teachers and other citizens are being educated in these normal schools and teachers colleges in rapidly increasing numbers, it is important that some adequate plan of science instruction be incorporated in those institutions. What can be done or should be done?

SUPPLY OF SCIENCE TEACHERS

A larger and better trained supply of science teachers in secondary schools and colleges is needed. Due to the most commendable increases in salaries and the accompanying better social status of science teachers, more men and women are already preparing themselves for science teaching. It is thought that a still higher grade of teachers will be available when there is better understanding of what science as a whole means in current life, and what the different sciences are trying to accomplish.

PUBLICATIONS POPULARIZING SCIENCE

In an age and in a country in which all the people are to have education in so far as they have capacity for it, at a time when science knowledge has made such advances, and when every activity of common life is conditioned by its relations to modern science knowledge, it is important that consistent, prolonged and definitely planned programs be put into operation for adequate popularization of modern science knowledge. The reception by the public of efforts in this direction indicates an encouraging readiness to receive and use such popular and authoritative publications.

SCIENTIFIC METHOD IN COMMON AFFAIRS

It seems desirable that there should be presented a series of specific illustrations of how the scientist's method of working may be useful in the common affairs of people in non-scientific pursuits. Being guided by the facts, is now becoming a useful slogan in certain commercial and industrial institutions. The inefficiency which accompanies failure to make a scientific analysis is in contrast with the less wasteful results secured when dependable analyses are made.

REGARDING OBJECTIVES IN SCIENCE TEACHING

There are many statements of the ends to be sought in science courses. These statements are probably incomplete and certainly are not harmonious. There is needed adequate technique for assembling, classifying and interpreting objectives. If they may not be made harmonious, all points of view may be fairly presented, so that in one report science men may find a well-balanced presentation of the various purposes now held in mind by those who have clearly defined objectives for their work.

WHAT IS MODERN SCIENCE TRYING TO DO?

What is it which modern science is trying to accomplish? Science is trying to encourage the spirit of inquiry, the desire to know, the ability to ask and answer questions for the sake of answers only as they increase interest and ability in answering other questions. Science recognizes that continued evolution of human mind depends upon the continued use of mind in inquiry, in conclusions, in application, in the establishment of new truth. Science accepts Poincaré's statement that "man is the measure of his own universe."

Science asserts that negative ethics is inconsequential as compared with positive. That a socially working belief that principles are operating to produce results in materials is safer and more hopeful than the older notion that it is merely wrong to act in certain ways. Should not the ethical implications of the scientist's notions of the constant evolution of truth, of the constant relations of cause and effect, the necessity of constant fidelity to true principles, be given a clearer setting so that they may be more readily seen both by persons trained in sciences and those not so trained?

As stated elsewhere, the above paragraphs are designed to suggest topics for consideration by the committee and by any others who are interested in making contributions to the committee's work. These topics are presented for the purpose of giving the committee a start in its work, not to limit or control the committee's work. Please send suggestions to the chairman.

OTIS W. CALDWELL, *Chairman*
425 WEST 123RD STREET,
NEW YORK, N. Y.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE FIFTH WASHINGTON MEETING

PREPARATIONS for the approaching Washington meeting of the American Association and associated organizations are approaching completion. The preliminary announcement of the meeting, a booklet of 90 pages, was in the mails before December 1 and should have reached all members long before these notes are published. Lists of the local committees for the Washington meeting have been given in SCIENCE for August 29, 1924, and lists of the forty-four societies that are to meet with the association this year have appeared in these pages for August 29 and November 28. The secretaries of the sections and societies have been generally very helpful in sending in material and the announcement presents a better picture of the approaching meeting than has been the case in recent years. Extra copies of the preliminary announcement may be had from the permanent secretary's office by non-members as well as members.

The state of the association is very satisfactory; membership has been greatly increased during the last year. At the time of writing these notes (December 2, 1924) the total number of names on the roll is 13,361. And 8,397 have already paid their dues for 1925. Besides increased membership the asosciation needs increased endowment and increased active, critical and constructive interest on the part of the members and of the affiliated organizations. Especially are members asked to help to increase the number of

life members, sustaining members and donors. The next volume of the Summarized Proceedings, which is to be published next year, is being prepared for. It will contain the directory of members. It may be ordered at a price of $1.50 to members if paid for in advance before next January 1.

One of the outstanding features of the fifth Washington meeting will be the awarding of the second American Association prize of $1,000, which is to be awarded to the author of some noteworthy contribution to scientific advancement presented in the programs of the meeting. Membership in the association will not be considered in making the award.

Besides the opening session on Monday evening, December 29, at which Dr. Charles D. Walcott, secretary of the Smithsonian Institution, will give the retiring presidential address, there will be a number of other general sessions of the association. On Tuesday afternoon, Mr. Austin H. Clark, of the Smithsonian Institution and a member of the Navy Department's Advisory Committee on Oceanography, will give an illustrated talk on the navy's oceanographic program. On Tuesday evening Dr. Frederick Fuller Russell, general director of the International Health Board, will give the third annual Sigma Xi lecture, under the joint auspices of the American Association and Sigma Xi. His subject will be, "War on diseases, with special reference to malaria and yellow fever." Dr. Charles D. Walcott will give an illustrated public lecture on Wednesday afternoon on "Geological explorations in the Canadian Rockies." On Thursday afternoon Professor A. E. Douglass, director of the observatory of the University of Arizona, will give an illustrated public account of the University of Arizona eclipse expedition of September, 1923. A series of motion pictures taken on the western trip following the recent Toronto meeting of the British Association for the Advancement of Science will be shown on Thursday evening by Dr. Edwin E. Slosson, director of *Science Service*. Dr. Willis T. Lee, of the U. S. Geological Survey, will give an illustrated account, on Friday afternoon, of his recent explorations of the Carlsbad Caves of New Mexico.

The plans for a much improved exhibition of research apparatus, methods, books and products have been previously noted in these pages (August 29, 1924). The general exhibition will be located in the gymnasium of George Washington University and there will be numerous special exhibitions in connection with the sessions of the various societies. The Carnegie Institution of Washington invites those in attendance at the meeting to visit its Administration Building, where an exhibition of the work of the institution may be viewed. Many of the government laboratories will be open for inspection. The National Geographic Society is cordially planning entertainment for the geographers. Dr. Chas. A. Shull, of the University of Chicago, is acting as manager of the association exhibition this year, and Mr. W. J. Showalter, of the *National Geographic Magazine,* is chairman of the local subcommittee on exhibition. It is not too late for scientific workers to secure space for exhibiting new research methods and apparatus. It is hoped that exhibits by individual men of science may form an important part of the exhibition this year.

As has been announced, reduced railway rates are to be available to practically every one who will attend the fifth Washington meeting. Virtually the whole of the United States and all eastern Canada are in the region of stations from which the reduced rates apply. Purchasers of tickets to Washington should read carefully the instructions given in the preliminary announcement of the meeting. They are to state that they are going to attend the meeting of the American Association for the Advancement of Science, buying a one-way ticket to Washington and securing a certificate for the American Association meeting. This ticket will be validated after presentation at the registration room in the New Willard Hotel, and it will then entitle the holder to purchase a return ticket at one half the regular fare. It will make no difference whether holders of certificates are members of the association or of associated societies or of other societies meeting with the association this year. To help defray the extra expenses of the Washington meeting a fee of fifty cents will be collected for each railway certificate endorsed and validated. This fee is not for the railway companies but is to help finance the meeting.

The members of the association residing in and near the District of Columbia have been asked for contributions to help defray the large extra expense of this meeting, and very many of them have responded in a cordial and generous manner. Those who come to the meeting will greatly appreciate the generosity and hospitality of the local members.

A list of Washington hotels, with prices, etc., has been prepared by Dr. Albert L. Barrows, chairman of the subcommittee on hotels, and this is published in full in the preliminary announcement. The New Willard Hotel is to be general headquarters for the American Association itself, and many of the other organizations that are to take part in the Washington meeting have arranged for other hotels as their headquarters. Reservations should be made as early as possible. The Washington Young Men's Christian Association and Young Women's Christian Association keep lists of available rooms, which may be secured at rates considerably lower than those of hotels. It is suggested that many of those who attend the meeting may practice a laudable economy by securing

rooms for the week through the above-mentioned sources.

One of the most difficult tasks that confront our local committees when they take up the work of making preliminary arrangements for the annual meetings is that of assigning session rooms to the numerous sections and other organizations that meet with the association. That task has been exceptionally difficult this year because there is in Washington no single group of buildings suitable for housing such a meeting as ours. Dean Hugh Miller, of the Engineering School of George Washington University, has charge of the assignment of meeting places and he has been ably assisted by Mr. Henry F. Haase and the local representatives of the sections. Dean Miller has succeeded in arranging for all the sessions that will occur, but a certain amount of scattering is made necessary by the nature and location of the buildings that are available. The biological groups will meet in the Central High School building, other groups will meet in the rooms of George Washington University, still others in rooms of the U. S. Bureau of Standards, the U. S. Geological Survey, the National Geographic Society, etc.

A publicity office for the approaching meeting is already in operation, in charge of Mr. Austin H. Clark, of the Smithsonian Institution, chairman of the subcommittee on publicity. Our publicity office is again having the great advantage of cooperation from Science Service, whose director is Dr. Edwin E. Slosson. The office will care for the releasing of news items for the use of the newspapers. All who plan to give papers or addresses at the meeting should be sure that Mr. Clark and Dr. Slosson are both supplied *as soon as possible* with manuscripts and abstracts, which will be used in preparing the publicity material. Nothing will be released to the press until the proper time. This feature of the meeting has been dealt with in some detail in SCIENCE for August 29.

The president of the American Association for the Advancement of Science this year is Dr. J. McKeen Cattell, editor of SCIENCE, who is well known to all American scientific workers. The retiring president is Dr. Charles D. Walcott, secretary of the Smithsonian Institution. The vice-presidents and retiring vice-presidents for the sections are as follows, the present vice-president being named first in each case:

Section A (Mathematics): J. C. Fields, University of Toronto; Harris Hancock, University of Cincinnati.

Section B (Physics): K. T. Compton, Princeton University; W. F. G. Swann, University of Chicago.

Section C (Chemistry): F. G. Cottrell, Fixed Nitrogen Research Laboratory, U. S. Department of Agriculture; E. W. Washburn, National Research Council.

Section D (Astronomy): John A. Miller, Swarthmore College; Heber D. Curtis, Alleghany Observatory.

Section E (Geology and Geography): W. C. Mendenhall, U. S. Geological Survey; N. M. Fenneman, University of Cincinnati.

Section F (Zoological Sciences): Edwin Linton, 1104 Milledge Road, Augusta, Ga.; E. L. Rice, Ohio Wesleyan University.

Section G (Botanical Sciences): G. R. Lyman, West Virginia University; C. J. Chamberlain, University of Chicago.

Section H (Anthropology): E. A. Hooton, Peabody Museum; E. A. Hooton, Peabody Museum.

Section I (Psychology): R. S. Woodworth, Columbia University; G. Stanley Hall, deceased.

Section K (Social and Economic Sciences): Thomas S. Baker, Carnegie Institute of Technology; John F. Crowell, 171 Liberty St., Bloomfield, N. J.

Section L (Historical and Philological Sciences): Louis C. Karpinski, University of Michigan; Florian Cajori, University of California.

Section M (Engineering): A. E. Kennelly, Harvard University; John T. Faig, Ohio Mechanics Institute.

Section N (Medical Sciences): William A. MacCallum, Johns Hopkins University; Richard P. Strong, Harvard University Medical School.

Section O (Agriculture): L. R. Jones, University of Wisconsin; R. A. Pearson, Iowa State College.

Section Q (Education): L. A. Pechstein, University of Cincinnati; Henry W. Holmes, Harvard University.

The other officers of the association, the roll of council members and the members of the section committees and other committees are given in the preliminary announcement. There are now 139 members in the council. The council will hold its first session for the Washington meeting at the New Willard Hotel on the afternoon of Monday, December 29, at 2 o'clock.

Space does not allow a detailed account here of the numerous sessions that are being planned by the various sections and societies that will take part in this great gathering of scientists. I must simply refer to the preliminary announcement for this all-important aspect of the meeting. It is of special interest that two newly formed scientific societies will hold their initial meetings with the association this year; these are the History of Science Society (F. E. Brasch, *secretary,* Department of Terrestrial Magnetism, Carnegie Institution of Washington) and the American Society of Plant Physiologists (R. B. Harvey, *secretary,* University Farm, St. Paul, Minn.). The Federation of American Societies for Experimental Biology is to meet with the association this year, which

will greatly strengthen the medical and biological features of the meeting. The special committee on Philological Sciences in the Association (Mark H. Liddell, *secretary,* Purdue University, LaFayette, Ind.) has prepared an excellent program dealing with problems and projects in linguistic research. It is hoped that linguistic scientists as well as those interested in the historical sciences may soon have the advantage of organization in the American Association. The section on Social and Economic Sciences will present a full and important series of invited papers on the general topic, "New problems of Western civilization." The American Political Science Association will this year meet in Washington along with the American Association for the Advancement of Science. The British Ambassador to the United States, Sir Esme Howard, will address the political scientists on "British policy and the balance of power." The Engineering Section will hold sessions on engineering research and the relation of engineering to the fundamental sciences. The recent rapid influx of new association members from among the engineers gives promise of increased activity on the part of this section. The Society of American Foresters will give prominence at the Washington meeting to the newer phases of forestry in the United States and the plans and projects that confront this nation in regard to forests and forest products.

BURTON E. LIVINGSTON,
Permanent Secretary

SCIENTIFIC EVENTS

NATIONAL PARK MUSEUMS

THE national park museum project, begun several years ago with the establishment of a small field collection in Yosemite, has progressed slowly, lacking adequate funds, and has been sidetracked through the absorption of the National Park Service in more pressing problems. The formation of a committee on Museums in National Parks on the suggestion of Stephen T. Mather, director of the service, and the laying of the cornerstone for a new museum in Yosemite National Park on November 16, are important steps in the program.

The museum building was made possible through an appropriation of $70,500 from the Laura Spelman Rockefeller memorial fund. Valuable exhibits already have been collected under the direction of the committee on museums, and plans now being formulated call for a historical and scientific library, and halls to exhibit progressively the geologic development of the Yosemite Valley and the so-called "Life Zones" from the California plains to the summit of the Sierras. It also will serve as headquarters for the Nature Guide System.

This new and modernly equipped institution, which is expected to become one of the nation's greatest treasures of scientific and natural history exhibits, takes the place of a small museum collection begun in 1919 by Ansel F. Hall, park naturalist for Yosemite. He also worked with Mr. Mather in perfecting the Nature Guide System, by which visitors to the national parks see their wonders under expert guidance. The original exhibition was collected and arranged entirely by Mr. Hall, who even made his own exhibition cases by hand, there being no appropriation to purchase needed equipment. The little museum became so popular that it was realized there was a public demand for more adequate showing of the natural park specimens—geologic rock formations, wild flowers and foliage, and specimens of woods found only in certain regions.

The personnel of the Committee on Museums in National Parks which will have charge of this phase of national park development is as follows:

Chauncey J. Hamlin, chairman; Dr. Clark Wissler, curator of anthropology, American Museum of Natural History, vice-chairman; Robert Sterling Yard, executive secretary National Parks Association, secretary; John B. Burnham, president of the American Game Protective Association; Dr. H. C. Bumpus, of Brown University; Laurence Vail Coleman, secretary of the American Association of Museums; Dr. A. R. Crook, chief of the Illinois State Museum; Dr. Vernon Kellogg, secretary of the National Research Council; Dr. Frederic A. Lucas, honorary director, American Museum of Natural History; Dr. John C. Merriam, president of the Carnegie Institution of Washington; George D. Pratt, vice-president of the Brooklyn Museum of Arts and Sciences, and Professor Charles L. Richards, director of the American Association of Museums.

TANNING RESEARCH LABORATORY AT THE UNIVERSITY OF CINCINNATI

AMONG the activities which marked the annual meeting of the Tanners Council of America at Cincinnati, from November 18 to 20, was the dedication of the council's new research laboratory. Here the studies of the fundamentals of leather manufacture that have been made by Professor G. D. McLaughlin will be continued and extended. Professor McLaughlin, as director of the laboratory, assisted by E. R. Theis, in charge of chemical work; Dr. G. E. Rockwell, in charge of bacteriological work, and Daisy M. Baehr, histologist.

The laboratory is on the grounds of the University of Cincinnati and the funds for its establishment, approximately $110,000, were raised by the Tanners Council. On Wednesday, November 19, the members