system at 3360 A., except that the triplet separation is smaller than for NH. It has been impossible to number the branches down to origin on account of the unresolved Q branches, but from the difference in the values of the constants (B, D) and the l-uncoupling in the first members, it has been evident that the band belongs to a $^3\Sigma \rightarrow {}^3\pi$ system, following case b.

A perturbation in the upper state (P (20), R (18)) has been a valuable help for numbering the branches.

The following constants have been obtained.

$^3\pi_0$	$^3\pi_1$	$^3\pi_2$	$^3\Sigma$
$B = 6{\cdot}721$	$B = 6{\cdot}704$	$B = 6{\cdot}703$	$B = 6{\cdot}760$
$D = -0{\cdot}000426$	$D = -0{\cdot}0004$	$D = -0{\cdot}0004$	$D = -0{\cdot}000436$
$F = -2{\cdot}12 \times 10^{-8}$	$F = -0{\cdot}85 \times 10^{-8}$	$F = -0{\cdot}35 \times 10^{-8}$	$F = -1{\cdot}58 \times 10^{-8}$
$J = 4{\cdot}12 \times 10^{-40}$			$J = 4{\cdot}097 \times 10^{-40}$
$r = 1{\cdot}61$ A.	$\nu_0 m = 26221{\cdot}81$ cm.$^{-1}$		$r = 1{\cdot}605$ A.
$\omega = 1688$ cm.$^{-1}$			$\omega = 1683$ cm.$^{-1}$

Besides the (0, 0) band, the Q branch of the (1, 1) band has been observed close to the origin of (0, 0). No other bands have been obtained.

The (0, 0) band shows predissociation in the upper state (P (26), R (24)) analogous to the $^1\pi \rightarrow {}^1\Sigma$ system, and accordingly we calculate for the energy of dissociation $D = 0{\cdot}519$ v. ($^3\Sigma$).

A full report will appear later in connexion with the analysis of the band system at 3600 A.

W. HOLST.

Laboratory of Physics,
University of Stockholm.

Phosphorescence and Finger-Prints

SOME recent experiments carried out by us indicate that the use of phosphorescent powders for the photography of finger-prints ensures satisfactory results where the ordinary methods fail.

Finger-prints occurring on an article having a multi-coloured or highly patterned background cannot be satisfactorily photographed with the help of the grey or black powders commonly used, owing to the interference of the background with the pattern of the digital impression. It was thought that if a phosphorescent material were used as the dusting powder and the photograph taken by utilising only the phosphorescent light from the finger-print, a result free from the blurring effect of the background would be obtained. The feeble luminosity of the phosphorescent print necessitated fairly long exposures and frequent re-illumination of the phosphorescent powder. These were provided for as follows: the surface containing the powdered finger-print was placed horizontally in a light-tight box having two apertures in its upper face. Over one aperture was supported a vertical camera focused on the finger-print and over the other was fixed a tungsten or tungsten alloy arc. A slowly rotating sector served to ensure that only one of these apertures was open at any moment. Very fast Ilford hypersensitive panchromatic plates, when intermittently exposed in this way for twenty minutes, gave good results. A negative, which was found to be even better for purposes of detection, was obtained by using Ilford rapid process panchromatic plates. This gave greater contrast and was at the same time free from background fog. For these much slower plates, 'exposures' of forty minutes were required.

Photographs taken in this way of finger-prints on backgrounds showing strong reflection contrasts, for example, a tin box printed in black and white stripes, showed that the background had some slight effect, for the parts of the negative corresponding to the white stripes were somewhat denser than the parts corresponding to the black stripes. This would appear to be due to the feeble illumination of the background in its immediate vicinity by the phosphorescent powder. Slight interference of this kind, however, is not serious, as the pattern of the finger-print stands out strongly in all parts of the negative. The powder actually used was phosphorescent zinc sulphide. Great care must be taken to remove excess powder from between the ridges of the finger-print either by means of a soft camel-hair brush or by gentle blowing.

The use of fluorescent powders was also investigated, but the difficulty encountered here was that of excluding visible radiation from the source of the ultra-violet light. Wood's glass and a Jena filter, U.G.2., either alone or in combination with a saturated solution of copper sulphate, proved inadequate for this purpose, and although photographs of fluorescent prints (through protex glass) were obtained after exposures of about ten minutes, the background appeared so dense in the negative as to mask seriously the lines of the finger-print. Rather better results were then obtained by using an ultra-violet filter of solutions of cobalt chloride and nitrosodimethylaniline and photographing the fluorescent light through protex glass. In this case a fast plate, insensitive to orange and red light, was used.

In the meantime Superintendent Else of Buxton and Inspector Evans of the Derby C.I.D. have succeeded in obtaining excellent photographs, free from background, by using very pure, finely powdered anthracene, which adheres particularly well to the ridges of the finger impressions. To eliminate the heat rays it is found advantageous to interpose a plate of Chance's calorex glass between the source of ultra-violet and the Wood's glass.

A detailed description of these experiments will appear elsewhere. The phosphorescent work was carried out in collaboration with Inspectors Pentland and Doubleday of the Nottingham C.I.D.

HENRY L. BROSE.
C. G. WINSON.

University College,
Nottingham.
July 10.

Centralisation of Anthropological Studies

THE centralisation of anthropological studies in Great Britain, to which attention is directed in NATURE, July 22, pp. 113–5, is no new problem. Beginning with the fusion in 1871 of the old Anthropological and Ethnological Societies to form what is now the Royal Anthropological Institute, there have been several attempts to co-ordinate and improve the provision, both for research and for teaching, in this wide and complicated group of studies. There is a summary of them in the Institute's *Journal*, vol. 59, 1929, under the title "The Science of Man in the Service of the State".

Hitherto all those projects have been hampered by public indifference and postponed for lack of funds; and since the failure of the project for an Imperial Bureau of Ethnology—promoted by the British Association for the Advancement of Science in 1896, and 1898, accepted in principle by the British Museum, and accidentally overlaid by its fostermother—all that has seemed to be practicable has been to avoid overlap, and encourage co-operation, among the numerous bodies which have been