

which the everglade kite subsists in Florida is *Pomacea paludosa*, not *P. paludis*. The photograph captioned "The Everglades, Florida" is a view of mangrove swamp forest along the lower Shark River, a tideway of the Everglades estuary, near the Gulf of Mexico. This area is not typical of the Everglades, which is chiefly a freshwater marsh with small islands of trees, nor is it everglade kite habitat.

Yours faithfully,

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The McCarthy Study

SIR,—The McCarthy Report recognizes from the outset that attempts to predict the absolute number of scientists and technologists required by the British economy are most likely to be unsuccessful and concentrates instead on attempting to predict the relative proportion of specialist scientists to generalist scientists. Unfortunately, the report does this by averaging over different disciplines in an inadmissible way. In fact, if one breaks the result down into different disciplines the result, including management in the research and development figures, is as follows:

Table 1. EMPLOYMENT OF SCIENTISTS AND ENGINEERS IN AMERICAN INDUSTRY BY DISCIPLINE FOR 1962 AND 1963*

	1962	Total	Engineers	Physicists	Chemists	Maths.
All industries	851,600	884,800	18,900	81,600	14,700	
R&D	303,800	220,900	11,800	45,500	7,800	
Per cent	35	32	85	56	53	
Manufacturing	630,400	489,800	11,400	69,300	9,800	
R&D	267,200	194,600	9,700	40,500	6,100	
Per cent	42	40	85	58	62	
1963						
All industries	871,400	711,600	14,500	74,300	20,400	
R&D	344,900	260,900	12,500	43,800	10,900	
Per cent	40	37	86	59	53	
Manufacturing	653,500	521,600	11,000	65,800	12,600	
R&D	300,800	230,300	9,600	39,100	7,500	
Per cent	46	44	87	59	60	

* Taken from *Statistical Abstracts of USA 1964*, 1966 quoting as source NSF US Department of Labour, Bureau of Labour Statistics.

From the table it can be seen that as far as physics is concerned, and to a lesser extent chemistry and mathematics, the great majority should be trained as specialists so that unless we are able to predict absolute numbers we are no further forward. The breakdown of the figures for the United Kingdom into various disciplines does not seem to be available, but as far as basic research is concerned perhaps one might find a clue by examining the sources of papers submitted to the *Physical Review* and to corresponding British journals—*Proceedings of the Physical Society* and *Philosophical Magazine*.

Table 2.

Classification	Educat. (1)	Govt. Lab (2)	Industry (3)	1+2	1+3	2+3
UK (<i>Proc. Phys. Soc.</i> and <i>Phil. Mag.</i>) %	77	14	2	4	0.6	—
USA (<i>Phys. Rev.</i>) %	67	9	17	2.8	3.7	0.5

Origin of papers in *Phys. Rev.* 164 and 165 compared with the same for *Phil. Mag.*, July 1967—October 1968 and *Proc. Phys. Soc.* May to December, 1967.

The results are set out in Table 2 for a more or less random sample of issues of the various journals. It may well be true that a major part of the contribution from

American industry to the *Physical Review* represents prestige projects, but presumably this is intended to attract good physicists into industry and subsequently to interest them in more immediately profitable research. In conclusion, until some more satisfactory method is found for estimating future requirements of trained manpower, it would seem to be very unwise to reduce the number of specialist physicists in favour of generalists.

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ERRATUM. A mistake occurred in the article "Spectral Properties of the X-Ray Objects GX 3+1, GX 354-5 and Sco XR-1" by G. Buselli *et al.* (*Nature*, 219, 1124; 1968), because of an inadvertent alteration made in the *Nature* office to the original typescript. It was stated in the article that the spectra of GX 3+1, GX 354-5 and Sco XR-1 suggest that these three X-ray objects are similar to one another. The data are at variance with this statement, and in fact the authors' conclusion is that GX 3+1, Cyg XR-1 and Tau XR-1 possess similar spectra, and are probably due to similar celestial objects. One of the authors, K. G. McCracken, has written to stress how this conclusion was reached:

"Our measurements of GX 3+1 above 20 keV show a good fit to a power law photon number spectrum given by

$$\frac{dN}{dE} = 3.4 E^{-2.0 \pm 0.2} \text{ photons cm}^{-2} \text{ s}^{-1} \text{ keV}^{-1}$$

which, when extrapolated to lower energies, is in reasonable agreement with the results of Gursky *et al.* (*Ap. J.*, 150, L75; 1967) and Bradt *et al.* (*Ap. J.*, 152, 1005; 1968). Furthermore, we note that other workers have obtained power law photon number spectra for Tau XR-1 and Cyg XR-1; for example, Peterson *et al.* (*Proc. Tenth Intern. Conf. Cosmic Rays, Calgary; 1968*) quote

$$\frac{dN}{dE} = \begin{cases} 3.50 E^{-1.91} & \text{Tau XR-1} \\ 3.58 E^{-1.93 \pm 0.2} & \text{Cyg XR-1} \end{cases}$$

The spectral exponents in the spectra of GX 3+1, Tau XR-1 and Cyg XR-1 are statistically identical, while there are other objects known to exhibit markedly different spectral characteristics (our paper shows that Sco XR-1,

for example, has $\frac{dN}{dE} \sim E^{-3.8 \pm 0.4}$ above 20 keV). This sug-

gests that the three X-ray objects GX 3+1, Tau XR-1 and Cyg XR-1 are physically similar to one another. The fact that Tau XR-1 is known to be a supernova remnant, the spectral shape itself suggesting that the X-ray emission from Tau XR-1 may be due to magnetic bremsstrahlung, suggests a similar explanation for GX 3+1 and Cyg XR-1".

CORRIGENDUM. The last paragraph of the article "Surface Forces: Direct Measurement of Normal and Retarded van der Waals Forces" by D. Tabor and R. H. S. Winterton (*Nature*, 219, 1120; 1968) should read: We thank Professor F. P. Bowden for his constant interest in this work, which was carried out with the valuable support of the Gas Council. One of us (R.H.S.W.) thanks the SRC for his research studentship.