If we are interested mainly in the case $q \gg 1$, the formula

$$q = \frac{l}{x},$$

is a sufficient approximation, since $\frac{x^2}{l^2}$ may be neglected. Even in the most favorable cases the length l is only a few light-seconds, and x must be small compared with this, if an appreciable increase of the apparent brightness of A is to be produced by the lens-like action of B.

Therefore, there is no great chance of observing this phenomenon, even if dazzling by the light of the much nearer star B is disregarded. This apparent amplification of q by the lens-like action of the star B is a most curious effect, not so much for its becoming infinite, with x vanishing, but since with increasing distance D of the observer not only does it not decrease, but even increases proportionally to $\sqrt{D}$.

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PLEISTOCENE MAN IN SOUTHERN CALIFORNIA

ON the twenty-third of January of this year the Federal PWA Project, C-642, in an excavation project to build a storm drain from Los Angeles to the sea, unearthed what has proved to be a very interesting and doubtless significant discovery of early man in America. The chief engineer, Mr. J. J. Ryan, of the project, called the department of anthropology of the University of Southern California, Los Angeles, asking that some one be sent out to the excavation to examine some bones thought to be human which had been unearthed on Rancho Cienga O'Paso de la Tijera. Dr. Bowden, head of the department, and Dr. Lopatin, instructor in anthropology, went out and examined the discovery. A skull and other human bones were recovered from a gray sandy clay resting immediately upon the gravel some thirteen feet below the surface. Dr. Lopatin was left in charge for about ten days until all clues for possible cultural material had been examined. With the help of workers from the project an area of about 20 feet was carefully excavated under his direction.

It is thought that these bones and skull belonged to the same human being, since they were found together and since the deposit was altogether undisturbed, but there was no trace of burial. The skull and bones had evidently been covered with sandy clay by river deposits. The thirteen feet of clay was made up of five strata which were clearly distinguishable, since the storm drain runs in an east-west direction along what is probably the old bed of the Los Angeles River, the trench thus providing a splendid cross-section of the strata. All the deposits on the walls of this trench appear to be fairly well bedded, and even to a casual observer they are very clear. The strata run almost horizontally, thus making them easy to trace for hundreds of feet. Over these skeletal remains were four strata. Beginning at bottom the stratum was gravel, about four feet thick. Over that was a gray clay two feet thick, which covered the human remains; then three feet of very dark clay. The fourth stratum from the bottom was gray clay, three to four feet thick, with boulders enmeshed. The top stratum was three feet of yellow clay; no loam soil on top.

For several weeks the site was watched by Dr. Lopatin and the workers, with the hope that other discoveries of the kind would be made, and on the thirteenth of March about one thousand feet from the site where the human remains were found, several bones of a large animal were discovered. Four large teeth and some fragments of tusks came to light in close proximity to the large bones. For identification, Dr. Thomas Clements, of the geology department of the University of Southern California, was called in consultation. He identified these bones as those of the mammoth (*Archidiskodon imperator* Leidy).

Due to the extended and thorough excavation of the government project a thorough examination of the stratification could be made, and it was found that the mammoth bones were in the same stratum as that of the human remains and were covered to a depth of about 12 feet. Likewise there were five strata involved. The bottom, where the mammoth bones were imbedded, was that of gravel with sand about two feet thick. The next was yellow clay one foot thick. Overlying this was about two feet of black clay; then, less than two feet of peat of good quality. The top stratum was black soil seven feet thick.

The fact that the human bones and those of the mammoth were found in the same geological stratum enabled us to conclude that both the man and mammoth had lived at approximately the same time, *i.e.*, at the closing of the Pleistocene Epoch. Dr. Clements, after thorough examination of the complete stratification and environment, concluded that the geological stratification indicated Pleistocene strata.

All the bones, both of the human and the mammoth, were in a high state of complete fossilization and heavily coated with rock (sandstone and conglomerate). The human skull is badly damaged, lacking the entire facial part; only the posterior portion of the calvaria, or the brain box, is present. The skull is small in size. Judging from the state of the sutures of the cranium vault as well as from its small size and the smoothness of the external surface of the bones, the authors of this article came to the conclusion that the skull was that of a female well advanced in years. For the sake of

brevity the find will be called in this paper the Los Angeles skull.

In comparing this skull with other female skulls found in America it is seen that in breadth (132 mm) and in basion-bregma height (131 mm) it is rather close to the "Basket Maker" cranium. The height-breadth index of the Los Angeles skull is considerable —99.24; therefore, it should be classified as acrocranial. On account of the damaged state of the Los Angeles skull it can not be measured as to maximum length, but in all probability the skull is dolichocephalic.

The index of the foramen magnum of the Los Angeles cranium is very high—96.7. Thus, although the size of the occipital foramen is small, yet in its shape it is very broad.

The maximum thickness of the walls of the brain case of the Los Angeles cranium is rather considerable —7 mm. In the Calaveras skull it is 8 mm.

Since all the facial skeleton is lacking it is very difficult to conceive clearly the physical type of the individual. The cranium exhibits no striking primitive features which would justify classification of its owner as a lower being. On the contrary, the brain box is decidedly human, and the individual is a representative of our species.

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FOSSIL LEAVES OF DICOTYLEDONOUS FLOWERING PLANTS

I WISH to make a preliminary announcement in SCIENCE of the discovery of fossil leaves of dicotyledonous flowering plants in formations of the Trinity division of the Comanchean, in Erath County, Texas. The most striking features of these leaves are first, their already highly organized structure, and next, their remarkable variability, no two specimens being closely similar.

The full description of the new finds is being prepared for publication.

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SCIENTIFIC BOOKS

GEOGRAPHY OF DISEASE

A Geography of Disease. A Preliminary Survey of the Incidence and Distribution of Tropical and Other Diseases. By EARL BALDWIN MCKINLEY, M.D. Published as a Supplement to the *American Journal of Tropical Medicine.* Pp. i + xxv, 1–495. George Washington University Press, Washington, D. C. 1935.

THIS valuable study of the geography of disease was made possible by a grant from the American Leprosy Foundation (formerly the Leonard Wood Memorial) to the Division of Medical Sciences of the National Research Council, and was prepared from collected data by Dr. McKinley, the director of studies, assisted by an advisory committee consisting of Drs. Frederick P. Gay, Richard P. Strong and the late Theobald Smith. In his introductory chapter Dr. McKinley well says that "the geography of disease has never been written and the exact picture of this important subject, of such deep significance to mankind, may never be painted," but this volume certainly adds greatly to our knowledge and is an excellent stepping-stone toward a more complete recording and understanding of the distribution of disease.

In the collection of the data contained in this book, special stress was laid on the geographical distribution of tropical disease, so that the work is of special interest and value to those interested in diseases occurring in warm countries. It is not necessary to emphasize the importance of the geographical distribution of disease, but unfortunately the subject appears to have attracted little attention, and this is the first contribution to it that has appeared in many years. The geographical distribution of disease in each country is considered separately, and valuable tables summarizing disease distribution in each country are given at the end of the section treating of the country in question. It is evident that there is great lack of uniformity and accuracy in the statistics of disease as furnished by the various health departments consulted. This is especially evident regarding the reports of local and state boards of health in this country when compared with the reports of foreign countries, and this book is valuable in that it calls attention to this lack of accuracy in our health statistics. For instance, in the distribution of malaria as reported by various health authorities, it is noted that it is impossible to arrive at any adequate conception of the incidence of the various types of malaria in this country, since only two states, Alabama and Kentucky, furnish any data relative to the respective incidence of tertian, quartan and estivo-autumnal malaria. On the other hand, these data are available for most foreign countries.

The volume contains special chapters upon the most important tropical diseases, malaria being considered by Boyd; bacillary dysentery by Strong; amebiasis by Craig; typhoid fever by Gay; tuberculosis by White; Brucellosis by Evans; dengue fever by Siler; yellow