precipitation, the rainfall being especially abundant during the passing of the convergence.

To show further proof of this influence of the intertropic zone of convergence, the 11-year totals for the pressure at Hongkong are given in Fig. 2. This quantity may be regarded as being representative of the intensity of the Siberian pressure maximum, and therefore to be determining very largely the convergence displacements over Indonesia. The connexion already follows from the figures. High pressure at Hongkong is accompanied by a maximum of precipitation in West Java, and a minimum at Pontianak. The correlation coefficient between the 11-year totals for the pressure at Hongkong and the 11-year totals for the precipitation in West Java is + 0·55 with a standard error of 0·10.

These results show clearly that variations of circulation occur not only in moderate latitudes, but also in the tropics.

We intend to discuss elsewhere in some detail the problem of recent climatic variations in Indonesia.

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The Lithium-7 Nucleus

Observations by Rose and Wilson[1] in the reaction $^{10}B(n,\alpha')^{7*}Li(\gamma)^{7}Li$ and by Littauer[2] in $^{7}Li(p,p')^{7*}Li(\gamma)^{7}Li$ have shown that the 480-keV. gamma ray is emitted isotropically in these reactions. In the former experiment the yield of radiation was measured relative to the direction of emission of the short-range alpha particle. In the latter case it was determined with respect to the incident proton. These observations constitute strong evidence that the spin of the 480-keV. state is $\frac{1}{2}$, although in both cases the lack of a correlation could arise from other special circumstances. Accordingly, we have looked for a correlation between the short-range proton and the gamma-ray in the $^{6}Li(d,p')^{7*}Li(\gamma)^{7}Li$ reaction.

A thin target of lithium-6, prepared in a mass spectrograph[3] and maintained constantly under vacuum, was bombarded with 0·80 MeV. deuterons from an electrostatic generator. The protons and the gamma rays from the reaction were detected with suitable scintillation counters, and successive proton-gamma emissions were observed by operating the counters in coincidence. The particle detector was placed so as to observe protons emitted in the direction of the incident beam. The gamma-ray counter was operated at angles varying between 35° and 145°. Despite the relatively pure lithium-6 target and considerable shielding, the accidental coincidence-rate was high, with resolving times of somewhat more than 10^{-8} sec., when beam currents were used large enough to make the rate of detection of real coincidences reasonable. Provision was made therefore for constantly monitoring the accidental coincidence-rate. This was desirable also because of fluctuations in the counting-rate arising from the unsteady source[4].

The reaction itself was monitored by observing the single-channel counting-rate of the fixed proton counter, and also by means of a beam current integrator. The single-channel counting-rate from the gamma-ray counter was observed but was not a true measure of the yield of radiation of the reaction under study, because of the presence of other gamma-rays resulting from the deuteron bombardment of lithium-6 and target impurities.

The proton-gamma coincidence-rate was measured at nine settings of the gamma counter. Upward of 2,000 coincidences were obtained at each angle. The coincidence-rate per proton, corrected for small variations in the distance of the gamma counter, varied in a random fashion within the statistical limits of the measurements, which were between 5 and 10 per cent. A least-square analysis of these data into a cosine series gives a coefficient of $\cos^2\theta$ which is less than 3 per cent of the isotropic term. Because of the low recoil velocity of the lithium-7 nucleus in this experimental arrangement (9×10^{-3} c), the Doppler effect produces a negligible correction. A check was made on the amount of gamma-ray scattering present and the reality of the observed coincidences by placing lead absorbers in front of the gamma-ray detector at several gamma-angles. The results verified the nature of the coincidences, and indicated that the effects of scattering were small and not noticeably dependent on the angle.

This lithium-6 reaction differs from the boron-10 reaction investigated by Rose and Wilson[1], in that the compound nucleus beryllium-8 is not formed entirely by s-wave capture[5]. In the present experimental arrangement, however, the complexity of the correlation will be determined primarily by the properties of the excited state in lithium-7 and the subsequent radiation. The failure to detect a correlation in this experiment, therefore, is consistent with the assignment of $I = \frac{1}{2}$ to the 480-keV. state. Additional experimental details and a theoretical discussion will appear elsewhere.

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31-keV. Excited State of Aluminium-28

A recent accurate magnetic analysis of the proton groups from the reaction $^{27}Al(d,p)^{28}Al$ by Strait and his collaborators[1] showed the presence of an excited state in the residual nucleus of aluminium-28 at 31 ± 2 keV.

The existence of such a low-lying level in a light nucleus is of considerable interest. Predictions of the positions of the lowest nuclear levels have been made by considering the rotation of the nucleus as a whole[2,3], and the excitation energies thus calculated show reasonable agreement with the levels previously experimentally determined. However, the lowest rotational level for the aluminium-28 nucleus would be expected to have an excitation energy above 100 keV., and a level at 31 keV. could not be a simple rotational level. It is also unlikely that such a level could be explained on the basis of the nuclear shell model recently discussed by Mayer[4] as a splitting of the ground state due to spin-orbit interaction. In this connexion a knowledge of the multipole order of any gamma-ray transition between this level and the ground state would be of value.