Also that the origin of all strata in exhausted tubes is at the positive pole. At certain pressures there is only one stratum, then, as the pressure is diminished, two, three, and so on, each being added on from the positive pole. We succeed easily in obtaining photographs of the phenomena, as the strata can generally be made to remain stationary for some time. Several of the photographs are in the hands of the engraver to be copied, and we hope to be able to show the history of several tubes in a communication we are now drawing up.

June 21, 1877.

Sir JOSEPH HOOKER, C.B., President, in the Chair.

The Presents received were laid on the table, and thanks ordered for them.

The Right Hon. John Duke Lord Coleridge and Dr. Thomas Richard Fraser were admitted into the Society.

The President announced that Section V. Chapter III. of the Statutes, under which a Fellow whose paper had been printed in the Philosophical Transactions could claim to pay, in lieu of the annual contribution, a Life Composition of £40 instead of £60, had been repealed by the Council.

The following Papers were read:—

I. "On the Normal Paraffins." Part II.—By C. S. SCHORLEMMER, F.R.S., Professor of Organic Chemistry in Owens College, Manchester. Received June 5, 1877.

(Abstract.)

In the first paper of this subject it was shown that by the action of chlorine on a normal paraffin a primary chloride and a secondary one of the general formula $\left.\begin{matrix} C_nH_{2n+1} \\ CH_3 \end{matrix}\right\}$ CHCl are formed simultaneously*. It appeared of interest also to examine the action of bromine on the paraffins. The present paper contains the first results of this research.

I. *Normal Hexane.*—When bromine vapour is passed into the vapour of the boiling hydrocarbon, in the daylight, its colour disappears quickly and substitution products are formed which are partly decomposed by distillation. The portion distilling without decomposition consists of a

* Phil. Trans. vol. 162, part i. p. 111.

hexyl bromide, which was converted into the acetate and the alcohol. The latter yielded on oxidation *acetic acid* and *normal butyric acid*, showing that it is *methylbutyl carbinol*. The boiling-points of the different compounds are as follows :—

	Formula.	Boiling-point.
Bromide	$\left.\begin{matrix}C_4H_9\\CH_3\end{matrix}\right\}$ CHBr	143°–145°
Acetate	$\left.\begin{matrix}C_4H_9\\CH_3\end{matrix}\right\}$ CH . OC_2H_3O	146°–150°
Alcohol	$\left.\begin{matrix}C_4H_9\\CH_3\end{matrix}\right\}$ CH . OH	136°–140°

II. *Normal Heptane* yielded the following products :—

Bromide	$\left.\begin{matrix}C_5H_{11}\\CH_3\end{matrix}\right\}$ CHBr	165°–167°
Acetate	$\left.\begin{matrix}C_5H_{11}\\CH_3\end{matrix}\right\}$ CH . OC_2H_3O	169°–171°
Alcohol	$\left.\begin{matrix}C_5H_{11}\\CH_3\end{matrix}\right\}$ CH . OH	155°–157°

The heptyl alcohol is *methylpentyl carbinol*, because on oxidation it was resolved into *acetic acid* and *normal pentylic acid*.

As result of this investigation it appears that by the action of bromine on normal paraffins only secondary bromides of the general formula $\left.\begin{matrix}C_nH_{2n+1}\\CH_3\end{matrix}\right\}$ CHBr are formed, but not a trace of a primary bromide, or that the methyl groups which are present in these hydrocarbons, and which are readily attacked by chlorine, are not touched by bromine at all.

In addition to the secondary bromides other products are formed which, on distillation, decompose either completely or are resolved into hydrobromic acid and non-saturated hydrocarbons, which are probably olefines. By continuing this research I hope to ascertain the nature of these non-volatile products.

II. "The Relationships of the Nerve-cells of the Cortex to the Lymphatic System of the Brain." By Bevan Lewis, F.R.M.S., Assistant Medical Officer at the West Riding Asylum. Communicated by Dr. Ferrier, F.R.S. Received June 8, 1877.

[Plates 1 & 2.]

The great importance attached to an accurate appreciation of the relationships existing between the nerve-cells and the lymphatic and vascular systems in the brain cortex will be recognized by all who are engaged upon investigations in cerebral pathology, and cannot be well