possible space-groups are: T^2, T^3_h, T^2_d, O^3, O^5_h. Of these, if it is assumed that all the carbon atoms are crystallographically identical, and that all the hydrogen atoms are identical in this sense, only T^2 and T^2_d give 4 equivalent positions for the carbons and 16 equivalent positions for the hydrogens, but it is extremely doubtful whether this restriction can be applied, on account of the uncertainty concerning the symmetry of the hydrogen atoms in the well-known ammonium chloride structure. However, if this restriction is permissible, the symmetry of the carbon atom in solid methane is evidently either T or T_d.

Assuming as a first approximation that the carbon atoms are alone responsible for the scattering, a very satisfactory agreement between the observed and calculated intensities of reflection from the various planes (taking into account in the latter the Ponte reflecting power factor for the carbon atom in addition to the usual factors) is obtained. The question of intensities will be fully discussed later in a more complete account of the work.

Weissenberg has recently concluded from theoretical considerations that among substances of the type Ca_4 there is no reason why electrically symmetrical molecules (representing a tetrahedral structure) should not occur just as frequently as molecules with dipoles (pyramidal structure), hence the tetrahedral structure for solid methane demanded by the results of this research is evidently not in disagreement with the most recent theoretical conclusions on the subject.

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The Period of Human Gestation.

THERE is perhaps no problem of greater human interest than that of the factors which govern the duration of pregnancy and the onset of parturition, and any new information bearing upon the mechanism involved is of profound interest, not only to the gynæcologist and obstetrician, but also to biologists in general, and to the layman in particular.

No apology is necessary, therefore, for bringing to the attention of a wider scientific circle the important contribution by Prof. W. A. Jolly, of the University of Cape Town, in the *Journal of Obstetrics of the Eritish Empire*, vol. 35, No. 2, "On the Period of Human Gestation." Collaborating with his colleagues, and presumably by observations on European women, Prof. Jolly has brought forward a considerable body of evidence to demonstrate at least one cause of the fluctuations in duration of the gestatory period in human beings. Recognising the fundamental physiological comparison between the menstrual and gestatory phenomena, he has shown:

(1) That the period of human gestation is intimately related to the length of the mother's menstrual cycle in any particular case.

(2) That the physiological period of gestation extends customarily over eleven cycles, counting from the middle day of the last menstrual flow, and not ten cycles as is currently assumed.

(3) That this law holds good in pregnancies in which the maternal cycle is short. When the cycle is of 24 days and regular, the pregnancy, counting from the last menstrual flow, lasts for 264 days (that is, 11 cycles). In 26-day-cycle cases, the pregnancy lasts for 286 days.

(4) That in long-cycle cases—27 days and upwards—the law is commonly modified by a complication resulting from the age of the fœtus, and birth is likely to take place when the tenth missed period following conception falls due, or shortly thereafter.

The extension of Prof. Jolly's observations and deductions for human beings of different races by obstetricians, and the application of the underlying physiological principle to comparative embryology by zoologists, presents a wide field for future scientific investigation.

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The Daily Terrestrial Magnetic Variations; and the Sun's Magnetic Field.

R. GUNN has recently suggested (*Physical Review*, July 1928) that the daily variation of the earth's magnetic field is due to the diamagnetism of the outermost layer of the atmosphere, where the ions and electrons can freely spiral many times round the lines of the earth's magnetic field between collisions; their circular motion renders them equivalent to small magnets directed opposite to the field. The magnetic effect is, however, far outweighed by that of a drift acquired by the charges under the joint action of the magnetic field, gravity, and the vertical electrostatic field which prevents the light electrons from spreading upwards much farther than the heavier ions.

The drift is westward for the electrons and eastward for positive ions; it therefore constitutes an eastward current. The magnetic field of the drift currents, which are stronger over the sunlit than over the dark hemisphere, is similar to that due to the diamagnetism of the same outer layer, but greatly exceeds it in intensity; both are very similar to the observed field of the daily magnetic variations. It does not seem possible as yet to decide whether the latter are caused mainly by the drift-currents in the outer layer, or by dynamo action in the conducting layer below. The outer layer, though highly ionised, is almost non-conducting, as P. O. Pedersen has pointed out ("The Propagation of Radio Waves," Copenhagen, 1927); this is because a force F, acting on a charge in a magnetic field H, produces no mean motion in its own direction, but only a transverse drift, normal to F and H.

The drift-currents seem capable also of explaining the rapid outward decrease of intensity in the sun's magnetic field, and may play a part in the magnetic field of sunspots. The initiation of the general solar field and the sunspot fields has to be explained by separate hypotheses. Details of these and other cognate results will shortly be given elsewhere.

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The Presence of *Phlebotomus chinensis* in Syria.

RECENTLY the Kala-Azar Commission of the Royal Society implicated *Phlebotomus chinensis* as a carrier of kala-azar in Northern China. The distribution of this sandfly is therefore a matter of the very greatest importance. Hitherto it has been found only in Northern China and in the Himalayas.

Among sandflies collected by us in Aleppo in Syria, about one per cent were found to be *Phlebotomus chinensis*. It is therefore to be expected that *P. chinensis* has a wide and continuous range of distribution from Northern China to Asia Minor and Syria. Kala-azar is present in Turkestan and Transcaucasia and has recently been reported from Syria.