LETTERS TO THE EDITORS

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Cancelled Visit of British Men of Science to the Academy of Sciences of the U.S.S.R.

MANY readers of *Nature* will have been astonished and repelled by the studied discourtesy with which eight of the intending guests of the Soviet Academy of Sciences were prevented by His Majesty's Government last week from going to Moscow. Not only were they put to gross inconvenience and annoyance by the refusal, without warning and at the last moment, of permission to travel, but also the explanation given was as incredible as the real reason was insulting.

In this prohibited group were those whose talents and devotion have rendered priceless service to the nation during the War. But let us remember the words of the "Preacher":

"There was a little city and few men within it; and there came a great king against it and besieged it and built great bulwarks against it:

"Now there was found in it a poor wise man and he by his wisdom delivered the city: yet no man remembered that same poor man.

"Then said I, Wisdom is better than strength: nevertheless the poor man's wisdom is despised, and his words are not heard".

The offensive treatment of our scientific colleagues, inconceivable towards members of most other professions, is a sufficient comment on the patronizing Ministerial praise with which science and scientific men are occasionally favoured. When they, and others, are offered reparation later on in 'awards' or 'honours', let them recall the words of T. H. Huxley:

"The sole order of nobility which, in my judgment, becomes a philosopher, is the rank which he holds in the estimation of his fellow-workers, who are the only competent judges in such matters".

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Distribution of Vanadium, Chromium, Cobalt and Nickel in Eruptive Rocks

WHEN analysing the rock differentiation suite of the Skaergaard intrusion, Greenland, L. R. Wager and R. L. Mitchell[1] found a most interesting distribution of the above trace elements, which are comparatively immobile.

TABLE 1. THE SKAERGAARD INTRUSION (EARLY ROCKS MENTIONED FIRST; THE CONCENTRATIONS CALCULATED AS WEIGHT PER CENT; SPECTRUM ANALYSIS).

	Gabbro-picrite	Olivine-gabbro	Middle gabbro	Horton-olite-ferro-gabbro	Late basites, $M(n=3)$*	Acid grano-phyre
V	0·010	0·020	0·026	0·004	0–tr.	0·0010
Cr	0·115	0·023	0–tr.	0–tr.	0–tr.	0·0003
Co	0·008	0·007	0·004	0·006	0·0020	0·0003
Ni	0·06	0·020	0·0025	0–tr.	0·0001†	0·0005

* Includes a basic granophyre. † Two members have given 0–tr.

Independently, I determined the content of several trace elements on intrusive rocks from Eastern Upland, Sweden. The following concentrations were obtained (for explanations, see Table 1).

TABLE 2. NORMAL DIFFERENTIATION SUITE, EASTERN UPLAND.

	Pyroxenite-hornblendite	Basic quartz-gabbro	Diorite	Late Diorite	Granite, $M(n=2)$
V	0·033	0·05	0·025	0·0025	0·0040
Cr	0·015	0·0085	0·0005	0	0·00040
Co	0·0040	0·0040	0·0048	0·0025	0·0011
Ni	0·012	0·009	0·0075	0	0·0010

TABLE 3. LATE, ABNORMAL DIFFERENTIATION SUITE, EASTERN UPLAND.

	Peridotite	Allivalite	Ultra-basic norite	Amphibole-gabbro	Microcline-granite
V	0·006	0·0015	0·10	0·035	(tr.)
Cr	0·0005	0·00013	0·00020	0	0·00010
Co	0·020	0·006	0·0065	0·0023	0·00005
Ni	0·045	0·012	0·0020	<0·00002	0·00005

Comparing Tables 1–3, it might be assumed that the amounts of Fe + Mg are to be regarded as similar in each member, according to the analyses. We may here point out the striking resemblance between Table 1 and Table 2, whereas the rocks of Table 3 in part display a different behaviour of the actual elements. The problem will be dealt with more fully in a later paper.

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[1] *Min. Mag.*, **26**, 286 (1944).

Intensities of Light Absorption

IT is an interesting and well-known fact that the order of magnitude of the highest extinction coefficients recorded for the absorption of light rarely exceeds $\varepsilon \sim 10^5$, where ε is the molecular extinction coefficient.

The problem of absorption intensity can be approached in a simple way, as follows. Consider light of intensity I falling on a slice of thickness dl of a cell of unit area filled with the vapour or a dilute solution in a transparent solvent of the absorbent at a concentration of c gm.-mol. per litre. Let the *average effective absorbing area* ('*chromophore area*') of the absorbing molecules in the plane perpendicular to the incident light be a. Then

Illumination falling on absorbing molecules

$$= \frac{\text{Area of absorbing molecules}}{\text{Total area}} \times \text{Total illumination}$$

$$= \frac{cNadl}{1000} I ;$$

and

$$\text{Illumination absorbed} = -dI = F\frac{cNadl}{1000} I ;$$

where F will be termed the *light extinction factor* and represents the fraction of the light falling on the absorbing molecules which is absorbed, and N is the Avogadro number. Integrating between the limits $l = 0$ and $l = l$

$$\varepsilon = \frac{1}{cl}\log_{10}\frac{I_0}{I} = \frac{FNa}{2{\cdot}3\times 1000} = 2{\cdot}64\times 10^{20}Fa \qquad (1)$$

If a is taken as the largest cross-sectional area ($[a]$) of the molecule and F put equal to unity, (1) yields the maximum possible value ($[\varepsilon]$) of ε for that molecule. For a simple molecule, $[a]$ is of the order of 10 A.^{2}, hence $[\varepsilon] \sim 10^5$.

Both classical electromagnetic theory and quantum-mechanics lead to the expression