not even test color-discrimination, since the reading of the charts depends, not on color differences, but merely on brightness differences.

For the armed services the requirement is not color-discrimination, but identification of colors, which is a different matter. Many persons who are parachromopsic have learned properly to identify significant colors. They do not see the colors as do persons of normal color vision, but the colors have the same significance for them as for those who are normal in color vision. A typical case is that of a signal man who had done his work satisfactorily, having no difficulty in identifying the flag colors, but who was eventually found to be color-blind, and was transferred from the signal corps.

The notion that color-blind drivers have more difficulty in identifying the red, yellow and green traffic lights than do drivers with normal color-vision, is without foundation. On the other hand, many persons who have normal color vision, as determined by the best tests, are quite inaccurate in their identification of colors seen singly. Some of the worst casualties in railroad history have been caused by engineers (presumably not color-blind) running through red stop signals. In less critical situations, failure properly to identify colors is not uncommon among persons who are not parachromopsic.

A further defect of all present tests of color vision is that they are administered at close range; usually at ordinary reading distance. Requirements in the service, however, are for identification of colors at varying distance; often at great distance. Distance, of course, changes the size of the retinal image, and this is a matter of importance. Image size, however, may not be the only important factor, for vision is a highly complex process. It is quite probable that the present tests for color vision, even those which really determine parachromopsia, are unsuitable for selection of personnel for the services, and that color vision should be tested under conditions similar to those in which it is to be used.

KNIGHT DUNLAP

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

THE SCIENCE MOBILIZATION BILL

AGREEING with Dr. Harlan T. Stetson (SCIENCE, October 22, 1943) that few leading men in science would not accept the five major objectives of the Science Mobilization Bill as he has presented them, I should like to express dissent from the views of the large majority which opposes the bill. I trust that I can do this without the violence and without the words unscientifically chosen, which Dr. Stetson deplores.

I am sure that Senator Kilgore does not claim perfection for his bill and that he would be quite willing to accept modifications which might be brought forth by a calm discussion.

The proponents of the bill must heartily agree with Dr. Stetson's view that the problem is not specifically scientific and technological, but social. It follows that the problem should be solved not solely by scientists and technologists, but by society—in this case by free discussion and action appropriate to our democratic procedures. Scientists must view the proposed measure as members of a social organization which is constitutionally dedicated to the promotion of the general welfare.

Apparently Dr. Stetson believes that no problem exists or that whatever problem may exist is properly taken care of by existing agencies. This is a debatable point. Investigations by Congressional committees, including the current hearings on the Science Mobilization Bill, have brought to light charges that some industrial interests have not always devoted their scientific discoveries to the general welfare. Indeed, it would seem that international cartels of various oil, chemical and drug combines have operated against the interests of the public even in time of threatened war, perilously delaying the full utilization of scientific resources in the production of military and civilian supplies. Since the press, with the exception of a few liberal journals of small circulation, has not carried news of these exposures, it is not strange that a majority of the public, including the scientists, should be unaware of the serious charges that have been made.

Two questions are pertinent to the operation of science in the United States. (1) Does our present organization of science promote the fullest advancement of scientific knowledge? (2) Does our present organization of science promote the fullest development and utilization of science for the public welfare? The two questions are interrelated. That the last two decades have brought about great advances in science in the United States can not be denied, and it would be difficult to prove to the satisfaction of all that the advances might have been greater under another type of organization. But the advancement of science does not in itself lead to the millennium. On the other hand, the social use to which science is put is a determining factor in the development of science as well as in the making of a better world. The two questions, in so far as the public interest is concerned, resolve themselves into one: Do the conditions under which science now operates permit the fullest application of scientific development to the welfare of the nation and its citizens (and since conditions may have been temporarily changed by war, one might add) in peace as well as in war?

If selfish interests are fostered at the expense of the public welfare, the question can not have an affirmative answer, and if such selfish interests are those of a minority they have no place in a democracy once they are recognized as selfish.

No doubt the problem of selfish interest is a perplexing one, and like all perplexing problems should be approached scientifically. But the possibility of "approaching it with the same order of scientific intelligence as one approaches the problems of instability in gravimetry or geomagnetism," as Dr. Stetson suggests, seems at present rather remote. It is particularly so if selfish interest is "a specific entity in human behavior inherited through evolutionary processes as a means for the preservation of the individual and the species." Must we await the same slow evolutionary processes which millions of years ago eliminated selfish interest in societies of insects and which has brought about little if any change since? Fortunately there are psychological and social means, the effectiveness of which is more immediate if less permanent than strictly biological processes. To different degrees and at different times human society has imposed restrictions on the free play of selfish interests by legal and judicial processes or by other cultural means. Selfishness is not legislated out of existence, but it may be checked with fair success. It is a social solution of a social problem, and is as scientific as the use of water to extinguish fire.

Restrictions which may be imposed by majorities on the selfish interests of smaller groups are the safeguards of a democracy. The lack of such safeguards contributed to the seizure of power in Germany by selfish interests which raised their puppet Hitler to the dictatorship. It can't happen here if an informed public opinion is alert to any threat to the general welfare.

The conclusions to which I come are nearly the same as those of Dr. Stetson—that the question resolves itself into the relative merits of no control as against centralized control, of haphazard arrangements as against organization. In this paraphrase I have avoided the words "dangers" and "compulsion" which he uses. There need be no danger so long as we have our democratic rights and privileges to prevent the usurpation of power by selfish interests; there need be no compulsion exerted on any who do not require it in the interest of public welfare.

The National Research Council has done a good job within the limitations imposed on it. It has stimulated, surveyed, promoted, served, directed attention, gathered and collated, and the men who have carried on this work are to be commended for their accomplishments. The fears of some scientists which were expressed contemporary to the creation of the council have not been justified. But it is doubtful if the council has had the power, even though willing to use it, to accomplish all the major objectives of the Science Mobilization Bill.

LELAND H. TAYLOR

WEST VIRGINIA UNIVERSITY

DATES OF PUBLICATION OF SCIENTIFIC PAPERS

IN taxonomy, the solution of a problem often depends upon the determination of the exact dates of publication of the various papers concerned (the application of the law of priority), although in other fields the point is only of historical interest or involves only a desire to give credit where due.

It seems important to emphasize that editors should take pains to make known the actual date of appearance of the journals in their care, especially in these times when printing delays mean that the month or sometimes even the year of actual appearance does not coincide with the stated imprint date.

In one instance which I have met with, the cover and title page both state that the volume appeared on July 15, 1936, whereas I was informed by letter of November 25, 1937, that it was still being proofread. My copy actually arrived on February 18, 1938! A survey of the current periodicals in our library in my own field showed that most of the numbers are now being received from one to three months later than the date stated on the title page.

Some journals, fortunately, have made it a regular practice to insert somewhere in each issue, usually at the end, a statement of the "actual date of publication," date of mailing, date of mailing to a selected list of depositories to establish publication, date offered for sale, etc. Whatever the method, it does seem desirable for editors to consider for their journals some policy relative to making known the actual date of publication, especially for periodicals in fields where questions of priority may be involved.

CURTIS W. SABROSKY

MICHIGAN STATE COLLEGE

MORE ON "STARRING"

IT is hard to believe that Dr. C. A. Browne really believes that the situation is as bad as he indicates on page 281 of the September 24 issue of SCIENCE. I am primarily writing to answer his first question because of my position as a member of the visiting committee for the Chemistry Department of the Massachusetts Institute of Technology but with no other connection with that institution. The question is as to why the list of 82 suggestions for "starring" in the seventh edition of the Biographical Directory of "American Men of Science" includes so many from that institution. The reason is historical. In the past twenty