

appearance of the glide lines in the left one is quite normal, their continuation at the other side of the twin boundary in the right one must be considered as remarkable. On the view expressed above, their appearance might be conceived as caused by a process of gliding 'induced' in the right crystal by the glide process taking place in the left crystal (Gough *et al.* remark that the presence of a crack in the neighbourhood of the boundary may have influenced the distribution of stresses and in this way have caused the occurrence of gliding in the crystal to the right).

The possibility must be kept in mind that the process described by us as a stimulation does not exist in reality and is actually caused by an 'error' in the deposition of a layer of atoms along the octahedral plane, giving rise to the occurrence of the twin orientation. In that case it seems still more difficult to imagine in which way the experimentally observed difference in velocity of growth of the two parts of the twin comes into existence. Perhaps this second mechanism is the normal one for such metals as nickel, copper and nickel-iron, which twin frequently, producing twin lamellæ with straight boundaries.

Further particulars will appear in *Rec. trav. chim. Pays-Bas.*

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New Ultra-Violet Band-Systems of SiS, SiSe and SiTe

THE purpose of this note is to record new spectroscopic data for the molecules SiS, SiSe and SiTe. These are members of a group of twenty molecules formed from Group IV and Group VI elements, each of which (with the single exception of CTe) has been shown by earlier work¹ to give rise to at least one strong ultra-violet band-system, generally appearing readily in emission. Many of these systems have also been observed in absorption: it is convenient to call them $D \rightarrow X$ systems. The existence of weaker $E \rightarrow X$ systems, lying to shorter wave-lengths than the $D \rightarrow X$ systems of GeS, SnO, SnS, SnSe and SnTe^{1,2} suggested that other members of the group should possess similar E states.

We have examined the absorption of SiS, SiSe and SiTe vapour at temperatures of the order of 900°–1,000° C. in the ultra-violet region ($\lambda > 2050 \text{ \AA}$). The source was a hydrogen tube, and the spectra were photographed in a Hilger medium quartz instrument, a large Littrow spectrograph and in a first order of a 2.4 m. grating. For all three species the $D \rightarrow X$ and the expected $E \rightarrow X$ systems were observed. The former observation provides direct evidence that the $D \rightarrow X$ systems of these molecules all involve the ground-states. Vibrational analyses of the bands of the $E \rightarrow X$ systems have been carried out: the results are summarized in the following equations for the positions of the band-heads:

$$\begin{array}{l} \text{SiS} \quad \nu(\text{head}) = 42720.6 \quad - [749.5u' - 2.56u'^2] \\ \quad \quad \quad \quad \quad \quad \quad + [400.7u' - 2.31u'^2 - 0.01u'^3] \\ \text{SiSe} \quad \nu(\text{head}) = 38505.9 \quad - [580.0u' - 1.78u'^2] \\ \quad \quad \quad \quad \quad \quad \quad + [308.8u' - 1.95u'^2 - 0.032u'^3] \\ \text{SiTe} \quad \nu(\text{head}) = 33991.3 \quad - [481.2u' - 1.30u'^2] \\ \quad \quad \quad \quad \quad \quad \quad + [242.0u' - 3.63u'^2 + 0.13u'^3], \end{array}$$

where $u = \nu + \frac{1}{2}$.

In these equations, the expression for the ground-state vibrational levels of SiS has been taken from the analysis of the $D \rightarrow X$ system without modification: new measurements of bands of the $D \rightarrow X$ systems of SiSe and SiTe from the absorption plates have led to slight departures from the original values based on measurements of the systems as developed in emission.

The rather close analogy between the spectroscopic properties of isoelectronic molecules of this group previously noticed¹ is strengthened by the data for the new systems:

Number of extranuclear electrons = 48.

State	GeS	ν_e	ω_e	k_e	SiSe	ν_e	ω_e	k_e
E	38890	310.4	1.27		38506	308.8	1.16	
D	32890	375.0	1.85		32449	403.4	1.99	
X	0	575.8	4.36		0	580.0	4.11	

Number of extranuclear electrons = 66.

State	SnS	ν_e	ω_e	k_e	GeSe	ν_e	ω_e	k_e
E	33037	294.3	1.29		35000	—	—	—
D	28338	331.9	1.64		30432	272.4	1.68	
X	0	487.7	3.53		?	406.8	3.75	
	State		ν_e	ω_e	k_e			
	E	SiTe	33991	242.0	0.79			
	D		28664	335.7	1.52			
	X		0	481.2	3.13			

In this table, ν_e and ω_e are the electronic energy and the vibration frequency in cm^{-1} , k_e is the force constant in $\text{dynes/cm} \times 10^{-5}$. These results make it appear likely that the weak bands observed in the emission spectrum of GeSe at shorter wave-lengths than the main system³ are in fact part of a poorly developed $E \rightarrow X$ system ($\nu_e \sim 35,000 \text{ cm}^{-1}$) analogous to those of SnS and SiTe.

The corresponding systems for the lighter members of this group would be expected to lie in the vacuum ultra-violet region, and are thus outside the scope of the present investigation. The absorption spectra of some of the heavier members have recently been examined in the ultra-violet region, and systems apparently involving yet higher excitation than E levels have been found. The results of this work will be published in due course.

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Influence of Different Synthetic Oestrogenic Compounds on the Egg-Laying Capacity and the Growth of Poultry

IN earlier experiments¹ the influence of the synthetic oestrogenic compound triphenylethylene on the growth and egg-laying capacity of poultry was investigated. It was found that hens treated with this synthetic product were slightly heavier in weight than the untreated birds. The difference in weight was more striking in female turkeys, where the percentage increase in weight was 311.48 in the case of those taking triphenylethylene, compared with 244.65 in the control group. The compound was found to have no beneficial effect on the egg-laying of female turkeys.

A new experiment has been carried out to examine the effect of different synthetic oestrogenic compounds on the growth and egg-laying capacity of hens. The compounds tested were stilbene² (symmetrical diphenylethylene), triphenylethylene^{3,4}, triphenyl-