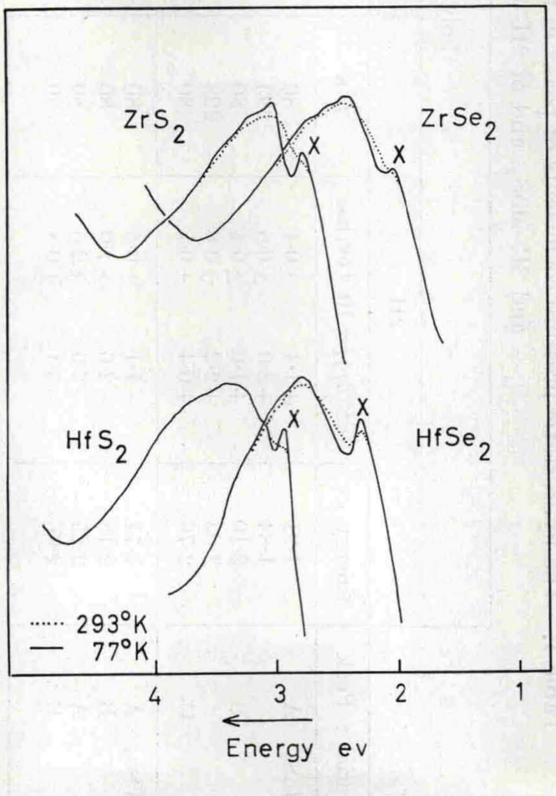
Table 1. The hydrostatic pressure coefficients of peaks in the optical absorption spectra of 2H– and 3R–MoS_2, and of 2H–WSe_2

		Polytype					
		2H			3R		
Material	Peak	Energy ev	$(\partial E/\partial p)_T \times 10^{-6}$ ev/bar	T°K	Energy ev	$(\partial E/\partial p)_T \times 10^{-6}$ ev/bar	T°K
MoS_2	A	1·91	+1·4 ±0·4	80	1·90	+0·9 ±0·3	80
		1·84	+2·0 ±0·6	293	1·85	+1·1 ±0·5	274
	B	2·10	+1·6 ±0·4	80	2·06	+1·2 ±0·3	80
		2·03	+2·2 ±0·6	293	2·00	+1·5 ±0·5	274
	C	2·76	+0·4 ±0·1	80			
WSe_2	A	1·71	+1·1 ±0·4	80			
	B	2·18	+2·6 ±1·0	80			
	A′	2·25	−2·6 ±0·5	80			
	B′	2·66	−3·1 ±0·8	80			

One crystal of 2H–MoS_2 was peeled to a thickness of less than 400 Å—a pale green colour—which allowed a measurement to be made of the pressure coefficient of the C peak (see fig. 1). Simultaneous observation of the A and B peaks showed that A and B were moving at a rate approximately ten times faster than the known pressure coefficients for these peaks. The crystal was presumably strained by an amount determined by the compressibility of the adhesive tape. The apparent pressure coefficient of peak C was therefore reduced by a factor of ten before inclusion in table 1. The value is so small that it probably would have been unmeasurable without this fortuitous effect. It appears that the effect of adhesive tape as a substrate is important only for crystals much thinner than 1000 Å.

The helium gas pressure system and the optical system used in this work have been described previously (Grant, Liang and Yoffe 1970). The pressure range available was 0–6 kilobars.

Fig. 2



The optical transmission spectra, after Wilson and Yoffe, of zirconium sulphide and selenide, and of hafnium sulphide and selenide, at room temperature and liquid nitrogen temperature.