direction by the recognized giants of science. It is axiomatic that a clear conception of what a problem really *is* is a prerequisite to its successful solution. I ask to be permitted to offer the following enunciation:

Neither a quest for an "explanation" of the cause or nature of gravity, on the one hand, nor a mere non-logical acceptance of the fact as a matter of belief or blind faith, on the other, but *the evolutionary development in the minds of men of a scientific satisfaction not only with not knowing but with not ever being able to find out* any rational and consistent theory or explanation for the attraction influence among all portions of matter which is called *gravity* and which is the essential, universal and unalterable attribute of all material things whatsoever.

Obviously such a conception involves rather more of philosophy and psychology than of so-called physical science.

John Millis

A SIMPLE METHOD FOR FILLING AN OSMOMETER

In setting up the type of apparatus ordinarily used in elementary classes to demonstrate osmosis, the thistle-tube is filled with molasses or strong sugar solution. If this is done before the membrane is tied on, the apparatus becomes sticky and the difficulty increased. If, on the other hand, the tube is filled after the membrane is secure, it is very difficult to force the liquid down the narrow stem.

For the last two years I have found the following to be a simple and effective method for filling the tube. Take a perfectly dry thistle-tube, fill it with dry granulated sugar to the flare at the top, and then tie on the wet membrane with a waxed thread. When the tube is inverted the sugar will fill the bulb. With the solution of the lowest layer of sugar in the water of the membrane, the osmotic action is started and the liquid rises in the tube. First observations may be taken when a saturated solution has been formed and no dry sugar remains.

Laetitia M. Snow

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QUOTATIONS

THE PROPOSED UNION OF SCIENTIFIC WORKERS

We continue to receive replies to our notice regarding the emoluments of scientific workers; and they emphasize the opinions which have already been expressed in the leading article of the April number of this *Quarterly*. For example, one worker, a London graduate with first-class honors, who has published original research work and is now a demonstrator working two or three days a week, and who also gives two courses of post-graduate lectures with demonstrations, and does other work, receives the generous salary of fifty pounds per annum—much less than most unskilled laborers will work for. We hear that in one British university, out of two hundred members of the junior staff in all departments (that is all members of the teaching staff who are not full professors), not more than six receive a stipend greater than two hundred and fifty pounds a year. There appears also to be some fear amongst junior staff workers that if they divulge particulars of their salaries they will lose their posts; and in one case we are informed that some highly specialized workers seem even to have lost the ambition ever to earn a reasonable wage. In addition to the poorness of the pay, complaints are made regarding the entire absence of any provision for adequate pension and also regarding the state of serfdom in which men of science are kept under boards and committees composed of persons who frequently have no qualifications for the exercise of such authority. The whole picture is a melancholy not to say a disgraceful one for so wealthy a country, which also imagines that it possesses the hegemony of the world. On the other hand, much sympathy is expressed on behalf of any endeavors that may be made to remedy these evils, and men of science appear to be awakening to the fact that they should attempt some combined effort in this direction. We note especially an excellent article on the "Income and Prospects of the Mathematical Specialist," by Professor G. H. Bryan, F.R.S., in the April number of the *Cornhill Magazine*, and an admirable lecture on the "Place of Science in Modern

Thought," by George Idle, Esq., M.I.N.A., delivered at the Royal College of Science, Dublin, on January 27, which suggests at least the position which scientific work should hold in a modern state. Moreover, the lay press is beginning to consider the subject, entirely with sympathy for the scientific worker; and we should like to give special commendation to the efforts being made by the *Morning Post* in its series of articles and letters published during May and June.

The question now arises as to what had best be done under the circumstances; and it has been suggested that those who wish to do so would be wise to form a union of some kind with a program specifically aimed at improving the position of the workers themselves. At present there are numerous societies which are supposed, more or less indirectly, to attend to this very necessary work, but which certainly have not achieved much success in it. We should therefore like to receive any suggestions upon the subject, together with the names of those who may feel inclined to join such a movement if the program ultimately decided upon meets with their approval.—*Science Progress.*

SCIENTIFIC BOOKS

The Osteology of the Chalicotheroidea, with special reference to a mounted skeleton of Moropus elatus Marsh, now installed in the Carnegie Museum. By W. J. HOLLAND and O. A. PETERSON. Memoirs of the Carnegie Museum, Vol. III., No. 2. Pittsburgh, December, 1913, pp. i–xvi, 189–411, with 115 text figures, and plates XLVIII.–LXXVII.

The Chalicotheroidea, a curious aberrant group of Perissodactyl ungulates wherein the hoof bones have departed widely from the normal type, becoming laterally compressed, deeply fissured and claw-like, form the subject of this volume. The Carnegie Museum was fortunate in securing through the efforts of Messrs. O. A. Peterson and W. H. Utterbach an almost complete skeleton of the remarkable *Moropus elatus* Marsh, by means of which the entire osteology of a typical member of the group has been worked out.

The locality of this specimen lay not far from that whence one of Professor Marsh's collectors, H. C. Clifford, secured the somewhat fragmental material which constitutes the type of the species *elatus*. Clifford's discovery in the spring of 1875 was destined to be followed years later, in 1904, by the finding on the upper Niobrara River in western Nebraska of one of the most remarkable bone deposits in the world, the Agate Spring quarry of Lower Miocene age; and it is this locality, which has been worked successively by the representatives of several institutions, Carnegie Museum, American Museum, University of Nebraska, Amherst and Yale, which has produced a number of skulls and skeletons of this type, among them the one forming the basis of this memoir. While Dr. Holland is the senior author of the memoir, Mr. Peterson is credited with the recovery of much of the material, its preparation for study and description and the partial preparation of those sections of the paper which relate to the appendicular skeleton, and to the skull and dentition.

The introductory chapter gives a history of the excavations at the Agate Spring quarries and tells of the conditions of deposition as follows (pp. 194–95):

"The 'Agate Spring quarries' . . . are situated in the Lower Harrison Beds (Miocene) and contain a vast quantity of the remains of extinct mammalia many of which, before the specimens were firmly embedded in the matrix, had suffered more or less displacement. It is rarely that the bones are found collocated in their true order, though in some instances a dozen or more vertebræ may occur in regular series, with the corresponding ribs attached to them, or the bones of an entire limb may be found in place. The region, at the time when the bones were deposited, was probably a great plain, traversed by a broad and shallow river, like the Platte, or the Missouri, subject at times to overflows. It was a region of flat alluvial lands, which may in the summers have been in part dried, leaving here and there pools of water to which the animals