tion in favor of a height of 5 ft. 8 in. or 5 ft. 10 in., or both, which is a function simply of human preference for these heights. The writer would appreciate any information from the readers of SCIENCE which indicates other ways in which this inversion might have been brought about, or which goes to show that persons would tend to regard these two heights as especially desirable.

The instance shows how difficult it is to obtain an "unselected sample" by merely securing large numbers of cases without scientific control of the original observations.

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THE PLIGHT OF SCIENTIFIC PERIODICALS

THE world of to-day is in new and trying situations. It is trying its best to meet the conditions imposed upon it by the experiences of the last six years, without relinquishing all of its former ideals.

Its situation is somewhat like that of a family whose house burned last night, but whose clothing and furniture were saved through the energy of the neighbors. Morning has come and reveals the state of confusion. Mother's slippers are in the coffee pot and the lamp shade is full of potatoes. Everything is there, but it will require a long time to bring order out of confusion, at the same time the family must live and maintain domestic peace.

In this country the average man is of the opinion that science had much to do in deciding the military and economic issues from 1914 to 1918. It is not, however, altogether unlike human nature that it should forget its benefactor, though still grateful for the benefactions. Nevertheless, science in this country is to-day in a precarious condition because of the embarrassed financial condition of its professional magazines. It has always been difficult to get scientific work published in this country. The publishers were always politely regretting their inability to publish scientific material, because they had found by experience that it did not pay. The public seemed to have so many other ways in which to spend its money that it didn't want to buy dry books or periodicals.

Science is advanced by research work. That which is discovered is published in technical periodicals or books in the hope that it may advance knowledge and contribute to human welfare. Research work is mainly done by men and women connected with educational or public service institutions. The discoveries which they make are for the benefit of the public rather than the discoverer. Few of their discoveries can be capitalized for personal advantage, and few of the workers have any inclination in that direction. They furnish their original researches to scientific periodicals without receiving reimbursement for them. The main thing the investigator seeks is the opportunity to present his results in an adequate and dignified way to those who may enjoy or use them, and with reasonable promptness.

Consider the situation of the worker in science at the present time. He sends his manuscript to the editor of the *Journal of* ————. In due time he receives some such letter as this:

> We should be glad to publish your manuscript in the *Journal of* ————, but our funds are so restricted that we are obliged to cut down articles as much as possible. In view of the increased cost of printing we want to ask if you would be willing to omit the introduction and first three tables and to combine the other tables into one. We are trying to restrict all articles to ten pages or less of printed matter. The illustrations can not be published unless you will bear the entire cost of plates and paper yourself.
>
> Regretting that such restrictions are necessary, we beg to remain, etc.

The author is obliged to accede to the editor's requests if his paper is to be published and writes accordingly. In about eight months he receives the proof sheets and about a year from the time the manuscript was written the journal containing it is issued. The magazine is thin and pale in appearance. In a few weeks the author gets a package of reprints for which he has to pay at the rate

of 84 cents a page. In addition he is a subscriber to the Journal at $6.50 a year.

In contrast we see that the "popular" magazines flourish as never before and publish beautiful color illustrations galore. We are told that scientific periodicals can not have these things because *they* don't pay." We wonder, Does not science pay to-day as well as in 1917? Will it "pay" to let the scientific world send to Leipzig for its periodicals, rather than to Baltimore?

If scientific publications are to survive and if this country is to support scientific work as it supports other things, there must be some form of endowment for that purpose. Corporations and individuals whose business is even remotely connected with the results of scientific work will find it a good investment in years to come.

The scientists are willing, and do, bear more than their share of the expense of their publications, but outside help is necessary. These periodicals can not expect to pay dividends to the publisher because they are unattractive to advertisers as a class. The technical and scientific periodicals need endowments sufficient to allow them to present adequately the results of research and to enable them to circulate at a subscription price low enough to enable all workers and libraries to buy them.

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ROAD REFLECTIONS

TO THE EDITOR OF SCIENCE: Referring again to the subject of road reflections, Mr. Freemen F. Burr in SCIENCE for September 24 notes having observed reflections occurring at considerable heights above the surface of the road. I have made thousands of careful observations of this phenomenon and have found that the reflecting surface always coincides with the road surface as closely as the eye can determine.

Since the true surface disappears when a reflection takes place there is often an appearance of shifting which careful observation shows to be illusory. Thus a reflecting surface on the top of a hill sometimes seems at a casual glance to be several inches from the road and seems to hide objects beyond. In every such case the hill itself is what cuts off the vision.

I have observed the reflections many times under circumstances that preclude entirely the ascribing of them to warm layers of air. I have seen them on cloudy days, on shaded stretches of road and in one place where a white sign-board furnishes a convenient background a very striking reflection may be seen long after sunset.

To be sure they are much more in evidence on bright days than on dull days, but since they appear even more brilliantly on a very cold bright winter day with snow on the ground than on a warm summer day the conclusion to be drawn is that the contrast of bright colors throws the reflections into more prominent relief on sunny days.

The same phenomenon may be observed by holding any smooth normally non-reflecting surface, such as that of tarnished metal or of a smooth whetstone, at a small angle to the line of vision. Objects beyond appear brilliantly reflected as if in a mirror.

It may be that in some instances a thin air layer immediately adjacent the surface aids by bending some incident rays so that they strike within the critical reflection angle. But the air layer certainly is never primarily responsible for reflections of this kind.

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THE INFLUENCE OF FRESH FOOD IN LACTATION

THE suggestion of Hart, Steenbock and Hoppert, in the October 1 number of this journal, that a vitamine in fresh grass favorably influences calcium metabolism is a step in a direction in which, I am convinced, important progress is to be made.

Through extensive investigations on the mineral metabolism of farm animals I had reached a hypothesis identical with the provisional conclusion of Hart and associates,