considerations on which they rest. My purpose is to express my contrasting faith that we can continue to draw the blueprints of a still greater society and that we can direct our advancing technology toward the realization of those plans. My purpose is to stress the importance of those aspects of science which enhance the quality of our society, which encourage individuality in the midst of standardization, which enhance man's excellence and dignity as well as his productivity. We must direct and expand our technology to serve man's highest capabilities, in addition to his safety and material comfort.

If research is to continue to flourish, these traditional American beliefs in the validity of progress become increasingly important. They are the wellsprings of that zest and audacity which have characterized our research and our economy in the past and, God willing, will continue to characterize them in the future.

National Responsibility

My third observation has to do with the great responsibility which rests upon science today in the light of the extraordinary opportunities to participate in the formulation of national policy which it has been given. The growing linkage of science and technology with government demands of science a new order of poise, steadiness, and statesmanship. It demands of scientists who serve in advisory capacities a deep understanding of the role and the limitation of the adviser.

The current emphasis on science, if it is not to cause reactions adverse to science, also requires of the scientific community humility and a sense of proportion. It requires of scientists a recognition that science is but one of the great disciplines vital to our society and worthy of first-rate minds—a recognition that science is a partner, sharing and shouldering equally the responsibilities which vest in the great array of professions which provide the intellectual and cultural strength of our society.

Science and Human Values

Fourth and finally, I recall the remarks which I made in giving the Sigma Xi address at the AAAS meeting three years ago. I emphasized then, as I do again, that if American science is to continue to prosper, if it is to attract to it its proper complement of creative and gifted minds, we must combat the notions that science and engineering are incompatible with the great humanities, and that they are narrowly materialistic and destructive of human values. In the face of the practical responsibilities which rest in science and engineering for our security and our material welfare, it is all too easy for people to conclude that science is inimical to the spiritual ends of life and for them to fail to understand that in reality it is one of man's most powerful and noble means for searching out truth and for augmenting man's dignity by augmenting his understanding. Scientists have an obligation to make this true character of science better understood, not by an arrogant advocacy of science and technology as the only objective means to increase our understanding and well-being, but by the balanced and tolerant practice and presentation of science as one of the powerful means by which man can increase his knowledge and understanding and still remain humble and ennobled before the wonder and the majesty of what he does not understand. When thus perceived and practiced, and when not misused for ignoble ends, science and engineering are major means for "making gentle the life of mankind." When so practiced and used, they become one of the great humanistic forces of our time.

News of Science

AAAS Council Resolutions

The Council of the AAAS passed the following resolutions on 30 December 1958, when it met in Washington, D.C., during the Association's annual meeting, 26–31 December.

Resolution on Parliament of Science. The Council commends the Board and the special committee which arranged the stimulating Parliament of Science in Washington in March, 1958, pursuant to the Council's resolution in 1957, and notes with gratification that plans for further symposia are already well advanced.

Resolution on Committees on the Social Aspects of Science. The Council commends the accomplishments of the ad hoc committees on the Social Aspects of Science. They have had significant and beneficial effects on the understanding by scientists and by the public of the inescapable problems of adapting society to the age of science.

The Council has approved the Board's proposals to create standing committees to continue work in this area and will take special interest in their activities.

In order that the Council members and the affiliated societies may be kept fully informed of the thinking of these committees, as well as of formal Board actions resulting from their recommendations, the Council requests that the President arrange for the circulation to Council members of the special report of the Committee on the Social Aspects of Science issued after their June, 1958, meeting and of future reports of the three standing committees.

Resolution on International Scientific Programs. The success of the International Geophysical Year in correlating and integrating international scientific resources and extending the areas of cooperation and communication in science stands as a challenge to all other areas of scientific and cultural endeavor. This magnificent international effort is a fitting prelude to the "space age." The time is now ripe for world-wide attacks on other major problems.

The Council of the American Association for the Advancement of Science urges its affiliated societies, the Board of Directors, and appropriate committees to participate fully in appropriate international programs, for example, in such areas as the health sciences, outer space exploration, population problems, and social consequences of science.

Resolution on Dissemination of Council Resolutions. The Council requests the President to send duplicate copies of resolutions passed at this meeting to each

Council member, with the suggestion that these be submitted, if appropriate, to the Affiliated Societies for consideration along with an indication of action being taken to implement the resolutions, and with a reminder that Council members may submit appropriate resolutions originating in the Affiliated Societies for consideration by the Council or Board.

Resolution on Agenda and Resolutions Committee for 1959. Pending the report of the Committee on Council Activities and Organization, the Council requests the President to appoint a Special Committee on Council Agenda and Resolutions for 1959.

Resolution on International Travel and Communication. As indicated in the Report of the 1958 Parliament of Science, "the pursuit of knowledge is an activity of the human race, not an activity of political subdivisions." History has shown that our country has gained greatly from the visits and collaboration of scientists from other countries.

The Council of the American Association for the Advancement of Science notes with gratification that the changes in the U.S. passport regulations have improved international communication in science.

It is hoped that the issuance of visas and credentials may be further facilitated so as to permit the unimpeded travel of scientists throughout the world.

Resolution on Control of Nuclear Weapons Test. In the more than ten years of world-wide concern about the control of nuclear weapons and the exposure of human populations to increasing levels of radioactivity, scientists have carried a multiple responsibility. As scientists, it has been—and remains—our task to maintain the traditional devotion of scientific knowledge to the advancement of human welfare. This requires that the unprecedented power of nuclear energy be used for creative rather than destructive purposes. It is also our responsibility, through continuing scientific study, to extend our knowledge of the effects of radiation, including that from nuclear explosions, on human populations, and to explore techniques for nuclear controls. The reports of the United Nations Radiation Committee and the Radiation Committees of the National Academy of Sciences, which evaluate the known biological effects of radioactive exposure, and which recommend that all such exposures be kept at the lowest possible levels, represent major scientific contributions to the solution of this urgent problem.

It is our further task to help in the transmission and translation of this knowledge to the public, for the final and effective decisions on nuclear energy control must be made not by scientists alone, nor by the military, but by all citizens—and only an informed public can decide wisely.

The arena of decision now has moved to Geneva, where representatives of those nations which possess nuclear weapons are attempting to negotiate an international system to suspend the further explosions of such weapons. We believe that these negotiations represent a bright hope for the translation of scientific knowledge into effective public policy on a question which—literally—involves the survival of civilization. As both scientists and citizens, we have a deep concern with the success of the Geneva negotiations.

BE IT RESOLVED, therefore, that the Council of the American Association for the Advancement of Science express its profound hope that the Geneva Conference negotiations will prove successful.

The Council requests the President of the Association to transmit the sense of this resolution to the Geneva Conference through appropriate channels.

Resolution on Federal Aid to Education. The Council of the American Association for the Advancement of Science welcomes the National Defense Education Act of 1958 as further confirmation of the principle that the Federal Government should share in the responsibility for the support of education.

AAAS Annual Meeting Awards

The following awards were presented during the annual AAAS meeting, which took place in Washington, D.C., 26–31 December.

Newcomb Cleveland Prize. Jerzy Neyman and Elizabeth L. Scott of the Statistical Laboratory, University of California, Berkeley, received the 31st AAAS Newcomb Cleveland Prize for a paper entitled "On Certain Stochastic Models of Population Dynamics." This $1000 award is given annually by the Association to the author or authors of a noteworthy paper presented on a regular program of the meeting and representing an outstanding contribution to science.

A stochastic model of a natural phenomenon means a system of mathematically expressed hypotheses representing the given phenomenon as a particular combination of several "elementary" chance mechanisms, such as tossing a coin or drawing a ball out of a bag. With reference to biological phenomena, the credit for the hypotheses underlying the model belongs to biologists. The role of the mathematicians is limited to expressing these hypotheses in a mathematical form and to deducing verifiable consequences. The value of a model found to be consistent with a number of the manifestations of the phenomenon is partly esthetic and partly utilitarian, due to the possibility of predicting important manifestations which, momentarily, are difficult to observe.

The paper discusses three specific models with which the authors have been concerned: struggle for existence, phenomenon of clustering of populations, and carcinogenesis.

Theobald Smith Award. Albert Sjoerdsma, head of the experimental Therapeutics Section of the Laboratory of General Medicine and Experimental Therapeutics of the National Heart Institute, Bethesda, Md., received the Association's fourteenth Theobald Smith Award in Medical Sciences for his research on amines. The award, which is supported by Eli Lilly and Company, consists of $1000, a bronze medal, all travel expenses to and from the meeting, and all expenses at the meeting for its duration. It is given for "demonstrated research in the field of medical sciences, taking into consideration independence of thought and originality." The recipient must be less than 35 years of age as of 1 January of the year in which the award is made, and must be a U.S. citizen.

Sjoerdsma's interest in amines focused early on the new vaso-active amine, serotonin, prompting him to study the metabolism of patients with malignant carcinoid, a tumor of intestinal serotonin-producing tissues, the physiologic activity of which was virtually unknown before 1954. Since 1954 his studies of the serotonin metabolism of carcinoid patients have disclosed much of what is known about the role of serotonin overproduction in the symptoms of this tumor. Sjoerdsma's application to carcinoid patients of a chemical test (which he helped develop) for the urinary serotonin metabolite, 5-HIAA, has now established this ingenious test as the method for diagnosing the malignant carcinoid. This previously almost unknown tumor has consequently been found to be relatively common.

His studies of pheochromocytoma, another tumor which produces adrenalin and other catechol amines, have demonstrated in man much of the biochemistry of adrenalin metabolism which had previously been known solely from studies in animals.

His clinical and experimental studies on the amines in mast cell tumors demonstrated for the first time that serotonin is not secreted by human mast cells, as was previously believed from studies in animals. The work with the malignant carcinoid, pheochromocytoma, and mast cell tumors has made Sjoerdsma an authority on "secreting" tumors.

Another clinically important facet of his contribution to medical understanding of amine metabolism has resulted