it spread eastwards. It is significant that the region adjacent to the eastern border of Tibet, where *C. macneilli* occurs, is an important refuge for primitive forms (for example, *Uropsilus*, the giant panda).

Secondly, the European badger (*Meles m. meles*) may be considered more advanced (in the excessive broadening of the upper molars) than the races of Asia Minor (*M. m. ponticus*[14]) and Persia (*M. m. canescens*[15]). But even as recently as the earliest Neolithic of Denmark, some eight thousand years ago, the badgers of this country were more primitive in this respect, approaching the Asiatic forms[16].

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South African Onychophora

Attention has been directed in the Research Items in *Nature* of May 26 to a paper by Holliday[1], on the habits of South African Onychophora, *Opisthopatus cinctipes* and *Peripatopsis Moseleyi*, from Natal. Both this work and an earlier publication by the same author[2] have dispensed with the custom of reference to published literature.

A number of subjects are dealt with, but in nearly every case the facts described have long been known and in recent years much research has been directed to them in Britain. The note in *Nature* directs attention to Holliday's observations on the season of birth of *P. Moseleyi*, and to the number of young born per year; to the new-born young eating their first moult; and to the covering of food by saliva and the probability of at least partial liquefaction of the food before ingestion.

The months of birth and the number of young of *P. Moseleyi* was published by Purcell in 1900 for Natal[3], and data for other localities by Manton[4] in 1938. The fact that *Peripatus* usually eats its moulted integument has been established for many years (Steel, 1896[5], and others). A very much more detailed account of the feeding mechanism, use of saliva, the ingestion of both solid and liquid food, the nature and mode of action of the digestive enzymes of the salivary and intestinal juice, etc., has been published by Heatley[6], and Manton and Heatley[7]. Concerning the drinking by *Peripatus*, Holliday makes no reference to the much fuller treatment of the control of water-loss and the occurrence of drinking by Manton and Heatley[7], and Manton and Ramsay[8].

Work on the South African Onychophora has been going on in Britain for the past twelve years. Four species were brought to England alive in 1933 and two species lived in the Zoological Laboratory, Cambridge, for four years after removal from their native haunts.

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Use of Stereographic Projection for Statistical Problems

Mr. Naylor's recent article[1] on an approximate method for estimating multiple correlation should direct attention to the many possible uses of projection methods in statistical work. The proof that he quotes from my lengthier and more accurate procedure referred primarily to the substitution of a stereographic projection in demonstrating Pearson's equations for correcting for selection[2]: the special problem of partial correlation was treated as an extreme case of selection. (There is incidentally an unnoticed error in Pearson's own diagrams; his placing of D and G relative to E and F violates the conditions of consistency which must obtain for correlations between three real variables.)

I should, however, point out that the formulæ that follow from my proof differ somewhat from those reached by Mr. Naylor. He assumes that it is only "*beyond the first combination*" (his italics) that "the partial regressions are not quite equal to the partial correlations". But even partial regressions of the first order cannot be identified with the corresponding partial correlations. Hence his equation for the proportionate weighting of A and B should read.

$$\frac{\text{Weighting for } A}{\text{Weighting for } B} = \frac{b_{CA.B}}{b_{CB.A}} = \frac{\cos B \sin CB}{\cos A \sin CA} = \frac{\sin PB}{\sin AB}$$

Thus, the weights should be proportional, not to the angles at the base (as he states), but to the segments into which the base AB is divided.

From the equation in this form it is quite possible to build up *exact* expressions for multiple correlations of a higher order. As his note implies, I have found both globular and stereographic projections a useful aid for illustrating these formulæ; but for practical computation I am doubtful if either the exact or the approximate procedures are really superior to the more familiar devices in common use.

For laboratory work we have used printed stereographic nets (obtainable from T. Murby and Co., now Allen and Unwin, Ltd.) and a boxwood stereographic scale (from C. F. Casella and Co., Ltd.). But for correlational studies (for example, rotation of factors) it would be helpful if the nets and scales could be marked in terms of cosines rather than of angles.

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