

Talbot & James to be told in editorial files.

"On the stability of laminar boundary-layer flow over a flat plate with a compliant surface"; by P.K. Sen & D.S. Anura

TABLE I

TOLLMIEN-SCHLICHTING MODE-CLASS. DATA

$R=2562.8$ $\alpha=0.733$ $m=2.0$

$ \Phi_w $	θ (degrees)	c_r	c_i	γ_r	γ_i	c_o	d
0.0*		0.35641	0.01009				
0.1	0	0.34927	0.01130	-0.00104	0.05306	2.09061	0.09945
0.1	45	0.35075	0.00550	-0.03804	0.03720	1.73840	-6.60930
0.1	90	0.35518	0.00370	-0.05361	-0.00037	0.39618	-9.33261
0.1	180	0.36296	0.00952	0.00883	-0.05432	2.13904	1.21384
0.1	270	0.35716	0.01746	0.05376	0.00162	0.09504	9.27956
0.1	315	0.35185	0.01603	0.03663	0.03872	1.77579	6.73381
0.5	0	0.32165	0.01142	-0.00482	0.25323	0.87416	0.02885
0.5	60	0.33797	-0.01522	-0.22221	0.13584	0.39006	-1.68079
0.5	90	0.35164	-0.02035	-0.26627	0.00895	0.30611	-1.84945
0.5	180	0.38953	0.00212	0.00089	-0.28422	1.04241	-0.00713
0.5	270	0.36218	0.04869	0.27111	0.02286	0.23633	1.78064
0.5	300	0.34006	0.04541	0.21515	0.14760	0.62786	1.65843

Note: *, Rigid wall case.

TABLE 2

KELVIN-HELMHOLTZ MODE-CLASS. DATA

R=2562.8

 $\alpha=0.733$

m=2.0

$ \phi_w $	θ (degrees)	c_r	c_l	Y_r	Y_l	c_o	d
0.1	0	-0.00401	0.00365	-0.00020	0.03133	0.39961	-14.64041
0.1	60	-0.00350	-0.00246	-0.02717	0.01567	0.23855	-8.20066
0.1	90	-0.00113	-0.00432	-0.03148	0.00006	0.02704	-15.76178
0.1	120	0.00172	-0.00475	-0.02742	-0.01573	0.39869	7.96008
0.1	180	0.00619	-0.00177	-0.00000	-0.03178	0.37930	4.51150
0.1	240	0.00626	0.00364	0.02760	-0.01572	0.29853	9.14279
0.1	270	0.00429	0.00584	0.03168	0.00027	0.045851	15.95225
0.1	300	0.00135	0.00678	0.02717	0.01604	0.622921	54.01483
1.0	0	-0.08876	0.03706	-0.01215	0.28350	0.50951	-0.86476
1.0	60	-0.03252	-0.05319	-0.25256	0.16729	0.39054	0.19286
1.0	90	-0.00281	-0.05000	-0.31356	0.01835	0.34035	0.14022
1.0	150	0.02692	-0.03009	-0.17239	-0.27645	0.33046	0.68771
1.0	180	0.03533	-0.01886	-0.00666	-0.32901	0.30933	0.80782
1.0	210	0.04174	-0.00614	0.16440	-0.28798	0.27921	0.94924
1.0	270	0.04731	0.03289	0.33350	0.01451	0.053951	1.49344
1.0	300	0.03239	0.06929	0.26759	0.18793	0.45902	3.02985

TABLE 3

RESONANT MODE-CLASS. DATA

R=2562.8

 $\alpha=0.733$

m=2.0

$ \phi_w $	θ	c_r	c_l	Y_r	Y_l	c_o	d
(degrees)							
7.0	0	1.99882	-0.01104	0.00740	-1.11429	2.28451	0.02165
7.0	45	1.03792	-0.53436	2.89594	-0.17794	1.17548	0.96082
7.0	90	0.86703	-0.38173	8.56254	5.57165	0.92723	0.58889
7.0	180	0.76104	-0.07810	-0.45570	-5.88927	0.82087	0.11663
7.0	270	0.80356	0.26017	-13.36750	51.44411	0.83808	-0.38083
7.0	330	1.29311	0.62834	-1.67903	-0.75899	1.52009	-1.22273
24.0	0	1.12560	0.00840	-0.09507	-4.76462	1.19505	-0.01519
24.0	60	1.02092	-0.09802	1.65034	-6.16630	1.07622	0.17121
24.0	90	0.98915	-0.07692	1.22838	-6.84852	1.03940	0.13095
24.0	120	0.97837	-0.06967	0.91929	-6.96544	1.02796	0.11647
24.0	180	0.94848	-0.02779	-0.30274	-7.10524	0.99567	0.04580
24.0	270	0.98174	0.10246	-1.68998	-7.03440	1.03213	-0.17336
24.0	330	1.09931	0.08259	-1.10530	-4.98527	1.16597	-0.14945

The figure numbers belong to an earlier version of the paper, not that published.

FIGURE 14. Curves for wall pressure (\bar{p}_w , \bar{p}_w^i), wall displacement (\bar{a}_1 , \bar{a}_1^i), pressure to displacement phase difference $\theta_{pa}[\arg(\bar{p}_w) - \arg(\bar{a}_1)]$, c_1 and c_2 versus θ , with $|\bar{\phi}^w| = 0.1$. Results are for the KH mode-class.

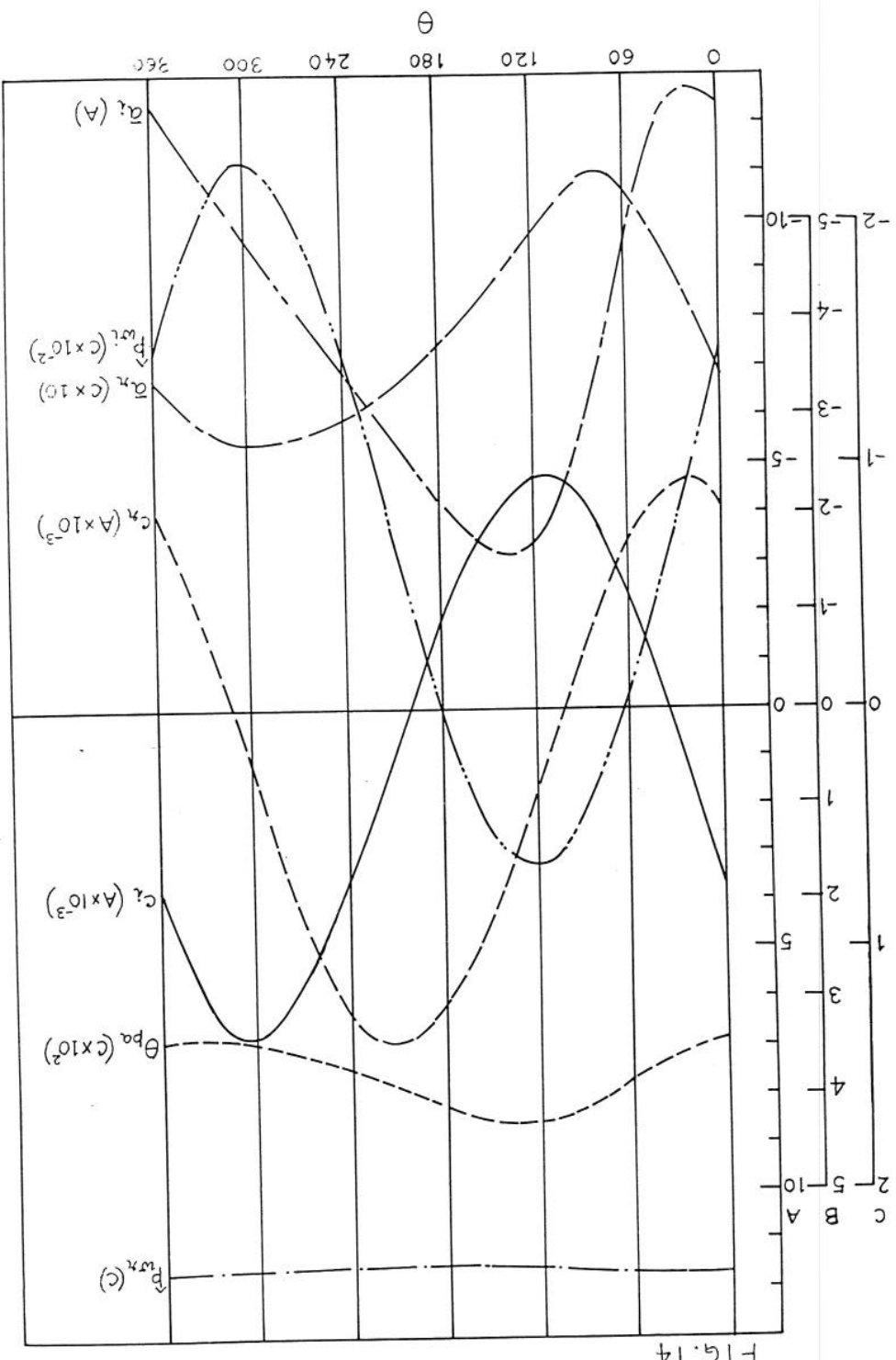


FIG. 14

FIGURE 15. Normalized curves for c_r and c_l , viz. $\frac{|\phi_w|}{c_r}$, $\frac{|\phi_w|}{c_l}$ versus θ , for different value of $|\phi_w|$ in the range $|\phi_w| \leq 0.1$. Results are for the KH mode-class.

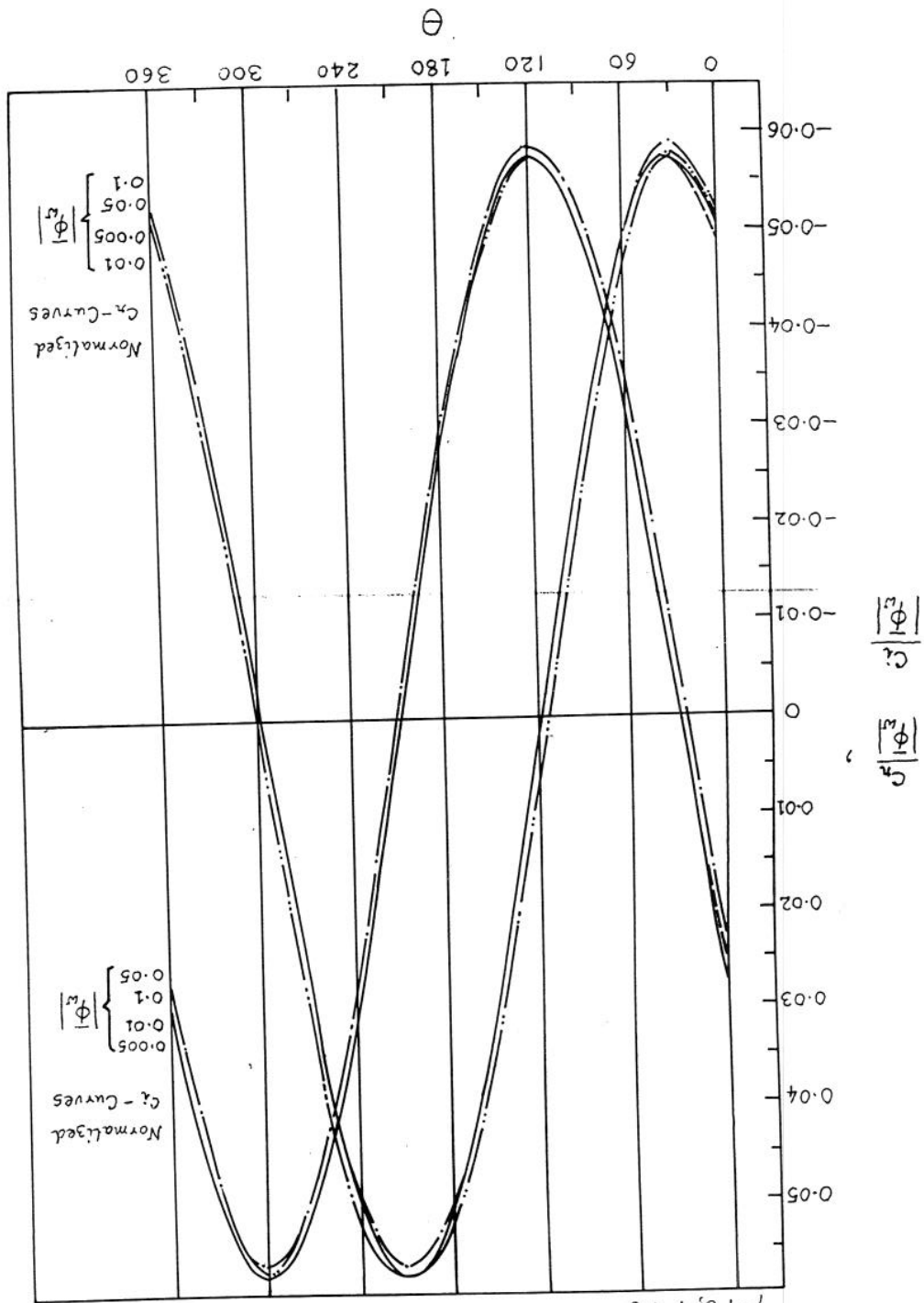


FIG. 15

FIGURE 16. Normalized curves for c_r and c_l , viz. $\frac{c_r}{c_l} \frac{|\phi_w|}{|\phi_l|}$ versus θ , for different values of $|\phi_w|$ in the range $0.1 < |\phi_w| < 1.5$. Results are for the KH mode-class. Distortion of the sinusoidal character of the plots is obvious for higher value of $|\phi_w|$.

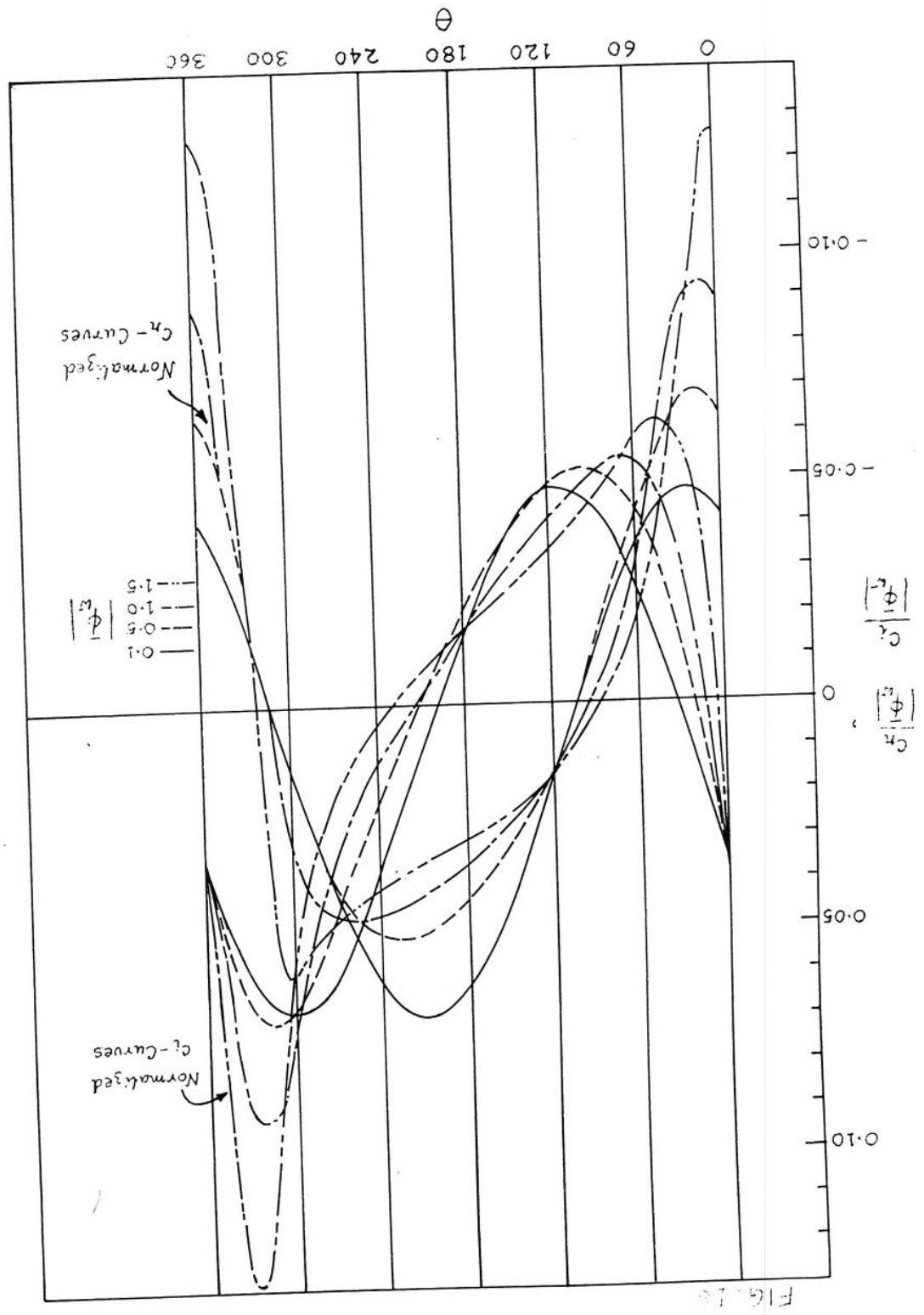


FIG. 16

FIGURE 17. Curves for wall pressure (p_w , p_{wi} , wall displacement (a_r , a_i), pressure to displacement phase difference (θ_r , θ_i), c_r and c_i versus θ , with $|\phi_w| = 24$. Results are for the R mode-class.

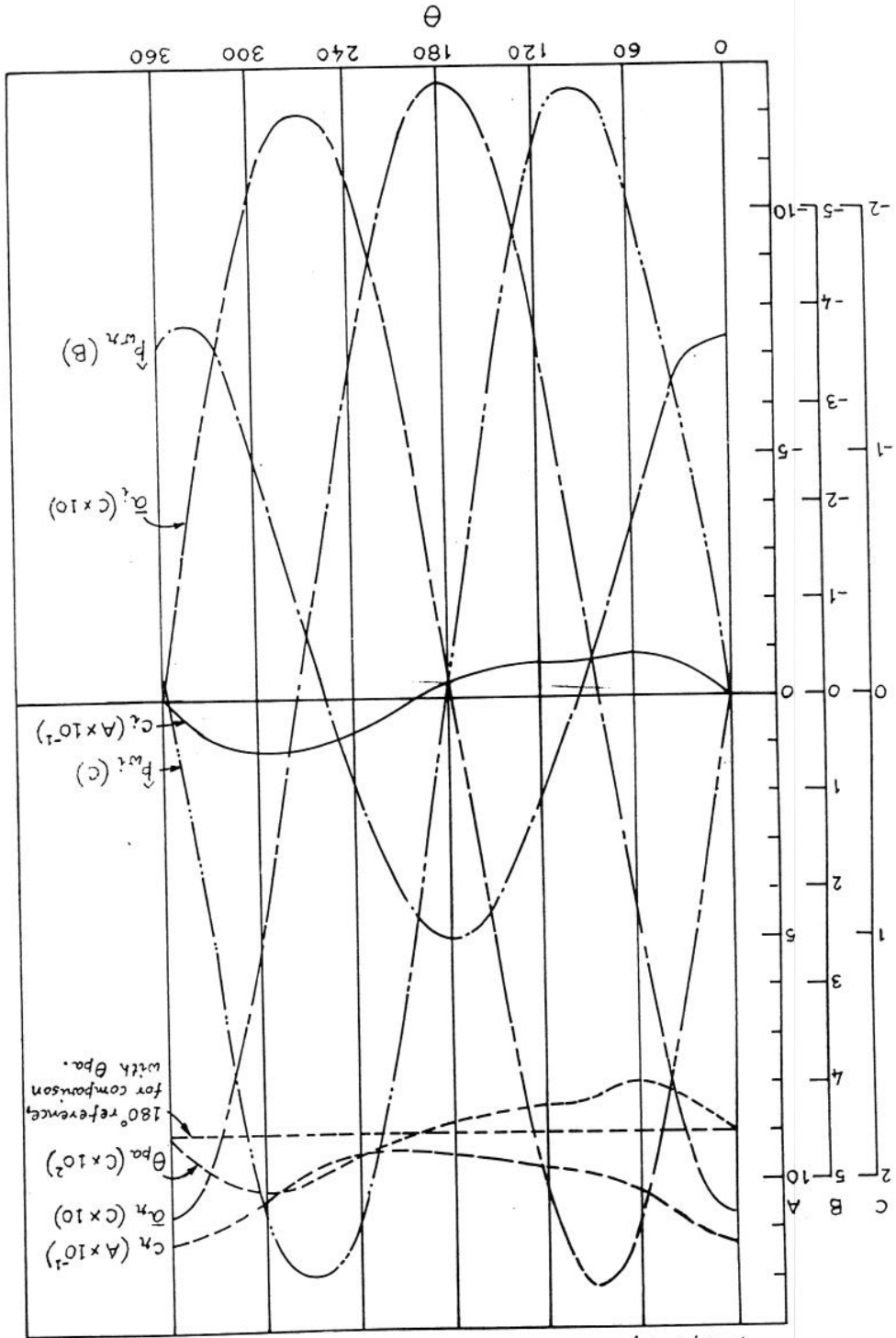


FIG. 17

FIGURE 23. Back calculated values of c_0 and d plotted versus θ , with $|\phi_w| = 7$. Results are for the R mode-class for a comparatively low value of $|\phi_w|$.

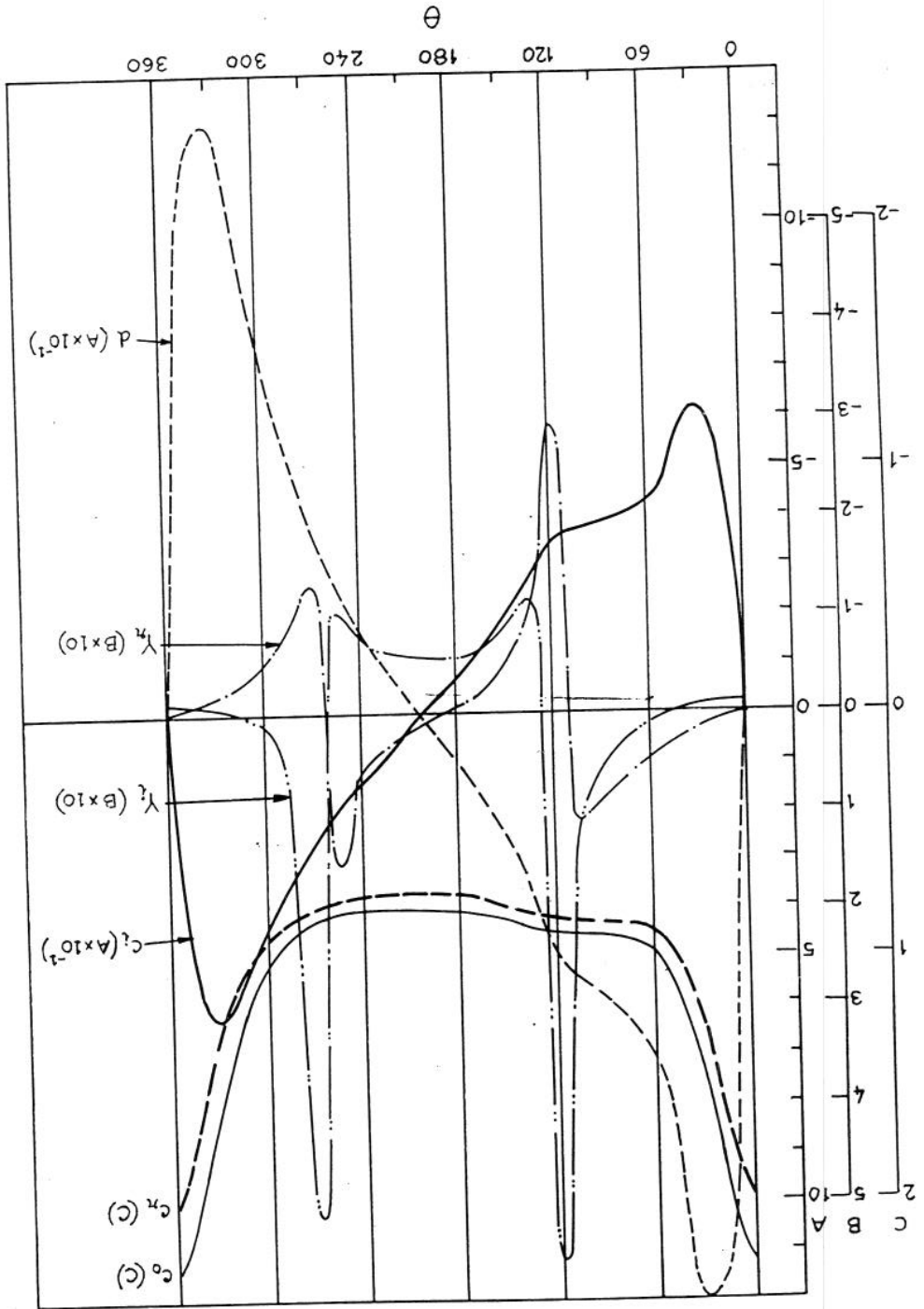


FIG. 23