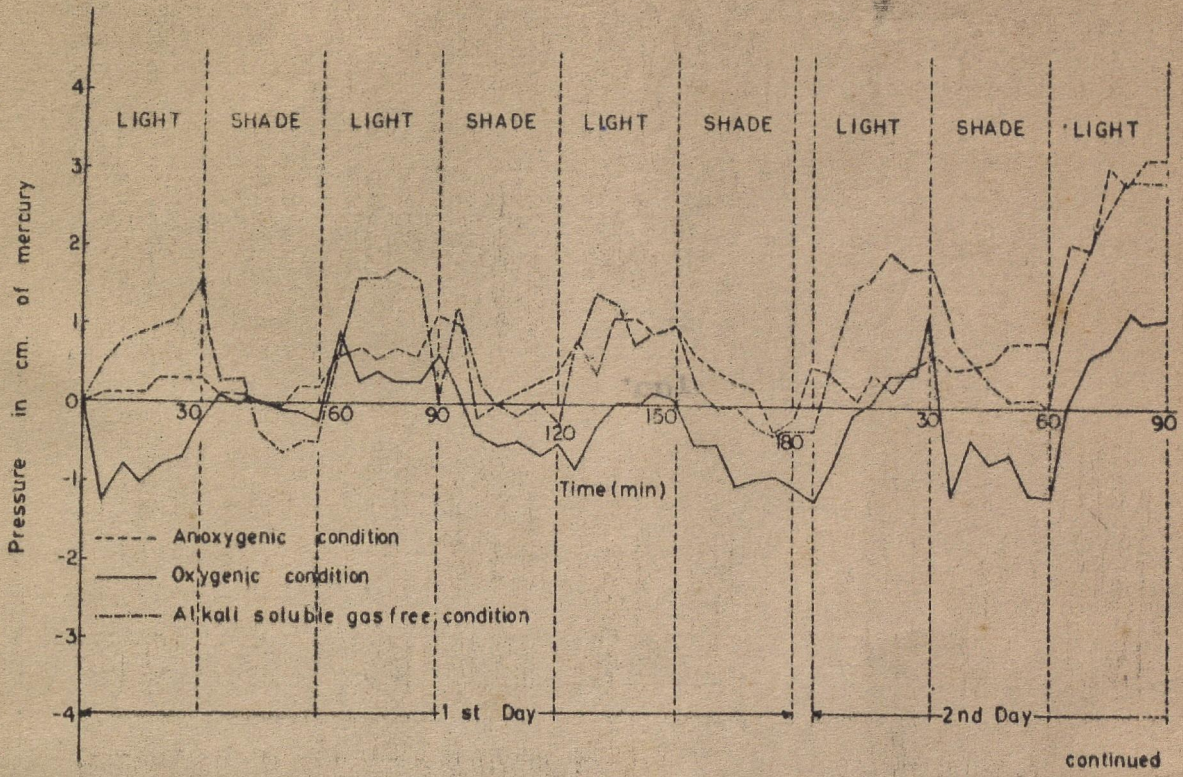


Jeewanu having NaCl and soluble sodium ortho-silicate in PEM

Graph showing the pressure in Warburg flasks having Jeewanu HM(Modij)Ac)68 having additional minerals under oxygenic condition.

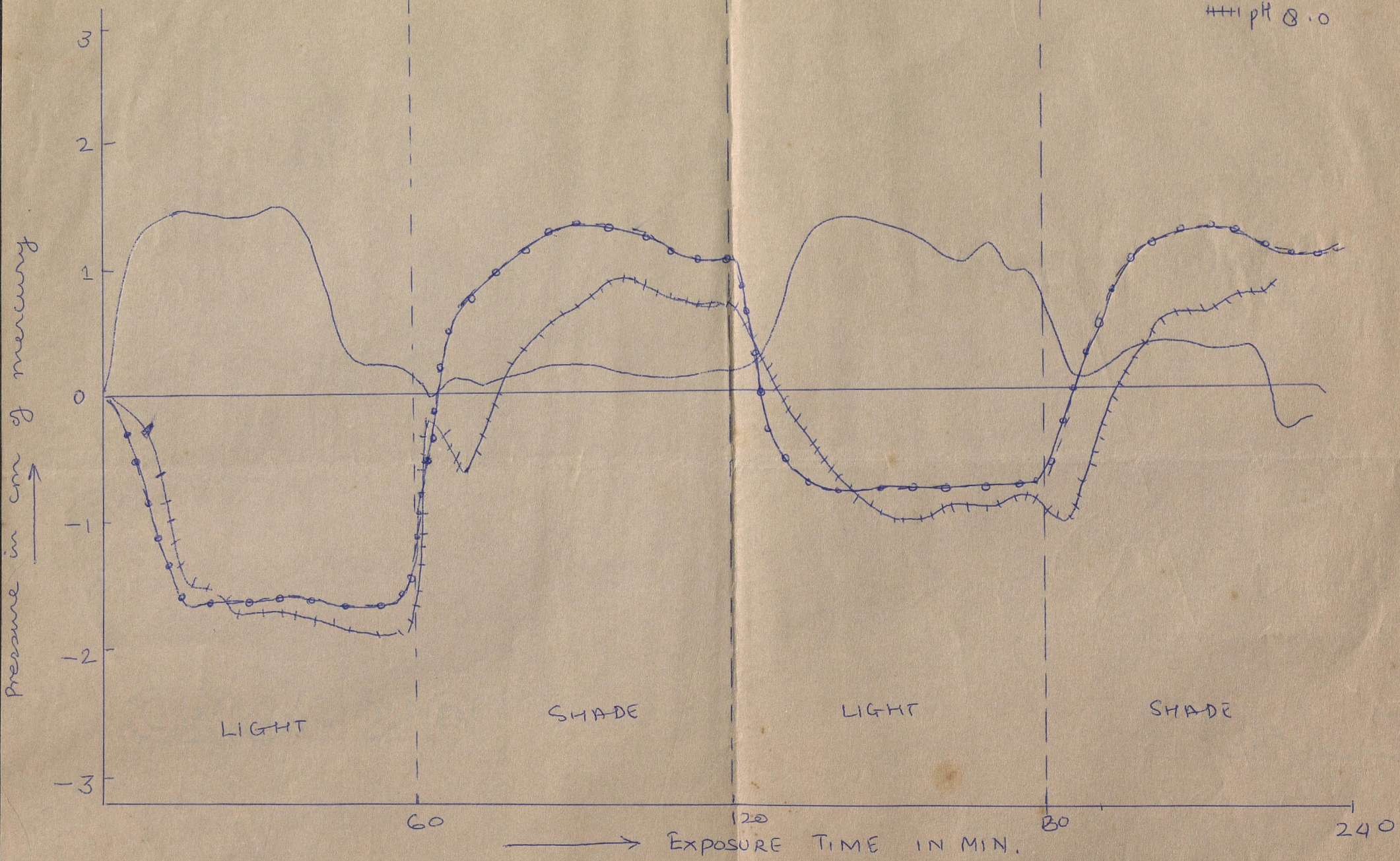


Gas chromatographs of standard gas and samples.

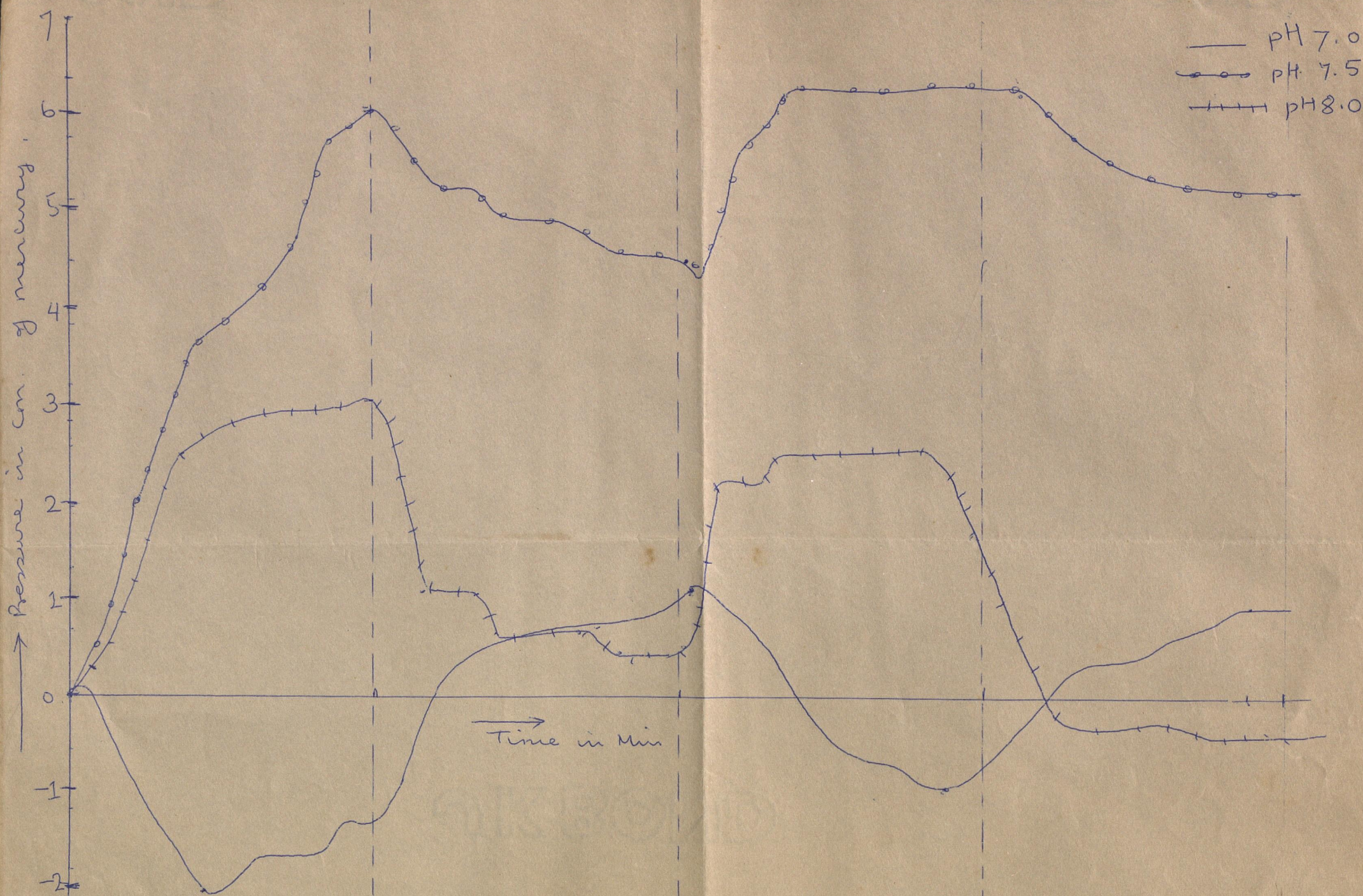


Gas transformation by HMJ 6 under different environmental conditions.

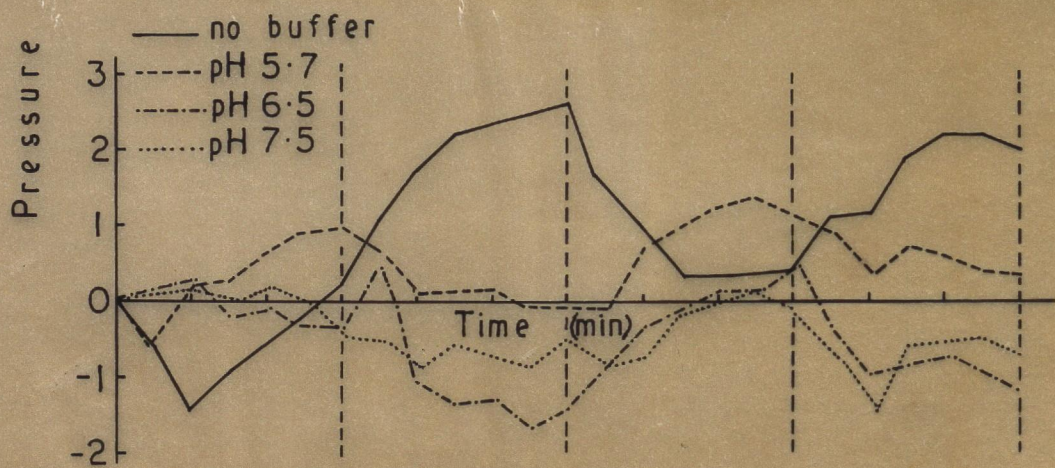
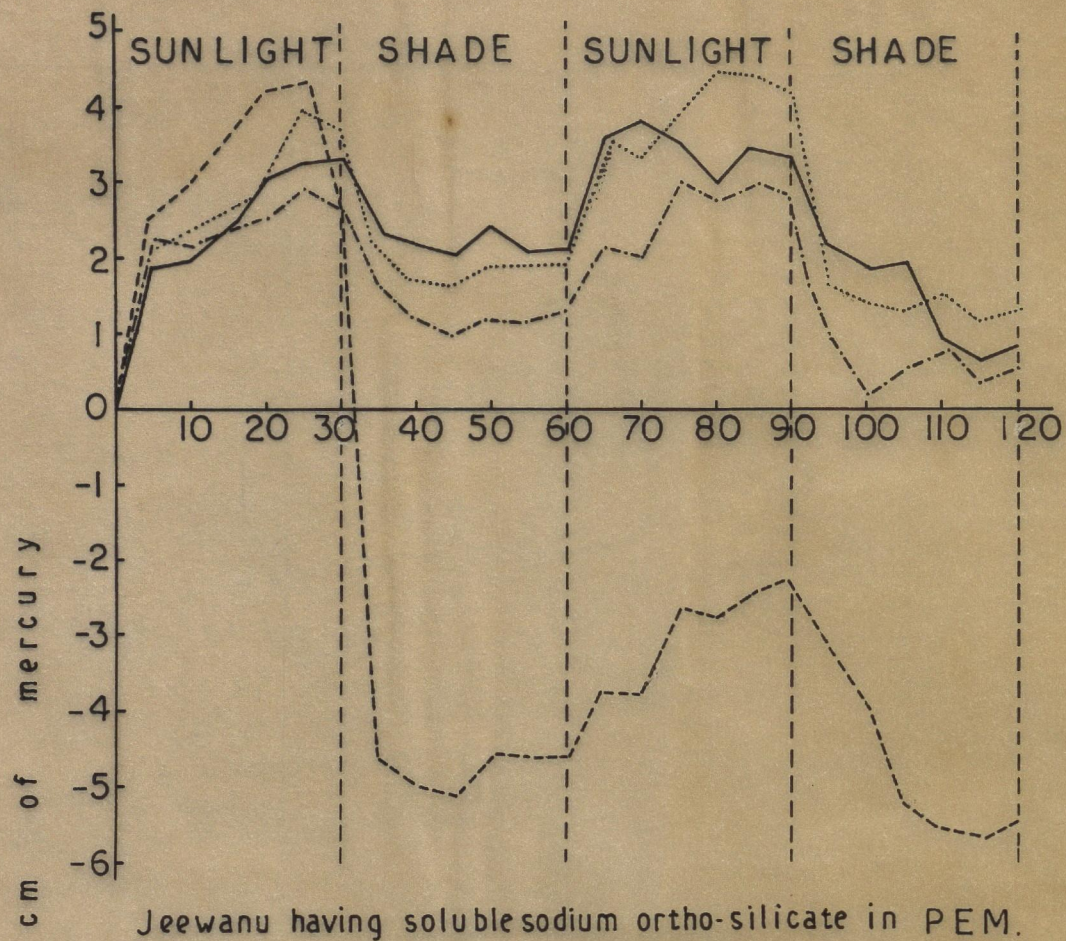
— pH 7.0
 ○ pH 7.5
 +++ pH 8.0



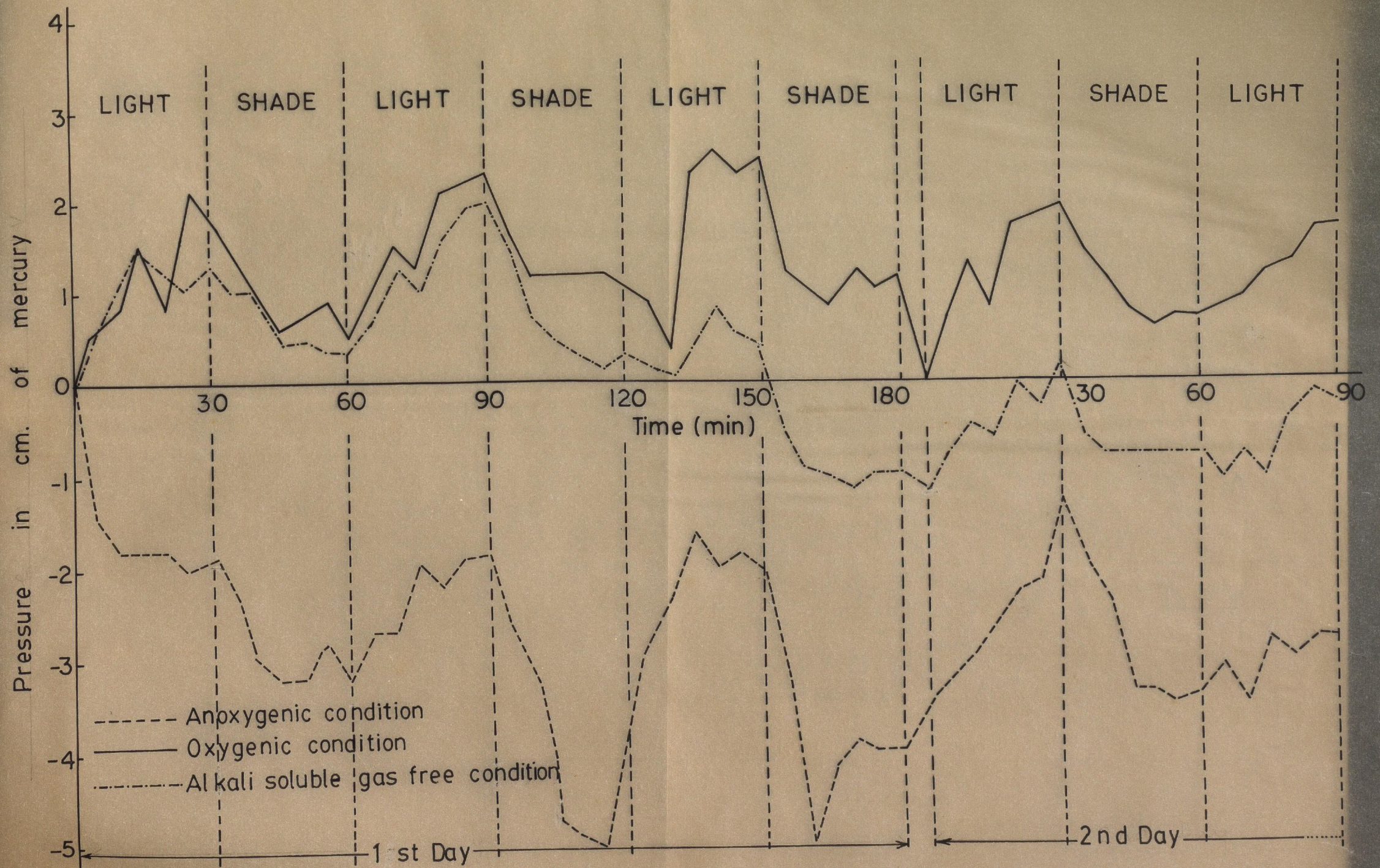
EFFECT OF PHOSPHATE BUFFER ON EXCHANGE OF GASES BY HM(Modi) J(Ac)(La)25
JEEWANU UNDER OXYGENIC CONDITION.



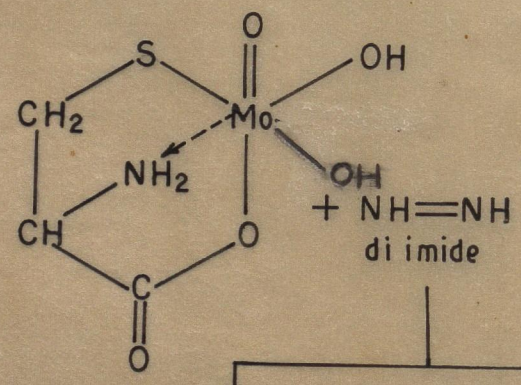
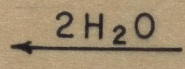
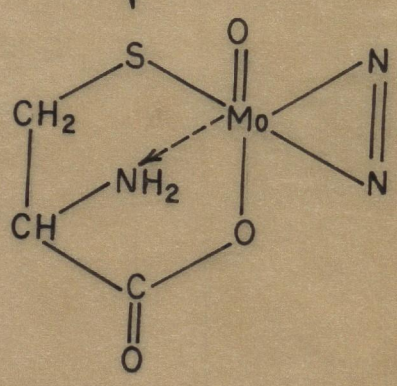
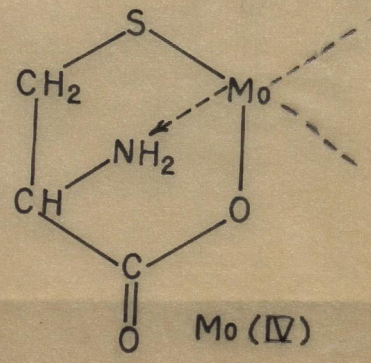
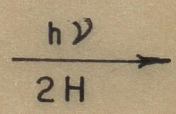
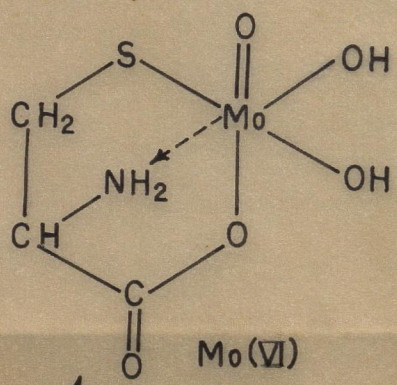
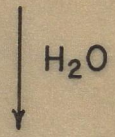
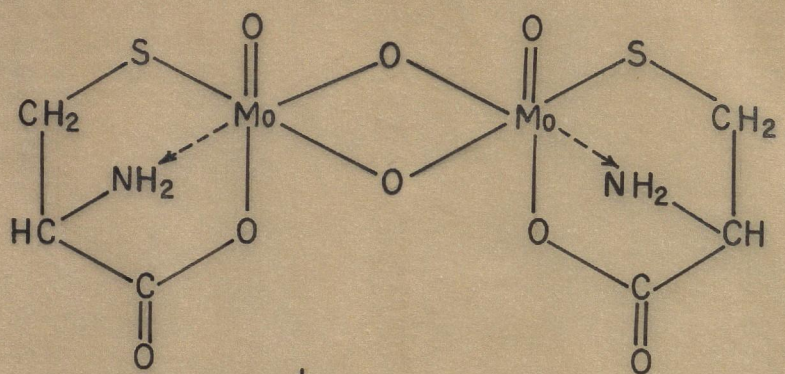
Effect of phosphate buffer on the exchange of gases by H M (Modi) J (Ar) (La) 25 Teewame under oxygenic condition



Graph showing the pressure in Warburg flasks containing Jeewanu HM(Mod)J(Ac) 68 having additional minerals, under anoxygenic condition.

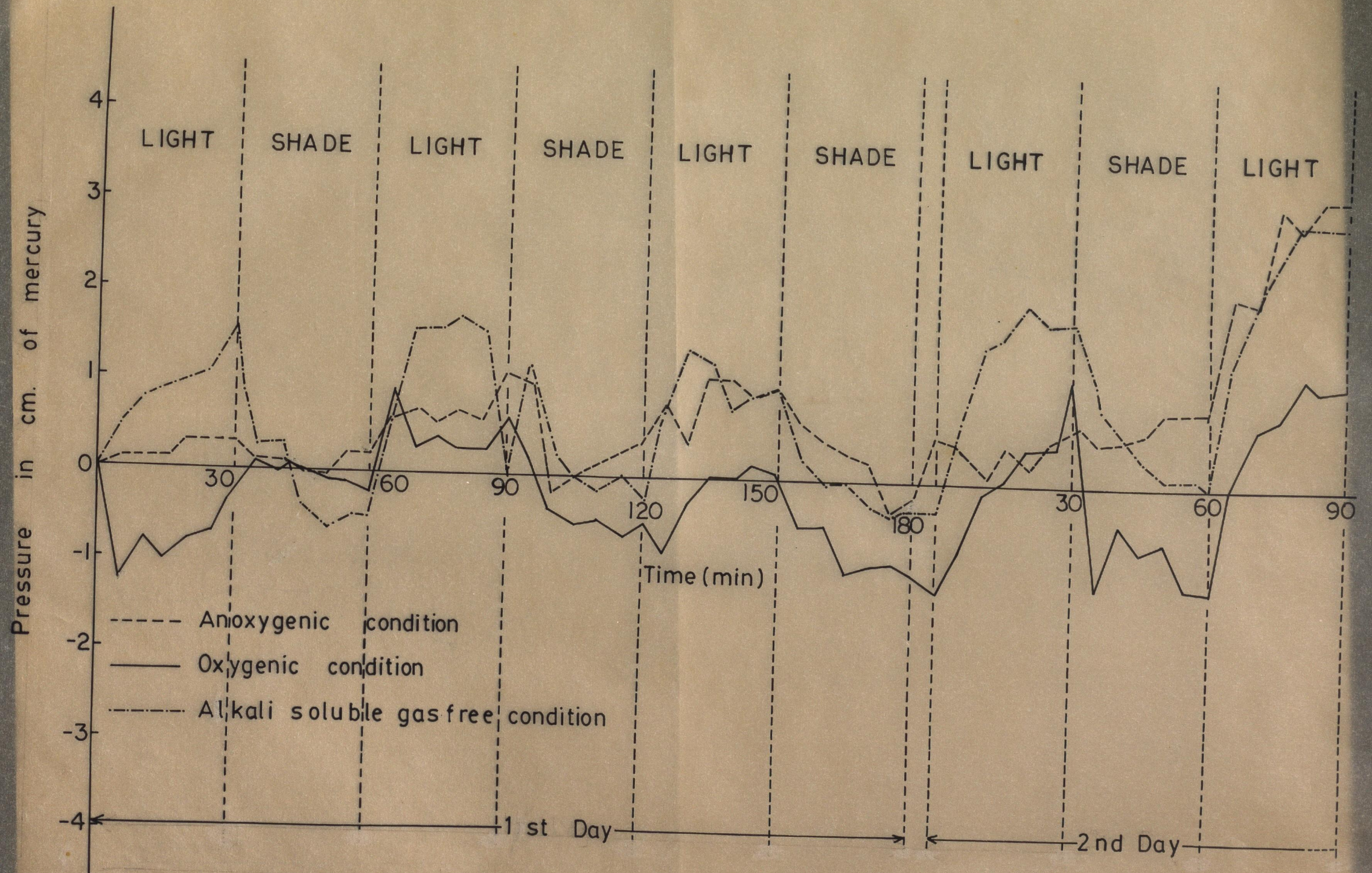


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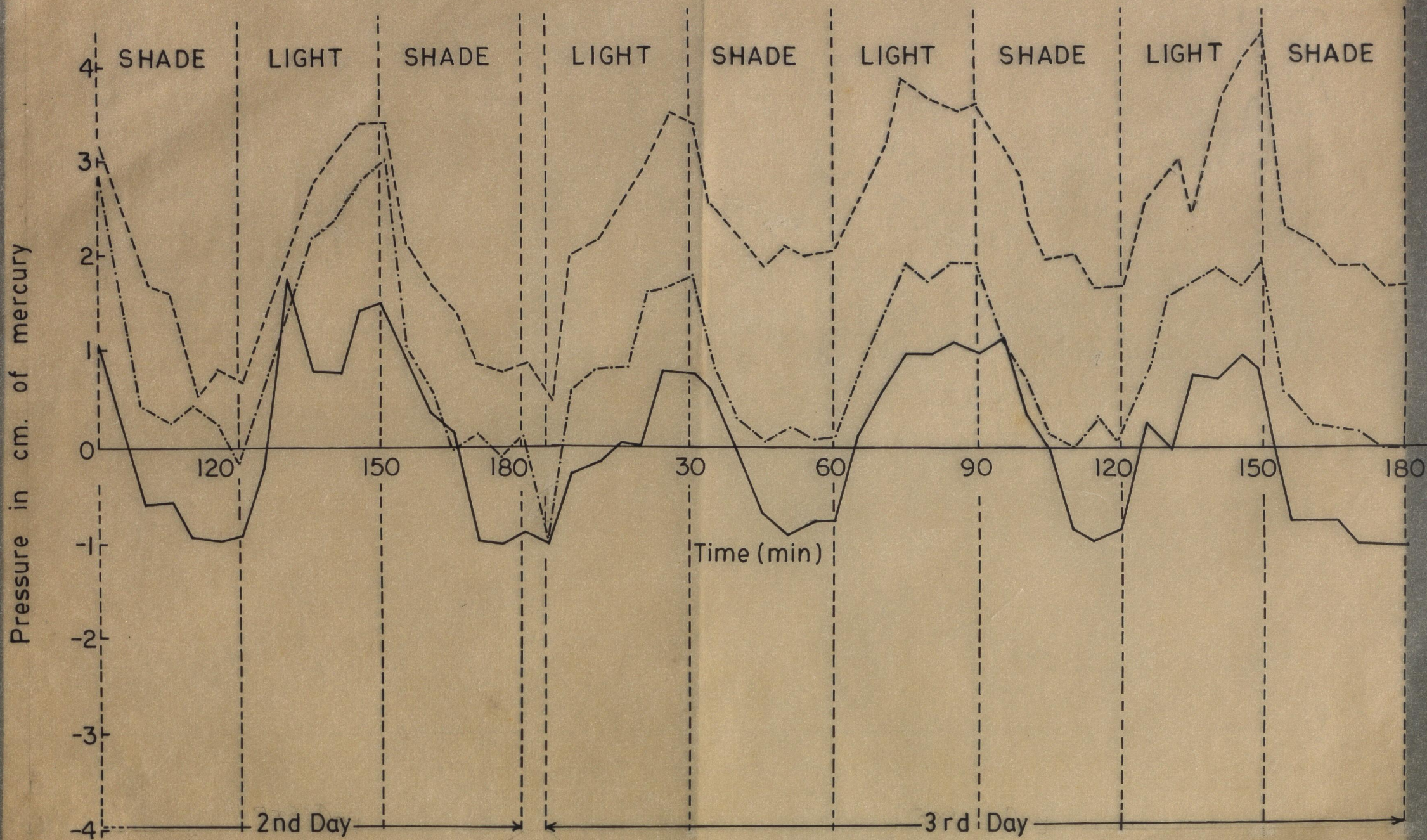


Decomposition
N₂ + H₂

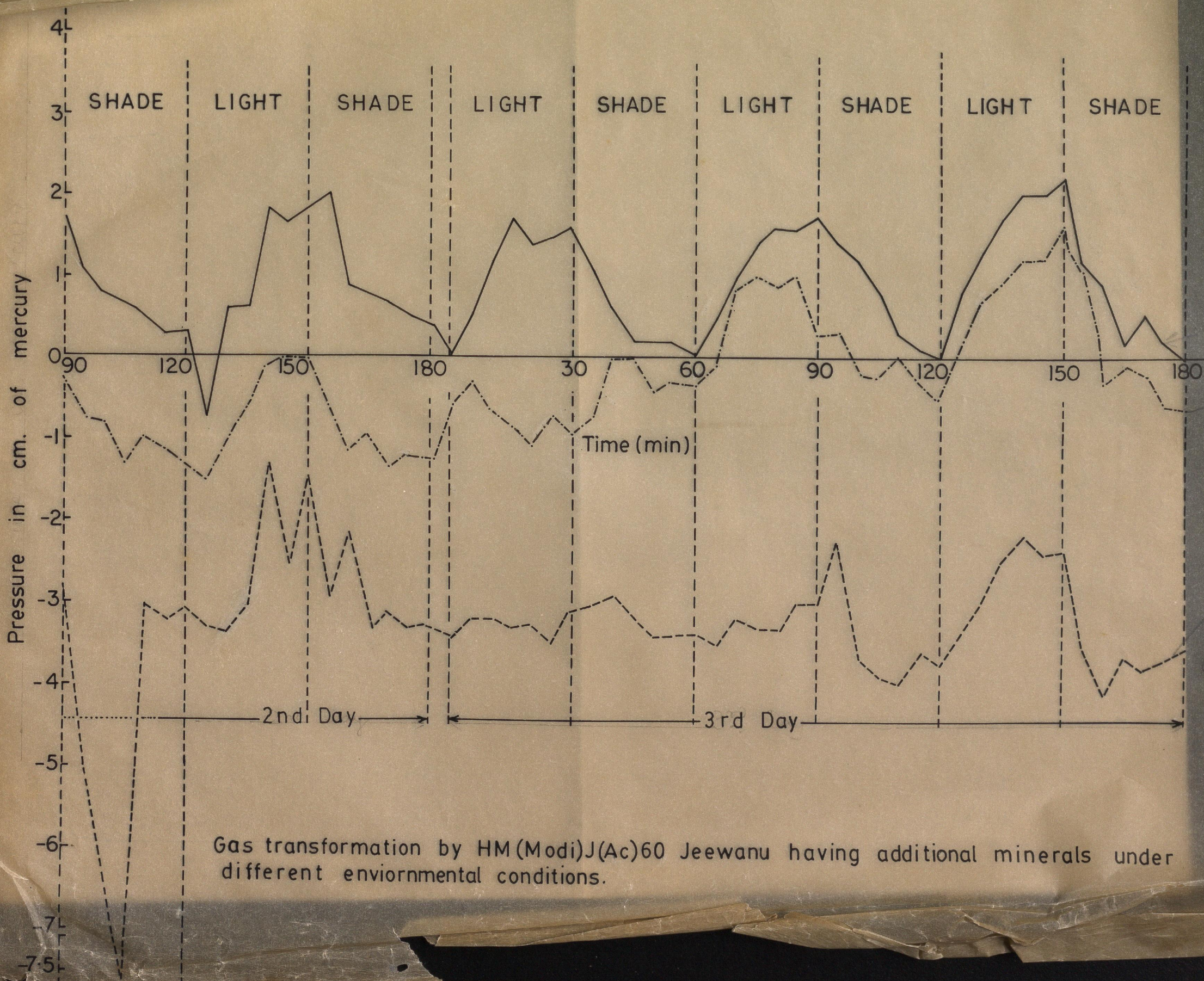
Disproportionation (2 mole)
NH₂-NH₂ + N₂
↓ H₂
2NH₃



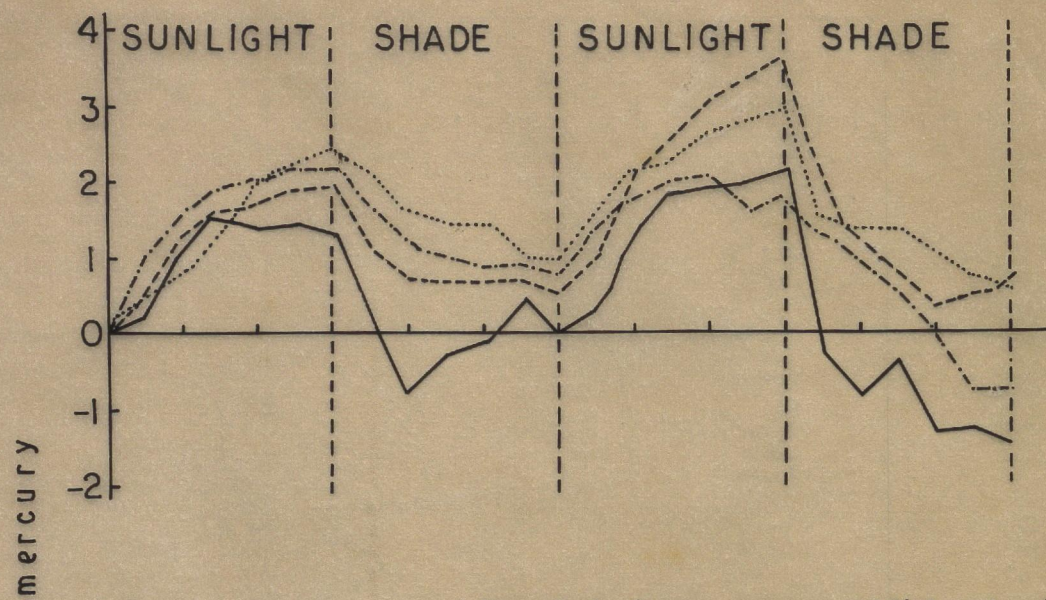
continued



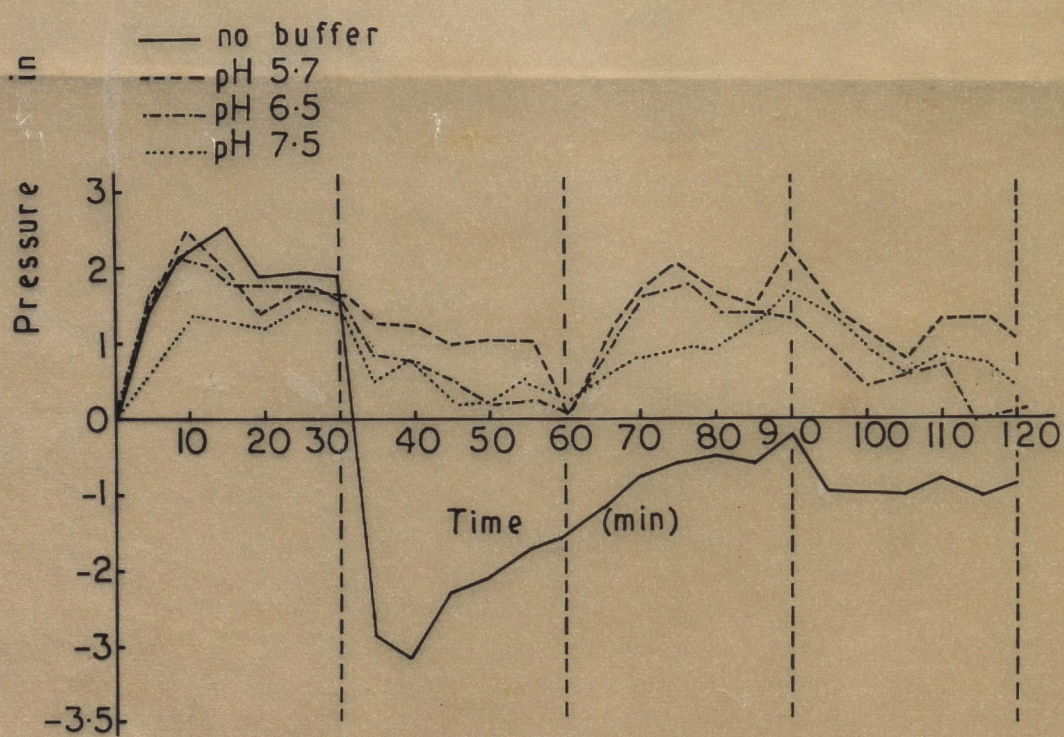
Gas transformation by HMJ 6 under different environmental conditions.



Gas transformation by HM(Modi)J(Ac)60 Jeewanu having additional minerals under different environmental conditions.

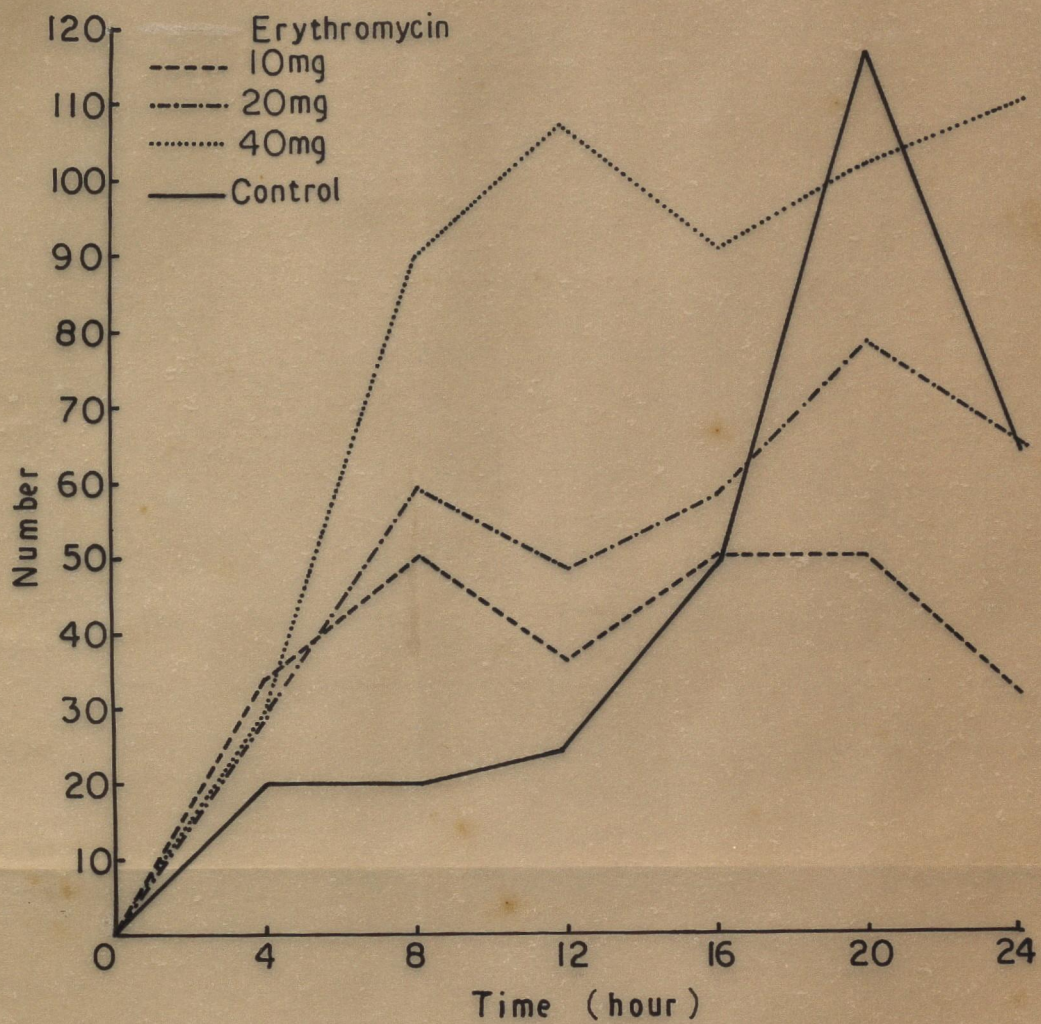


mercury
of
cm
in

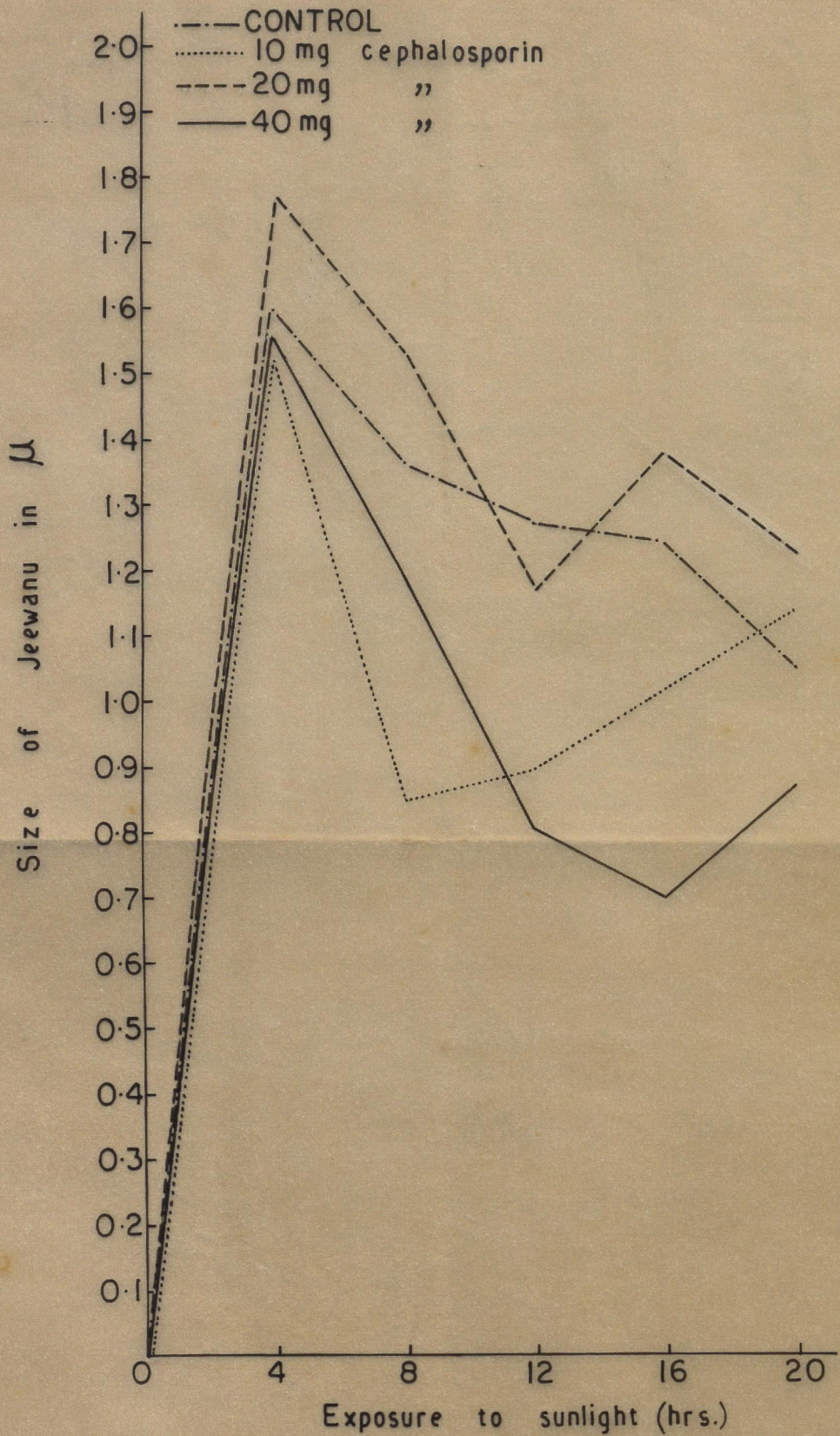


Jeewanu having NaCl in PEM.

Graph showing the pressure in Warburg flasks containing Jeewanu HM (Modi)J(Ac)68 having additional minerals, under anoxogenic condition.



Graph showing the number of 1211J24 produced in PEM having different concentrations of erythromycin.



Graph indicating the effect of Cephalosporin present in the PEM on the size of the 1:5:3:1:2:1:1 J 20 Jeewanu.

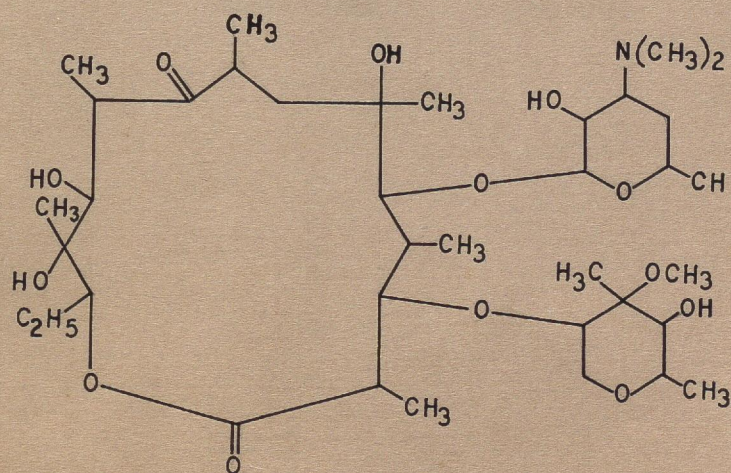
In the present section the effect of the antibiotic erythromycin on the Jeewanu 1211 J 24 has been studied.

Erythromycin is a commonly used antibiotic. Mc.Guire et al (1952) obtained it from the strain of streptomycin erythreus separated from the soil of Philippine. Erythromycin B & C were also separated. These have almost similar activity but C antibiotic is more acid resistant than B erythromycin and its activity is 80% greater.

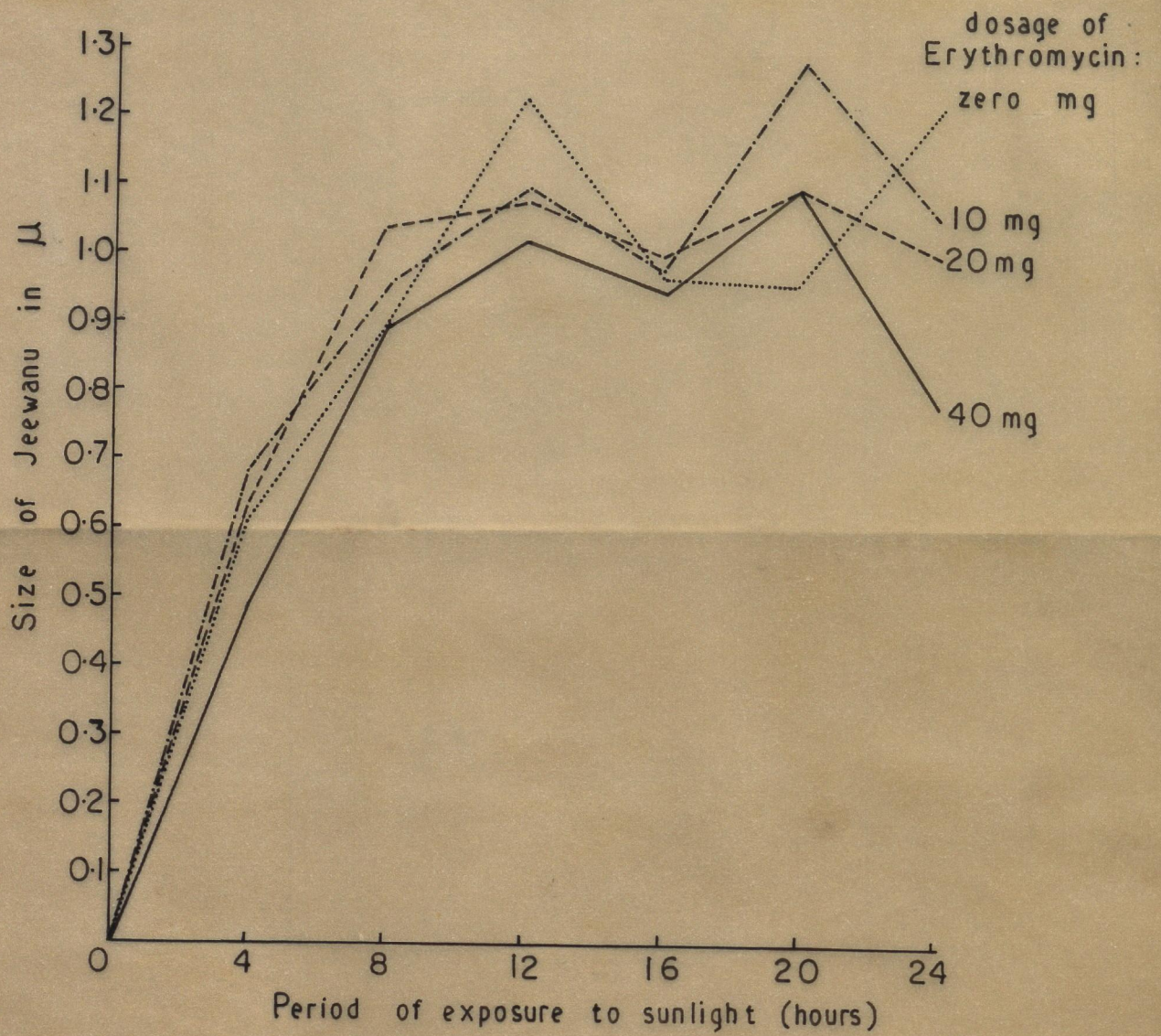
Erythromycin is an alkaline crystalline substance with the melting point $135 - 140^{\circ}\text{C}$. Its optical rotation in methanol is $[\alpha]_{\text{D}}^{25} - 73.5$. This forms the hydrochloride, glucoheptonate and stearate crystalline compounds. This is insoluble and forms tasteless esters which hydrolyse to release the free antibiotic. Its neutral solution is stable but it is rapidly decomposed in acidic solutions.

It is fairly soluble in organic solvents.

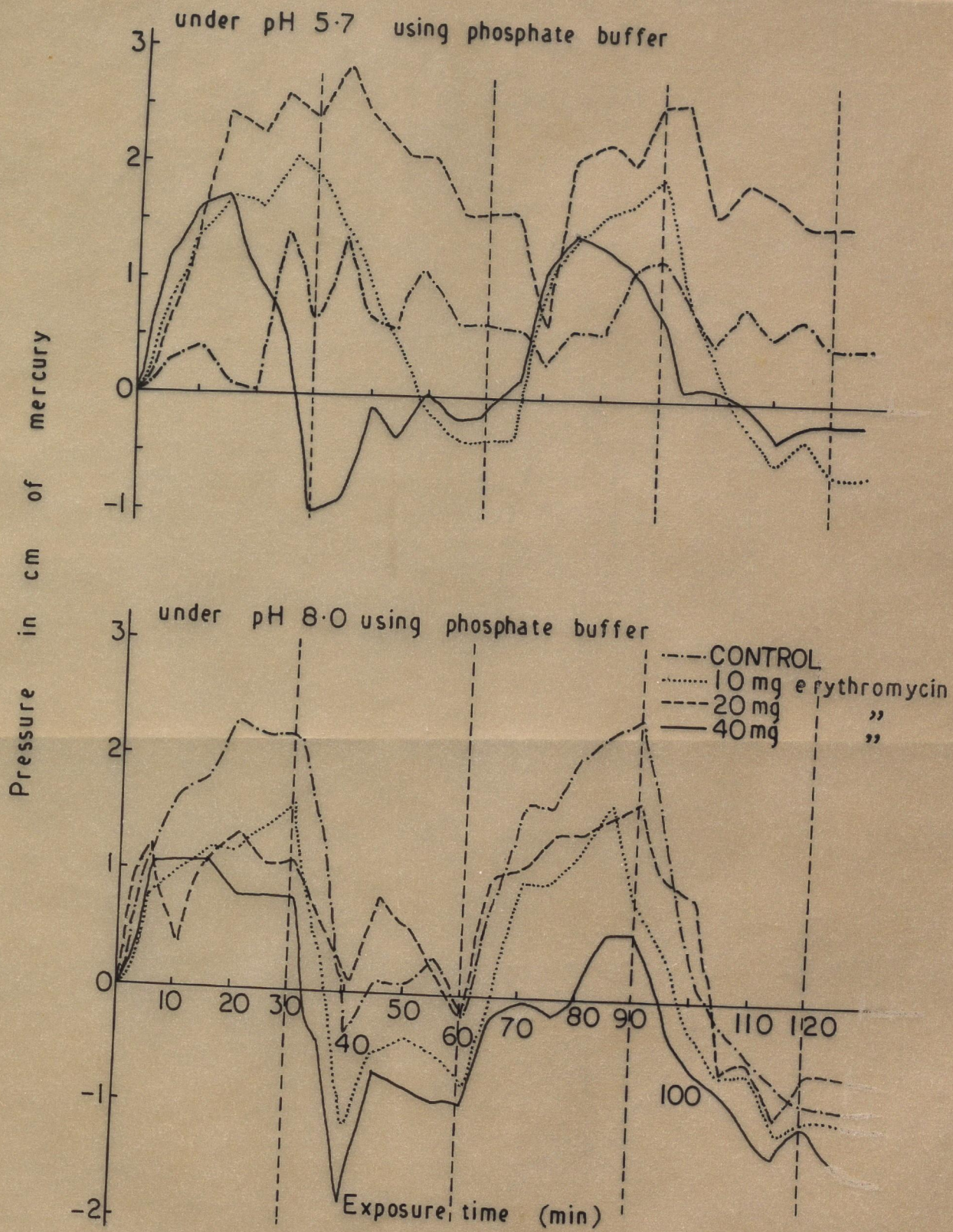
Erythromycin has the following molecular structure :



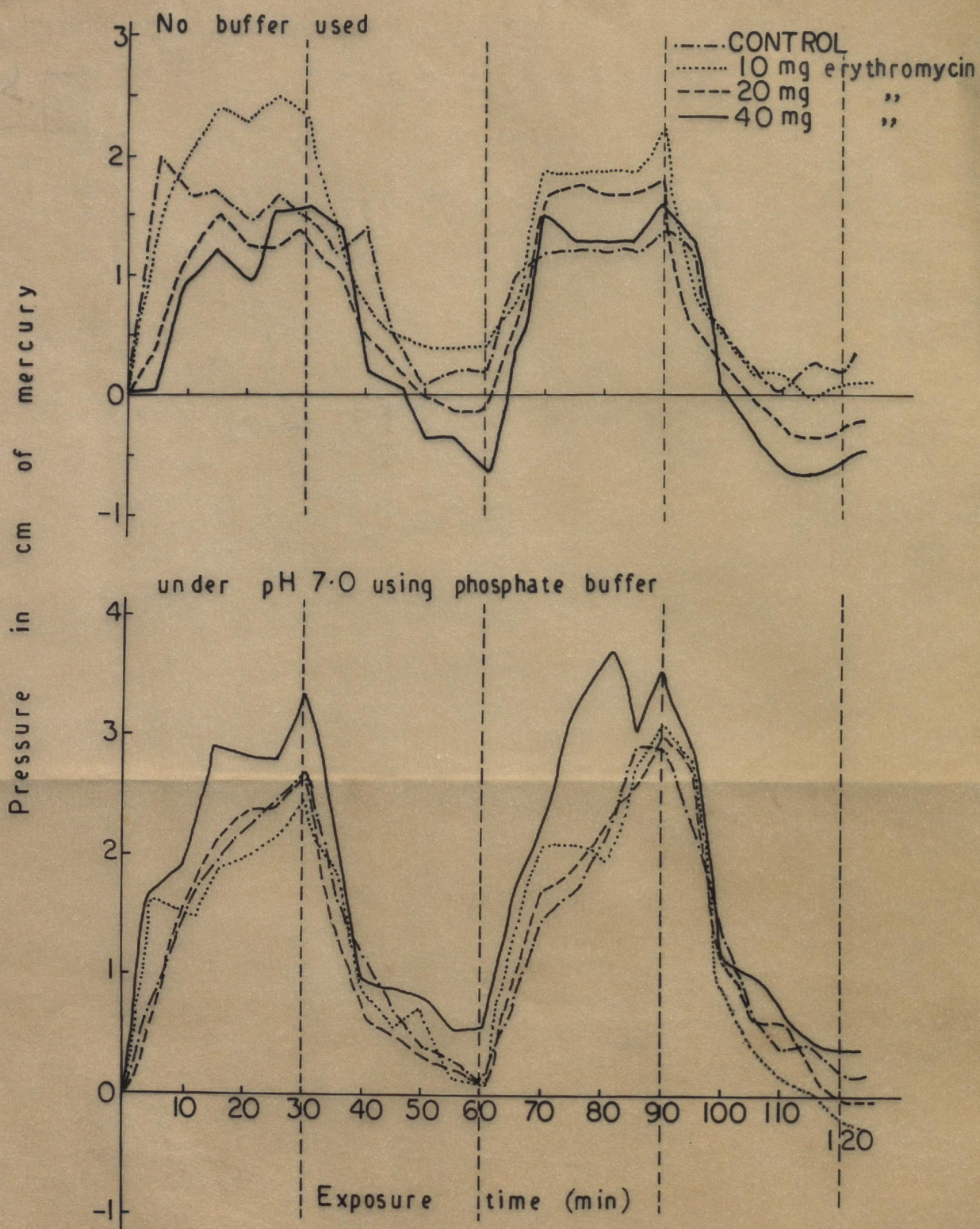
Thus streptomycin is made up of three parts - erythronolyde desosamine and cladinose.



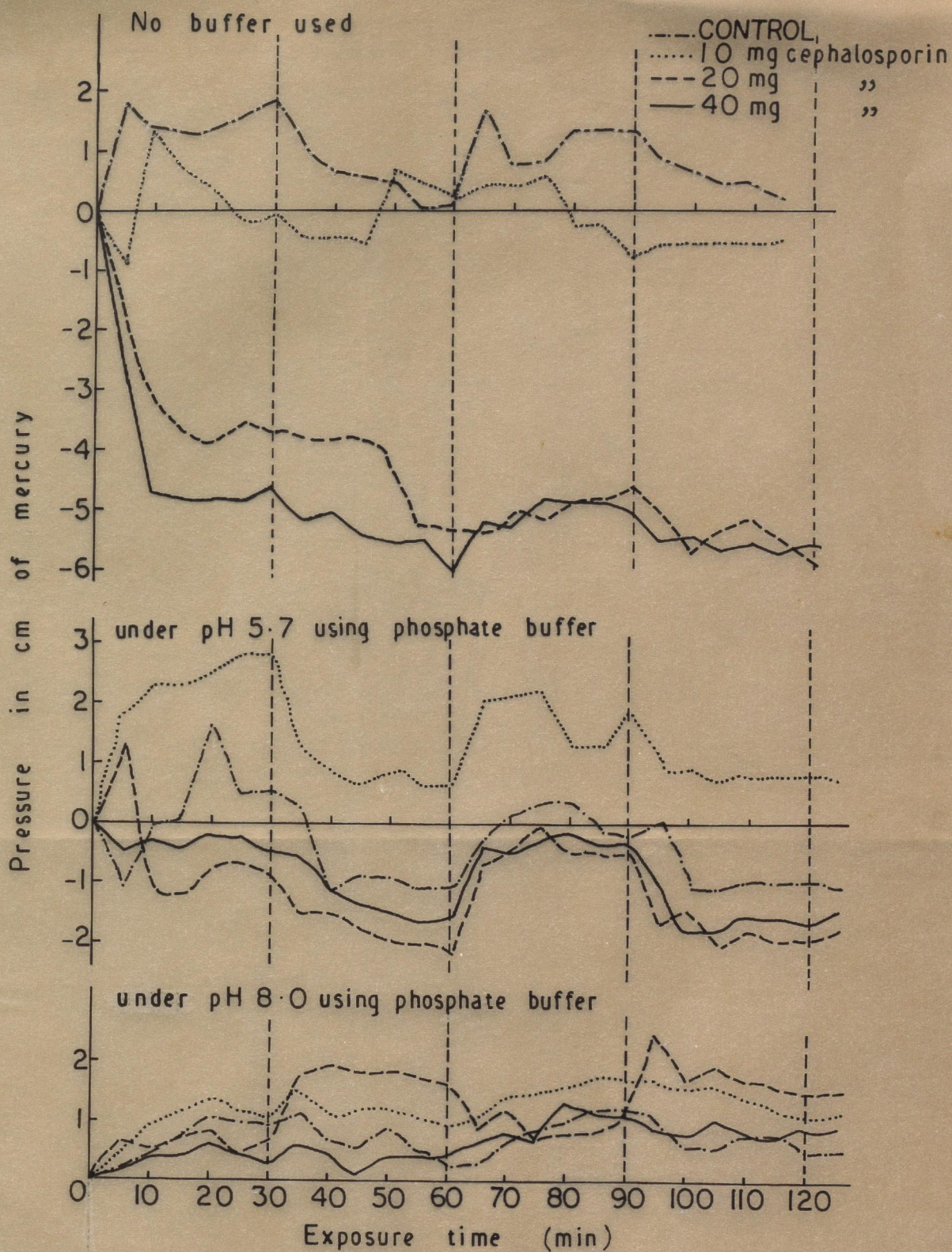
Graph indicating the effect of Erythromycin present in the PEM on the size of 12 11J 24 Jeewanu.



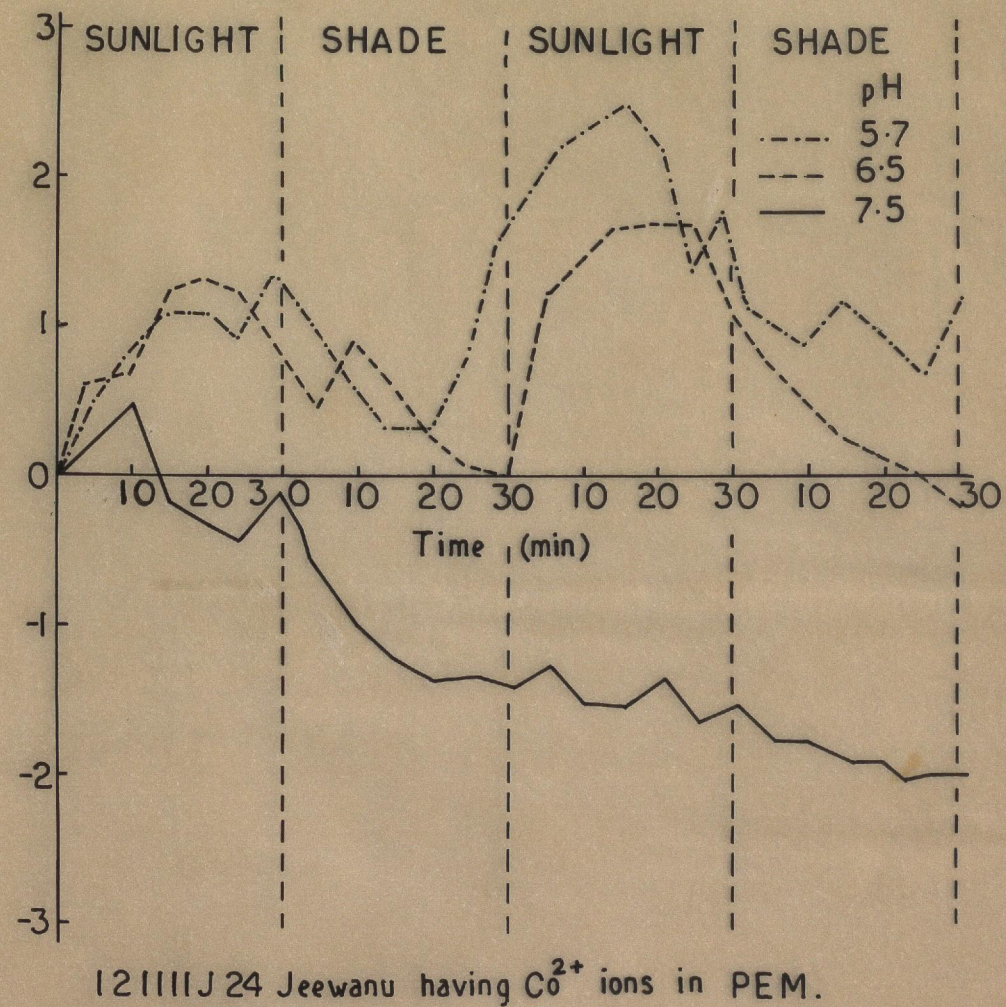
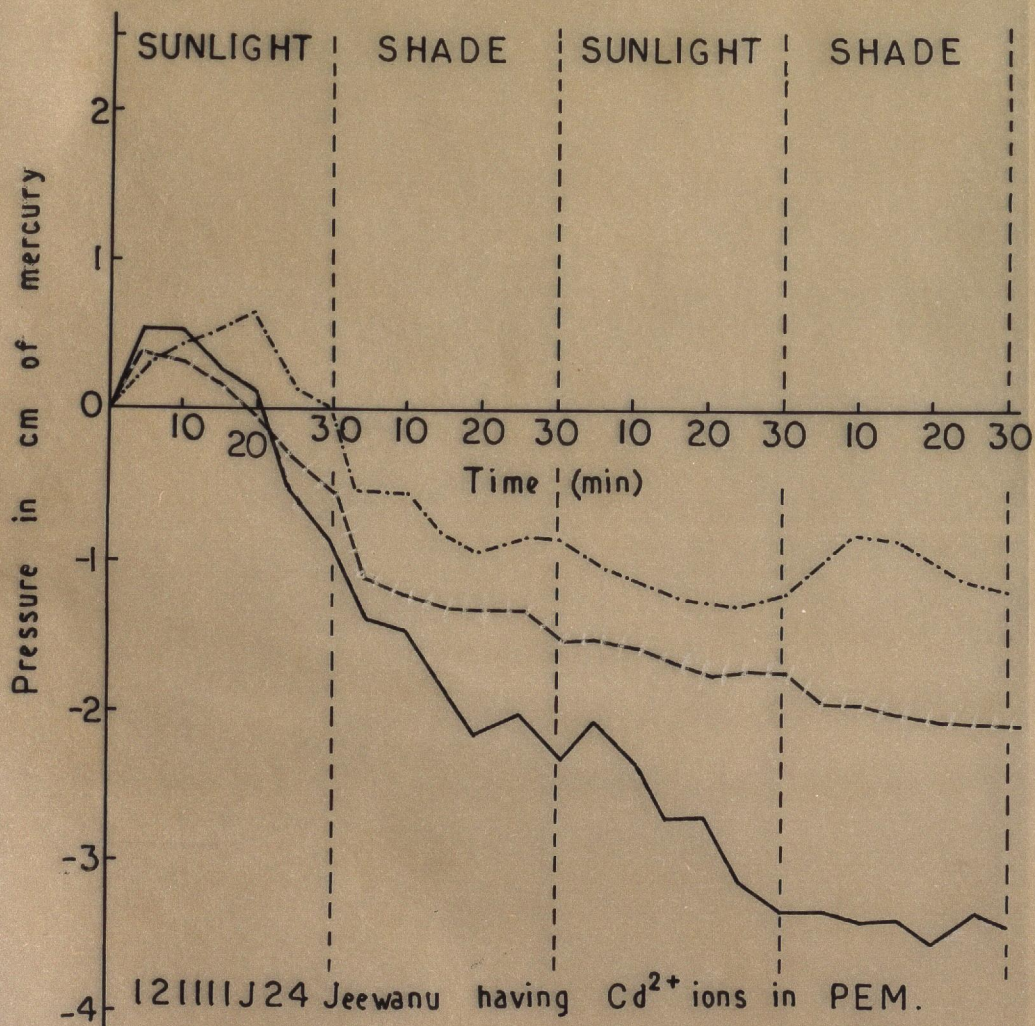
Graph showing gas transformations of 1211J 24 prepared in the PEM having different concentrations of Erythromycin at pH 5.7 & 8.0 using phosphate buffer.



Graph showing gas transformations of 1211 J 24 prepared in the PEM having different concentrations of Erythromycin without buffer, and at pH 7.0 using phosphate buffer.

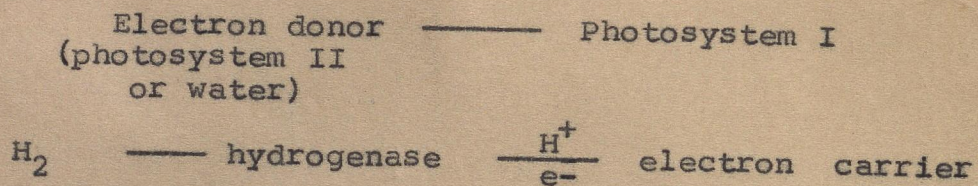


Graph showing gas transformations of 1:5:3:1:2:1:1 J 20 Jeewanu prepared in the PEM having different concentrations of Cephalosporin without buffer, and at pH 5.7 & 8.0 using phosphate buffer.

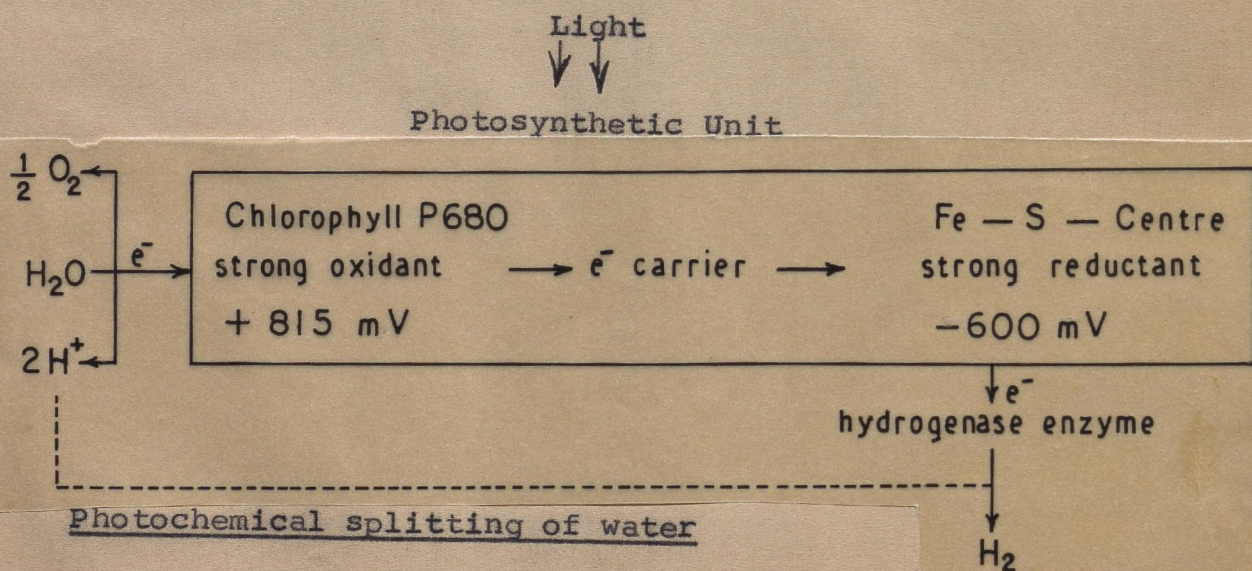


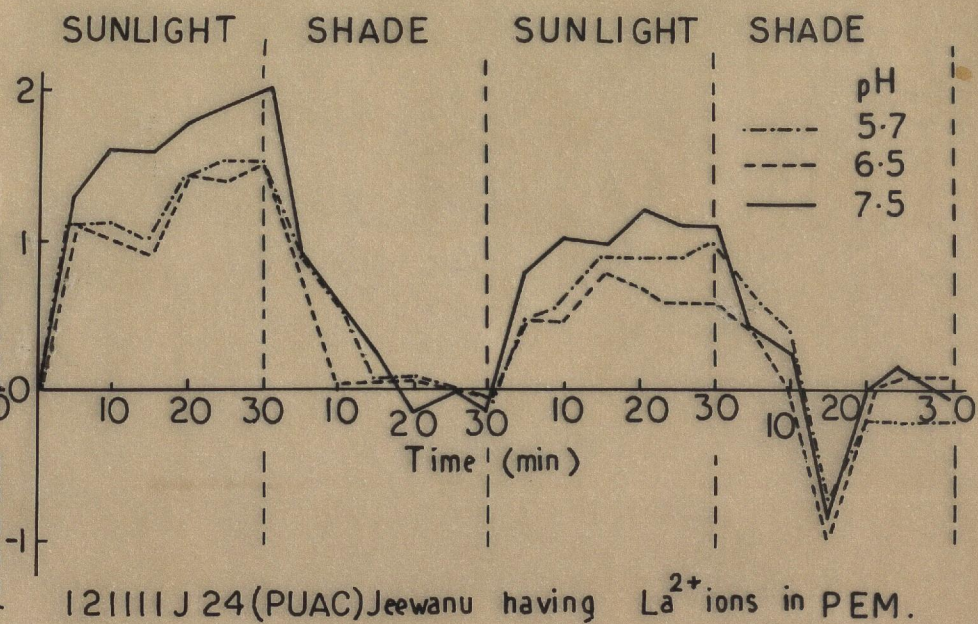
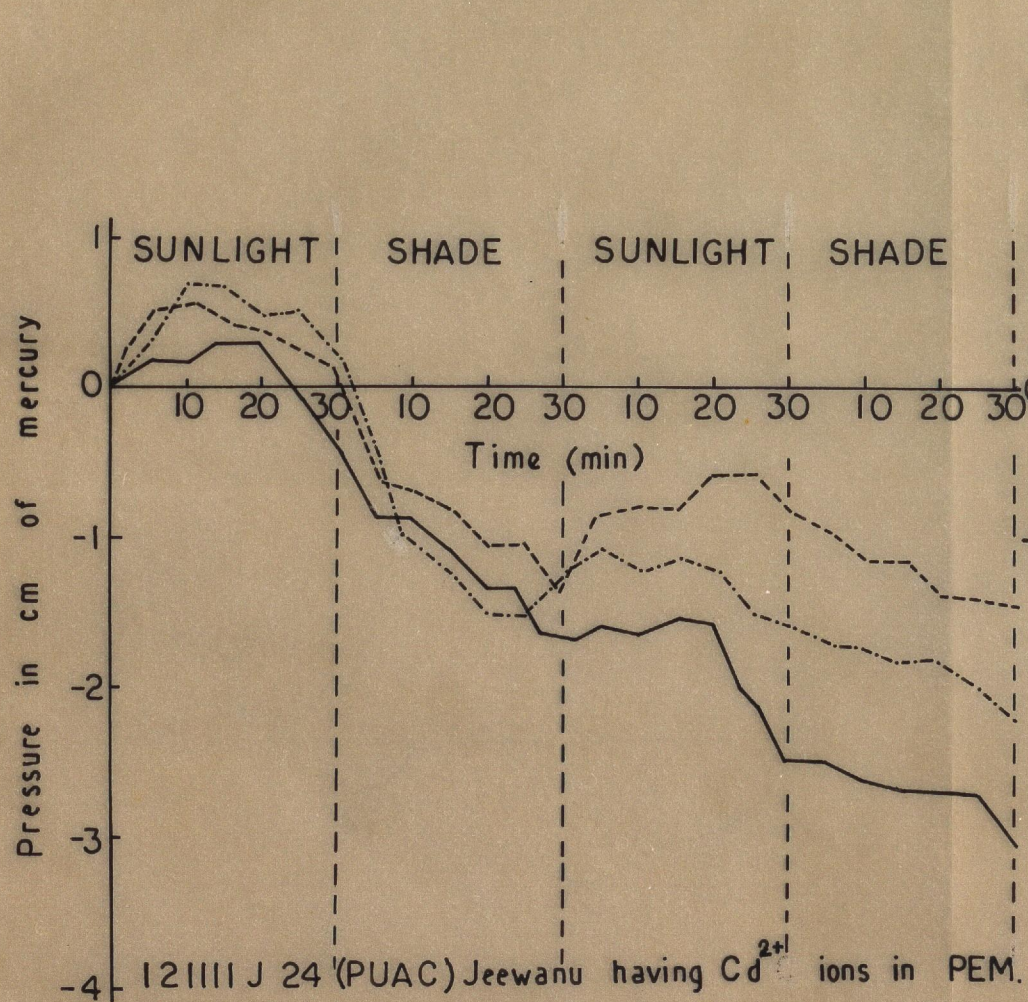
Graphs indicating nett change in pressure in cm. of mercury within the Warburg flasks having aqueous mixtures of Jeewanu 121111J 24 and phosphate buffer of different pH values under anoxygenic condition.

The reactions involved are -

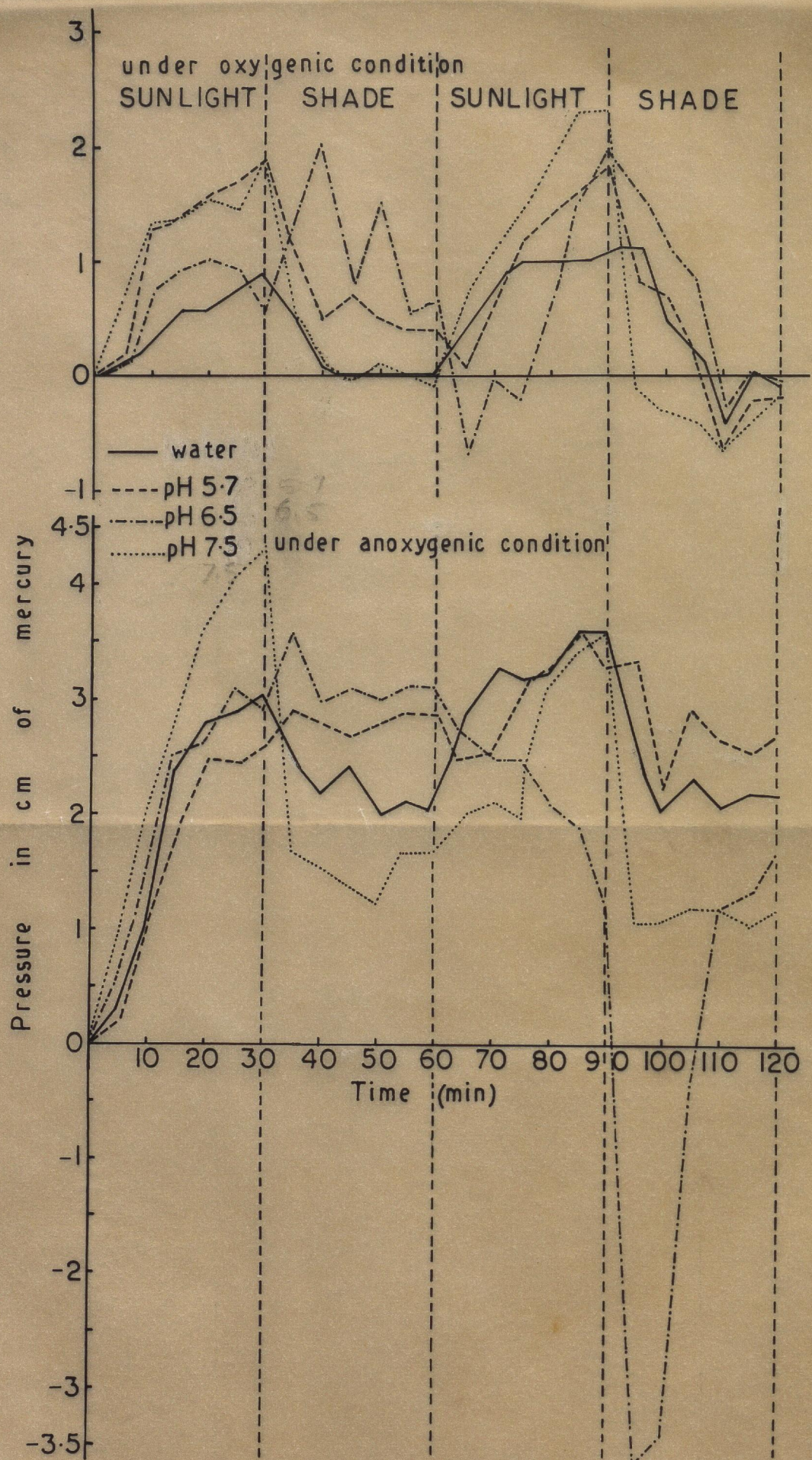


The splitting of water in enKaryotic cells generates protons, electrons and oxygen. This reaction takes place in the chloroplast with chlorophyll photosystem II, which is activated by wave length below 670 nm for oxygen evolution. The absorption of light energy during photosynthesis drives the electron transport system (photosystem I and II) to a reduction/oxidation potential that can reduce the cellular reducing agent NADP^+ to NADPH_2 with simultaneous generation of ATP. A subsequent dark reaction traps the stored energy of NADPH_2 and ATP to incorporate carbon dioxide from the atmosphere thus completing the photosynthesis process.

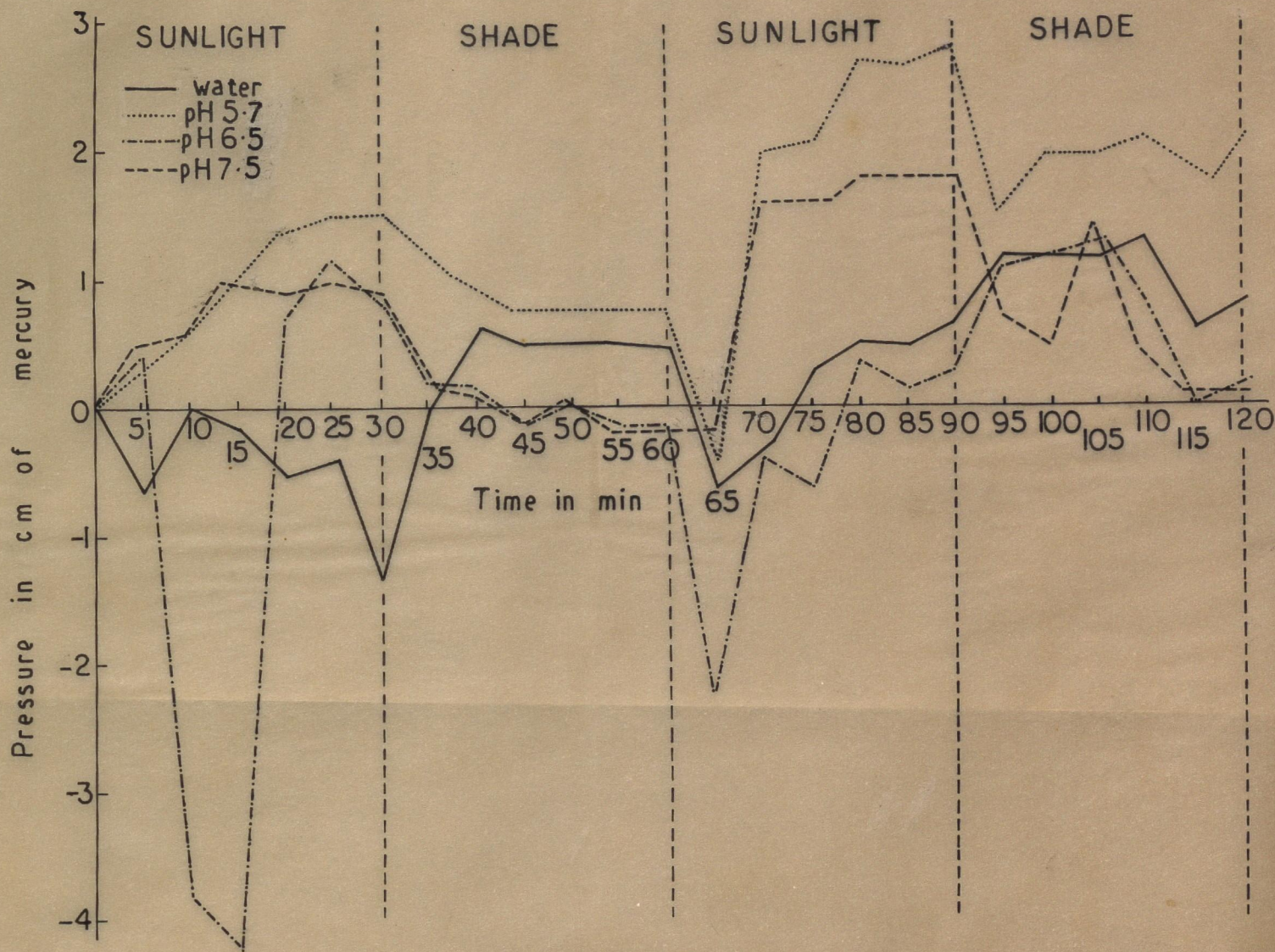




Graphs indicating nett change in pressure in cm of mercury within Warburg flasks having aqueous mixtures of Jeewanu 121111 J 24 (PUAC) and phosphate buffer of different pH values under oxygenic condition.



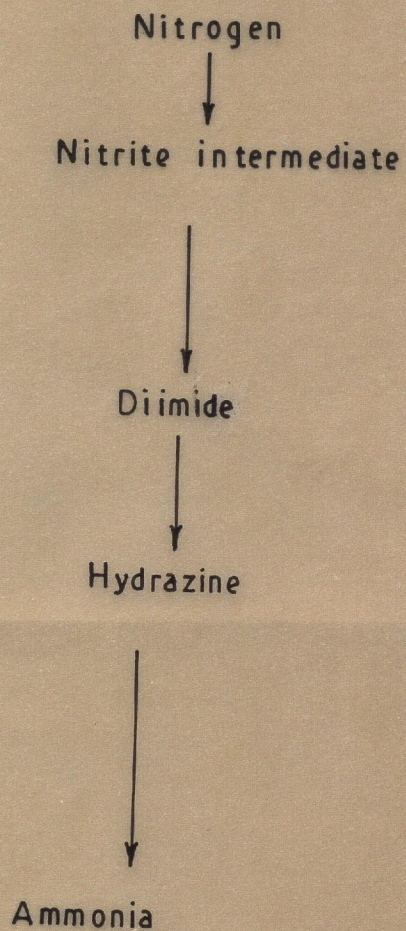
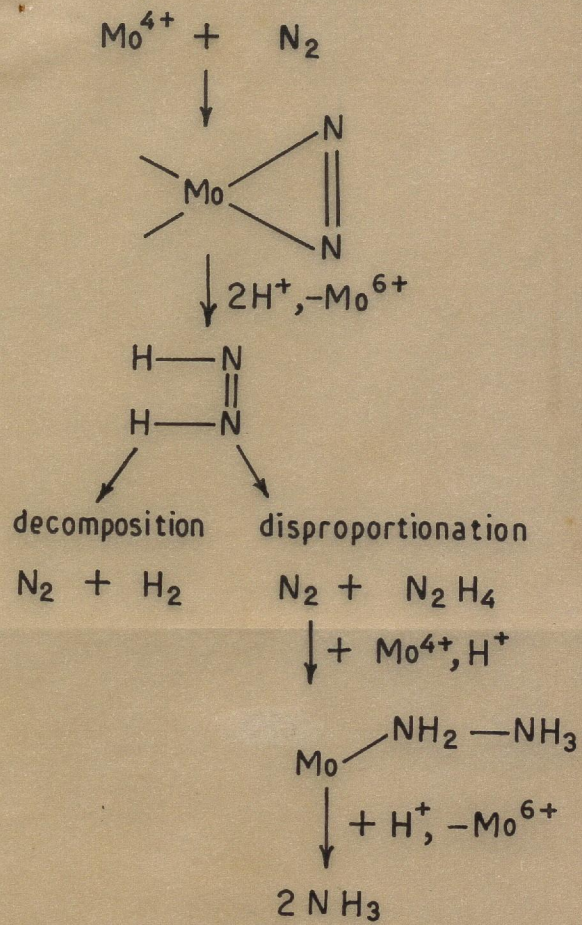
Graph showing the pressure in Warburg flasks at different pH in presence of phosphate buffer and using the alkali-insoluble part of Jeewanu HM(Modii)(Ac)60 having additional minerals.

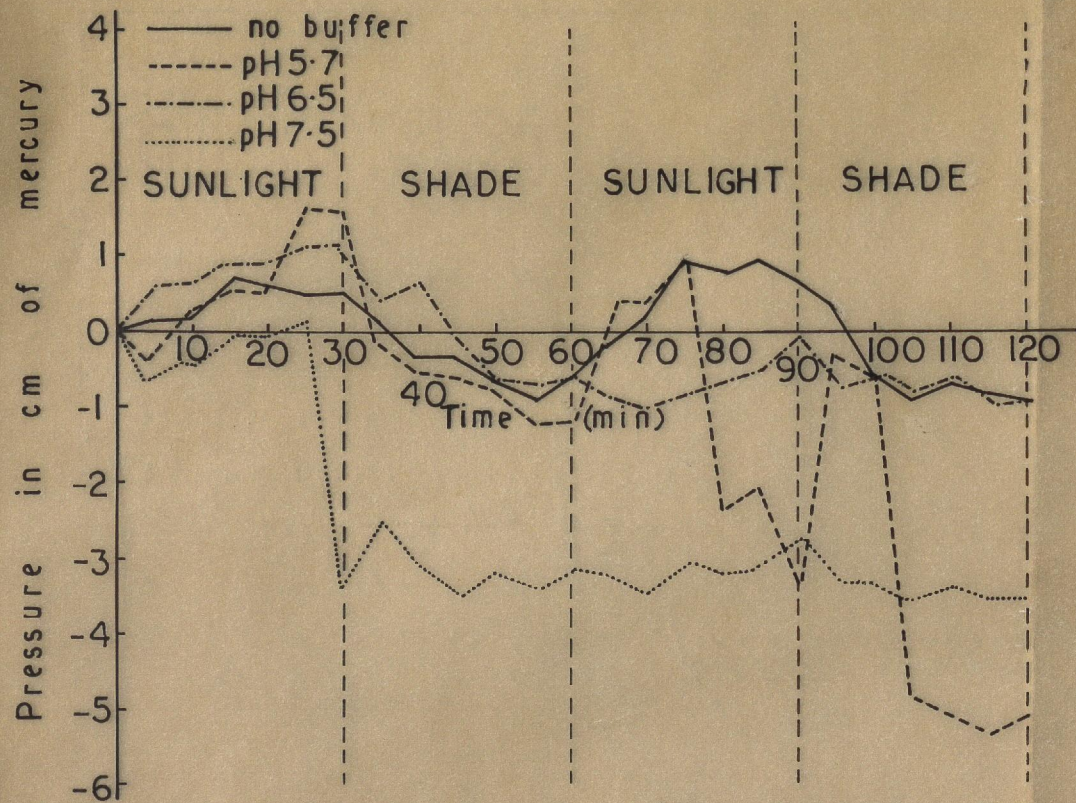


Graph showing pressure in Warburg flask at different pH values in presence of phosphate buffer and using the acid insoluble part of Jeewanu HM (Modi) J (Ac)60, having additional minerals under oxygenic condition.

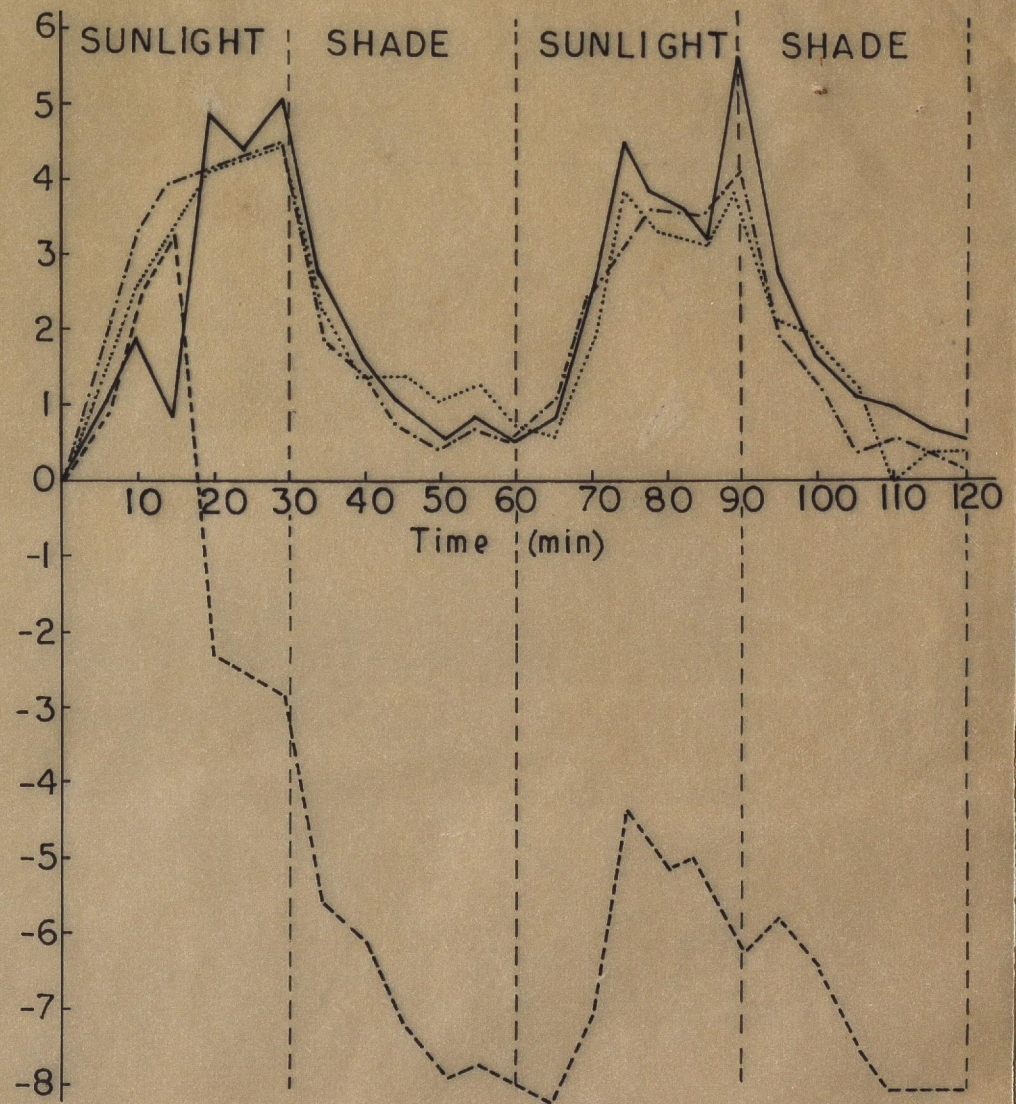
system which used carbon dioxide and nitrogen fixation and evolved in a simple environment. He looks at the intermediary metabolism and examines the central role of the citric acid cycle, and concludes that the main problem of starting the cycle is of CO₂ fixation. He considers that nitrogen fixation could have been accomplished by molybdenum complexes in the primitive organism if a strong reductant was possible.

Schrauzer (1977) has given a mechanism in which the probable step of nitrogen fixation in presence of Mo⁴⁺ ion is as follows:-



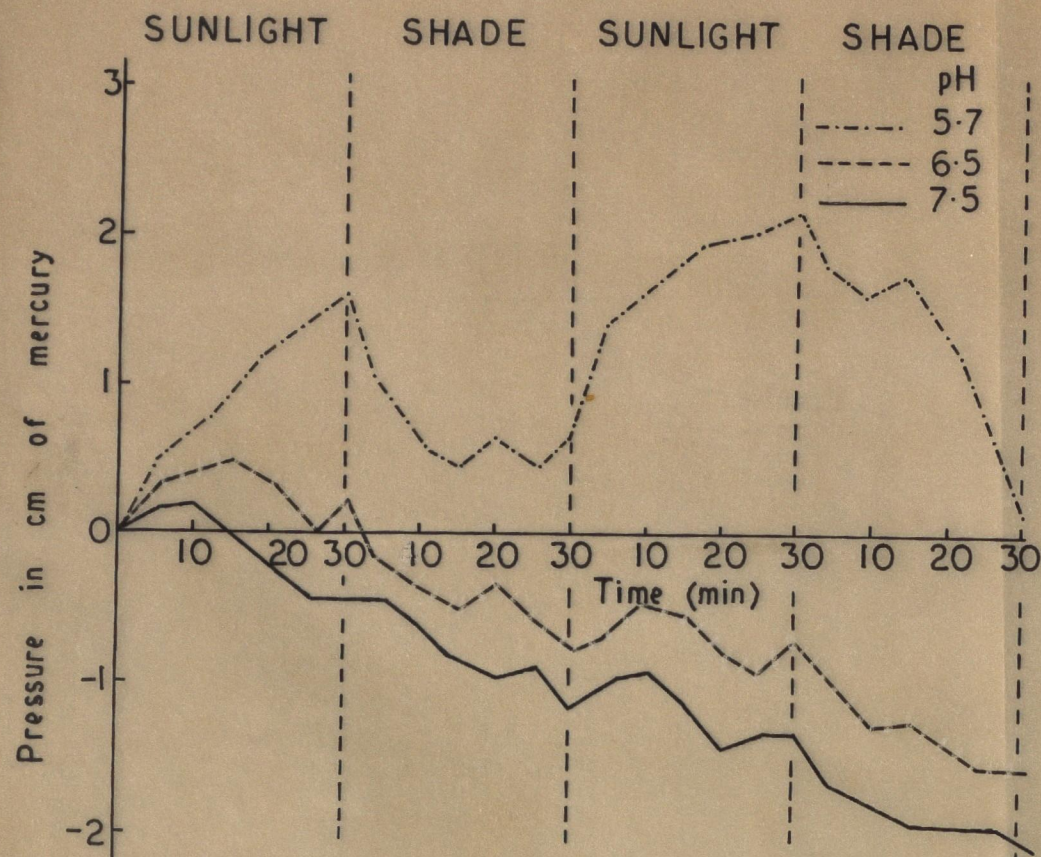


Control HM(Modi)J(Ac)60 having additional minerals.

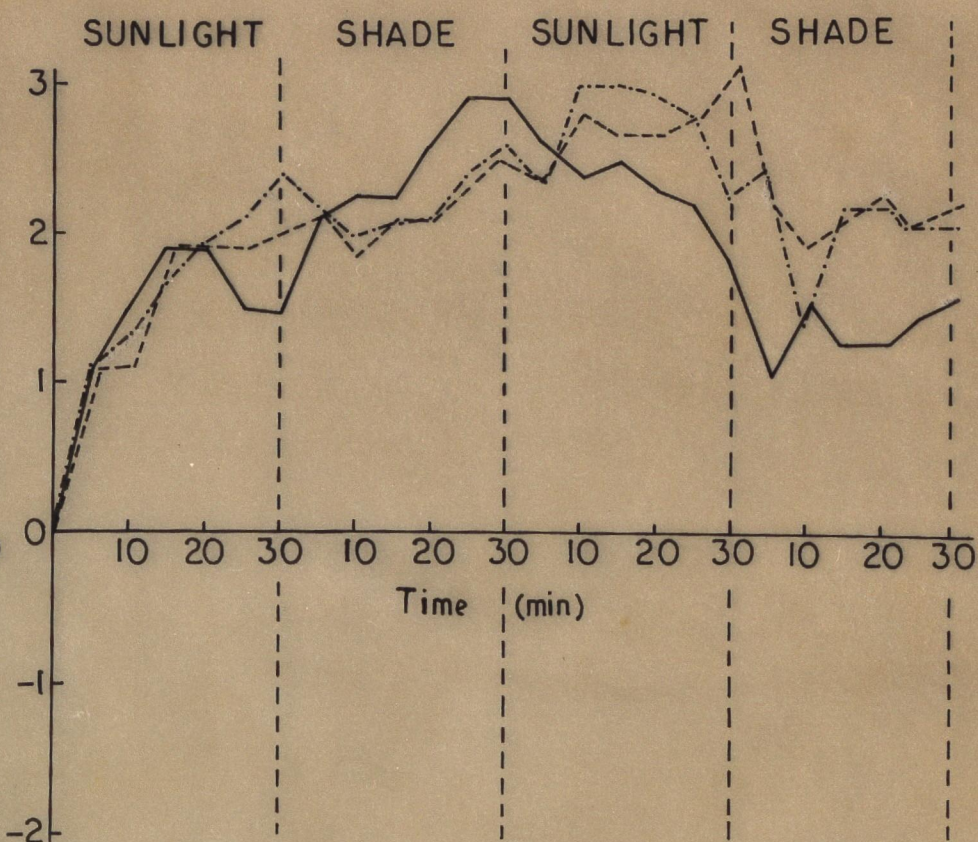


Jeewanu having NaCl in PEM.

Graph showing the pressure in the Warburg flasks having Jeewanu HM(Modi)J(Ac)68 having additional minerals under oxygenic condition.

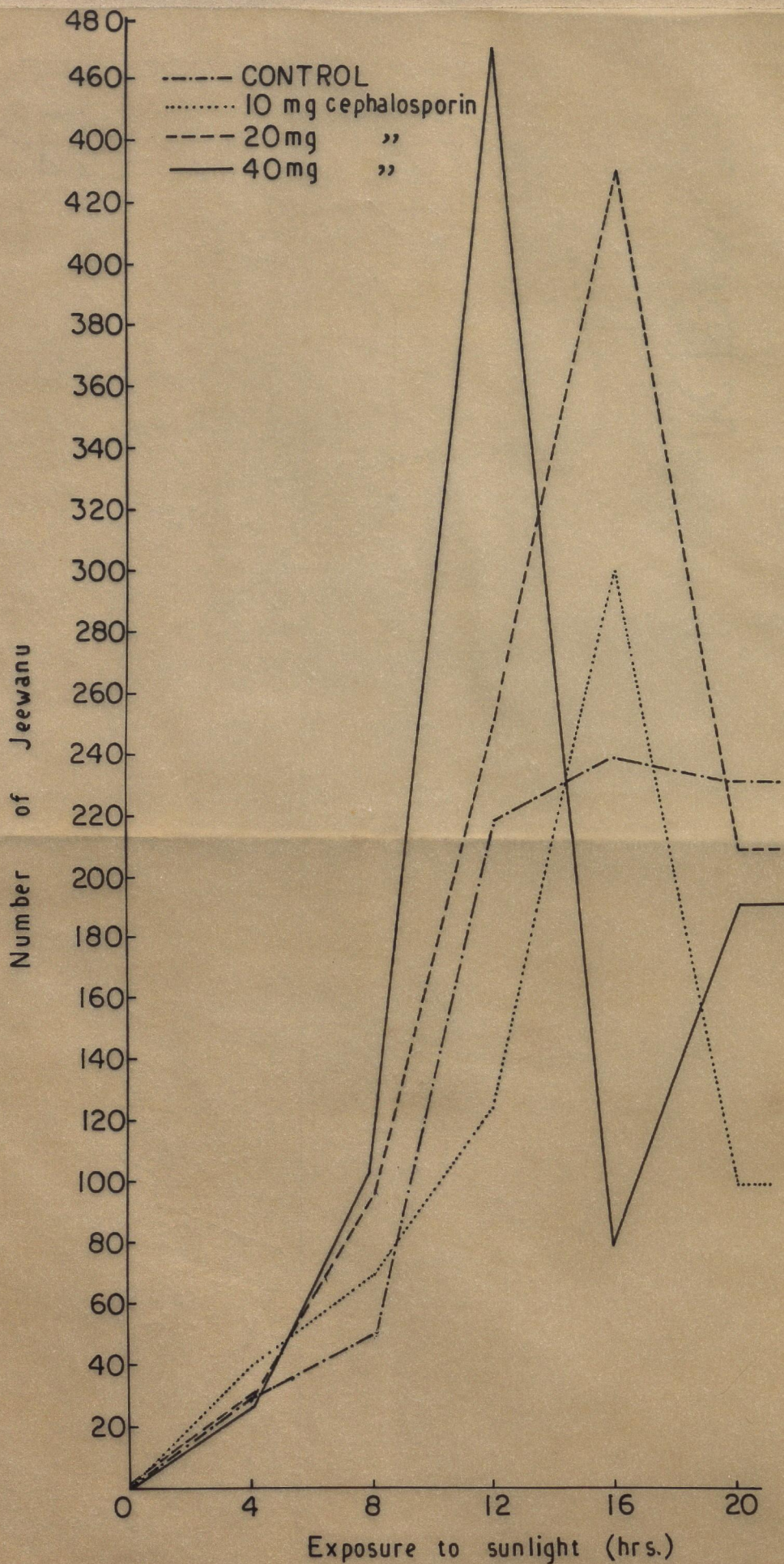


12 IIII J 24 (PUAC) Jeewanu having Cd^{2+} ions in PEM.

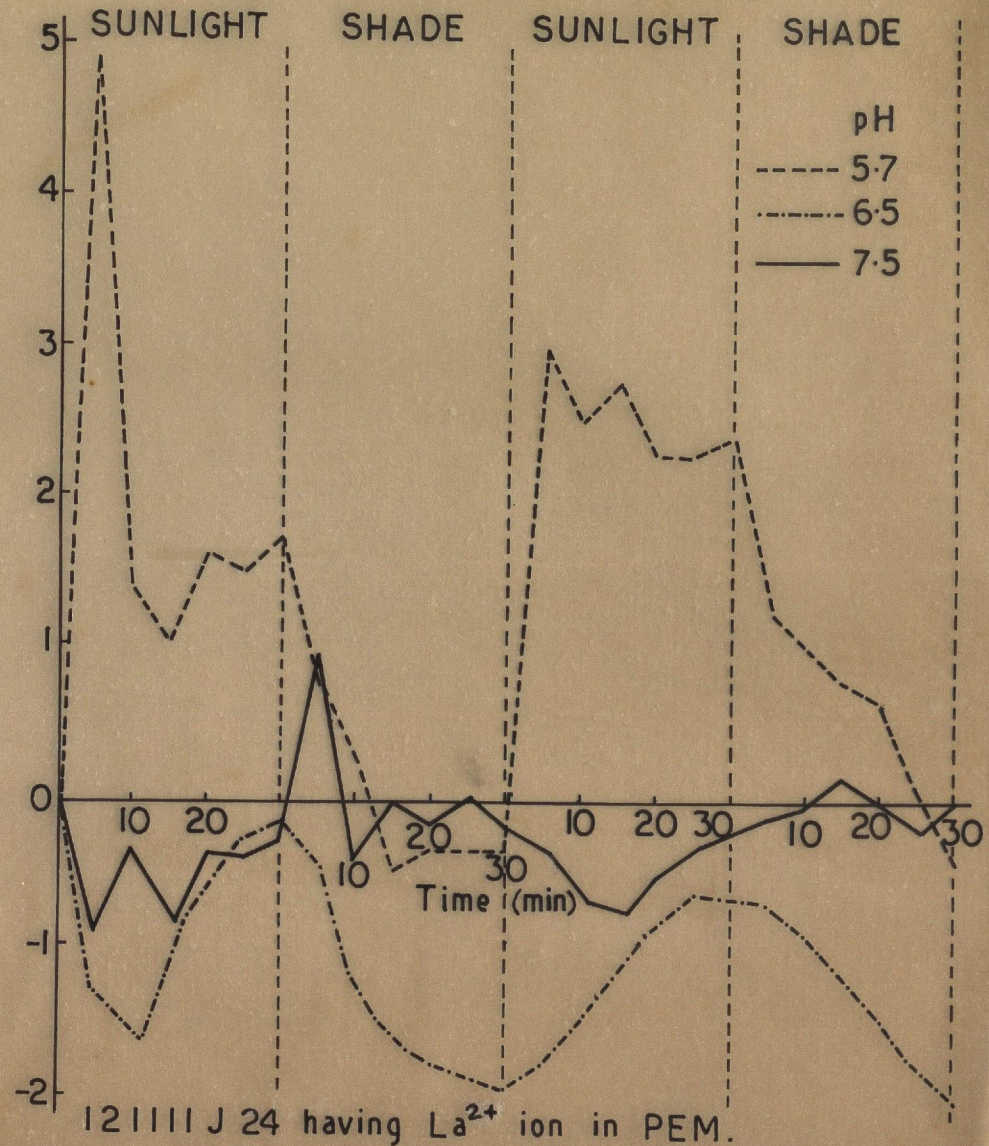
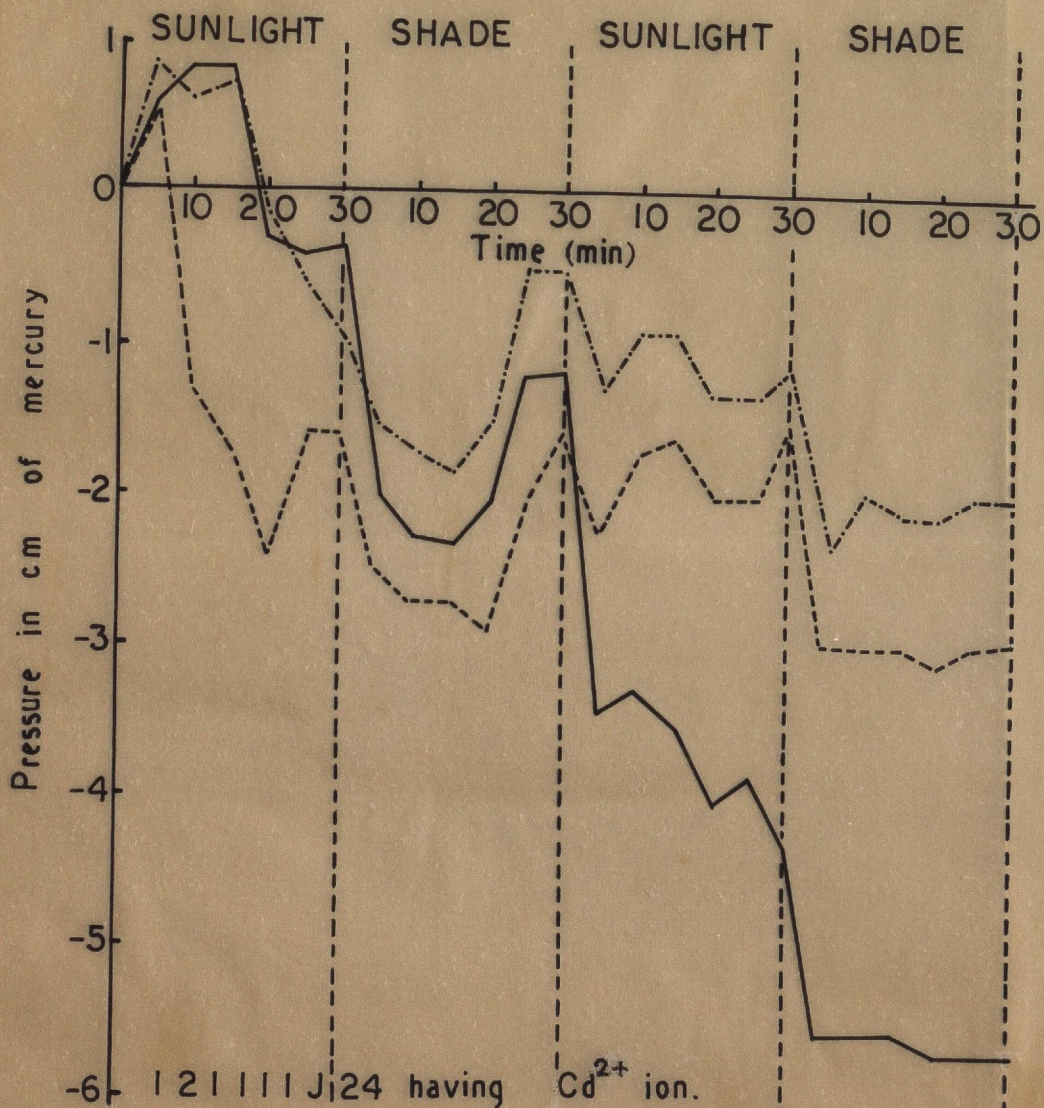


12 IIII J 24 (PUAC) Jeewanu having La^{2+} ions in PEM.

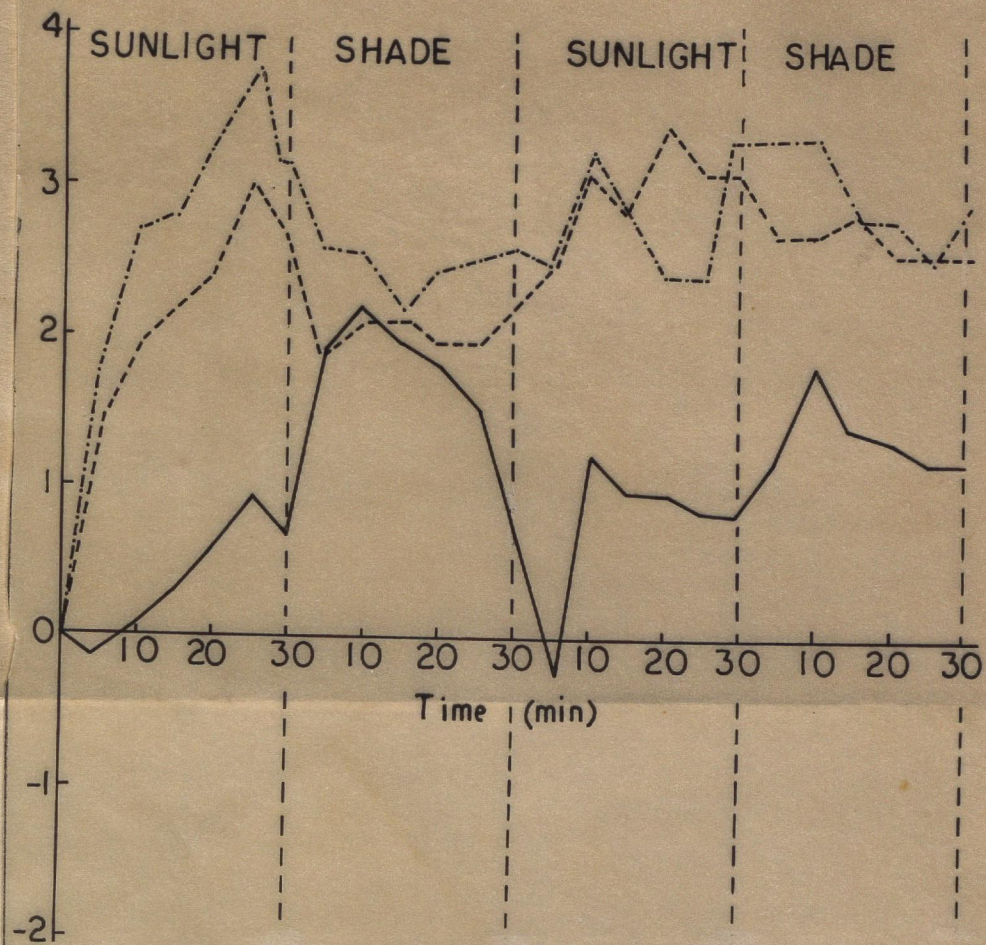
Graphs indicating nett change in pressure in cm. of mercury within Warburg flasks having aqueous mixtures of Jeewanu 12 IIII J 24 (PUAC) and phosphate buffer of different pH values under anoxygenic condition.



Graph indicating the effect of Cephalosporin present in the PEM on the number of 1.5 : 3 : 1 : 2 : 1 : 1 J 20 Jeewanu.

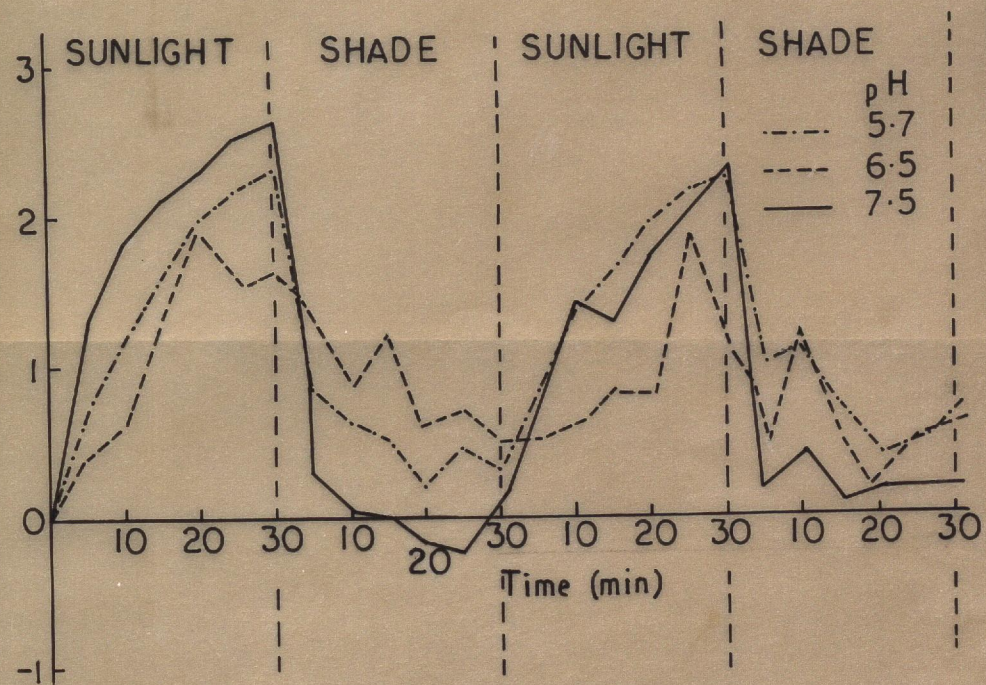


Graphs indicating nett change in pressure in cm of mercury, within the Warburg flasks having aqueous mixtures of Jeewanu 121111J24 and phosphate buffer of different pH values.



121111J 24 Jeewanu having Ti^{3+} ions in PEM.

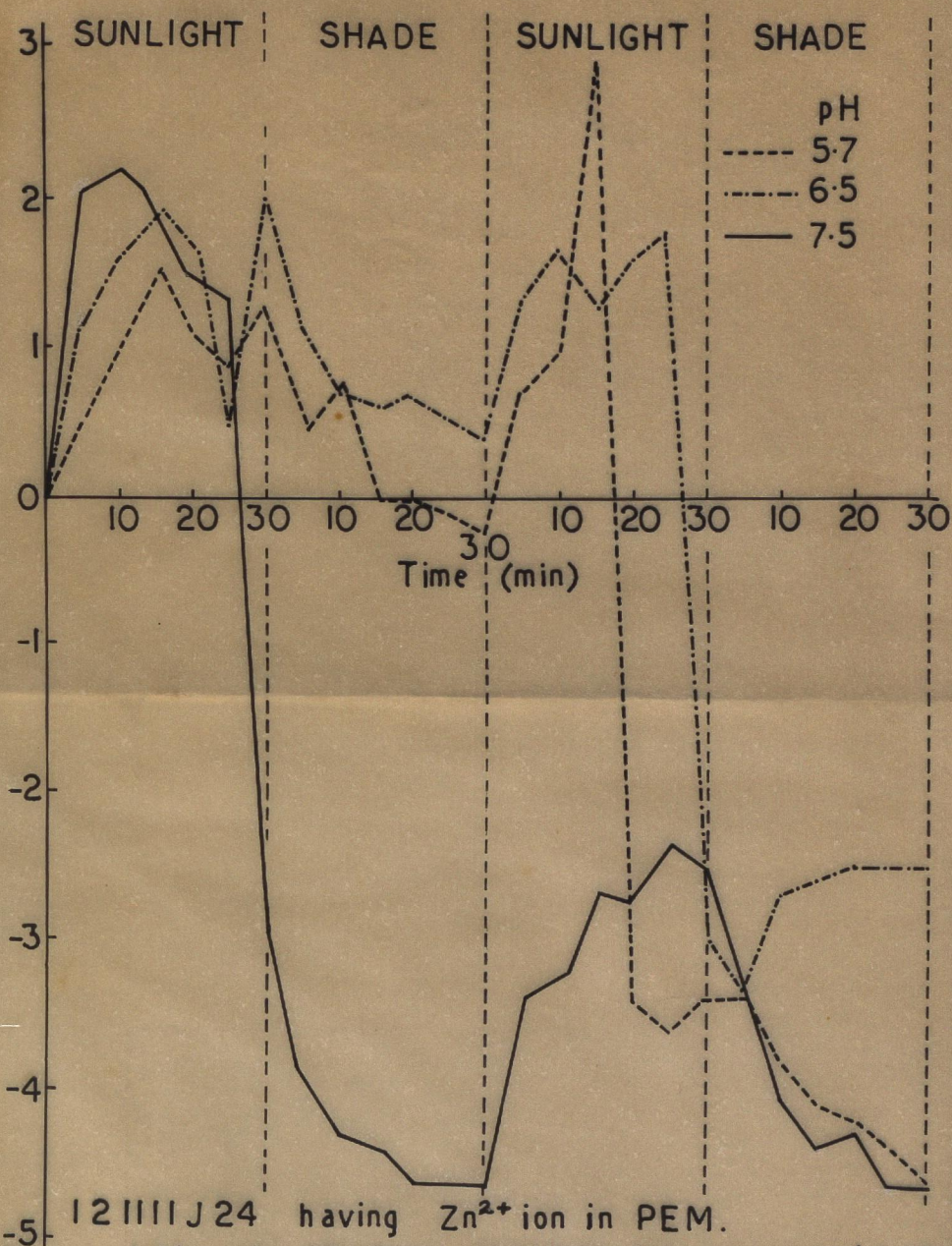
Graphs indicating nett change in pressure in cm. of mercury within Warburg flasks having aqueous mixtures of Jeewanu 121111J 24 and phosphate buffer of different pH values under anoxygenic condition.



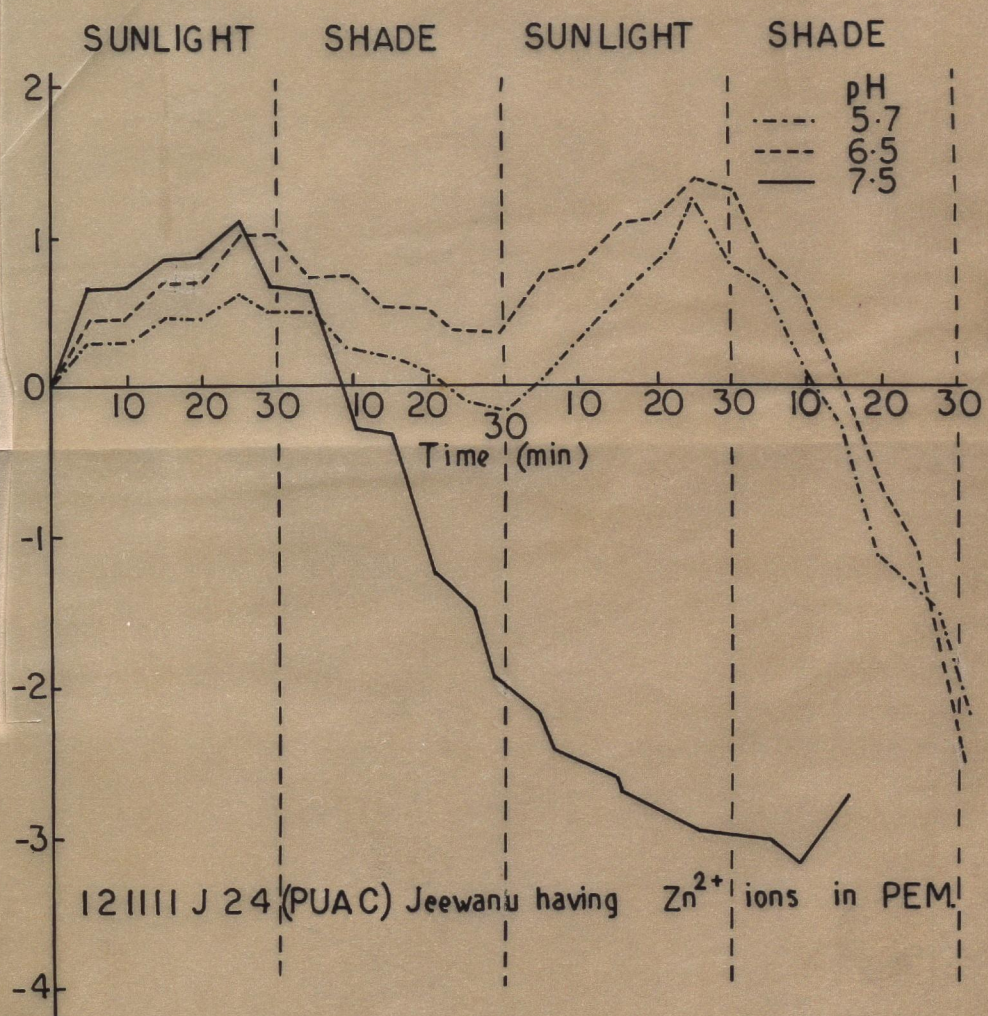
121111J 24(PUAC) Jeewanu having Zn^{2+} ions in PEM.

-3- 121111J 24(PUAC) Jeewanu (Control).

Graphs indicating nett change in pressure in cm of mercury within the Warburg flasks having aqueous mixtures of Jeewanu 121111J 24(PUAC) and phosphate buffer of different pH values under anoxygenic condition.



Graphs indicating nett change in pressure in cm of mercury within the Warburg flasks having aqueous mixtures of Jeewanu 12 IIII J 24 and phosphate buffer of different pH values.



121111J 24 (PUAC) Jeewanu (Control).

121111J 24 (PUAC) Jeewanu having Zn^{2+} ions in PEM.

Graphs indicating the nett change in pressure in cm. of mercury within the Warburg flasks having aqueous mixtures of Jeewanu 121111J 24 (PUAC) and phosphate buffer of different pH values under oxygenic condition.

