THE three hundred and ninety-ninth meeting of the American Mathematical Society was held at Columbia University on October 30. An address was given by Professor W. T. Martin, of Syracuse University, entitled "Mappings by Means of Systems of Analytic Functions of Several Complex Variables." Twenty-two research papers were presented. It was voted to approve the establishment of another series of publications, entitled "Mathematical Surveys," to consist of brief but detailed expositions of certain problems or portions of fields of particular interest in current research.

THE botanical library of Dr. Charles C. Deam, of Bluffton, Ind., has been purchased by Indiana University and will soon be moved to Bloomington and housed with the Deam Herbarium, which was purchased by the university a few years ago. The library consists of about 3,500 bound volumes and numerous pamphlets and reprints, including complete sets of several periodicals and many rare works on the botany and on the history of Indiana and the Middle West.

BY the will of Mrs. Ines Stross, widow of Ludwig Stross, the sum of $121,298 is bequeathed to educational and charitable institutions. Bequests of $30,000 each were left to Columbia, Princeton and Harvard Universities. It is also directed that the residuary estate be used for educational and charitable purposes.

THE American Psychological Association has made an appropriation of $10,000 to the National Research Council for the support of the Office of Psychological Personnel for the calendar year 1944, to be expended by the treasurer according to a budget approved by the council. It is understood that any unexpended balance as of December 31, 1944, shall revert to the Psychological Association.

THE Museum of Natural History, San Diego, according to *Museum News,* has received from Mrs. Harry M. Wegeforth a collection of about 50,000 shells from all over the world, collected by the late Captain J. F. Anderson and his wife. Captain Anderson bequeathed the collection to Dr. Wegeforth, who was an officer of the San Diego Society of Natural History until his death in 1941.

THE following resolution was passed unanimously by the Conference of Southern Graduate Schools at their meeting in Atlanta on October 19: "As representatives of southern graduate schools, we wish to offer our services in the post-war program of higher education. We are equipped to provide and direct mature professional training, notably in the research necessary for the continuation of industry, government, science and education. We urge that our facilities be made available to properly prepared men and women on the same terms on which governmental aid in education may be afforded to undergraduate students. We hope that these terms will leave the student free in selecting his graduate school. We hope further that the graduate schools will be left completely free to organize and administer their courses of instruction."

A REPORT on "Scientific Research and the Universities in Post-war Britain," drawn up by a sub-committee of the Parliamentary and Scientific Committee and approved by the committee itself, according to *The Times,* London, urges a proportional expansion of the supply of scientific workers. The report points out that this in turn calls for an expansion of the universities and technical colleges and an all-round improvement in the teaching of science and scientific principles at all stages of education. The universities are recommended to prepare for a rapid growth in the number of students of science and technology, that consequently state bursaries and engineering cadetships should be continued and developed to cover the biological, medical, veterinary and agricultural sciences. The committee also proposes that university staffs, stipends and buildings should be increased, and estimates that £10,000,000 will be required for buildings and equipment spread over the first five years after the war. It is also recommended that the present annual treasury grant to the universities of approximately £2,250,000 a year should be increased to £6,000,000 or £7,000,000. To ensure the best use of the increased funds and to avoid overlapping, it is proposed that the universities should set up a suitable advisory council. Increased facilities for part-time technical study and training and greater assistance to young people already engaged in industry to enable them to take full- or part-time courses are also urged.

DISCUSSION

MENTAL MALADJUSTMENT AND COLOR VISION

THE number of cases of parachromopsia (so-called "color-blindness"), in which there is an obvious history of dietary insufficiency, especially a lack of meat in the diet, has recently suggested to us a possible relation to maladjustment of the neurotic type. We have long known that neurotic stammerers are usually non-

meat-eaters. Some of them were brought up in childhood on the vicious diet of "cereals and strained vegetables," and never acquired a taste or a tolerance for meat. Whether this could be ascribed to a protein lack, or whether there is some other feature of meat which is important for nervous stability is a question which is not important for present purposes.

We do not think that all cases of color-blindness have a dietary basis, or that there is any single condition which produces color-blindness. In fact, we know that cases of toxic origin, as through the inhalation of wood alcohol vapors from varnish over a considerable period of time, are not changed by administration of vitamin A. The similarity of the conditions in many cases of color-blindness to the conditions in many cases of maladjustment, suggested, however, that it would be well to subject persons suffering from neurotic maladjustment to test of color vision.

So far, I and my assistants have tested only twelve cases. Some of these have been under psychological treatment and some have been examined, but not treated, for various reasons. This meager list of cases is presented primarily to call attention to the possibilities; but they illustrate some of the dangerous factors involved in dependence on chart tests for color vision.

The tests used were the Ishihara and Dr. Loken's revision of the Nela test, which consists of 24 items. In the epitome below, M. indicates male, and F., female. *Ish* designates the Ishihara test, in which the charts which persons with normal color vision are supposed to read are indicated by *N*, and the charts which "normals" are supposed not to be able to read are designated by *An*. The *An* entry "partly read" means that one or more of the *An* charts were not read exactly as the color-blind are supposed to read them. We understand that such anomalies are commonly ignored by those who administer the chart tests; but our cases should make it obvious that if a chart test is to be taken seriously, even part-reading of an *An* chart by any person indicates that he should be thoroughly examined by practical tests. The epitome of cases follows.

1. M. Complex mental condition; organic trouble suspected. Sent to a physician for diagnosis.
Ish; N, all read; *An,* none read. *Nela;* six errors, but long study of a number of items finally judged correctly.
2. F. Diagnosed as epileptic; but certainly neurotic.
Ish; N, all read; *An,* all read. *Nela;* 14 errors.
3. F. Worried about going insane; other neurotic symptoms.
Ish; N, one digit wrong in one chart; *An,* none read. *Nela;* 8 errors.
4. M. Stammerer, under treatment and now approaching normal speech.
Ish; N, all read; *An,* none read. *Nela;* no errors.
5. F. Neurotic; subject to giddy spells.
Ish; N; one digit wrong in one chart; *An,* partly read. *Nela;* 4 errors.
6. M. Stammerer; not yet treated.
Ish; N; 4 charts not read; *An,* none read. *Nela;* 8 errors.
7. M. Neurotic; worrying type; family tensions.
Ish; N, one digit wrong in one chart; *An,* partly read. *Nela;* 5 errors.
8. M. Neurotic; colon ulcers; family tensions.
Ish; N, one digit wrong in one chart; *An,* partly read. *Nela;* 16 errors.
9. M. Stammerer; poor physical condition; non-meat-eater.
Ish; N, all read; *An,* partly read, *Nela;* 16 errors.
10. M. Poor physical condition; non-meat-eater.
Ish; N, one digit wrong in one chart; *An,* Partly read. *Nela;* 16 errors.
11. M. Stammerer; bad physical condition; exophoria.
Ish; N, all read; *N,* partly read. *Nela; 7* errors.
12. M. Paranoid type; delusions.
Ish; N, all read; *An,* partly read, *Nela;* 18 wrong.

Cases 1 to 10 are of ages from 18 to 21. Cases 11 and 12 are somewhat older.

Twelve cases of course can not prove a point; but the fact that of the twelve only one is completely normal in color-vision, suggests a possibility which should receive attention through the examination of a large number of cases. Whether these cases are exceptional, or representative, is a question which can be settled only by extensive testing of maladjusted persons, whether they are classified as "neurotic," "schizophrenic" or otherwise.

We do not mean to suggest that any considerable fraction of the large class of color-blind men and women are mentally maladjusted. The possibility we have in mind is that a substantial proportion of those who are maladjusted are color-blind; which is another proposition.

Aside from the main point of interest, these twelve cases serve to illustrate a fact which we have found in the past, namely; that many persons who "pass" the chart tests are, nevertheless, parachromopsic, and many of them seriously so. If, as Murray[1] and Elder[2] contend, color discrimination is so very important for men in the armed services, the present dependence on chart tests is extremely dangerous. That color discrimination, as measured by tests which depend on the detection of similarities and differences of critical colors, fills the needs of the services is, however, open to question. The Nela test detects parachromopsia of varying degrees, but that does not indicate that it is sufficient or even necessary for selection of personnel. The chart tests, as we have earlier pointed out,[3] do

[1] SCIENCE, November 13, 1942.
[2] SCIENCE, June 18, 1943.
[3] SCIENCE, September 11, 1942.

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?