Nos. 974 (6) and 974 (1) are Dutch editions by R. and I. Ottens, of Amsterdam, of the Halley chart as modified and found under No. S. 112 (6). The base of the chart has been changed, but not the lines of equal variation. The dedication to Prince George has been omitted. The dates assigned by the Catalogue are respectively 1735 (?) and 1740. The chief interest in these Dutch reprints lies in the fact that they have a French text pasted on the left-hand side, and a Dutch text on the right-hand side, over Halley's name.

No. 974 (4). "A new and correct Chart showing the Variations of the Compass in the Western and Southern Oceans, as observed in y^e^ Year 1700 by his Ma^ties^ Command by Edm. Halley." Date given by the Catalogue, 1720, marked doubtful. This chart extends from 59° N. to 59° S., and from 21½° E. to 100° W. of London. It is enclosed by a border; the base of the chart is entirely different from that of 974 (5); yet the equal variation lines, as far as given, are identical with those for the same region on 974 (5). In but one respect is there a difference in the lines, viz. in no case are they drawn over the land, and in a few cases, also, they are slightly extended. It contains in addition the course of the *Paramour Pink*, the ship in which Halley made his observations, 1697-1700, with the chief aid of which he drew the equal variation lines for the Atlantic Ocean. But the matter of chief importance is that this chart is dedicated to *King William III.* This fixes its date. William III. died March 8, 1702. It is highly probable, then, that this is the chart published in 1701, referred to by Halley in the above quotation, and, in consequence, *the original Halley chart*. It is, moreover, reasonable to suppose that Halley would dedicate his first chart to King William III., who had furnished the means for the making of the observations, to which the chart was due. This chart has escaped the attention of all geomagneticians and bibliographers, and the British Museum copy may be the only one in existence.[1]

Another matter of historical interest, apparently unknown to all modern authors in terrestrial magnetism, was ascertained. I find it asserted that the Frenchman, L. I. Duperrey, was the first (1836) to construct the "Magnetic Meridians" for the whole earth, *i.e.* those lines on the earth's surface marking out the path described by following the direction pointed out by a compass needle. It seems, however, that this honour should be accorded to an Englishman, Thomas Yeates, who, in 1817, published a chart of the Lines of Equal Magnetic Variation, accompanied by a "New and Accurate Delineation of the Magnetic Meridians." A second edition of this chart was published in 1824. Copies of both editions were found in the British Museum.

Washington, April 20. L. A. BAUER.

The Unit of Heat.

DR. JOLY'S strictures on the units of heat at present in use will meet with a ready endorsement from those who have worked on calorimetry. The large calorie is too large for convenience in most cases, and the small calorie is too small, while the confusion created by different writers using different units with the same name is scarcely reduced by their writing one with a capital and the other with a small *c*. A unit of convenient magnitude would be one equivalent to about 100 small calories, and 100 calories has, indeed, been adopted as a unit by more than one writer on thermochemistry. There is, however, what may be termed a natural quantity which is nearly equivalent to such a unit, namely, the heat of fusion on one gram of water at 0° C., which is nearly eighty calories. This appears to be just as suitable from other points of view as the heat of vaporisation of one gram of water at constant temperature and 760 m.m. pressure; and if this latter can be recommended on the ground that in defining it we replace the thermometer by the barometer, the former will possess the superior claim of (for all practical purposes) not depending even on the barometer.

If I remember rightly, this unit has already been adopted in one work on thermochemistry.

No doubt the heat of fusion of water requires redetermination; but it should be determinable with quite as much accuracy as the heat of vaporisation.

Neither of these proposed units, however, possess what should be the chief characteristic of a physical unit, namely, a simple relation to other units; and before adopting either of them, it would be well to consider whether some convenient unit related to, say, the electrical units, could not be adopted. A Committee of the British Association would be a body most suited to investigate this matter.

For practical purposes, a quantity which is even of greater importance than the magnitude of the unit adopted, is the relative value of the heat capacity of water at different temperatures. In spite of the large amount of work which has been expended on this subject, great uncertainty still prevails respecting it. The heat capacity of water, and the heat of fusion of ice, are subjects which I have been for some years intending to turn my attention to, and the work is now practically in hand.

Harpenden, May 4. SPENCER PICKERING.

MY objection to the latent heat of water unit is that this is an inaccessible unit on account of the difficulties attending measurements with the Bunsen calorimeter.

Some years ago I began experiments on a gravimetric ice calorimeter. I have not had leisure to go on with them, but the results obtained were very encouraging. The substance was cooled below 0° while hanging suspended from one arm of a chemical balance. This was effected in a double-walled chamber of copper. A tube, stopped by a plug, connected this chamber with a reservoir of water and clear broken ice. The water was previously boiled to expel air. On raising the plug the water at 0° flows rapidly into the calorimeter, and a shell of clear ice forms upon the substance. The effect on the balance is noted, and by observing the change of buoyancy upon the melting of the ice, and knowing the density of ice at 0°, the mass of the latter can be estimated. The weight measurement will extend to about 0·5 of a calorie. In the steam calorimeter the weight measurement extends to 0·1 calorie, or even less.

There is, of course, much to be said for a thermo-dynamic unit. The question is certainly deserving of having the opinions and views of scientific men fully expressed upon it—as Mr. Pickering suggests. A glance at any of the recent accurate thermal work done in England will show what confusion there exists as to what is the calorie, and as to how all the pet calories of various physicists are related. To render many old measurements of value, this last question should be decided. It reminds one of the state of thermometry in De Saussure's time.

Trinity College, Dublin. J. JOLY.

Reputed Traces of Negrito Pygmies in India.

MAY I be permitted to suggest to readers of M. Quatrefages' work on the Pygmies, the English edition of which has recently been reviewed in NATURE, to pause before accepting his conclusions as to traces of Negritos being found in peninsular India.

The evidence he relies on partly consists of a description by M. Rousselet of a half-starved wanderer from Sirjuga, whom he assigns to the race Bander Lokh (or, as it is printed in the English edition, Bandra Lokh) and the tribe Djangal. Any Anglo-Indian with the slightest knowledge of the language, not to say of ethnology, would be amused at such nicknames being applied as definite racial terms. The first simply means monkey-people (equivalent to savage), as applied by dwellers in the plains to the wilder inhabitants generally; and the second, if it can be said to mean anything in the form presented, is simply "jangli," or a dweller in jungle.

The portrait of this "Djangal," from a rapid pen and ink sketch, is a caricature of a somewhat exceptional and by no means typical individual, and affords no trustworthy material for an ethnological discussion.

The "fever-stricken inaccessible" region Sirjuga,[1] from whence this specimen was a fugitive, according to M. Rousselet, is well known to me, and when travelling there I spent some days in the company of the late General Dalton; and not only then, but in connection with the production of his great work on the Ethnology of Bengal, to which I had the privilege of contributing, I had many conversations with him regarding the tribes of that region. I was, moreover, well acquainted with the true Negritos of the Andamans, of whom I had then already seen many; and I do not hesitate to say that I never met with the slightest trace of a Negrito element among the numerous tribes I became acquainted with during many years travelling in the hilly tracts of Western Bengal, the Central Provinces and the Northern Provinces of Madras. Individuals belonging to different tribes

[1] Upon furnishing Prof. Hellmann with a brief description of this chart, he has found that Le Monnier, in his "Loix du Magnétisme," Paris, 1776 and 1778, has reproduced it. Prof. Hellmann's copy of the Halley chart is a duplicate of above, No. S 112 (6), with the exception that it embraces but 360° of longitude. It also has no text.

[1] The district of Sirjuga in Chota Nagpur is not near Amerkantak, nor is it included in the Vindhyan Range as is stated by M. Quatrefages.