let them be confined to the scientific workers. The man or institution that has not already begun to lay broad foundations may well be considered among the condemned. Only those who have the true spirit of investigation will win out under the Adams Fund. Instead of winning out by popularity, they will win out in spite of popularity, if they must work for popularity. Being able to reduce science to the popular is no indication of success, whether it be astronomy, meteorology, physiology, pathology, botany, bacteriology, medicine, or what-not. The fact that any truth becomes popular in any degree should be because of its broad application, and should, and generally does, bespeak years of sacrifice on the part of some investigator. Whatever is worthy to be called truth is worthy the best there is in us, and especially should this be so in agricultural science, where results will benefit almost the whole of the human race.

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LIKELY PLACES FOR EVIDENCE AS TO THE HISTORY OF THE EVOLUTION OF THE ANTHROPOID APES AND PRIMITIVE MAN

THE recent discovery of the chimpanzee in a part of Africa where it had not been previously known to exist enables us now to define a few regions in which the gorilla, the chimpanzee and the pygmies are found in conditions suggestive of the possibility of the discovery of fossils of their ancestry in a good state of preservation.

Until these new loci could be determined, the geological character of other regions where one of the three occurred was not such as to encourage hopes of the kind.

The writer is engaged upon the determination of these likely places, and wishes now to call attention to the matter, so that in the exploration going on in Africa the scientific importance of the matter may receive due attention. The pygmies are now known to have existed practically *in situ* for three thousand years, and there is abundant antecedent probability that the two great anthropoids there now have been there for as great or greater a length of time.

Indeed, the writer believes that it will soon be possible to indicate localities, of less than a few hundred square miles in area, in which the likelihood of discovering these fossils is very great. His own explorations have partly been responsible for this conclusion, and an increasing knowledge of the geology and petrology of the great African crest has helped to augment the surmise. Correspondence on this subject is invited.

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SPECIAL ARTICLES

A SIMPLE REFLECTION GONIOMETER

THE lack of a reflection goniometer has probably prevented many persons from measuring crystals and has consequently limited the study of crystals. The use of the contact goniometer is confined to fair-sized crystals with faces of appreciable size. Minute faces even on large crystals can not be measured by the contact goniometer.

In order to encourage the study of crystals the writer desires to describe a simple and convenient reflection goniometer which can be made of materials costing but fifty cents. It is simply Penfield's cardboard contact goniometer, model B,[1] fitted with an axis. The axis, upon one end of which the crystal is mounted, is provided with a pointer by which the interfacial angles may be read off.

The accompanying figure is a diagrammatic cross-section of the apparatus. *cd* is the cardboard protractor, consisting of a semi-circle of seven cm. diameter. *aa'* is the axis which is a cylindrical piece of wood four mm. in diameter and about five cm. in length. This axis must fit snugly into the eyelet of the protractor so as not to wobble when it is revolved. On one end of the axis is a piece of wax, *w*, upon which the crystal is mounted. *p* is a fine piece of wire attached to the axis, by means of which interfacial angles are read off on the protractor.

[1] Sold by E. L. Washburn & Co., New Haven, Conn. (price, 50 cents). It is better to cut off the celluloid arm of the protractor.